

Responding to First Responder Mental Health

by

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A Capstone Research Project submitted in partial fulfillment

of the requirements for the degree of

Master of Counselling (MC)

May 2021

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Acknowledgements

I would like to thank my husband, Neil, whose unwavering support allowed me to delve into the research, writing and editing necessary to complete the Capstone project. Not only did he take up the slack in our busy life of working and parenting our two children, but he also provided unconditional listening to frustrations, providing a quiet space and alleviating my guilt at not being able to spend time with family. I could not have begun or completed this project without him.

I would also like to acknowledge my peers in the Fire Department who provided not only the impetus for the subject matter of this project but also the insight, courage and transformation in mental health growth and the willingness to let go of cultural stigma assigned in talking about mental health. As I turn the corner on my final year as a firefighter before retirement, I am awed at the resiliency and progression that I have witnessed over the past 29 years in opening up the forum to talk and include mental health within our organization. Many of the research points, particularly in the literary review, rang true on how this caring, strong-minded demographic plows through a career span of cumulative occupational stressors while at the same time dealing with regular life stressors as well. My Capstone advisor, Dr. Laura Farres, has mentioned multiple times that this would be a “passion project” for me and in hindsight, as I prepare for submission, I would agree.

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Abstract

First responders such as police, firefighters and paramedics are exposed to potentially traumatic stressors as expected variables of their occupations. These exposures are unavoidable due to the nature of responding to emergencies. Until recently, treatment of first responder's mental health has been reactive rather than proactive. Most empirical research has been based on therapeutic modalities used to treat first responders effectively once exacerbated conditions have set in. These may include burnout, depression, substance abuse or post-traumatic stress disorder (PTSD).

This project will examine current trends that focus on proactively reaching out to first responders before they become affected by serious mental health issues. Resilience has been shown to provide strong coping mechanisms in dealing with stressors of potentially traumatic events that this population is known to encounter. This paper will explore options for therapeutic prevention, postvention and treatment options in maintaining optimum mental health for first responders. Best practices for maintaining the mental health of first responders should aim to ensure a baseline resilience to prevent more serious conditions from developing.

Keywords: proactive mental health, first responders, socioecological lens, resiliency, critical incidents, potentially traumatic events, nervous system activations, cognitive behavior therapy, bottom up modalities, organizational structure, social support, outer-inner circle

Responding To First Responder Mental Health: A Proactive Approach

Chapter 1. Introduction

It has been estimated that 84% of people will experience a varying degree of trauma in their lifetime (De Vries & Olf, 2009). First responders are exposed to trauma as an expected variable of responding to critical incidents within their occupations. The term “first responders” may include police, firefighters, paramedics, military, emergency personnel and disaster response personnel. This population responds to critical incidents that span various emergencies involving violence, man-made disasters, fires, medical incidents and/or motor vehicle accidents. First responders are trained to respond calmly, efficiently and perform tasks under high risk, stress and threat to personal safety. Not only are these men and women exposed to trauma and stress, but they also are affected by irregular working hours, ‘on the spot’ decision making, time constraints, and perceived societal expectations to perform without emotion (Crowe et al., 2017). Exposures to critical incidents may result in mental health challenges typically treated through a reactive framework once exacerbated symptoms have set in. This project aims to examine proactive mental health initiatives that could support resilience and psychological readiness in response to occupational exposures as well as experiencing quality of life outside of work.

Examples of occupational stressors experienced by police include “threats of violence, assaults, and fatalities” (Kaplan et al., 2017, p. 1374). Not only is the nature of the critical incident a contributing factor towards occupational stress, but cultural parameters play a role as well. For example, suppression of emotion is a common cultural expectation for police officers and is exacerbated by operational confidentiality guidelines involving crime scenes. In addition, the use of force is a common occupational necessity for police officers, and shooting and killing another person is the most stressful event of their professions (Chopko & Schwartz, 2012). This

“traumatic dissociation” expected of their profession has also been suggested to exacerbate traumatic stress responses, which accumulatively can lead to serious mental health disorders (Chopko & Schwartz, 2012, p. 363).

Firefighters respond to a range of incidents that have the potential of “risk of death and/or injury” (Kaplan et al., 2017, p. 1376). Incident responses include but are not limited to commercial and residential structure fires, motor vehicle accidents, hazardous materials, technical rescue, search and rescue, aircraft crashes and medical calls. Adding to trauma exposure is the physical strain and hard labour.

As a result of the exposure to potentially traumatic events (PTEs), first responders, in comparison to the general population, are more often diagnosed with mental health disorders such as depression, substance abuse and post-traumatic stress disorder (Kaplan et al., 2017). One has only to consider the alarming statistic that American police officers are more likely to die from suicide as opposed to a line of duty death (Kaplan et al., 2017). Comparably, the 2012 American ratio of firefighters that died during the line of duty compared to suicide was 86 to 112 (Kaplan et al., 2017).

Other American statistics that outline the effects of adverse psychological effects on first responders are:

- 40% of police officers suffer from sleep disorders;
- 492 firefighter/emergency medical service (EMS) personnel committed suicide between 2012-2016;
- 18-37% of law enforcement and fire service personnel reported post-traumatic stress; and
- 86% of emergency medical providers experienced critical stress (Yogashield, 2019, p. 13).

Aside from diagnosed mental health disorders, there are multiple ripple effects that directly and indirectly impact the first responders' lives. In these professions, negative coping strategies resulting from trauma exposure and work stress may be more frequently utilized than positive strategies (Skeffington, et al., 2012). Examples include avoidance, rumination and isolation from family and friends (Skeffington, et al., 2012). Behavioural consequences of occupational stress may also affect the family members of first responders. Divorce rates for first responders are higher than the general population (Arnetz et al., 2012).

Self-Positioning Statement

My interest in this project was predominantly influenced by my career as a professional firefighter spanning 28 years. Over this time, I have and continue to witness a slow transformation in the cultural association towards mental health in terms of decreasing stigma. Openly discussing mental health issues is no longer regarded as a sign of weakness. However, perceived barriers in seeking out mental health resources have not caught up to recognizing mental health challenges facing firefighters in response to occupational stressors. My community is 'talking the talk' but not yet committing to 'walking the walk.'

Integrating mental health into the general well-being of firefighters has largely been enabled by proactive individuals within our department who advocated for the formation of critical incident stress (CIS) peer support (PS) team. These individuals are trained to provide post-incident diffusings as well as one on one support to members undergoing mental health struggles. Following the J.T. Mitchell diffusing model of CIS, this team continues to train and seek education to provide our members with proactive mental health. Unfortunately, it took the suicide deaths of two department members, both within months of each other in 2015, to bring the urgency of mental health effects to the forefront within our department.

By the combined efforts of supportive management and vested department members, the mental health program continues to evolve in providing better resources and education to my department. The Member Family Assistance Program (MFAP), which provides financial reimbursement (up to \$1200 per year) and confidential access to therapists, has an annual utilization rate of 25%. In contrast, the Employee Assistance Program (EAP) provided through the city's human resources department has an annual 3-5% usage rate, suggesting a perceived stigma that confidential member information will be misused by the administration.

Team members of the CIS/Peer Support team have been consistent in ensuring confidentiality for members who have accessed mental health resources. There are clinician and psychologist resource lists, which members have access to, of clinicians specializing in trauma-focused modalities and first responder culture. In addition, there is a trauma-informed psychologist on retainer who advises Peer Support members on presenting cases, especially in instances of crisis intervention.

Having been involved as a team member for most of my career, there were several revelations from the literary review that rang true from my experiences as a mental health supporter as well as experientially as an active firefighter. While approximately half of the general population of first responders will not experience a diagnosed mental health disorder, I believe sub-threshold/partial PTSD symptoms such as hypervigilance and irritability in this demographic's work/life re-entry transitions are prevalent.

The focus on nervous system activation and how it affects the mind/body/spirit connection resonated with me in terms of the repetitive sympathetic activations in response to incident responses. While my colleagues and I may have chosen our professions based on an attraction to the unpredictable, the physicality of occupational challenges, or the desire to help citizens in distress, the impact on physical and mental capacities seems inescapable. I believe

that each firefighter will have at least one incident that lingers as a potentially traumatic stressful memory.

Problem Statement

The purpose of this project is to explore best practices for providing first responders with the mental health tools to cope with occupational trauma stressors. The emphasis of this capstone is on a proactive rather than a reactive lens. The goal of responding proactively to first responder mental health is to provide “inoculation” against the development of the serious mental health disorders that are common reactions to occupational exposure to PTEs.

Providing proactive mental health for first responders utilizes a systemic framework, encompassing multi-layers of the individual, social connectivity and a supportive organization. Most mental health research around trauma has been gathered reactively from first responders who have been diagnosed with mental health disorders such as depression, burnout, alcohol abuse, and PTSD. However, there is little research and data on the prevention of these disorders. A growing trend that is gaining momentum for combating trauma exposure is the building of resiliency skills. Resiliency is viewed as the capacity to bounce back from adversity, such as trauma exposure. It may be expressed in many forms, such as stress inoculation, stress management, coping skills, or hardiness (Skeffington et al., 2013).

Repeated exposure to trauma may constitute “subthreshold” levels of PTSD in the first responder, even if a full diagnosis has not been made for the individual (Kosor, 2016). Therefore, the need for intervening proactively supports the theory of preventing the development of exacerbated mental disorders found in first responders. Ethically, a social obligation should aim to prepare individuals of the first responder community to have the best tools available to remain healthy in body and mind so that they can continue helping others to the best of their capacity.

Research Question

What proactive mental health initiatives could provide optimal tools to foster resilience and “psychological readiness” for first responders in response to their exposure to potentially traumatic events?

A Framework Incorporating a Proactive Response to First Responder Mental Health

This project aims to incorporate an integrative framework to inform proactive approaches to first responder mental health. Both process and content need to be examined to accomplish this goal and integrate multiple layers of both subjective and objective levels (Prochaska & Norcross, 2014). Insight and awareness need to be increased at the individual level and blended with changes in the environment and contingencies (Prochaska & Norcross, 2014). This integrative framework addresses proactive mental health at the macro, meso, and micro levels to support the first responder at all levels. Administrative support would include psychoeducation that begins during recruitment and continues until retirement. This would enable a forum that normalizes mental and physical reactions to stressors and strives to remove stigma in addressing mental health resources. Vetted, culturally competent therapists could provide continuous mental health support should mental health issues become persistent in a first responder’s life. On a social level, peer support, family and friend awareness would provide the support system off duty in ensuring social connectivity is in place to support the first responder communicating mental health needs. Lastly, training programs incorporating resiliency would educate the first responder and provide proactive “tools” in navigating the expected traumatic stressors of the occupation.

Definition of Terms

- *Burnout* is a combination of overwhelming exhaustion, feelings of cynicism and detachment from the job, and a sense of ineffectiveness and lack of accomplishment (Cicognani et al., 2009).

-*Bottom-up modalities* body-based therapies (Grabbe & Miller-Karas, 2017)

-*Cognitive behaviour therapy* is a technique that aims at changing people's thought patterns and finding new ways to behave (Padesky, 2012)

-*Critical Incidents* traumatic events that cause powerful emotional reactions in people who are exposed to those events. Examples may include line of duty deaths, co-worker suicide, multiple event incidents, delayed intervention and multi-casualty incidents (Tyson et al., 2004)

-*Depression* a common illness that severely limits psychosocial functioning and diminishes the quality of life (Malhi, 2018)

-*First responders* are people who respond to emergencies, natural disasters, and other traumatic events. They include such categories as police, firefighters, paramedics, military personnel, emergency hospital staff (Crowe et al., 2017).

-*Post-traumatic growth* (PTG) positive psychological change experienced as a result of the struggle with highly challenging life circumstances (Jayawickreme & Blackie, 2014)

-*Post-traumatic stress disorder* (PTSD) is characterized by the persistence of intense reactions to reminders of a traumatic event, altered mood, a sense of imminent threat, disturbed sleep, and hypervigilance (Arieh & Marmar, 2017)

-*Potentially traumatic events* (PTEs) are events that could be perceived as leading to critical incident stress (Psychology Today, 2015)

-*Psychoeducation* understanding why the symptoms occur and properly attributing them to the source of the problem (Butler et al., 2006)

-*Mindfulness* is the awareness that emerges through paying attention on purpose in the present moment and nonjudgmentally to the unfolding of experience moment by moment (Kabat-Zinn, 2003)

-*Resiliency* can be defined as a dynamic, positive adaptation despite adversity (Zautra & Hall, 2010) and the ability to adapt as conditions change (Hamel & Valikangas, 2003)

-*Resilient Zone (RZ)* natural baseline in the nervous system allowing for greatest capacity of balanced thinking and feeling more commonly known as “Window of Tolerance” (Miller-Karas, 2015)

- *Stressors* external and internal variables that activate the stress response in the body (Nagoski & Nagoski, 2020)

-*Stress* is the neurological and physiological shift that happens in the body in response to perceived threat (Nagoski & Nagoski, 2020)

-*Parasympathetic nervous system* responsible for conserving energy in the body, known as the ‘rest and digest’ system (Hanson, 2009)

-*Trauma exposures* are qualifying events and stressors generally outside the range of usual human experience, and that would be construed as being distressing to almost everyone (Friedman, 2011).

- *Compassion Fatigue* also known as secondary trauma

- *Acute Stress Reaction (ASR)* a response to extreme stress that may last up to 3 days, physiologically displayed by insomnia, “physical arousal sensations, irritability, social withdrawal, and distressing feelings” (Halpern et al., 2014, p .3)

-*Trauma Resiliency Model (TRM)* a set of 9 skills used to stabilize the nervous system and reduce symptoms of traumatic stress (Miller-Karas, 2015)

-*Community Resiliency Model (CRM)* the first six skills within the TRM (Miller-Karas, 2015)

- *Rumination* a tendency to think repetitively about an emotional topic (Lynn et al., 2018)

Summary

Although there has been an increasingly open dialogue on the effects of mental health, first responders still experience internal and systemic fears that they will be discriminated against if admitting to mental health problems (Lanza et al., 2018). Psychoeducation of the potential risks to mental health should be considered a springboard for promoting awareness of social support, sense of control, self-care and resilience-building that can provide preventative tools (Lanza et al., 2018).

A well-rounded proactive approach to first responder mental health should encompass the multiple layers of both the individual and the environment. On an individual level, a proactive approach has the potential of increasing the first responder's positive coping skills in response to occupational trauma and stress, building and maintaining resiliency skills, and providing recognition of warning signs of more exacerbated mental health markers. On an environmental level, proactive approaches could encourage buy-in from the organization in recognizing the benefits administratively, economically and ethically that their employees are best supported by proactive approaches incorporating prevention, postvention and treatment programs if needed. Further external considerations should also include the need to incorporate the first responder's social role outside of work and how intrapersonal relationships with others are affected by cumulative exposure to potentially traumatic events.

Chapter 2 Literature Review

Based on the knowledge that first responders face mental health challenges resulting from cumulative exposure to potentially traumatic events, the purpose of this project was to inform future working models that aim to provide proactive mental health. The following literature review consists of three areas. First, I address what is currently known about first responder mental health risks and the psychological impact of variables directly affecting first responders due to exposures to PTEs. Secondly, I examine the layers of interpersonal, intrapersonal and socioecological variables influencing the first responder's mental health in response to occupational stress. Thirdly, I explore positive psychological constructs that may increase resiliency against occupational stress. Existing models utilizing these foci are presented to highlight core variables needed in providing psychological readiness for first responders. I conclude the literature review with a summary of the multilayers that need to be incorporated for a proactive working model at providing proactive mental health to first responders.

First responder mental health has historically been addressed in a reactive manner rather than preventative once exacerbated symptoms have set in, such as depression, acute stress, burnout, or PTSD. Wild et al. (2018) reiterate this sentiment by suggesting that “established interventions may have been unsuccessful because they fail to target predictors of mental ill-health and are offered to emergency workers after rather than before repeated exposure to the stresses linked to their work” (p. 2).

Recognition that preventative measures can influence detrimental outcomes of first responder mental health has become a focus more recently, with quantitative studies focusing on military and first responders. Although most randomized clinical trials (RCTs) have focused on reactive mental health issues, variables and factors from these studies may effectively construct proactive interventions and models of first responder mental health.

Psychological Impact of First Responder Exposure to PTEs

To inform proactive mental health models, it is necessary to understand the variables involved in first responder occupations and their psychological impact.

Trauma

Exposure to an identical event may be interpreted differently from person to person. Vicarious trauma, which is commonly experienced by first responders as they witness a patient's trauma, has contributed to negative thinking patterns such as self-blame and self-criticism (Miller-Karas, 2015).

Shapiro (1987) categorizes different levels of trauma: "Large T" may include major events such as man-made or natural disasters, sexual assault or child abuse, whereas "small T" may include lesser significant events such as a dog bite or a "fender bender" motor vehicle accident (Miller-Karas, 2015, Shapiro, 1987). An additional category of trauma has been defined as "C trauma," which may represent cumulative traumatic events such as discrimination, racism or colonialism (Miller-Karas, 2015).

Kira, Ashby, Omidy and Lewandowski (2015) expand the definition of trauma types to include the following categories:

- Type 1- single event;
- Type 2- sequences of events that have now stopped;
- Type 3- chronic and continuous events that may or may not continue into the future; and
- Type 4- cumulative trauma across a lifetime (Kira et al., 2015).

Type 4 "cumulative dynamics" may best define the trauma experienced by first responders in consideration of the repeated exposure to occupational traumas, as well as stressors that are an unavoidable variable of living (Kira et al., 2015).framed the potential effect of type 4 trauma, suggesting that "even for people with higher distress tolerance, chronic and continuous stress and

the cumulative dynamics of traumatic and non-traumatic events can cause the victim to decompensate, attempt suicide, or develop complex profiles of comorbidities” (p. 324).

Difference Between Stressors and Stress

Nagoski and Nagoski (2020) define stressors as the events, experiences, or triggers that activate the stress response in the body. Stressors may be external, as in work and family events, or internal, such as an individual’s self-identity, self-doubt, body image or perception of self-competence (Nagoski & Nagoski, 2020). Stressors are perceived as threats by the nervous system, which subsequently engages the stress response cycle.

Stress, on the other hand, is the body’s response to stressors and is comprised of a complex cycle that activates responses necessary in mitigating the perceived threat (Nagoski & Nagoski, 2020). McFarlane (2010) summarized the negative consequences of traumatic stress as:

Associated over time with extensive psychological and physical health problems, including retriggering of traumatic memories and stress responses, sensitization and reactivity to cues of unsafety, somatic symptoms, hypertension and coronary heart disease; these likely stem from a major neuropsychophysiological disturbance. (p. 5)

In context to first responder mental health, it is important to consider the effects of both stressors and the physiological repercussions of repeated stress on the body and mind.

The Stress Response Cycle: Biological Science Behind Psychological Trauma Exposure

The nervous system is comprised of two main components: the central nervous system (CNS) and the peripheral nervous system (PNS) (Miller-Karas & Karas, 2015). The CNS can be interpreted as the decision-maker of the body and includes the functioning of the brain and spinal cord, whereas the PNS consists of the nerves that serve as an “information collector” (Miller-Karas & Karas, 2015). The PNS is further broken down into two components: somatic and autonomic systems (Miller-Karas & Karas, 2015). During times of stress, the sympathetic

nervous system, a subdivision of the ANS, provides the necessary stress hormones to respond to fight, flight, or freeze responses (Miller-Karas & Karas, 2015). Once the threat has been responded to, the parasympathetic nervous system returns the body to homeostasis so that recovery, in the form of rest and restoration, may occur (Miller-Karas & Karas, 2015).

When first responders respond to critical incidents, the nervous system is activated to respond to stimuli by way of the autonomic branch that engages the stress responses necessary in accomplishing the task at hand (Yogashield, 2019). The central and peripheral brain areas are engaged to produce the essential ingredients in responding to the incident (Yogashield, 2019). Stress hormones, such as adrenaline, cortisol, and norepinephrine, are initiated throughout the body to complete tasks that draw upon focus, energy, and increased blood and muscle storage (Yogashield, 2019).

In the context of first responder occupational requirements, nervous system activation is a necessary response mechanism in reacting to critical incidents under the pressure of time, danger, and risk. A key concept in proactively examining first responder mental health is to consider that first responders do not have a predictable, assigned time to regulate their nervous systems back to homeostasis. Although it typically takes anywhere from 24 to 48 hours for the nervous system to reset to neutral, this is not always an option for first responders who need to stay hypervigilant for the next incident, which may occur at any time while on shift (Yogashield, 2019).

The concept of hypervigilance may be further elaborated on by the function of the amygdala, which is the part of the brain responsible for processing stimuli from the sympathetic nervous system input focused on survival (Yogashield, 2019). The term “amygdala hijack” may describe the state of first responders when reacting to stress stimuli. Rather than the prefrontal cortex resuming its duties once the incident has passed, the amygdala often continues to

dominate the nervous system and brain reactions to remain hypervigilant while a first responder is on duty. The survival stress response is a positive function, enabling humans to fulfill a “normal reaction to an abnormal” event and provide the mechanisms to carry out tasks necessary for survival. However, it is the lack of the system’s return to neutral that may result in negative physical and psychological effects in first responders (Yogashield, 2019).

A useful metaphor in understanding how the levels of stress may affect first responders is to imagine a glass of water filled to the top so that it has formed a meniscus. While on duty, a first responder’s ‘glass’ remains filled to the top to symbolize the status of being on guard and ready for the next incident. While off duty, the water level may drop, but this depends on what life stressors may also be evident in that person’s life, which can determine whether stress levels may or may not return to baseline. The idea of the glass being full to the top forming a meniscus from accumulative stressors highlights the concept that just one additional drop of water can be enough to make the glass spill over. This ‘spillage’ may symbolize the onset of exacerbated mental health conditions, whereas a normal range would be a glass filled to ‘drinkable’ levels.

The Chemicals Involved With Nervous System Activation

The primary hormone released in response to stress is cortisol, which releases into the blood and saliva, activating the amygdala and hypothalamic-pituitary-adrenal axis (Arnetz et al., 2013). This sympathetic surge of a defence mechanism provides the increased vigilance and arousal necessary to complete tasks at hand (Arnetz et al., 2013). Cortisol also has the dual purpose of returning the body to baseline levels. However, sustained levels or repeated activations, as experienced in first responder occupations, have been linked to negative effects both physical and mental (Arnetz et al., 2013). Examples include osteoporosis, immunosuppression, hypertension, depression, and anxiety (Whitworth et al., 2005; Carroll et al., 2007).

Secondary to cortisol is the adrenal steroid; dehydroepiandrosterone (DHEA), which also serves as a defence mechanism and has memory and cognition effects (Arnetz et al. 2013). It also correlates with successful symptom recovery and coping (Yehuda et al., 2006). Lastly, prolactin, another stress hormone, is evident in responses to acute stress (Armario et al., 1996).

The Incomplete Stress Cycle

Nagoski and Nagoski (2020) suggest that the stress response is meant to complete a full cycle involving the sympathetic and parasympathetic nervous systems. First responders, although conditioned to responding to emergencies, experience repetitive activations of the sympathetic nervous system response in the form of physiological body responses, which are meant to respond with the best ability possible to emergencies. Because, as previously mentioned, the parasympathetic nervous system may not always have adequate time to return the body to its baseline, chemicals become “stuck” within a first responder’s body (Nagoski & Nagoski, 2020).

Burnout

Burnout is a condition common to police and firefighters and may be considered a precursor to diagnosable mental health conditions, such as depression, anxiety, PTSD, and substance abuse (Gonzalez et al., 2019). Although it may be viewed as a defence mechanism that aims to protect against the overload of occupational exposures, which challenge domains of mental strain, negative consequences may include depersonalization, emotional exhaustion and reduced personal accomplishments at work (Gonzalez et al., 2019). The causes of first responder burnout may be influenced by frequency, severity and duration of exposure to PTEs and the recovery time in between incidents. Symptoms may include decreased functionality, physical illness from the compromised immune system and deteriorating interpersonal skills (Resilient Minds, 2017). Not only does burnout affect a first responder’s professional life, but irritability,

anger, and general feelings of discontent can lead to avoidance or aggressive behaviours and problematic interactions with family or friends (Resilient Minds, 2017).

Somatic Symptoms

Somatic symptoms or physical disturbances can be indicators of decreased mental health (Arnetz et al., 2013). For example, stomach problems were common in police officers in a study in Sweden (Arnetz et al., 2013). Indirectly, physical ailments may serve as a red flag for underlying mental health issues (Arnetz et al., 2013). Physical ailments are also more prone to be reported than mental health issues, which is still indicative of stigma (Arnetz et al., 2013).

Sub-Threshold PTSD

It has been suggested that even though first responders may not have a full diagnosis of PTSD, “sub-threshold PTSD” symptoms from the exposure to cumulative critical incidents may be evident (Kosor, 2017). Emotional avoidance and job dissatisfaction are common for police officers due to critical incident exposure (Kaplan et al., 2017). Behaviourally, “aggression, impaired ethical decision-making, disrupted problem-solving, administrative and tactical errors, absenteeism and falling asleep while driving” are also conditions commonly experienced by police officers (Kaplan et al., 2017, p. 1373). Aside from work performance, the ripple effects of these aforementioned factors have the potential to negatively affect the external social support systems of first responders such as friends and family.

Resiliency

The term “resilience” has varying definitions and is being assigned as a type of ‘umbrella’ term for individual, organizational, situational or collective variations. Resiliency is the ability to “bounce back” from adversity and is considered to be a “dynamic, positive adaptation” (Crowe et al., 2017, p. 1). Other synonyms for resilience include grit, hardiness, or “bending without breaking” (IAFF Resiliency Training, 2019, p. 7). Padesky (2012) suggested

that resilience is a “process, not a trait, and may be defined as the ability to cope and adapt in the face of adversity and/or to bounce back and restore positive functioning when stressors become overwhelming” (p. 283).

Low resilience levels may place someone at more risk for developing PTSD, depression, or anxiety. On this note, assessing resilience would seem beneficial in protecting first responders from traumatic stress. Buse et al. (2013) suggested that enhancing resiliency levels can be achieved by factors such as emotion regulation, somatization, locus of control, self-enhancement, dissociation, family/community support and rituals/ceremonies.

Examining risk factors in relation to developing PTSD has become a focus for studies into preventative measures. In an attempt to increase the proactive framework of resilience, researchers have suggested that “inverting” pre-existing predictors of PTSD could promote adaptive functioning (Bonanno, 2004). While some predictors of PTSD cannot be inverted, such as family background or prior psychiatric history, social support and trauma reactions to an event can be altered through therapy (Bonanno, 2004).

To gain an understanding of how the general population differs in resilience compared to first responders, Crowe et al. (2017) conducted quantitative interviews of 7 first responders and 10 members of the general population and concluded “positive coping” and “social support” as the two most important categories for developing resilience for both demographics. However, in third place, the general population ranked “societal resources and personal competence” as resilience boosters. In contrast, first responders considered “personal competence, perseverance, emotional regulation and physical fitness” to be of higher importance (Crowe et al., 2017). These differing perceptions in both demographics suggest that in comparison to the general population, first responders do not view “societal resources” as viable mental health support options. This

thought process highlights the cultural perception of first responders that associates help-seeking as a sign of weakness (Crow et al., 2017).

Resilient Zone

Karas and Karas (2015) designated the “steady and balanced internal state within the body as corresponding to the resilient zone” (p. 13). The term “resilient zone” is akin to Daniel Siegel’s (2010) “window of tolerance,” which is the term used to describe the personal perimeters of arousal in which each person can function (p. 17). Rothschild (2000) suggests that extreme forms of stress and trauma can push people outside of their resilient zone. Hyperarousal and hypoarousal are the opposing ends of the spectrum that define the chaotic state outside of an individual’s window of tolerance (Karas, 2015). HeartMath (2014) describes the resilient zone as the “psychophysiological coherence when there is a synchronization of our physical, mental and emotional systems... It is a state of optimal clarity, perception and performance” (p. 34).

The Socioecological Variables

Organizational Aspects and Culturally Perceived Barriers

Jones et al. (2019) conducted a qualitative study that examined first responder perceptions of mental health problems and the barriers that prevented them from seeking resources. Using semi-structured interviews, a cross-section of firefighters and paramedics answered questions, in their own words, to form a collection of perspectives informing future practice in mitigating barriers and facilitating help-seeking (Jones et al., 2020). The study concluded that “barriers” to help-seeking encompassed five themes:

1. can’t show weakness
2. fear of confidentiality breach
3. negative experience with a therapist
4. lack of access and availability
5. family burden (Jones et al., 2020, p. 43).

On the other hand, five themes of “facilitators” in seeking mental health resources included:

1. realization of not being alone
2. buy-in
3. positive experience with a therapist
4. problems got too bad
5. referrals (Jones et al., 2020, p. 43).

The use of qualitative interviews allowed participants to include their own metaphorical and anecdotal descriptions of mental health challenges highlighting the language-based cultural environment of the first responder community. For example, “removing the darkness” was one first responder’s metaphorical description for being open and able to talk about the mental health challenges that he had experienced in his career (Jones et al., 2020).

Stigma

While the percentage of the general population that seeks out mental health resources when experiencing mental health symptoms is approximately 40%, first responder numbers are lower due to higher perceptions of stigma attached to mental health help-seeking (Institute of Medicine, 2015, Erich, 2014). An example that outlines stigma as a barrier in seeking mental health assistance is the report by the National Fraternal Order of Police (2018) of 8000 police officers, in which 90% agreed that “stigma” was a barrier to seeking treatment (Thompson & Drew, 2020). When help-seeking does occur, first responders typically turn to “spouse/family 67% or private, professional services 60%” as opposed to mental health programs offered by their organization (Gulliver et al., 2019, p. 211). This suggests a gap in how first responders perceive the suitability of programs available within their organizations (Gulliver et al., 2019).

Lack of Knowledge

Jones et al.'s (2020) study highlighted that knowledge was pertinent in reframing barriers to facilitators in seeking mental health resources. When defining knowledge, education and awareness were variables commonly cited by participants as needing to be more readily incorporated into their organizations (Jones et al., 2020). First responders identified five mental health-related areas pertaining to the acquisition of knowledge that needed to be improved:

- normalizing that mental health issues are prevalent to first responder occupation
- signs and symptoms of mental health problems
- when to seek mental health resources for help
- availability of resources
- the benefits of seeking help (Jones et al., 2020, p. 48)

Cultural barriers in seeking mental health were further explored by Kim et al. (2018), who focused their survey on firefighters in South Korea. The authors suggested that barriers to “help-seeking” for firefighters with “probable PTSD” symptoms were due to perceived inaccessibility to treatment and stigma. Perceptions of mental health stigma revolved around themes such as a sign of weakness, being held responsible, and a negative impact on career promotion (Kim et al., 2018).

The authors highlighted the “paradox” of revered qualities of strength expected in firefighters as contributing to the barriers to seeking out mental health resources, reiterating the cultural consideration of this demographic (Kim et al., 2018). The authors suggested that organizations should focus on increased education to target the “awareness and attitude” adjustment of firefighters in utilizing mental health resources (Kim et al., 2018).

Options that were explored by Kim et al. (2018) were “internet and computer-based treatments” that could provide first responders with mental health alternatives within an

anonymous forum approach in addressing common sub-threshold PTSD symptoms. An additional recommendation made by the authors included regular screening with assessment tools, such as the Posttraumatic Stress Disorder Checklist (PCL) for firefighters who are at increased risk for PTSD, in order to keep tabs on escalating markers (Kim et al., 2018). The author's study addresses the limitations of differences in "cultural and social" factors, as it was conducted in South Korea, but emphasizes the general need for tailoring mental health resources to the first responder community with a focus on stigma and accessibility (Kim et al., 2018).

Organizational Support

Hallinan et al. (2019) emphasize the importance of having organizational support to promote first responder mental health. The authors used measures of vicarious trauma (VT) to ascertain a needs assessment within first responder organizations such as police, fire and ambulance (Hallinan et al., 2019). Hallinan et al. (2019) reviewed the benefits of proactive first responder organizations that utilized the assessment tool, Vicarious Trauma-Organizational Readiness Guide (VT-ORG), to ascertain readiness in managing employee VT (Hallinan et al., 2019). The tool focused on 5 "organizational strategies" that needed to be in place to best mitigate VT in its employees:

- leadership and mission
- management and supervision
- employee empowerment and work environment
- training and professional development
- staff health and wellness (Hallinan et al., 2019, p. 3).

The goal of incorporating these levels of hierarchy within an organization was to promote collaboration, morale, and physical and mental health (Hallinan et al., 2019). The VT-ORG assessed an organization's current needs and strengths in managing VT and placed the onus on

the employer to ensure that the first responder employee's levels of VT were managed in a supportive environment (Hallinan et al., 2019).

The accumulated test scores indicated areas within an organization that could be amended to incorporate increased collaboration and resilience in avoiding negative outcomes such as burnout and high turnover (Hallinan et al., 2019). Despite the study's high reliability and validity scores, the authors included the limitation that the VT-ORG self-reported measures may have introduced bias (Hallinan et al., 2019).

Kleim and Westphal (2011) suggested that studies of secondary trauma or vicarious trauma may provide information on proactive variables that increase first responder resiliency. They demonstrated that organizational adaptation, such as workload, group support, supervision, self-care, education, and modification of work environment, reduced the negative effects of VT (Kleim & Westphal, 2011). The inclusion of these variables in a study provided evidence that organizational stress should be considered within a resiliency-based proactive mental health model.

The Individual

Kleim & Westphal (2011) examine the importance of prevention and intervention in mitigating mental health problems commonly associated with first responder demographics. The authors' study implicated specific markers in first responders that served as red flags for predicting more serious mental health complications. The question of why some first responders are more resilient than others when exposed to similar potentially traumatic events focused on the following individual variables:

- demographic background
- pre-trauma characteristics
- pre-or post-trauma life events

- perceived social support
- characteristics relating to cognitive processing during the event itself
- aspects of post-event processing (Kleim & Westphal, 2011, p. 19)

First Responder Demographic Factors

Kleim & Westphal (2011) highlighted the dual importance of both the organizational environment and a first responder's social support network in promoting mental health and focused on ascertaining demographic factors that could be considered predictive mental health variables. Two of the authors' demographic predictors in developing PTSD were age and marital status of first responder males, suggesting that professional experience and social support from spouse or family could influence pre-symptom development in a positive manner (Kleim & Westphal, 2011). This would suggest that cognitive variables, such as self-worth and social support, may be considered as resilience factors in the prevention of developing PTSD symptoms in response to PTEs (Kleim & Westphal, 2011).

On the other hand, evidence of "prior psychiatric impairments" and "childhood sexual abuse" were solid risk predictors for developing future PTSD in firefighters and rescue workers (Kleim & Westphal, 2011). The authors also included variables such as "perceived safety" during and after an incident as correlating predictors in developing mental issues, such as depression or peri-traumatic dissociation (Kleim & Westphal, 2011). The authors implicated that social support should not only be evident in a first responder's personal life but within the organization as well (Kleim & Westphal, 2011).

Kleim and Westphal (2011) highlighted the differences between amendable versus uncontrolled variables for increasing proactive mental health. For instance, the number of potentially traumatic exposures a first responder experiences is unpredictable, whereas skills aimed at promoting greater problem solving and coping could be influenced by training and

education (Kleim & Westphal, 2011). The Battlemind Program, used during initial military training in the United States of America, was a proactive model the authors highlighted as successfully aimed to instill coping mechanisms in anticipation of stress reactions that the soldier would encounter during and after deployment (Kleim & Westphal, 2011).

The theme of promoting resiliency is elaborated further by Brooks et al. (2016) who examined pre-existing variables that were evident in organizations and found to be correlated with positive post-incident psychological status of emergency personnel following exposures to traumatic incidents. The authors focused on emergency personnel's responses before, during and post-9/11 as a template for gathering data (Brooks et al., 2016).

A common theme that emerged from the study was that while some variables are uncontrollable, such as the type of trauma or frequency, other organizational factors may be amendable. Pre-exposure variables such as specialized training, pride in work, feeling valued by one's employer and previous work successes were found to correlate with positive psychological readiness for future incidents (Brooks et al., 2016). For instance, police body-handlers with self-declared good team spirit and morale experienced low levels of morbidity (Brooks et al., 2016).

Modifiable Risk Factors of Mental Health

Wild et al. (2020) examined training variables that utilized modifiable predictors of common first responder mental health disorders in order to inoculate against expected occupational trauma exposures. The authors drew comparisons between exercise and good physical health to highlight how the application of similar connections could improve mental health. Their study targeted five areas of "modifiable predictors" of PTSD and depression, two of the mental health disorders most prevalent in first responders (Wild et al., 2020). These included: personality variables, coping variables, cognitions, social support variables, and physical inactivity (Wild et al., 2020).

Personality traits negatively associated with PTSD and depression symptoms included neuroticism, dissociation, anxiety sensitivity, and anger (Wild et al., 2020). Negative coping traits included dissociation, rumination and suppression of intrusive memories, wishful thinking, behavioural disengagement, and intentional numbing (Wild et al., 2020).

Wild et al. (2020) outlined their objectives in providing resiliency training to psychologically stable first responders to maintain mental health. Psychological interventions used in the study included EMDR and various stress management strategies incorporating mindfulness and CBT (Wild et al., 2020). The study found that physical exercise and imagery interventions had the most positive effect on modifiable risk factors (Wild et al., 2020, p. 15). The authors conceded the challenges of determining measurable preventative interventions, as opposed to treatments targeting existing mental health conditions such as diagnosed PTSD or depression (Wild et al., 2020). However, the “self-regulation and debriefing interventions” quantitatively studied were shown to improve well-being, stress, and sleep problems which are known variables linked to mental health disorders such as depression or PTSD (Wild et al., 2020, p. 15). Further studies are needed to ascertain the “protective potential” of such interventions in participants once they were exposed to stressors (Wild et al., 2020). As the study focused on police, the authors suggested limitations to their findings were the lack of other first responder demographics studied, an “often unclear” reporting of evidence, small sample sizes, and time frames being limited to a small period within a first responder’s career (Wild et al., 2020).

Coping styles

A first responder’s perception of their quality of life was the focus of Cicognani et al.’s (2009) study, which examined the different coping styles of first responders in response to burnout, compassion fatigue, and compassion satisfaction. The authors focused on three areas of

“protective factors” in their study of 764 first responders: individual, organizational, and community (Cicognani et al., 2009).

Quality of life was seen to influence factors such as self-efficacy, collective efficacy, and sense of community (Cicognani et al., 2009). Negative mental health outcomes, such as burnout and compassion fatigue, were directly affected by avoidance type-coping mechanisms as distraction and self-criticism (Cicognani et al., 2009). The authors outlined the differences in coping styles commonly utilized by first responders. For instance, they suggest that “problem-solving oriented coping styles,” as opposed to “acceptance and cognitive restructuring coping strategies,” could be perceived as more stressful when dealing with incidents involving casualties (Cicognani et al., 2009, p. 450).

Organizational collective efficacy symbolized what first responders were capable of as a team (Cicognani et al., 2009). Knowing and trusting the capability of one’s peers resulted in higher levels of collective efficacy (Cicognani et al., 2009). Volunteer first responders scored higher in quality of life measures by having a greater sense of community, suggesting that smaller rural responders have a greater vested interest and commitment within their communities.

Therapeutic considerations, suggested by the authors to enhance the quality of life perceptions, included improvement in “psychosocial skills” such as communication and collaborative decision-making, alongside competence training that first responders receive (Cicognani et al., 2009). The authors noted the limitations of their study as not delineating cultural differences that exist across first responders’ demographics, such as firefighters versus paramedics and police (Cicognani et al., 2009).

Brooks et al. (2016) examined the difference between negative and positive coping strategies within first responder organizations, particularly avoidance and denial, both of which

were positively correlated to PTSD predictors. In comparison, “proactive coping” methods were seen as contributing to post-traumatic growth (Brooks et al., 2016). The authors elaborated by suggesting that “confrontive coping” has shown to be beneficial in decreased development of PTSD symptoms (Brooks et al., 2016). Recommendations made by the authors included therapeutic modalities for stress incorporating elements of mindfulness and psychoeducation as a way of promoting resilience (Brooks et al., 2016). Organizational structures whose training incorporated preparedness, personal competence, and belief in one’s own ability to perform one’s role were considered positive resources in promoting mental health (Brooks et al., 2016, p. 9).

Rumination

Rumination styles were the focus of Wild et al. (2016) in their study involving a recruiting class of 453 paramedics that were assessed for PTSD and depression predictors during their initial training and at a two-year follow-up date. The authors found that the “tendency to ruminate and lack of adaptability” were personality features of people who were at risk for experiencing a future episode of major depression (Wild et al., 2016). The authors suggested that resiliency training that utilized interventions such as psychoeducation and CBT could help in reframing stressful events (Wild et al., 2016). Successful cognitive therapy interventions used with first responders involved learning skills to recognize rumination and transforming the latter into present moment thinking (Wild et al., 2016).

Rumination can also be viewed as having both positive and negative effects in that there is a difference in the purpose behind the thoughts (Questret & Cropley, 2013; Segerstrom, et al., 2003). “Affective arousal” versus “problem-solving” rumination illustrates this key concept which centers around levels of “emotional arousal” (Cropley & Zijlstra, 2011). “Affective arousal” presents with high psychophysiological arousal, which may be challenging to the

recovery process, whereas “problem-solving” rumination styles are more conducive to recovery (Seo et al., 2004; Stajkovic & Luthans, 1998).

The implications of this study on differences between rumination styles inform a therapeutic focus on promoting “problem-solving” thought processes, such as “thinking about successfully completed tasks,” rather than what “could have” or “should have” happened at an incident (Seo et al., 2004; Stajkovic & Luthans, 1998). “Positive affect, self-efficacy, and well-being” have all been documented as resulting from “problem-solving pondering” rather than affective rumination (Seo et al., 2004; Stajkovic & Luthans, 1998).

Effects of rumination were explored by Yang & Ha (2019) in a study that suggested post-traumatic growth (PTG) was positively correlated to “deliberate rumination, problem-focused coping, and extraversion” (p.1). The goal of the author’s study was to identify factors that were known to have influenced Korean firefighter’s PTG in order to improve positive psychological changes in a proactive framework (Yang & Ha, 2019). The authors explored positive correlations between certain personality traits and higher resiliency skills (Yang & Ha, 2019).

Personality Traits

Extraversion

Extraversion was categorized under optimistic personality types that interpreted the positive sides in negative situations, and as a result, engaged in more effective problem-solving skills in response to stressful situations (Yang & Ha, 2019). Another benefit of extraversion was the increased likelihood of seeking social support (Yang & Ha, 2019). Although personality traits are not considered to be changeable attributes, the information of positive variables associated with extraversion could provide valuable information for hiring processes in predicting job performance as well as building programs that strengthen “optimistic perspective and problem-focused coping strategies” (Yang & Ha, 2019, p. 8). Suggestions in promoting

effective coping strategies included expressive or existential writing in order to reinterpret trauma in light of PTG (Yang & Ha, 2019). The authors suggested that further studies were needed to ascertain what type of cognitive-behavioural interventions could focus on promoting meaning out of traumatic events that translated into PTG (Yang & Ha, 2019).

Perfectionism

Perfectionism and its link to PTSD symptoms was researched by Egan et al. (2014), who posited that perfectionism was positively identified in other mental health disorders, including anxiety, eating, and depression. In addition, the authors examined the influence of rumination in mediating the relationship between PTSD and perfectionism (Egan et al., 2014). First responder duties are often situated in circumstances where a goal of “fixing something” is the focus. Although there may be multiple outcomes from any given emergency response event, rumination in the form of “what if” questions in how an event could have been done better is a common process among firefighters after major incidents. Ehring and Watkins (2008) suggested that cognitive models may explain how perfectionist people may be “driven by unresolved goals, with repetitive negative thoughts reflecting unattained goals, and individuals with psychological disorders who get stuck in rumination may have more extreme, unattainable or perfectionist goals” (p. 213).

Social Support

Van der Kolk (2014) suggested that “social support is a biological necessity, not an option, and this reality should be the backbone of all prevention and treatment” (p. 169). Social support may be resourced at multiple levels; organizational, family and friends. Brooks et al. (2016) suggested that from an organizational concept, good relationships can be fostered not only by leaders but also between co-workers and peers. Social support has been shown to strengthen resiliency in first responders (Lanza & Roysircar, 2018).

Evans et al. (2013) focused their study on how social support contributed to the resilience of police officers. They highlighted differences between supportive and unsupportive interactions in response to exposure to traumatic events as well as the various resources that the officers drew upon, ranging from colleagues to family and friends (Evans et al., 2013). The authors used Lepore's (2001) social-cognitive processing model of adjustment as the theoretical framework guiding qualitative interviews of 19 police officers (Evans et al., 2013). All participants presented with sub-threshold PTSD symptoms such as rumination and hypervigilance but were not diagnosed with full PTSD (Evans et al., 2013). Three domains with sub-themes comprised a summary of supportive and unsupportive social support perceptions by the participants:

1. *Dilemmas of talking*- talking seen as risky, not needed or perceived as weak;
2. *Work context*- humour and banter with peers seen as an outlet, ambivalence about formalized mental health sources, the desire to have support from supervisors; and
3. *Support outside of work*- emotional talk with a loved one, selfless listening from partner or friend, protecting loved one from full details of traumatic events (Evans et al., 2013).

Positive social support was summarized with preferable qualities, including non-judgement, validation, and empathy (Evans et al., 2013). Even when officers chose not to talk to others outside of the workplace, the perception that it was available was often enough in feeling supported (Evans et al., 2013).

While social support through peers has clear benefits in fulfilling the cultural or language-based variables unique to first responders, Bessel van der Kolk (2014) offers another side to this concept. In his landmark book, *The Body Keeps the Score* (2014), he explored the reactions of a support group for young Vietnam veterans brought together in a type of "holding

tank until real therapy could start” (p. 18). Within this group, he observed that after initial resistance in talking about their experiences, participants “found resonance and meaning in what had previously been only sensations of terror and emptiness” (van der Kolk, 2014, p. 18). However, the author noted that the “renewed sense of comradeship that had been so vital to their war experience” contributed a sharp divide in the veteran’s perceptions of whom they could trust within their circle of sharing details and that this often excluded family members and current co-workers (van der Kolk, 2014, p. 18). Often the outlet of sharing war details with peers did not bridge over into discussing regular life issues such as relationship problems, alcohol abuse, or dissatisfaction with work (van der Kolk, 2014).

This concept is reiterated by Anne Gagliano (n.d), the spouse of a 34-year firefighter veteran. As a “strong marriage” lecturer who regularly attends national firefighter conferences in the USA, she draws attention to the elevated divorce statistics of firefighters compared to that of the general population. Gagliano’s goal has been to provide awareness of firefighters’ occupational culture and promote empathy for loved ones of firefighters, particularly spouses. She emphasized that the close comradeship that firefighters establish through their shared organizational experiences, long shifts living together at the fire station and shared common interests off duty may detract from the firefighter’s primary family (Gagliano, n.d.). She argued that the “pursuit of fun, stress relief from shared trauma/stress and shared humor often leads to neglecting time spent with family which may lead to jealousy, resentment and marital discord” (Gagliano, n.d.). As a possible solution, she suggested “bringing together” a firefighter’s home and work families to circumnavigate these potential issues (Gagliano, n.d.). By socializing together, the two families become aware of each other's importance in context to the firefighter and mutual respect is fostered (Gagliano, n.d.).

Blending Mental and Physical Health

Because exposure to potentially traumatic events involves repetitive activation of the nervous system and cognitive overload in navigating challenging scenarios, due attention should be given in promoting the “symbiotic” relationship between physical and mental health (McKeon et al., 2019). Gagliano (n.d.) suggested that remnants of sympathetic nervous system chemicals such as adrenalin and cortisol may display as aggression in off-duty time spent with family members, and the outlet of exercise can affect regulating the perceived “harshness” in the first responder.

McKeon et al. (2019) suggested that social support and physical activity often walk hand in hand and may therefore indirectly promote increased improvement in both realms. Utilizing the concept of the popular social media platform Facebook, the authors codeveloped an intervention based on teaming up support partners with individual first responders to promote physical activity (McKeon et al., 2019). Equating physical and mental health together also has the benefit of increasing buy-in for first responder demographics in that it reduces the stigma assigned to mental health alone.

McKeon et al.’s (2019) use of social media technology such as Facebook also provided the accessibility variable, a known barrier to seeking mental health resources. In addition, another fringe benefit of their model was increasing levels of social engagement by the use of community-based resources such as gyms or sports activities. Limitations to consider would include challenges such as inexperience with technology or individuals not comfortable using social media platforms (McKeon et al., 2019).

Existing Mental Health Programs

Postvention

Postvention efforts are mental health check-ins that aim to provide immediate interventions in limiting the effects of traumatic exposure after a critical incident that is above regular severity, duration and frequency (Lanza et al. 2018). Lanza, et al. (2018) suggested that a “postvention” factor is ideally administered 72 hours to a few weeks after exposure to a PTE. There are several diffusing or debrief models that have been used by organizations to address postvention.

Critical Incident Stress Program (CIS)

Critical Incident Stress (CIS) models have been a popular therapeutic option following exposure to a critical incident. The founding CIS model was formulated by J.T. Mitchell (2001), who developed a debriefing model geared towards first responders. It was based on his personal experience as a paramedic responding to a traumatic motor vehicle accident that had killed a newly married couple.

The process requires participants to move through stages and recall the traumatic event in phases such as:

- fact phase- recall of the event
- thought phase- emotion description
- reactivity phase- how one is affected
- symptom phase- identifying personal symptoms to stress
- teaching phase- psychoeducation
- re-entry- wrap up (Mitchell & Everly, 2001)

Although CIS debriefings continue to be used, the effectiveness of this model has been criticized in recent years (Jones et al., 2020). Some argue that it is a conducive setting to post-

ventilate, while others have argued against it by saying it has the potential to re-traumatize (Jones et al. 2020). “Increased distress” and secondary trauma have been thought to be the negative implications of these types of models (Lanza et al., 2018). Despite its declining usage, there is a positive variable from Mitchell’s psychotherapeutic goal, which aimed to “deepen and reinforce social support among people who are emotionally ‘healthy’ but who experience acute or abnormal stress reactions to traumatic events” (Mitchell & Everly, 2001, p. 213).

Peer Support Training (IAFF)

The International Association of Firefighters has constructed Peer Support Team Training that trains peers within fire department locals to recognize and intervene in fellow peer’s signs and symptoms of mental health distress (IAFF). Members are trained to recognize changes in behaviour, thinking, mood and life stressors and practice role-playing on how to approach a member so that they can talk or access mental health resources if needed. Crisis intervention skills such as suicide risk assessments and warning signs are also reviewed. Training involves a two-day interactive role-playing platform allowing members to practice active listening skills and approach a member in various states of mental health distress.

Psychological First Aid (PFA)

A growing number of alternatives for postvention of occupational trauma have been programs that do not require first responders to recall events outlined in CIS models.

“Psychological First Aid” (Everly et al., 2017)) is a model that uses five principles to build resilience following an event and utilizes the following principles:

- promotion of the sense of safety
- calmness
- sense of self and community efficacy
- connectedness

- installation of hope (Lanza et al., 2018).

Many American fire departments have replaced their CIS models with PFA models. They have suggested a greater “buy-in” from first responder members in participation as there is no requirement to recall/retell the traumatic events as in CIS diffusing (Lanza et al., 2018).

Trauma Risk Management Program (TRiM)

A peer support program initially developed by the Royal Navy uses a structured process for assessing the risk of developing post-incident psychological distress (Watson & Andrews, 2017). Peers from within the first responder organization are trained in recognizing and identifying risk assessments of fellow peers who have undergone exposure (Watson & Andrews, 2017). A “Before During After” assessment tool is encouraged for the involved first responders to record chronological thoughts and feelings concerning the event instead of focusing on the most intense aspect of the incident (Watson & Andrews, 2017). First responders that record elevated scores on their assessments are monitored and followed up with recommendations to access mental health professionals should ratings not diminish in severity (Watson & Andrews, 2017).

The use of peers within the TRiM model encourages open communication and acceptance of the occupation's distressing nature, thus contributing to a cultural shift in first responder organizations (Watson & Andrews, 2017). TRiM has been predominantly used in military settings but was adopted post 9/11 in police and fire departments (Watson & Andrews, 2017). Although TRiM's goal has been to identify and refer, not reduce psychological distress, the program indirectly showed improvements in these areas when studied by Walsh et al. (2017) in UK police departments.

Warr;or21

One example of a resiliency program is Warr;or21 (Thompson & Drew, 2020). This 21-day program was tailored to first responders with the goals of increasing inner strength, enhancing resiliency, and increasing positive mental health (Thompson & Drew, 2020). After an initial hour and a half education introduction and psychoeducation session, first responders are given daily alerts through a mobile app to guide the practice regarding a resiliency word (Thompson & Drew, 2020). Examples include empathy, adaptation, and gratitude (Thompson & Drew, 2020). The framework revolves around the four ideals of awareness, wellness, purpose, and positivity (Thompson & Drew, 2020). Daily formats include introducing a word, a quote in relation to the word, a five-minute breathing exercise, a reading exercise, a reflection, and an evening gratitude practice (Thompson & Drew, 2020). The short and practical application of daily practices takes into account the busy lives of most first responders, as well as suggesting that 21 days is the general amount of time necessary in developing a habit (Thompson & Drew, 2020). Finally, a unique feature is the use of the semi-colon in “Warr;or21” inspired by Project Semicolon, a suicide prevention organization, which suggests “pausing and reaching out for help” in times of imminent suicide crisis (Thompson & Drew, 2020).

Best Practices Informing First Responder Therapeutic Approaches

In comprising therapeutic approaches to address the unique variables challenging first responder mental health, integrating concepts from multiple theoretical frameworks would provide greater efficacy in promoting proactive mental health. First responder mental health is affected by multiple variables with common themes including cumulative nervous system activation and dysregulation, emotional and cognitive processing of exposure events, and personality type coupled with physiological sleep deprivation and expected life stressors outside of work.

Van der Kolk (2017) suggested that recovery from trauma entails “re-establishing ownership of your body and your mind- of your self” (p. 205). Goals to work towards maintaining an equilibrium may include:

1. Finding a way to become calm and focused
2. Learning to maintain that calm in response to images, thoughts, sounds or physical sensations that remind you of the past
3. Living in the present moment with full awareness of people and situations around you
4. Not keeping secrets from yourself, including the ones explaining how you have survived (van der Kolk, 2017, p. 206)

Although van der Kolk’s (2017) suggestions are aimed at survivors of trauma and not specifically first responders, they may be applied to guide interventions and proactive measures of first responder mental health. Van der Kolk (2017) posited that emotions and physical sensations become “imprinted” from exposure to trauma so that they move beyond merely situating as memories and morph into “disruptive physical reactions in the present” (p. 206).

Self-Awareness and Interoception

Van der Kolk (2017) described the benefits of balancing the “emotional brain,” which is directly affected by traumatic stress. He suggested that a person’s “window of tolerance” goes into an overload of hyperarousal or hypoarousal when it is inundated by traumatic stimuli (van der Kolk, 2017, p. 207). Using this framework in accessing the emotional brain could inform the process in learning self-awareness of the effects of repeated exposures of potentially traumatic events (van der Kolk, 2017).

Interoception has been defined as the awareness of sensations present in the body, providing a type of warning signal as to when physiological symptoms indicate personal warnings of stress (van der Kolk, 2017). This awareness has the potential of indicating personal

levels of hyper- and hypoarousal that would, in turn, prompt the first responder in taking action to mitigate their levels (van der Kolk, 2017). Personal interventions that promote parasympathetic deactivation of the nervous system may include therapeutic practices incorporating mindfulness (van der Kolk, 2012).

“Simply noticing our annoyance, nervousness, or anxiety immediately helps us shift our perspective and opens up new options other than our automatic, habitual reactions” (van der Kolk, 2012, p. 210). The benefit of incorporating mindfulness is that it allows the individual to pay attention to their inner sensations and connect them to thoughts more adapted to problem-solving rather than stagnating in negative bias (van der Kolk, 2012).

Emotional Regulation

Emotional regulation can be defined as “all processes by which individuals influence which emotions they have, when they have them, and how they experience and express them” (Gross, 1998; Gartner et al., 2005). This process would seem crucial for first responders to implement to balance negative emotions in response to occupational PTEs and chronic stress (Gartner et al., 2019). Common themes of managing emotions for first responders have included: prescribing, normalizing, buffering, and neutralizing (Ashforth & Humphrey, 1995).

Gartner et al. (2019) conducted a cross-sectional study of 102 German rescue workers to determine which of the following emotional regulation strategies resulted in adaptive or maladaptive mental and physical health results: problem-solving, reappraisal, acceptance, rumination, suppression, and avoidance (Gartner et al., 2019). Results found that reappraisal and problem solving were linked to enhanced resilience as well as increasing post-traumatic growth (Aldao & Nolen-Hoeksema, 2010; Gartner et al., 2019; Prati & Pietrantonio, 2009; Webb et al., 2012). On the other hand, rumination, suppression, and avoidance were associated with depression and PTSD symptoms (Gartner et al., 2019). Avoidance was experienced as less

associated with work-related stress for short-term adaptation (Gartner et al., 2019; Levy-Gigi et al., 2015; Ross, 1998; Schonfelder et al., 2014; Webb et al., 2012). However, long-term use of avoidance for emotional regulation became positively correlated to post-traumatic, depressive and physical symptoms (Beaton et al. 1999; Clohessy & Ehlers, 1999; Gartner et al. 2019; Kirby et al., 2011; Razik et al., 2013).

Concluding results gathered by Gartner et al. (2019) found that, generally, emergency workers naturally utilized adaptive over maladaptive emotion regulation strategies (Gartner et al., 2019). Limitations of the study included a reliance on self-report measurements, which may have included possible bias. The authors concluded that in keeping with other studies on adaptive and maladaptive emotion regulation mechanisms, proactive therapeutic prevention and intervention strategies should aim at training first responders in using “acceptance-based preventive” strategies for emotional regulation (Gartner et al., 2019).

Self-Compassion

In keeping with exploring interventions based on buffering against negative affect in response to PTEs, self-compassion is emerging as a resilience booster (Kaurin et al., 2018). Kristin Neff (2007) has defined self-compassion as “mindful, non-judgemental acknowledgment of one’s distress, with the potential to turn it into encouraging behaviours (e.g., self-soothing, caring for oneself) and emotions such as gratitude and love” (Kaurin et al., 2018). The following explanation of self-compassion illustrates the benefit of engaging in this inner reflection: “The client may spontaneously report new meanings, insights, feelings, and images. Spiritual meanings often emerge. Clients describe feeling more compassion for themselves and others. They often describe prioritizing their life differently and have an expanded ability to appreciate life and the people whom they love in their lives” (Miller-Karas, 2019, p. 53).

Higher abilities of self-compassion have been found to thwart off affective behaviours of self-criticism and excessive rumination, both of which are common traits in first responders (Kaurin et al., 2018; Leary et al., 2007; Weiss et al., 2010). Kaurin et al. (2018) conducted a quantitative study with 123 male firefighters to gather data on how self-compassion may protect against the risk of developing depressive symptoms, commonly known as the most frequent mental health problem for this first responder demographic. Self-compassion levels were measured by the assessment tool Self-Compassion Scale (SCS), which included three components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus overidentification (Kaurin et al., 2018; Neff, 2003). Kaurin et al.'s study revealed that self-compassion served as a positive stress resilience variable when the firefighter had cumulatively experienced a higher level of exposure to PTEs, suggesting that the existence of multiple stressful situations prompts the implementation of self-compassion (Kaurin et al., 2018).

Neff et al. (2007) summarized this theory by suggesting that “facing and thereby experiencing negative emotions is at the heart of the ability to adapt flexibly to one’s environment because it motivates us to attain resources and skills that are central to effective situational adaptation” (Kaurin et al., 2018; Neff et al., 2007; Troy , 2013, p. 143). This would imply that stress resilience is the result of the “interplay” between negative affective reactions to PTEs and the ability to employ self-compassion in mitigation (Kaurin et al., 2018).

Implications for therapeutic interventions suggest that self-compassion be taught in the early stages of a first responder’s career. As the cumulation of exposure to traumatic events occurs throughout a career, protective mechanisms are automatically initiated. Rather than integrating a stressful event in a self-critical way, self-compassion skills could foster a distanced perspective through self-forgiveness in light of the event (Cornish & Wade, 2015; Kaurin et al.,

2018). For individual therapy, the Gestalt method of externally viewing oneself has shown efficacy in teaching self-compassion as well as group-based therapy that teaches “cognitive restructuring” in moving away from self-criticism (Kaurin et al., 2018). In addition to buffering psychological resilience, self-compassion enables the additional benefits of enhancing focus during subsequent PTEs as well as decreasing the cultural stigma of accessing therapeutic services when needed (Kaurin et al., 2018).

Sense of Coherence

Sense of coherence (SOC) has been defined as a personality trait that empowers people to adequately deal with stressful life events (Ragger et al., 2019). On the flip side, personality traits such as rumination, self-blame, and self-criticism have been indicated as common traits experienced by first responders. Therefore, proactive mental health could include highlighting the ability of SOC to provide meaningfulness in light of traumatic events even when outcomes did not go according to best efforts (Ragger et al., 2019). Antonovsky (1987) defines SOC as “a global attitude of confidence that allows a person to understand why a stressful life event occurred (comprehensibility), to manage it on their own or through the help of others (manageability), and to find a deeper meaning in it (meaningfulness)” (Ragger et al., 2019, p. 2).

Positive Re-Appraisal

First responders cannot predict or control the stressors that they will encounter during work shifts. Although training and accumulated experience inform response protocol, more often than not there are “curveballs” thrown in. Planful problem solving, troubleshooting and having a ‘plan B’ are examples of tactics that are common modes of thinking and acting during emergency responses. However, there will be incidents where all the plan Bs may have failed to work, and best practices will not be able to reverse a cardiac arrest, bring a baby back from sudden infant death syndrome (SIDS), prevent someone from being shot, or prevent a house

from burning down. It is after these uncontrollable circumstances that the completion of the stress cycle may need to incorporate “positive reappraisal” tactics (Nagoski & Nagoski, 2020).

Positive reappraisal is defined by Nagoski and Nagoski (2020) as reframing difficulties as opportunities for growth and learning. Folkman (1997) suggested that “positive reappraisal consists in reframing negative events by focusing on their positive features. More specifically, it is a strategy whereby negative events are reappraised as partly beneficial and meaningful” (p. 1213). This concept encompasses more than ‘finding a silver lining’ or ‘looking at the bright side,’ it entails recognition that a difficulty may present with an opportunity. How this contributes to a first responder’s cognitive awareness is through recognition that not all situations are “fixable,” and sometimes, despite best efforts, the outcome may not be favourable. However, lessons learned to apply to future incidents, precedence gathered, and closer bonds experienced with one’s peers may fall into a positive light of reappraising the negative event. Because the amygdala is geared towards a negativity bias in recognition of the threat, employing positive reappraisal skills could serve to neutralize the repetitive activations of this trigger for the first responder (Miller-Karas, 2019). In a sense, positive reappraisal can also be viewed as an alternative tactic to negative self-blame, particularly in cases of post-incident rumination of negative outcomes.

Therapeutic Frameworks

Top-Down Modalities

Top-down therapeutic modalities, also known as talk therapies, involve gaining insight into presenting mental health issues by examining thoughts, feelings, and emotions. As reviewed in the Jones et al. (2020) study, first responders concluded that lack of mental health “knowledge” was a significant barrier in seeking help. The psychoeducation portion of the

following modalities would provide insight and awareness that signs and symptoms of cumulative trauma stressors are a “normal” variable of first responder occupations.

Trauma-Focused Cognitive Behaviour Therapy (TF-CBT)

In addressing continuing maintenance of first responder mental health, integrated variations of cognitive behaviour therapy models have been suggested as being evidence-based effective. Trauma-focused cognitive behaviour therapy (TF-CBT) focuses on the “distorted cognition” of viewing the external world as “unpredictable, uncontrollable and unsafe” (Lanza et al., 2018, p. 201). The modality utilizes a combination of psychoeducation, relaxation and stress management, affective expression and modulation, cognitive coping, prolonged exposure, in vivo exposure, and cognitive reprocessing to achieve positive results (Lanza et al., 2018).

Rumination-Focused Cognitive Behavioural Therapy (RFCBT)

As rumination is a common trait experienced by first responders, RFCBT focuses on shifting attention from dysfunctional cognitions of maladaptive thinking patterns to more helpful thinking patterns (Lynn et al., 2010). The overarching goal is reframing unhelpful rumination that is self-focused, self-evaluative in negative ways to more concrete and solution-oriented styles. In contrast to traditional CBT strategies, RFCBT aims to modify the process of thinking rather than the content of thoughts (Lynn et al., 2010). For instance, the development of alternative strategies to rumination, such as task scheduling and assertiveness, would replace procrastination and catastrophizing (Lynn et al., 2010). Activities supporting self-fulfillment are encouraged to alter maladaptive environmental and behavioural supports of rumination (Lynn et al., 2010).

Cognitive Processing Therapy (CPT)

Not all first responder incidents go according to best plans, which may affect mental health in terms of self-blame or guilt during the post-incident time frame (Lanza et al., 2018).

Cognitive processing therapy (CPT) has been shown to successfully address these types of emotions regarding traumatic events (Stayton et al., 2018). This could be a common feeling related to trauma experienced from an incident that resulted in negative results, for example, decision-making which resulted in the death of a colleague. Concepts that are fostered in this modality are the re-building of a healthy mental baseline of trust, safety, esteem and intimacy (Lanza et al., 2018).

Cognitive Control Training (CTT)

CTT is a neurobehavioral therapy under the umbrella of CBT that targets the biological mechanisms known to be associated with rumination rather than the symptoms (Lynn et al., 2010). CTT uses attention training techniques that teach rapid switching of thoughts, and flexibility in mitigating negative thinking in response to singular events (Lynn et al., 2010). Present moment awareness of sounds enables the client to shift attention away from rumination with a series of auditory stimuli that normalizes activity in the prefrontal cortex and amygdala (Lynn et al., 2010).

Brief Eclectic Psychotherapy (BEP)

Other CBT models that have been studied in treating first responder mental health include brief eclectic psychotherapy (BEP), which builds on “meaning-making activities” that encourage new ideas of self and the world. Intervention techniques include CBT informed protocol such as psychoeducation, imaginary guidance, homework tasks, and cognitive restructuring with the added emphasis of a focal psychodynamic approach and a farewell ritual (Gersons et al., 2000, p. 334). Gersons et al. (2000) conducted a study of 42 police officers in the Netherlands with self-reported sub-threshold PTSD symptoms and found favorable results with the implementation of BEP. Participants reported decreased symptoms such as intrusive phenomena and depression.

Neurofeedback

Neurofeedback involves attaching electrodes to various places on a person's skull to track the oscillations and rhythms in response to brainwaves connected to thought patterns (van der Kolk, 2014). Neurofeedback is considered an operant conditioning brain training that utilizes electrical findings to provide the client with feedback so that they can learn to increase or decrease these to improve neural function and regulation (Fisher et al., 2016, p. 256; Holt & McLean, 2019). It is a technology-based therapeutic intervention that has been studied for mental health disorders such as ADHD, autism and learning disorders and has been applied to trauma survivors in small studies (Holt & McLean, 2019).

Bottom-Up Modalities

Bottom-up therapeutic modalities aim to bring awareness of physiological sensations in the body and what they may indicate in terms of nervous system activations. The psychoeducation portion of these types of modalities could provide buy-in from first responders as it validates neuroscientific explanations of why and how the body responds to stress stimuli such as critical incidents.

Somatic Experiencing (SE)

Somatic experiencing (SE) is a "psychobiological" modality first developed by Peter Levine in the 1970s for treating chronic and post-traumatic stress (Levine & Crane-Godreau, 2015). Somatic experiencing aims at guiding trauma clients through "stuck" stages of trauma processing by bringing somatic awareness of how they are expressing trauma. Levine (2018) posited that the traumatized client is often unable to process the cognitive strains of psychodynamic treatments because the brain has been "flooded" by lower brain activation (p. 625). From the perspective of first responders, SE could provide the tools to becoming aware of one's physiological "inner sensations" indicating blocked stress and being able to incorporate

learned techniques such as grounding, tracking and resourcing to provide feedback to the nervous system that a sense of safety has been re-established (Holt & McLean, 2019).

Trauma Resiliency Model

The Trauma Resiliency Model aims at providing a bottom-up somatic approach that teaches nine skills revolving around sensory awareness for emotion regulation and integration (Grabbe & Miller-Karas, 2018). The model begins by integrating the learning of 6 wellness skills listed within the Community Resiliency Model, which aims to teach the client how to monitor body sensations and differentiate between distress and well-being (Miller-Karas, 2015). The last three skills of the model are administered under a therapist's guidance if residual traumatic experiences need processing (Miller-Karas, 2015).

The Community Resiliency Model

Tracking

Paying attention to sensations within the body is the foundation for stabilizing the nervous system (Miller-Karas, 2019). The first responder would learn how to differentiate between sensations of “turmoil and upset” compared to “balance and well-being” and is, therefore, able to recognize when hyperarousal or hypoarousal states are edging towards or outside the boundaries of individual RZ (Miller-Karas, 2019).

Providing psychoeducation to the first responder on the nervous system and the effects of the sympathetic and parasympathetic responses would provide awareness on how the body responds to occupational stressors (Miller-Karas, 2019). By having an awareness of pleasant sensations through tracking, the first responder would be able to intentionally bring thoughts back to a pleasant association (Miller-Karas, 2019).

Resourcing and Resource Intensification

Three types of resources may be drawn upon by the first responder to enhance nervous system reorganization (Miller-Karas, 2019). “External” resources may include people, places, skills, hobbies, or pets that provide support and nurturing (Miller-Karas, 2019). “Internal” resources may include values, beliefs, positive character traits, or body strengths that provide support and meaning (Miller-Karas, 2019). Lastly, there is the option of “imagined resources” (Miller-Karas, 2019). By recalling a comprising of neutral or pleasant resources, the first responder can build positive implicit memory (Miller-Karas, 2019).

“Resource intensification” aims at enhancing the resource description (Miller-Karas, 2019). Theoretically, Hanson (2008) posited that highly emotionally charged negative experiences may become quickly stored in memory which is labelled as “negativity bias” (p. 39). This is the result of the amygdala, which uses approximately two-thirds of its neurons in being alert for threat (Vaish et al., 2008). Resource intensification aims to solidify the positive resource by holding it for 12 seconds, transferring it from short-term memory to long-term storage (Miller-Karas, 2019).

Grounding

Grounding refers to the relationship between a person’s body and the present moment (Miller-Karas, 2019). Ayres (2005) suggested that “gravitational security is the foundation upon which we build our interpersonal relationships, and grounding is essential to the sense of being present in the here and now” (p. 42). Sensing a part of the whole body in relationship to the surface that one is standing, sitting or lying on constitutes the idea of grounding (Miller-Karas, 2019).

Gesturing

The first responder identifies what unique gestures are considered as self-soothing (Miller-Karas, 2019). Examples of gesturing include people's natural tendencies of spontaneous movements using hands, body or limbs to express ideas, reactions or emotions (Miller-Karas, 2019). Focusing on self-soothing movements draws attention to the here and now and may promote self-regulation (Miller-Karas, 2019).

“Help Now” Strategies

When a first responder feels that they are “stuck” outside their RZ, there are several options of settling the nervous system so that focus is diverted from the distress (Miller-Karas, 2019). Specific strategies that activate other parts of the body and brain using senses such as taste, touch, smell, or sight can introduce mindfulness and deactivate the arousal system (Miller-Karas, 2019). Examples may include drinking a glass of water or juice, noticing an object and naming the details of it, or touching something and noticing its texture or pushing against a wall (Miller-Karas, 2019).

Shift and Stay

Shift and stay is the accumulative skill of the aforementioned five skills that encourages the first responder to turn to any given learned skill during future activations of stress in daily life or occupation (Miller-Karas, 2019). It is assumed that the first responder has become familiar with the tracking skill so that they are aware of when they are being bumped outside of their RZ and need to stabilize by returning to a place of calmness or neutrality (Miller-Karas, 2019).

Integrated Modalities

Mindfulness

Mindfulness-based modalities are gaining momentum in providing first responders with somatic awareness of how the body and mind are connected in reaction to traumatic events. It

has been defined as “an innate meta-awareness capacity to attend to present-moment experience while avoiding entanglement in cognitive biases” (Trombka et al., 2018). The goal of mindfulness modalities is to provide interventions that provide the individual with the capacity to “step back from ruminating about the past or worrying about the future and simply allow experiences to unfold” (Trombka et al., 2018). The psychological resiliency benefit of mindfulness skills for first responders could include a reappraisal of stress, increasing coping resources, and becoming less stress reactive (Trombka et al., 2018). Studies have indicated that mindfulness-based interventions have successfully improved general health outcomes in the military, medical, firefighters and inner-city teachers (Trombka et al., 2018).

Further studies of mindfulness-based therapies are needed to determine which variables best apply to first responder improvement of alleviating stressor symptoms. For example, “nonjudgmental acceptance” (Chopko & Schwartz, 2013) or “non-reactivity” (Kaplan et al., 2017) have both been noted to lessen reactions to PTEs. In addition, Mindfulness-Based Resilience Training specifically addressed reframing negative coping skills with positive awareness and non-reactivity (Kaplan et al., 2017).

Holt and McLean (2019) examined the limited evidence-base of three modalities used to treat traumatic stress. The authors detail the frameworks of the Conversational Model of Psychodynamic Psychotherapy (CM), Electroencephalogram Neurofeedback (NFB) and Somatic Experiencing (SE), all three modalities encompassing facets of mind, body and brain therapeutic interventions (Holt & McLean, 2019). The authors suggested that the blended foci of attachment systems and neuroscience may promote a holistic approach to healing from trauma. They emphasized that therapies treating traumatic stress should incorporate the systems involved in the patient’s affective states such as “social, somatic, cognitive, top-down and bottom-up approaches” (Holt & McLean, 2019; Kozłowska et al., 2015).

Recovery After Exposure

Downtime

Due to the repetitive activation of the nervous system in response to the unpredictable frequency and nature of emergency incidents, physiological recovery for first responders may involve an undetermined amount of time. Halpern et al. (2014) suggested the implementation of “downtime” after critical incidents to prevent exacerbated mental health disorders from developing. “Downtime” is defined as “a period of being out of service after a critical incident” (Halpern et al., 2014, p. 1). Halpern et al. (2014) issued questionnaires to 201 emergency medical technicians (EMTs) measuring the effects of downtime in association with preventing depression symptoms. The study underscored the culture factor of first responder demographics in finding that “barriers” to requesting downtime were “time pressures” and a “culture that stigmatizes vulnerable emotions” (Halpern et al., 2014, p. 2).

The advantage to implementing downtime is that there is no requirement for outside resources such as therapists or diffusers. However, it does constitute an administrative cost in temporarily covering out-of-service manpower (Halpern et al., 2014). Downtime in the form of informal “rest, relaxation and re-establishing control” also had the concurrent benefit of promoting social support amongst peers involved in the incident, which has been identified as a protective factor against PTSD (Halpern et al., 2014).

Shift Work Fatigue

Querstret and Cropley (2012) supported the concept of implementing “downtime” after critical incidents in their study that correlated the effects of “work-related rumination” with sleep quality and work-related fatigue. The authors emphasized that “physiological toughness” may be supported by a consistent period of recovery before returning to work duties (Querstret & Cropley, 2012). Chronic fatigue, commonly experienced due to first responder shift patterns and

repetitive sympathetic nervous system arousals, differs from acute fatigue. It is persistent and develops due to consistent exposure to stress without adequate recovery (Winwood et al., 2007).

Fatigue has been shown to affect psychomotor and cognitive functions as well as mood and motivation (Williamson et al., 2011). Etzion et al. (1998) suggested that adequate recovery should include “psychological detachment from work.” However, even during “off-duty” time, a carry-over rumination of incidents or situations from the work shift may be persistent in first responders (Questret & Cropley, 2012).

Two psychological theories informing the processes of recovery are: the “effort-recovery theory” and the “conservation of resources theory” (Hobfoll, 1998; Meijman & Mulder, 1998; Questret & Cropley, 2012). Both theories complement recovery in that they emphasize the need to “refrain from demands and activities that tax depleted resources and by gaining new internal resources which will help to restore threatened resources” (Sonnentag & Gritz, 2007). Although refraining from occupational responsibilities while on shift is not a feasible option for first responders, an exploration of “internal resources” lends itself to psychotherapeutic options such as modalities conducive to the settling of the nervous system and cognitive awareness such as mindfulness.

Summary

First responders may experience mental health challenges in response to cumulative exposures to PTEs that are an expected part of their occupations. Proactive mental health initiatives for first responders may be informed by a multi-pronged socioecological approach that includes the individual and his/her social support systems inside and outside of the workplace. The literature review has highlighted gaps in all three areas that are amendable in order to move forward with best practices in ensuring proactive mental health for first responders.

Providing first responders with mental health training and knowledge has the potential in achieving buy-in and utilization of learned skills over a career span. This enables a forum for removing the cultural perceptions of stigma associated with mental health. The integration of top down and bottom modalities has the potential to teach the first responder how the body and brain react to occupational exposures. This knowledge base could serve as an early warning system to the first responder when they may be situating outside of their RZ at various timespans of their career. Learning skills and tools at the onset of recruitment would allow for recognition and navigation of deregulatory phases that may occur as a result of cumulative incident exposures.

Having the socioecological structures in place externally includes the organization and the support systems outside of work. The literature review suggested that the organization can support mental health in its employees by providing training, maintenance such as postvention strategies and allowances for post incident nervous system recoveries with concepts such as “downtime”. The monetary commitment was suggested as having a return on investment by such variables as lesser absenteeism, enhanced work performance and better morale.

Off duty mental health is supported by further training that is inclusive of family members or friends so that awareness, empathy and understanding is enabled in the sometimes challenging first responder transitions to “home life”. The literature review suggested that first responders are often protective over loved ones which inhibits the venting outlet of being able to share (and process) stressors from work. The act of listening without judgement or questioning was seen as providing benefits in assisting the settling of nervous system activations.

Research in the field of first responder mental health has been reactive in nature, focusing on studies of diagnosed disorders such as PTSD, depression and substance abuse which are common within the first responder community. The literature reviewed in this chapter suggested that proactive mental health initiatives have the potential to prevent exacerbated disorders in first

responders by providing skills awareness to the individual as well as ensuring that the organization and social structures outside of work are supportive. These socioecological layers influencing proactive mental health informs the model that will be described in Chapter 3.

Chapter 3

The previous literature review revealed that psychological trauma has the potential to disrupt three domains of mental health: “reasonable mastery on one’s environment, caring attachments to others, and meaningful purpose in life that motivates one to invest energy in the world each day to pursue some socially acceptable goal” (Flannery, 2014, p. 263). The review summarized that the various effects of first responder accumulative trauma exposure might be physiologically and mentally intrusive and result in avoidant coping styles (Flannery, 2014). In addition, the literature review addressed the roles of support systems that contribute to ensuring proactive mental health. This includes the first responder’s organizational structures as well as his/her “off duty” family and friends. As exacerbated forms of disorders can manifest as a result of continued exposure to critical incidents, proactively addressing these three areas could enhance mental health. Chapter 3 will describe a proactive model in addressing first responder mental health that considers the challenges and gaps reviewed in the literature review.

Removing the stigma in seeking out and openly talking about mental health would be a primary step in ensuring a proactive approach. Ideally this process should begin during the hiring process and continue throughout a first responder’s career. Recognition that sub-threshold PTSD, depressive symptoms, or substance abuse disorders are prevalent amongst many first responders should inform an integrated approach that considers the effects of repeated nervous system activations in response to critical incidents as well as cognitive thought processes that occur post incident. Therapeutic interventions focusing on maintenance would provide skills to self-regulate stress cycles and tools to address maladaptive thought patterns.

Although top-down modalities would provide psychoeducation and cognitive insight into individual learned behaviours such as perfectionism, rumination styles or stigma, they would not be sufficient in addressing the processes needed in mitigating the cumulative nervous system

activations that a first responder may experience. Expanding from evidence-based CBT modalities to incorporate bottom-up modalities informed by neurobiological frameworks such as mindfulness, SE, tracking, and interoception could provide a level of awareness and access to the first responder in recognizing when they have been “bumped” outside of their resilient zone.

Resiliency has been known to enhance situational adaptation and self-regulatory skills in response to stressful or even traumatic situations (Friedman et al., 2014). This proactive mindset should therefore be fostered in all aspects of a first responder's life so that they are provided with best practices in experiencing quality of life. Miller-Karas (2019) suggested that a focus on being resiliency-informed should be part of trauma-sensitive awareness. Ideally, this should encompass the first responder individual, their organization and their community (Miller-Karas, 2019).

Although the first goal in proactive mental health would be to provide the individual with resiliency tools so that they can better adapt to occupational stressors, the surrounding environment, including the organization and social network, needs to be incorporated to form an inclusive framework. Chapter 3 will outline a model that incorporates proactive measures of resiliency into the existing socioecological layers of the first responder's life.

The Outer Inner Circle Model

When a firefighter arrives on scene for a motor vehicle accident, before they can engage in their occupational duties, a scene assessment is conducted to ensure personal safety. This process involves conducting an outer and inner circle around the incident that considers variables such as the environment, number of patients, hazards and how they will influence decision making. Examples such as downed electrical wires, spilled fuel, stabilization of vehicle informs how the firefighter will proceed with action planning and constitutes the “outer circle.” This process is often performed in a survey called the “360,” which is an accumulation of information informing personal safety of self and others on how best to proceed. The “inner circle” is a term

used to recognize factors closer to the inside of the scene and may include variables such as the trapped patient's medical condition, triage considerations for multiple trapped passengers, or auto extrication barriers. Although the concept of the "outer-inner circle" has been described as a strategy for the firefighting demographic, this is a similar concept practiced by paramedics and police during their scene assessments that survey for variables such as concealed weapons, infected needles, or combative patients. The rationale informing the outer inner circle is to practice situational awareness of the multiple layers that comprise personal safety when responding to a critical incident. "Tunnel vision" and "free lancing" are negative connotations used to describe the firefighting individual who carries out tasks in an isolated manner without collaboration of team members and a thorough scene assessment.

I have metaphorically adapted this concept to describe proactive mental health measures that aim at incorporating the socioecological layers of the first responder individual, the organization and the support system. The use of terminology that mirrors occupational concepts promotes 'buy-in' of mental health concepts that are relatable by first responders. Just as reducing the stigma of talking about mental health has had positive influence by the push of equating physical health to mental health, using language-based occupational concepts and equating them with a proactive mental health could further promote relatability. The following sections will provide a breakdown of what represents the outer and inner circles of the model. In a nutshell, the outer circle represents the first responder's social connections, organizational structure and mental health resources, whereas the inner circle represents the individual's awareness of cognitions and behaviours as a response to cumulative exposures to critical incidents.

Outer Circle

Social Support

Part of the outer circle includes the comradery between first responders in working together as a team during both emergency and non-emergency times and this extends to off-duty support networks as well. In keeping with the goal of settling repeated sympathetic nervous system arousals, it is in the best interest that peers, family and friends have awareness of how best to provide support to the first responder during these processes. Psychoeducation for first responder peers should aim to teach recognition of the signs and symptoms of stress in each other. These skills could be tailored and informed by existing models such as Psychological First Aid or Trauma Risk Management (Brooks et al., 2016). Learning and utilizing communication skills such as active listening, knowing how to approach a member and when to suggest access to external resources would foster an open forum to maintaining stable mental health in each other.

The connectivity to social relationships that the first responder experiences during their off-duty life should enable an environment of empathy and understanding of the cumulative stressors and sleep deficiencies experienced from work shifts. “Re-entry” transitions from work to home are particularly sensitive periods where a first responder’s nervous system may still be elevated in sympathetic arousal state. Providing the space needed to “settle back in” can be taught to families and friends to support the first responder’s nervous system recovery. Similar to peer support qualities, “selfless listening” while putting aside questions was labelled as the most helpful attribute that first responders valued in sharing details from work without judgment (Evans et al., 2013). Furthermore, non-verbal gestures such as “cooking a favorite meal” would be an example of the support that allows the first responder to feel that they were being cared for just as they have cared for others while on duty (Evans et al., 2013).

As the study of UK police officers done by Evans et al. (2013) suggested, first responders utilize emotional talk with partners and close family members. However, this was often limited in being able to vent details because of the natural inclination to protect others from details of traumatic calls. As incidents causing the most distress are often those with personal relevance, encouraging a social ecology that allows for emotional expression would provide a forum to vent psychological reactions (Evans et al., 2013). Ideally, this process should begin during the recruitment phase in efforts to promote open-mindedness to discussing mental health, striving to amend the cultural stigma that is evident in first responder demographics. Guest speakers, such as senior peers, firefighter spouses such as Anne Gagliano quoted in the literature review, or professional mental health resources, could provide education on the occupational effects of first responder exposure to stressors. Extending beyond recruitment, annual training matrixes should aim to provide check-ins covering the different phases of career spans, such as promotion or retirement. Much like the camaraderie between first responders, friends and family members, could benefit from being able to reach out and connect with each other as well.

Culturally Competent Therapists

The ethical principle on behalf of practitioners should be respecting the human dignity of first responders and their rights to mental health care while at the same time understanding the unique culture that governs these professions (Lanza et al., 2018). As a “greater expectation for change has been reported among clients whose counsellors offered a compatible explanation of the client’s distress”, having an understanding of the cultural aspects of the various first responder groups could contribute to the positive therapeutic rapport between client and therapist (Buse et al., 2013, p. 19).

Culturally competent therapists working with first responders should possess the awareness that the processes necessary for these demographics to complete their occupational

tasks filter into their mindsets, behaviors and bodies outside of their work environments. For therapeutic interventions to be effective, shifting first responder mindsets is crucial in enabling open-mindedness and awareness of therapeutic processes (Flannery, 2014). As the first responder mindset during the critical incident is one of detachment, quick assessment, and immediate self-directed decisions, this mindset of vigilance needs to be adapted post-incident in order to integrate mental health awareness and enable a return to baselines (Flannery, 2014).

During postvention diffusing environments, offering practical assistance and focus on strengths and resilience should supersede talking about the traumatic event (Kronenberg et al., 2008). This concept encompasses the theoretical ideals of Psychological First Aid, which does not assume pathology in response to traumatic experiences (Kronenberg et al., 2008). The ideal post-incident mindset should allow space for awareness of effects, self-compassion and reliance on others for assistance (Flannery, 2014). This implies that therapeutic rapport with the first responder should strive for a solid base of safety, trust and confidentiality before exploration of issues at hand is taken on.

Sensitivity to cultural characteristics between different first responder demographics should inform the communication styles of the therapist. As seen in the study undertaken by the Louisiana State University Health Sciences Center Department of Psychiatry (LSUHSC), police members were seen as initially distancing themselves from therapists and used humour as deflective tactics, whereas firefighters viewed therapists with “guided warmth” and became open and relaxed after a number of sessions (Kronenberg et al., 2008). In order to establish therapeutic rapport, successful therapists should be cognizant of which characteristics will come across as trustworthy to the first responder (Kronenberg et al., 2008).

Based on the neurological frameworks informing first responder stress cycles, competent therapists should be attuned to recognizing somatic signs that may indicate nervous system

activations. Asking questions as “invitational prompts” to the first responder and highlighting if/when somatic nuances appear could offer greater awareness in how to build resiliency skills (Miller-Karas, 2019). Also, just as tracking skills are taught to the first responder so that he/she becomes aware of physiological markers of personal stress, the therapist should also be aware of their tracking and how they may be subconsciously displaying or integrating vicarious trauma into shared narratives.

Therapeutic modalities targeting traumatic stress bring debate on which ones best target the cumulative stressors that first responders are exposed to. It can be posited that there is no “one size fits all” modality that would best be suited to all first responder communities. It can be argued, however, that evidence-based Western mental health interventions such as top-down modalities would not address the physiological nervous system work that needs to be done with first responders (Holt & McLean, 2019). Leitch (2007) summarizes this concept: “Western mental health interventions often use ‘top down’ approaches such as CBT, drawing on talk, insight, and emotions-however these approaches may not adequately translate to a cultural group where the community is more important than the individual; alternatively, ‘bottom up’ approaches with somatic stabilization could be less culture-specific due to the focus on common human biological responses” (p. 15).

The literature review provided an oversight of theoretical frameworks commonly used in trauma cases, even though most of these were gathered from clients with diagnosed PTSD. As with any therapeutic case conceptualisation, having various modality options and tailoring them to the individual would seem best practice. This project has defined the first responder in general terms. However, unique characteristics are still present with each client and variables such as genetic markers, developmental history, childhood events, or attachment styles would need to be considered when tailoring case conceptualization.

Ensuring Organizational Commitment

With the evidence growing on the efficacy of proactive mental health measures for first responders, the importance of creating organizational structures is crucial in building supportive environments that increase resiliency amongst its employees. Because administrative commitment entails a financial component, getting buy-in through this type of lens would seem prudent. Outlining monetary benefits that equate greater resiliency skills with reduced absenteeism could be one such statistic. For instance, the Mental Health Commission of Canada (2014) designated mental and emotional fatigue as the factor for 28% of absenteeism for police organizations (Thompson & Drew, 2020). Outlining how variables related to resiliency skills positively influence on duty judgement and decision-making could further highlight the benefits of investing in proactive skills. For example, resiliency training in police organizations has been seen as “decreasing the frequency of on the job driving accidents and the use of excessive force in high-stress situations” (McCraty & Atkinson, 2012; Thompson & Drew, 2020, p. 4). Other examples implicating a financial return on investment could include: “fewer citizens’ complaints, fewer lawsuits, decreased organizational liabilities and increased community safety” (McCraty & Atkinson, 2012; Thompson & Drew, 2020, p. 4).

In light of the aforementioned reasons, the return on investment for extra training and resources such as culturally competent therapists has to be communicated to the decision makers. Ultimately, training costs are a financial commitment that is decided by administrative bodies dependent on the different first responder demographics seeking proactive mental health measures. For example, in fire departments, deputy chiefs typically present projected budgets to their respective city councils for approval. Having supportive working relationships between unions and administrations would serve for united fronts in the common goal of mental health. Although not a topic within this project, advocating for proactive mental health to secure

funding should be done by committed individuals, groups, and union members within each first responder demographic.

The Inner Circle

Identifying the Resilient Zone

As part of the inner circle, attention control during present moment exposures to traumatic events would teach first responders how to focus on positive information and filter out irrelevant negative information. This would provide a protective buffer against self-criticism, which is a common trait of first responders, as well as dampening the potential negative effects of post-incident rumination (Kaurin et al., 2018). Karas-Miller (2019) defined the resilient zone as representing “the natural rhythm or flow within the nervous system” (p. 33). As reviewed in the literature review, various bottom-up modalities focusing on neurobiological markers, sensations and feelings could teach first responders awareness of when they are being bumped outside of their RZ. Drawing on the initial six skills outlined in the Trauma Resiliency Model, first responders would be able to respond by managing their sensations with skills such as tracking, resourcing, grounding, gesturing, help now strategies and shift and stay techniques (Miller-Karas, 2019). The identification of one’s personal resilient zone could be taught in recruit classes and subsequently applied once the first responder was assigned to their position “in the field”.

Top-down modalities, such as multimodal cognitive-behavioural therapies, could target awareness and management of maladaptive thinking and behavioural patterns commonly experienced in reaction to critical incident stress (Lynn et al., 2010). Cognitive distortions such as catastrophic thinking and avoidance-based coping strategies could be re-framed and minimized by the goal-directed focus of CBT interventions such as positive self-talk, examining the evidence, Socratic questioning, identifying cognitive distortions, mindfulness, and self-

compassion. Particularly focusing on negative rumination style thinking patterns with the various CBT techniques reviewed in the literature review would draw attention to maladaptive cognition patterns.

Physical Variables of Self-Care

Although the focus of this project has been to examine proactive mental health measures, physical variables such as exercise and sleep hygiene are conducive to ensuring the efficacy of interventions. As sleep deficiencies have been associated with stress and psychopathology, increasing resiliency by proactive measures has the inverse benefit of improving sleep disturbances or deficiencies (Arnetz et al., 2013; Marmar et al., 2006). The Arnetz et al. (2013) study on Swedish police officers determined that psychological and technical training provided in cadet school resulted in reports of less sleep difficulty compared to the control group. Improved sleep also has the benefit of providing physical energy and cognitive enhancement resulting in better job performance (Arnetz et al., 2013; Kales et al., 1984). Examining which shift patterns provide the most beneficial recovery times for first responders has implications for future studies.

Limitations

First responder mental health is often pathologically defined, especially since most studies are reactive in nature once disorders such as PTSD, depression and substance abuse have been diagnosed. Various definitions of resiliency have been explored in this project such as positive reappraisal, social connectivity, self-awareness of being outside of one's resilient zone and organizational support. However, the measurements of how components of resilience contribute to the prevention of mental health disorders may be challenging to gather. Accumulating data for measuring the efficacy of resiliency should ideally be gathered at various timelines of first responder careers to ascertain long term effects of variables such as promotion,

cumulative exposure to PTEs, aging, injury, retirement and this constitutes a lengthy commitment on behalf of researchers. Perhaps breaking career spans into 1 year, 5 year, 10 year and 20 year increments would provide initial information on resiliency efficacy.

Although first responders share commonalities in responding to potentially traumatic events, the cultural differences in various sub-groups such as police, firefighters or paramedics should be addressed in tailoring proactive mental health approaches. For example, as reviewed in the literature review, police are often sworn to confidentiality to protect private investigation procedures as part of their occupational duties and this could affect the openness or willingness in talking to a therapist. Firefighters, on the other hand, may have the group comraderie attitude of “we’ll take care of this in house” as opposed to reaching out for mental health help.

This Capstone project does not address gender differences and how mental health might have different impacts on male and female first responders. For instance, maternity leaves for females and the re-entry transitions back into the workplace has significant mental health implications such as anxiety over job performance after time off that could be explored in different studies.

This Capstone has drawn awareness to the implications of nervous system activations in relation to first responder mental health. Although it has been suggested that a neuroscientific explanation may promote first responder “buy-in” to mental health, there is an ethical obligation to incorporate awareness and informed consent within any therapeutic alliance using these modalities (Holt & McLean, 2019). Clients, in general, may be drawn to the ‘easy’ explanations of neuroscience which present as “satisfying” evidence in explaining their presenting disorders (Holt & McLean, 2019). One possible caveat may be that the mind-body-spirit component of the individual is steamrolled by neuroscientific explanation. Bott et al. (2016) suggested that “practitioners need to be aware this ‘seductive allure’ can also impact them, leading to

neurocentric or neuroessentialist views reducing clients to their neurobiology rather than holistic, subjective individuals with integrated minds and bodies operating in rich biopsychosociocultural fields” (p. 325).

Summary

A first responder’s affective experience is determined by a myriad of interacting influences, including previous experiences, personal resources, exposure to PTEs, and individual personality traits. The first responder should be educated not only in maintaining physical health but how mental health goes hand in hand in ensuring a balance of a mind/body/spirit equilibrium. An integrated approach of top-down and bottom-up awareness satisfies the proactive lens of ensuring first responder mental health. Recognition of the symbiotic relationship between work and personal life stressors is unique to each individual and may fluctuate during a career span.

Beyond educating the individual, the social networks connected to the first responder should be provided with awareness on mental health effects to occupational stress. The first responder’s organization provides the backdrop in ensuring a work environment enabling an open forum to talk about mental health without stigma and that vetted mental health resources are available if needed. Sometimes simply enabling a platform for the first responder to talk and be listened to without judgement is enough in being validated. However, in cases of critical incidents that exceed regular levels, operational guidelines should be in place for postvention maintenance.

There are still significant gaps to incorporating proactive mental health within first responder cultures. This cultural mindset still equates mental health issues as signs of weakness or as pathological disorders. Although many organizations are “talking the talk”, “walking the walk” has not been a parallel process. Funding is partly to blame as there are significant monetary investments required to pay for processes such as “downtime”, vetted mental health

practitionaires and/or training matrixes. However, as suggested, the return on investment of funding proactive measures equates with an improved quality of life for the responder in the knowledge that the organization “has his/her back”.

Just as every emergency incident has to have a “plan B” in the case that “plan A” does not have the desired outcome, so does a first responder’s navigation of occupational exposures throughout a career span. Outside work events/stressors such as marriage, parenthood, divorce, or death of a loved one will have an effect on how one responds to critical incidents while on duty. For instance, after becoming a mother, incidents involving children became more of a trigger or nervous system activation for me. Similarly, my parents aging has affected my mental reactivity at cardiac arrests involving elderly patients. In addition, being aware of incidents with personal relevance has been a mindful practice not to carry negativity bias with me into my family life. An example to illustrate this concept is a second alarm residential fire I attended accidentally started by an adolescent’s bedroom candle. During my days off I incorporated mindfulness and the CBT skill of reframing catastrophic thinking to avoid “flying off the handle” when my teenager lit a candle in her bedroom.

Validation and support provided by the structures that comprise the outer circle enables the first responder to reach out and communicate the vulnerability of mental health issues. Knowing one’s individual characteristics within the domains of mind, body and spirit guides the interventions to employ when needed. It goes without saying that predictability in first responder professions is not an expectation but that preparedness and skills to navigate mental health challenges should they occur is best practice.

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