Perceptions of Mental Preparedness in Emergency Medical Services Students: A

Qualitative Study

Nicole Dietsche

Dissertation Submitted to the Doctoral Program

of the American College of Education

in partial fulfillment of the requirements for the degree of

Doctor of Education in Curriculum and Instruction

September 2022

Perceptions of Mental Preparedness in Emergency Medical Services Students: A

Qualitative Study

Nicole Dietsche

Approved by:

Dissertation Chair: Junfu Gao, PhD

Committee Member: Barbara Yalof, EdD

Abstract

Emergency medical services (EMS) professionals in the United States lack the resources, education, and support systems needed for effective management of the occupation's chronic traumatic stressors, which has resulted in a mental health crisis. The purpose of this basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training per the existing curricula in EMS educational programs in the eastern United States. The research fills the gap in the literature by better understanding EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors. Information processing theory and the wounded healer concept provided the theoretical framework for the study. The research questions guiding the study related to EMS professionals' descriptions of, and opinions about, the value of mental preparedness training to manage occupational stress. A purposive sample of 20 participants from EMS training programs in the eastern United States participated in one-on-one semistructured interviews. Qualitative narrative analysis was used to identify common themes. Participants were unable to describe mental preparedness curricula adequately and noted a lack of specific training regarding the protection of personal mental health. Participants' reliance on external and preexisting stress management skills emphasized the shortcomings of the curricula and training. Recommendations for future research include identifying the most effective mental preparedness training for EMS professionals throughout an individual's career. Results of the study are intended to guide meaningful improvements to EMS curricula to support mental preparedness and promote positive social change by mitigating the psychological burden of EMS professionals.

Keywords: emergency medical services, mental preparedness, occupational stress, resilience

Dedication

This dissertation is dedicated to my family – both blood and EMS -- who provided endless support, encouragement, and inspiration during this process. I hope this work allows me to give back to the people and the occupation that gave me so much.

Acknowledgments

I would never have been able to complete this journey without the invaluable support of the fantastic people who make up my community. To my parents: thank you for teaching me to work hard, persevere, and never limit myself. To my husband, Kyle: thank you for providing me with the patience, grace, and tea to accomplish my goals. To my brother, Eric: I'm excited that we'll both be doctors now! I love you all.

I would also like to express gratitude to the faculty and staff of American College of Education for support and guidance throughout my entire advanced education journey. Special thanks to my chairperson, Dr. Junfu Gao, and my committee member, Dr. Barbara Yalof, for contributing valuable feedback and guidance during the dissertation process.

Table of Contents

Lists of Tables

Table

List of Figures

Figure

Chapter 1: Introduction

Poor mental health has extensive and long-lasting impacts on personal well-being and quality of life (Smith et al., 2019). Individuals exposed to frequent and persistent traumatic stressors, particularly first responders, are at increased risk of developing mental health issues and suicidal ideology (Vigil et al., 2018). Emergency medical services (EMS) professionals are regularly exposed to multiple stressors (Renkiewicz & Hubble, 2021). In the absence of proper coping and management strategies, unattended cumulative stress creates debilitating psychological issues (Vigil et al., 2018). The focus of the study was an exploration of the beliefs and opinions of EMS professionals regarding mental preparedness obtained via interactions with the EMS curriculum; the aim of the exploration was to identify opportunities to reduce adverse psychological outcomes for EMS professionals.

To confirm the problem exists, the background of the study is presented in Chapter 1. Research context and a brief review of the existing literature related to occupational risk factors, mitigating factors, resilience to posttraumatic stress syndrome (PTSS) and posttraumatic stress disorder (PTSD), and PTSS and PTSD in the EMS curriculum. Also included in the chapter are the study's research questions, theoretical framework, definition of terms, assumptions, limitations, delimitations, and significance within the body of literature.

Background of the Problem

In the 2 decades since 9/11, suicide rates among first responder populations have increased 800% compared to the rates among the general population (Varker et al., 2018). Routine exposure to traumatic events paired with contributing factors such as organizational stressors, inadequate coping skills, poor access to mental health resources, and stigmatization of mental health care exacerbates historical risk factors and compounds psychological stress

(Carbajal et al., 2021; Jones, 2017; Lewis-Schroeder et al., 2018). Although a substantial number

of researchers explored mental health impacts in military, police, and firefighter populations (de

Terte & Stephens, 2015), few have investigated similar concerns within the EMS community. As

detailed in Chapter 2, existing literature provides few insights due to a lack of research focused

solely on the unique experiences of EMS professionals.

EMS educational leaders have had no substantial, evidence-based guidance for the

modification or enhancement of curricula to better support students' mental readiness (Chirico et

al., 2020). According to Hruska and Barduhn (2021), ensuring EMS students are adequately

mentally prepared to enter a high-risk occupation improves personal, professional, and patient

outcomes.

The study contributes to the body of knowledge regarding EMS professionals'

perceptions of personal mental readiness to manage occupational stressors after training

conducted per the existing educational curriculum.

Statement of the Problem

The problem is that EMS professionals in the United States lack the resources, education,

and support systems necessary for effective management of the chronic traumatic stressors of the

occupation, resulting in a mental health crisis (Bentley et al., 2013; Brassington & Lomas, 2020;

Skeffington et al., 2016; Varker et al., 2018). Inconsistent and inadequate engagement with

curricular content addressing the inherent psychological risks of an EMS career, and strategies

for establishing effective mental readiness, has exacerbated the problem (Clark et al., 2021;

Gayton & Lovell, 2012; Swab & Donne, 2019). EMS professionals attending or recently

graduated from EMS training programs in the eastern United States were the target population

for the study.

Other researchers have highlighted the multifaceted and complex issues facing EMS professionals attempting to navigate personal well-being (Holmes et al., 2020; Newland et al., 2015; Varker et al., 2018). Despite known risk factors associated with a career in EMS there has been little to no prescreening for predisposing psychological risk factors before admission to EMS training programs or during employment (Carmassi et al., 2016; Wild et al., 2018). Compounding the issue of vulnerable individuals working in a high-risk occupation has been the lack of attention to the development of positive coping strategies for mental well-being in EMS curricula (Chirico et al., 2020; Clark et al., 2021; Donnelly et al., 2020; Hruska & Barduhn, 2021; Ricciardelli et al., 2020). Austin et al. (2018) found that only 30% of EMS professionals reported learning coping strategies to manage traumatic events during their EMS education. Although a significant body of research suggests explicit mental health and coping strategies curricula may minimize the impact of high-risk occupations (Horn & Feder, 2018; Michael et al., 2016; Motreff et al., 2020; Rybojad et al., 2016; Sayed et al., 2015), only Holmes et al. (2020) specifically investigated the efficacy of mental readiness education in EMS professionals.

Purpose of the Study

The purpose of the basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training conducted per the existing curricula in EMS educational programs in the eastern United States. The goal of the study emerged from the immediate need to address the ongoing mental health crisis among EMS professionals (Bentley et al., 2013; Brassington & Lomas, 2020; Skeffington et al., 2016; Varker et al., 2018). Exploration of EMS professionals' specific experiences, perceptions, and beliefs provided insight to guide future research and potential strategies to manage the problem.

Qualitative methodology and basic qualitative design were applied to the study to allow

for the collection of robust, detailed descriptions of EMS professionals' experiences and

perceptions, along with a preliminary exploration of the topic, to serve as a foundation for future

research (Merriam & Grenier, 2019; Merriam & Tisdell, 2014; Price et al., 2018). A

semistructured interview protocol was developed to collect information specific to the research

questions. Factual data were collected via demographic questionnaires and interviews with

participants from multiple settings (Kern, 2018; Noble & Heale, 2019). Twenty participants were

recruited to create a sample with the optimal size for the study. Interviews were completed

virtually, recorded, and transcribed. Member checks ensured credibility, dependability, and the

accurate representation of personal perspectives (Candela, 2019; Creswell & Guetterman, 2020).

Narrative thematic analysis was used to examine the content of the data. Data were open coded

using MAXQDA (Version 18.2).

Significance of the Study

The national EMS curriculum provides no guidance for EMS educators to ensure

specific, consistent, or structured training for EMS professionals (Anderson et al., 2017; Holmes

et al., 2020; Wild et al., 2018). Despite the growing numbers of EMS professionals struggling

with serious mental health issues, no actionable plan exists to ensure the safety and well-being of

EMS professionals (EMS Agenda 2050 Technical Expert Panel, 2019). Given the unique risk

factors inherent in working in EMS, the study provides information and insight specific to EMS

professionals, separate from the overarching first responder population.

The study advanced the knowledge of EMS professionals' experiences with mental

readiness in training received per the EMS curricula. The information gathered in the study could

help inform EMS educational leaders and policymakers about areas needing improvement within

curricula and instruction to better support mental readiness. Descriptions of participants'

interactions with mental readiness during educational experiences, and the value assigned to

those experiences, explored strengths and weaknesses of the existing curricula and instructional

methods.

Research Questions

A qualitative study's research questions are rooted in the spirit of qualitative research and

intended to provide rich, robust descriptions of participants' lived experiences (Price et al.,

2018). To achieve the purpose of the study, two research questions were designed to support

naturalistic inquiry into the human perspective. The following research questions guided the

study:

Research Question 1: What are EMS professionals' opinions about the value of EMS

curricula in EMS educational programs in the eastern United States with regard to mental

preparation for managing occupational stressors?

Research Question 2: How do EMS students from EMS educational programs in the

eastern United States describe the training received to prepare mentally to manage occupational

stress?

Theoretical Framework

Information processing theory and the wounded healer concept provided the theoretical

framework for the study. Atkinson and Shiffrin (1968) proposed information processing as a

model of human memory in which the brain receives and processes input into sensory memory,

short-term memory, or long-term memory. Normal processing manages a finite amount of data

in a top-down, contextual manner and generates appropriate behavioral and psychological

responses (Bomyea et al., 2017; Koenig et al., 2017; Pratiwi et al., 2019). Traumatic exposure

has the potential to alter typical information processing, resulting in bottom-up, stimulus-driven

processing commonly found in individuals struggling with PTSD and related psychological

syndromes such as anxiety, depression, compassion fatigue, and burnout (Bomyea et al., 2017;

Nicholson et al., 2017; Renkiewicz & Hubble, 2021; Weber, 2008). The intersection of

information processing theory and the wounded healer concept created a lens to analyze the

collected data and answer the study's research questions.

The wounded healer concept, initially proposed by Jung (1961) and later refined for

health care professionals by Conti-O'Hare (2002), suggests that adverse life experiences

motivate individuals to enter the health care profession. Acknowledgment of personal traumas

supports individual growth and transformation along a continuum from walking wounded

through wounded healer to compassionate caretakers (Conti-O'Hare, 2002; Newcomb et al.,

2015). Chapter 2 describes the relationship between wounded healers and information

processing, including how maladaptive information processing interrupts transcendence from

trauma.

<div align="center">**Definitions of Terms**</div>

The definitions listed below provide concise and specific information for terms used in

the study.

Burnout is defined as a psychological condition frequently caused by emotional and

physical overload and associated with feelings of increased frustration, detachment,

hopelessness, and apathy towards occupational duties (Hunsaker et al., 2015).

Compassion fatigue, characterized by overwhelming emotional and physical exhaustion and loss of empathy and benevolence, results from frequent exposure to others' trauma and suffering (Hunsaker et al., 2015; Renkiewicz & Hubble, 2021).

Coping strategies are techniques, resources, and mechanisms an individual employs to manage stress, ranging from positive strategies, such as exercising or seeking social interactions, to negative strategies, such as using drugs and alcohol or engaging in self-blame (Heffer & Willoughby, 2017).

Emergency medical services (EMS) form a division of the overarching health care system and consist of emergency medical technicians (EMTs) and paramedics (EMS Agenda 2050 Technical Expert Panel, 2019). EMS systems rely on mobile clinical resources (e.g., ambulances and helicopters) to respond to acute and chronic injuries and illnesses in communities (EMS Agenda 2050 Technical Expert Panel, 2019).

EMS professionals, vital components of the health care system, are clinicians operating in a prehospital setting to provide emergency care to sick and injured people (EMS Agenda 2050 Technical Expert Panel, 2019).

EMS student is used interchangeably with "EMS professional." Although "students" are often considered novices, EMS students actively participate in hands-on patient care under the mentorship of preceptors as a part of educational requirements and are thus exposed to occupational stressors (Brooks et al., 2015). Also, to maintain certification, all EMS professionals are required to participate in continuing education or recertification courses, creating perpetual students and life-long learners (Brooks et al., 2015).

High-risk occupations involve frequent and regular exposure to stressful and traumatizing events, often resulting in an increased likelihood of negative mental and physical outcomes (Britt

et al., 2016; Hruska & Barduhn, 2021). According to de Terte and Stephens (2015), occupations

recognized as high-risk include the military and first responders (police, firefighters, and EMS).

Mental preparedness/mental readiness are used interchangeably to describe a set of

skills, such as coping strategies and resilience, used for psychological protection against stress

and adverse mental health outcomes (Carleton et al., 2018).

Occupational stress is acute, chronic, critical, or cumulative injurious stress resulting

from exposure to situations inherent in a specific occupation (Antony et al., 2020). Situations

experienced by EMS professionals include death or injury of children, mass casualty incidents,

suicide, threats of bodily harm, large-scale disasters, and exposure to toxic or infectious

substances (Boland et al., 2019).

Assumptions

Theofanidis and Fountouki (2019) defined assumptions as ideas and concepts commonly

accepted as reasonable. Underlying assumptions in qualitative research include the effective and

accurate representation of participants' experiences and that such research can facilitate social

change (Thomas, 2017). Clearly outlining and defining assumptions improves transparency and

transferability in research (Mir, 2018). Because the study sought to better understand the lived

experiences of EMS professionals through the collection and analysis of semistructured, one-on-

one interviews, purposive sampling was used to ensure participants were members of the desired

population and had experiences related to the problem investigated (Emmel, 2013). One

assumption of the study was that participants openly and honestly shared personal interpretations

of direct, robust, and complex experiences related to the research problem (Cleland, 2017).

Another assumption was that the interview questions were appropriate for gathering the

information needed to explore the research questions.

Scope and Delimitations

The focus of the study was an exploration of EMS professionals' opinions of mental preparation per the existing EMS curricula. According to Alexander (2020), delimitations are purposefully established boundaries of an intended study. Open and honest reporting of a study's delimitations improves transferability by improving rigor and the quality of reported findings (Theofanidis & Fountouki, 2019). With hundreds of thousands of EMS professionals in the United States hailing from hundreds of EMS training sites, restricting the scope of the study to a single geographic region was necessary. The study was narrowed to include 20 EMS professionals engaged with EMS curricula as students of training programs located in the eastern United States. Because the study intended to explore common themes identified within interviewees' experiences using a narrative approach, an extended time frame of three weeks was needed to support performance of the interviews, identification of themes, understanding variations among personal experiences, and synthesis of multiple accounts of the studied phenomenon (Cleland, 2017).

Limitations

Alexander (2020) defined limitations as unanticipated and uncontrolled factors that could negatively impact a study's results. Limitations of the study included the sample and data collection. The specificity of the topic necessitated a purposeful sample limited to EMS professionals attending, or recently graduated from, an EMS training program (Campbell et al., 2020). Pandemic-related alterations to EMS education protocols had the potential to limit the sample. Modifications to training program schedules and instructional delivery methods reduced class sizes and opportunities to access class rosters for recruitment. Multiple geographically

diverse EMS training sites were secured to reduce the impact of sample limitations and minimize sources of interpersonal bias.

Data collection was performed using semistructured, one-on-one interviews on a virtual platform. According to Hill et al. (2021), limitations of virtual interviews include technological issues, such as failure to record interviews, unreliable internet connections, and failure to experience non-verbal cues. Over recruitment of participants ensured the minimum sample size was reached, and the review of recorded interviews revealed any missed non-verbal responses.

Chapter Summary

A growing number of EMS professionals have been experiencing serious psychological consequences from occupational-related traumatic exposure (Holmes et al., 2020; Varker et al., 2018). Complex interactions among historical risk factors, inadequate mental preparedness, organizational stressors, and employment in high-risk occupations compound and exacerbate mental health concerns (Carbajal et al., 2021; Jones, 2017; Lewis-Schroeder et al., 2018)**.** The increasing strain on the health care system has necessitated the identification of strengths, weaknesses, and solutions to keep EMS professionals and health care workers safe.

The goal of the study was exploration of EMS professionals' beliefs about mental readiness to manage occupational stressors after receiving training conducted per the existing EMS curricula. Two research questions guided the study. Information processing theory (Atkinson & Shiffrin, 1968) and the wounded healer concept (Conti-O'Hare, 2002; Jung, 1961) provided the theoretical framework for the study. A chief assumption was that participants were honest and truthful. Limitations included challenges in accessing participants, which could have resulted in failure to meet sample size. The use of geographically diverse research sites and

virtual interviews allowed limitations to be overcome. A review of the literature is discussed in

Chapter 2.

Chapter 2: Literature Review

The problem is that EMS professionals in the United States lack the resources, education, and support systems necessary for effective management of the chronic traumatic stressors of the occupation, resulting in a mental health crisis (Bentley et al., 2013; Brassington & Lomas, 2020; Skeffington et al., 2016; Varker et al., 2018). EMS is a high-risk occupation due to the high potential for regular, persistent exposure to traumatic stressors (Britt et al., 2016; Hruska & Barduhn, 2021). Individuals employed in high-risk occupations are 22% more likely to develop PTSD than members of the general population (Alaqeel et al., 2019). Data regarding the EMS community remains incomplete due to inconsistent data collection across agencies, inaccurate self-reporting, the stigma associated with receiving psychological assistance, mixed research samples drawing on a range of different first responder services, and the prevalence of subclinical PTSS without corresponding PTSD diagnosis (Alaqeel et al., 2019; Donnelly et al., 2016, 2020; Michael et al., 2016; Petrie et al., 2018). The available data indicate that the rate of clinical PTSD has been 32% in the EMS population (Smith et al., 2019; Walker et al., 2016). Not accounting for depression, anxiety, burnout, and other PTSS, EMS professionals have exhibited the highest prevalence of PTSD among all emergency workers, suggesting an uncontrolled, ongoing issue (Smith et al., 2019; Walker et al., 2016). Even without a clinical PTSD diagnosis, the consequences of PTSS include significant decreases in quality of life due to sleep disturbances, substance abuse, suicidal ideation, physical and emotional burnout, and development of physical comorbidities (Birur et al., 2017; Brassington & Lomas, 2020; Hruska & Barduhn, 2021).

The purpose of the basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training

conducted per the existing curricula in EMS educational programs in the eastern United States.

Understanding the perceptions of EMS students regarding the adequacy of preparation for the

mental health consequences of the occupation is advantageous for promoting personal well-

being, professional longevity, and high-quality patient care (Holmes et al., 2020; Hruska &

Barduhn, 2021).

Discussed in the chapter is the literature search strategy used and the theoretical

framework underpinning the study, consisting of elements of information processing theory and

the wounded healer concept (Conti-O'Hare, 2002; Pratiwi et al., 2019; Weber, 2008). An in-

depth review of existing literature follows, highlighting the following topics: occupational risk

factors, mitigating factors, resilience to PTSS and PTSD, and PTSS and PTSD in EMS curricula.

Literature Search Strategy

A search was conducted in the following databases for relevant peer-reviewed journal

articles: Google Scholar, NCBI, and EBSCOhost. Preference was given to full-text articles

published between 2016 and 2021. The literature search was expanded to include older articles to

obtain additional context and information. Articles not published in English were excluded. The

following search terms were used alone and in combination: *attention bias, burnout, compassion*

fatigue, coping mechanisms, coping strategies, critical incident stress debriefing, critical stress,

early intervention, EMS curriculum, EMS education, EMS providers, first responders, high-

stress occupations, high-risk occupations, mental preparedness, mitigating factors, occupational

risk factors, occupational stressors, operational stress, organizational stress, paramedics,

posttraumatic growth, posttraumatic stress, psychological readiness, PTSD, PTSD awareness,

PTSD prevention, resilience, social support, support systems, and *training.*

Theoretical Framework

Information processing theory and the wounded healer concept constituted the framework for the study, providing a lens to analyze and interpret the lived experiences of EMS professionals. Atkinson and Shiffrin (1968) described information processing theory. Jung (1961) first proposed the wounded healer theory, which Conti-O'Hare (2002) further refined for the health care sector. In the context of PTSD, these theories are synergistic in their representation of components of neurological and psychological challenges faced by EMS professionals in their careers (Vasterling & Hall, 2018).

Information Processing Theory

Information processing theory postulates that the human brain receives input and generates appropriate behavioral responses (Pratiwi et al., 2019). According to Atkinson and Shiffrin's (1968) model of human memory, the brain receives input and processes the information into sensory memory, short-term memory, or long-term memory. This process typically involves a finite quantity of data at one time and occurs in a top-down, contextual manner (Bomyea et al., 2017; Koenig et al., 2017). Weber (2008) theorized that traumatic exposure might alter standard information processing, resulting in information processing biases. PTSD patients commonly develop maladaptive bottom-up, stimulus-driven information processing (Bomyea et al., 2017; Nicholson et al., 2017).

Traumatic exposure can lead to inappropriate memory integration, resulting in the hallmark symptoms of PTSD, including anxiety, intrusive memories, hypervigilance, and hyperarousal (Bomyea et al., 2017; Corrigan et al., 2020; Kearns et al., 2012; Linares et al., 2016; Straus et al., 2017). Affected individuals begin to over-attend to non-threatening stimuli, remaining hypervigilant for perceived danger for an extended period (Corrigan et al., 2020).

Faulty memory integration ultimately results in conditioned avoidance behavior and attentional

biases (Allen et al., 2019; Corrigan et al., 2020). The maladaptation created by this process

overrides normal information processes and generates high-anxiety, prolonged fight-or-flight

states (Bomyea et al., 2017; Nicholson et al., 2017). Without the correction of information

processing maladaptations, persistent autonomic nervous system stimulation habituates the

conditioned danger cue and reduces memory extinction ability (Kida, 2019; Lebois et al., 2019).

Wounded Healer Concept

The wounded healer concept postulates that adverse life experiences transform health

care providers into compassionate, empathetic caretakers (Jung, 1961; Newcomb et al., 2015).

According to the theory, childhood trauma is considered one of the main forces that inspire

individuals to pursue a career in health care (Conti-O'Hare, 2002; Newcomb et al., 2015; Pyles,

2020). Acknowledgment and transcendence of personal trauma is required for a health care

provider to move along the continuum from walking wounded to wounded healer (Conti-O'Hare,

2002). Pre-existing, unresolved, and unacknowledged personal trauma often prevents individuals

from moving along the continuum, leading to burnout and contributing to PTSD (Newcomb et

al., 2015; Pyles, 2020). In this study, the wounded healer concept provided context for the

influence of pre-existing trauma on how EMS professionals experience and internalize future

traumatic experiences.

Aspects of information processing theory and the wounded healer concept formed the

lens used to focus analysis of lived experiences of EMS students in the study. It is proposed that

EMS students embody the characteristics of walking wounded health care providers, such as

possession of traumatic childhood experiences, and have pursued a career in health care as a

means to heal trauma (Conti-O'Hare, 2002). High-risk individuals entering a high-risk

occupation without a robust and supportive curriculum for mental preparedness will be less

prepared to manage stress and trauma, resulting in inappropriate bottom-up information

processing (Bomyea et al., 2017; Nicholson et al., 2017). Such maladaptive information

processing subsequently interferes with such individuals' transcendence to wounded healer status

(Conti-O'Hare, 2002). Overwhelmed by occupational stressors and underdeveloped coping

mechanisms, walking wounded EMS students are less likely to transition to wounded healers and

more likely to experience mental health issues associated with inappropriate information

processing such as depression, anxiety, burnout, compassion fatigue, and PTSD (Conti-O'Hare,

2002). The intersection of information processing theory and the wounded healer concept

explains the process EMS professionals undergo after exposure to stressful or traumatic events,

improving understanding of factors that simultaneously prevent transcendence to wounded healer

status and create bottom-up information processing (Conti-O'Hare, 2002; Nicholson et al.,

2017).

Review of Current Literature

In psychology, stress is defined as an undesirable emotional state precipitated by

situations perceived as hazardous or threatening (Baqutayan, 2015). Stress levels are measured

on the two axes of the stress-response continuum: stressor severity and strength of self-regulation

(Krupnik, 2020). Controllable and uncontrollable factors, such as acute or cumulative trauma,

mental resilience, and pre-existing homeostatic states, influence the manifestation of stress

responses along the severity and self-regulatory axes (Krupnik, 2020). Individual responses

within the stress-response continuum depend on type and length of exposure, personal self-

regulation capabilities, and how the magnitude of all associated demands impact 'an individual's

sense of control (Brassington & Lomas, 2020; Karatzias et al., 2020; Krupnik, 2020; Zacchaeus,

2019). In alignment with information processing theory, stimuli from stressful and traumatic experiences produce neurological, psychological, and physiological responses (Pratiwi et al., 2019). Karatzias et al. (2020) noted failure to appropriately adapt information processes and attention biases generated by stressful or traumatic experiences occurs along the stress-response continuum and results in the potential development of a range of mental health conditions, including depression, anxiety, compassion fatigue, or burnout. PTSD is the most significant outcome of the failure of self-regulatory functions in response to severe stressors but is not the only possible mental health consequence associated with emergency services occupations (Karatzias et al., 2020; Krupnik, 2020; Petrie et al., 2018).

Krupnik (2020) argued for a stress response to be considered traumatic, the event must be both outside typical life experiences and significant enough to diminish or destroy self-regulation. In a study of Canadian public safety personnel, Ricciardelli et al. (2020) found most personnel reported countless exposures to diverse adverse physical, psychological, and emotional experiences. Although many experiences EMS professionals encounter are considered normal for the occupation, intrusive or triggering events or concurrent stressors can erode self-regulation (Folwell & Kauer, 2018). Researchers have extensively investigated different aspects of PTSD, including its effects on the brain, its risk factors and mitigating factors, reduction of its symptom development, and its treatment (Horn & Feder, 2018; Karatzias et al., 2020; Kearns et al., 2012; Kuckertz et al., 2014; Linares et al., 2016; Motreff et al., 2020; Sipos et al., 2014).

Safeguarding health care workers' mental and physical well-being, particularly frontline providers such as EMS professionals, is essential to maintaining continuity of medical services for the public (Chirico et al., 2020). EMS professionals experiencing psychological symptoms related to traumatic exposure are more likely to struggle with absenteeism, job dissatisfaction,

clinical errors, compassion fatigue, and burnout, increasing strain on the health care system

(Birur et al., 2017; Brassington & Lomas, 2020; Chirico et al., 2020; Hruska & Barduhn, 2021;

Newcomb et al., 2015; Pyles, 2020). EMS professionals are more likely than the general

population to be obese, smoke tobacco, and have chronic health issues such as hypertension and

high cholesterol (Smith et al., 2019). Preexisting comorbidities contribute to poorly established

coping mechanisms and delayed recognition of the need for self-care (Holmes et al., 2020; Smith

et al., 2019).

According to the modified wounded healer concept proposed by Conti-O'Hare (2002),

traumatized walking wounded health care providers frequently impede their transcendence to the

status of wounded healers by neglecting self-care. Despite the importance of having a healthy

workforce in health care, few researchers have investigated how health care students, particularly

EMS students, perceive their education to have contributed to their preparedness for a career in a

high-risk occupation. Lack of mental preparation in combination with poor self-care capabilities

increases an individual's vulnerability to unavoidable occupational risk factors.

Occupational Risk Factors

Fjeldheim et al. (2014) found that 94% of 131 South African paramedic students

surveyed reported direct experience of traumatic situations during training. Practicing

paramedics surveyed in the same study reported experiencing a median of two traumatic

incidents per shift (Fjeldheim et al., 2014). Holmes et al. (2020) found that nearly half of all

EMS professionals reported losing at least one colleague to suicide secondary to mental health

issues. Newland et al. (2015) reported that 37% of surveyed EMS professionals experienced

suicidal ideations, and 6.6.% admitted to attempting suicide. Varker et al. (2018) found the

documented suicide rates of emergency services personnel between January 2011 and July 2016

to have increased 450% to 800% as compared to the general population.

Individuals pursuing careers in EMS are rarely screened for predisposing psychological

risk factors, either before or during employment (Carmassi et al., 2016; Wild et al., 2018).

Researchers have identified three EMS-specific stressors that increase the prevalence of PTSD

and associated symptoms: (a) chronic critical stress related to responding to intense or emotional

calls; (b) operational stress inherent to the nature of work, including blood-borne pathogen

exposure, operating in dangerous environments, and altered sleep patterns due to shift work; and

(c) organizational stress related to poor administrative support, interpersonal conflict, or

unsatisfactory wages (Donnelly et al., 2016, 2020).

Chronic Critical Stress

Austin et al. (2018) reported that 86% of EMS professionals experience critical stress.

Many emergency calls require EMS professionals to manage life-threatening scenes and require

rapid, accurate clinical decision-making (Holmes et al., 2020; Smith et al., 2019). Emergency

calls involving multiple casualties, disasters, or sick or injured children are psychologically

impactful, often resulting in overwhelming, intense emotional responses that require time and

distance to resolve (Holmes et al., 2020; Hruska & Barduhn, 2021; Smith et al., 2019). EMS

professionals who used psychological or physical removal from EMS duties as a coping

mechanism for stress reported improved reappraisal of stressors (Folwell & Kauer, 2018).

Influence of Workload. Population growth and health care reform have expanded the

expected roles of EMS professionals (Clark et al., 2021; Holmes et al., 2020). Rising call

volumes and understaffing have compounded the detrimental impacts of psychological insults by

limiting access to the time and social infrastructures necessary for recovery (Holmes et al., 2020;

Hruska & Barduhn, 2021). Chirico et al. (2020) found that frontline workers overwhelmed by stress experienced increased levels of depression and burnout due to personnel shortages.

Bentley et al. (2013) conducted a quantitative study of 34,340 EMS professionals and determined that EMS professionals working in areas with moderate- to high-call volume experienced the highest levels of stress, anxiety, and depression. An example of a high-call volume area includes The Fire Department of the City of New York (FDNY). FDNY EMS is one of the busiest metropolitan ambulance services in the United States, operating approximately 1,200 8-hour ambulances daily on the city streets (City of New York, 2021). Annual statistics from 2021 reported that these ambulances responded to nearly two million 911 calls a year (City of New York, 2021). About 750,000 New York City ambulance calls were categorized as critical, life-threatening medical emergencies (NYC, 2021). On average, the overall call volume increased 6% per year, with critical calls rising 1.2% per year (NYC, 2021).

Mismatches between workload and salary increase further conflate critical stress (Clark et al., 2021). While call volume increased 6% yearly, FDNY EMS professionals received only a 2% annual raise. In 2021, the annual starting salary for FDNY EMS professionals ranged from $35,254 to $48,237, depending on training level (JoinFDNY, 2021), but did not meet cost of living needs. According to a cross-sectional analysis of over 20,000 EMS professionals, individuals cited financial stress due to low pay as the reason many EMS professionals worked extensive overtime, held multiple jobs, and expressed high levels of job dissatisfaction and burnout (Rivard et al., 2020).

Availability of Recovery Time. Austin et al. (2018) studied 160 EMS professionals and found that part-time employees experienced less critical stress than full-time employees. This disparity in experienced stress suggests that increasing time between shifts allows individuals

more time to recover. Cash et al. (2018) found that increased call volume and reduced time

between calls reduced the ability of EMS professionals to decompress and recover from critical

stress. Compounded by higher than average rates of physical comorbidities, the persistent

chronic stress experienced by EMS professionals damages overall well-being (Holmes et al.,

2020; Smith et al., 2019). Lawn et al. (2020) reported that unresolved stress causes physical

symptoms, such as headaches, musculoskeletal injuries, sleep disturbances, and weight gain.

Operational Stress

The inevitable operational stressors associated with emergency services work frequently

worsen physical symptoms caused by chronic stress (Ricciardelli et al., 2020). Factors such as

shift work, exposure to hazards and pathogens, and dangerous or violent environments influence

workplace dynamics and fluctuate on a daily basis (Hruska & Barduhn, 2021). EMS

professionals are required to develop personal coping strategies to complete job tasks, but

education and guidance regarding how to positively refine coping mechanisms are limited

(Chirico et al., 2020; Clark et al., 2021; Donnelly et al., 2020; Hruska & Barduhn, 2021;

Ricciardelli et al., 2020).

Sympathetic Nervous System Response. Janka and Duschek (2018) pointed out 911

operations create a unique occupational environment wherein EMS professionals rapidly switch

between periods of rest between calls and periods of high stress and activity during patient care.

During high-stress periods, EMS professionals are required to remain calm, collected, and

thoughtful while also rapidly and efficiently gathering information, making crucial life-or-death

decisions, competently completing clinical skills, and delivering high-quality patient care (Britt

et al., 2016; Holmes et al., 2020; Hruska & Barduhn, 2021; Janka & Duschek, 2018; Kuhl, 2017;

Smith et al., 2019). Patient care situations are inherently risky, potentially involving agitated or

aggressive patients and family, infectious agents, bodily fluids, physical injury, or negative

interaction with the public (Holmes et al., 2020; Ricciardelli et al., 2020).

Complex, tense, and high-consequence scenarios initiate the "fight or flight" response

(Kuhl, 2017). The "fight or flight" reaction activates the human body's sympathetic nervous

system and hypothalamic-pituitary-adrenal (HPA) axis to produce and excrete an influx of stress-

mediating hormones such as epinephrine and cortisol (Kuhl, 2017). A prolonged sympathetic

response can lead to an adrenaline dump and a parasympathetic backlash, making it difficult to

focus on the task at hand, increasing forgetfulness, and intensifying fatigue and apathy (Kuhl,

2017). Unresolved protracted stimulation of the sympathetic nervous system and HPA axis leads

to permanent but reversible alterations to both systems and are characteristic in PTSD patients

(Schuurmans et al., 2021). Dysregulation of the basal activity of the sympathetic nervous system

and HPA axis contribute to inappropriate information processing, generating bottom-up biases

and hypervigilance toward perceived threats (Allen et al., 2019; Bomyea et al., 2017; Corrigan et

al., 2020).

Shift Work. Fatigue and sleep disturbances associated with shift work increase the risk

of the development and persistence of mental health issues as well as the likelihood of bodily

harm to provider and patient (Clark et al., 2021; Donnelly et al., 2020; Hruska & Barduhn,

2021). Well-documented factors identified as having a negative impact on mental health include

increased risk of motor vehicle accidents, physical injuries, and the possibility of clinical errors

(Clark et al., 2021). A neurobiological study by Bender et al. (2018) found a combination of

stress and disrupted sleep patterns damage the brain's ability to eradicate fear memories

successfully. Seo et al. (2021) had similar findings regarding the impact of sleep disturbances on

inappropriate memory processing. In a study of 154 participants, individuals exposed to sleep

restriction experienced upregulation of fear-related memory processing, and participants exposed

to sleep deprivation experienced delayed extinction learning (Seo et al., 2021). Adequate and

restful sleep is essential to proper information processing, indicating that shift-based occupations

increase the overall risk for poor mental health outcomes (Seo et al., 2021).

Organizational Stress

Clark et al. (2021) conducted a systematic review of stressors experienced by emergency

workers and discovered that organizational stressors were the most commonly researched.

Donnelly et al. (2020) defined organizational stress in the EMS profession as characterized by

policy changes, unequal division of work responsibilities, and interactions with supervisors and

colleagues. EMS culture is one of the most influential components of organizational stress (Clark

et al., 2021). The overarching occupational culture is deeply ingrained with stigma regarding

mental health concerns, with many EMS professionals citing fear of being fired, mocked, or

professionally discredited as reasons for declining to seek help for mental health issues (Austin et

al., 2018; Baran et al., 2016; Drewitz-Chesney, 2012; Swensen et al., 2020).

Consequences of Discriminatory Workplace Culture. In a survey of 236 individuals

across the four emergency disciplines -- EMS, fire, dispatch, and police -- Clampett (2019)

reported that many emergency services professionals prefer to manage trauma and stress on their

own due to fear of being perceived as weak or incapable by colleagues. Rather than seeking

professional care, research suggests EMS professionals are more likely to rely on social support

structures or dysfunctional coping mechanisms such as self-medication with drugs and alcohol to

manage stress (Bentley et al., 2013; Donnelly et al., 2016; Holmes et al., 2020; Kerai et al., 2017;

Skeffington et al., 2016). According to an evidence map completed by Varker et al. (2018), only

a small body of research exists investigating alcohol and substance abuse in the EMS profession.

One study of 518 EMS professionals in Karachi, Pakistan, found nearly one-third of participants self-reported troublesome substance use (Kerai et al., 2017).

Access to Care. In the general population, many patients diagnosed with PTSD do not seek help, and often those patients who seek help receive inadequate care (Wilson et al., 2016). Despite the known mental health risks associated with the EMS occupation, Anderson et al. (2017) found that many EMS employers did not provide access to Employee Assistance Programs (EAP) to manage potential mental health concerns. Employers that did provide EAP often had complicated, challenging, or punitive disciplinary processes associated with access. Even among individuals who accessed available resources and received adequate care, Price et al. (2018) noted a considerable portion of PTSD patients experience little to no improvement in their symptoms. The literature cites informal peer networks as the preferred method EMS professionals utilize to seek help to avoid discriminatory workplace practices and stigmatization associated with receiving mental health care (Austin et al., 2018; Clampett, 2019; Holmes et al., 2020).

Failure of Peer Networks. In a quantitative study of 2,815 EMS professionals, Cash et al. (2018) found that approximately half of all respondents reported experiencing incivility or bullying from management or colleagues at least once a week. Individuals who experienced bullying or hostility reported higher stress levels than those who reported no harassment (Cash et al., 2018). The dissatisfaction caused by the lack of positive interpersonal relationships has been cited as one of the primary reasons EMS professionals leave the occupation (Cash et al., 2018). High occupational attrition rates further compound preexisting understaffing issues and increase chronic and operational stress (Holmes et al., 2020). In a study of 4,238 Canadian public safety personnel, Vig et al. (2020) found that EMS professionals reported the lowest perceived levels of

social support relative to other emergency service professionals. The perception of decreased

social support was associated with hierarchical organizational structure and unique occupational

roles (Vig et al., 2020). Failure to establish appropriate peer networks reduces informal stress

management opportunities many EMS professionals rely upon to avoid becoming overwhelmed

by the inherent stress of the job (Feuer, 2021).

Summary of Occupational Risk Factors

Predatory EMS workplace cultures are toxic to developing the protective factors

necessary for mental resilience (Ricciardelli et al., 2020). Harassment and devaluation of

employees are as psychologically damaging as bearing witness to human pain and suffering

already inherent in the job (Ricciardelli et al., 2020). An unforgiving occupational culture

combined with boundaries to pursuing mental health care creates an ideal environment for the

breakdown of protective self-regulatory functions (Krupnik, 2020). Without adequate emotional

and psychological protection, individuals experience increasingly severe cumulative stressors

and associated maladaptive information processes, leading to inhibited personal growth and

healing within the wounded healer continuum (Clark et al., 2021; Conti-O'Hare, 2002; Krupnik,

2020; Nicholson et al., 2017).

Hruska and Barduhn (2021) found that PTSD symptoms are dynamic on a day-to-day

basis, and the severity of symptoms is directly related to the number of stressors experienced.

Severity increases with each additional stressor experienced (Hruska & Barduhn, 2021).

According to Donnelly et al. (2020), stressors are empirically linked to PTSD and related

symptomatology. Individuals may experience impact in any or all three categories of workplace-

related stressors: chronic critical stress, operational stress, and organizational stress (Donnelly et

al., 2020). While an evidence map completed by Clark et al. (2021) reported improvements in

EMS professionals' perceptions of access to organizational-based support, the literature

reviewed noted that negative factors such as high workload and trauma exposure remain

unchanged. Data presented by Donnelly et al. (2020) supports an inverse relationship between

symptomatology and safety outcomes for EMS professionals and patients, suggesting the impact

of occupational risk factors extends beyond EMS professionals into public health consequences.

Mitigating Factors

Although many researchers agree that consistent exposure to trauma and high-stress

situations increases the potential for developing PTSD or associated symptoms (Torchalla &

Strehlau, 2018), researchers have also outlined protective factors that help prevent the

development of PTSD (Miller et al., 2017). Three modifiable components contribute to positive

mental health outcomes after traumatic exposure: (a) personal resilience, (b) social support

systems, and (c) positive coping mechanisms (Blisker et al., 2019; Cox et al., 2017; Gayton &

Lovell, 2012; Holmes et al., 2020; Mesidor & Sly, 2019). Blisker et al. (2019) studied 703

Australian paramedics and found that individuals possessing resilience, strong social support

networks, and positive coping strategies were more likely to reinterpret trauma and stress

positively than individuals lacking mitigating mechanisms, a result in alignment with the

wounded healer concept. EMS professionals with a positive interpretation of stress were more

likely to transcend from trauma to posttraumatic growth (PTG) rather than develop PTSD

(Blisker et al., 2019).

PTG

Austin et al. (2018) and Maitlis (2020) defined PTG as the process of positively

managing trauma and adversity in such a way as to experience positive transformation. Tedeschi

and Calhoun (1996) were the first to identify the three general categories of perceived beneficial

changes involved in PTG: changes in self-perception, changes in interpersonal relationships, and changes in philosophy of life. When stressful and traumatic experiences instigate internal changes leading toward higher psychological functioning and personal development, PTG occurs (Austin et al., 2018).

Characteristics of PTG. Although the concept of PTG was defined in the mid-1990s (Maitlis, 2020), the body of research investigating the process has rapidly grown (Cohen & Collens, 2013). PTG researchers have focused on determining why some individuals can transcend adversity in ways others cannot, how to accomplish this transcendence, and potentially positive changes generated by trauma experiences (Infurna & Jayawickreme, 2019). The data suggest an essential component of the promotion of PTG is the active acknowledgment of distress by an affected person and their social network (Cates et al., 2017). Having social support available, being female, having positive coping mechanisms, and having a higher level of education are other factors that contribute positively to PTG (Mesidor & Sly, 2019).

PTG in the EMS Profession. Few researchers have investigated PTG in EMS professionals (Duschek et al., 2020). In a small study of 30 paramedics, Janka and Duschek (2018) discovered that EMS professionals have a higher tolerance for stress than individuals from other professions. The average length of career for an EMS professional is only 4 years before various stressors drive professionals to leave the occupation (Rivard et al., 2020). Longevity in the EMS profession requires individuals to either possess stress tolerance through pre-existing personality traits or develop stress resistance through positive coping strategies (Duschek et al., 2020). Austin et al. (2018) found EMTs were more likely to experience PTG than paramedics, who are trained to a higher level of care, but did not explore the root cause of this difference.

Resilience to PTSS and PTSD

Resilience is defined as an individual's dynamic capacity to use various available resources to overcome adversity or challenges while achieving personal growth (Sanderson & Brewer, 2017). An individual's resilience consists of a multidimensional array of adaptive behaviors that help individuals respond to danger and stress in a mature, positive manner (Horn & Feder, 2018; Streb et al., 2015). Characteristics associated with resilience indicate malleability and developability and include positive self-esteem, confidence, optimism, and self-efficacy (Brassington & Lomas, 2020).

A significant body of research indicates that individual resilience is a protective factor against PTSD development (Anderson et al., 2017; Fjeldheim et al., 2014; Horn & Feder, 2018.) Although individuals have varying levels of resilience due to different developmental factors (Horn & Feder, 2018; Michael et al., 2016), researchers have successfully bolstered resilience through formal training programs and increased social support (Donnelly et al., 2016; Vyas et al., 2016). Individuals who received formal resilience training reported fewer mental health symptoms than those who did not receive training (Skeffington et al., 2016; Thompson et al., 2018; Vyas et al., 2016).

Social Support

Social support has a positive and protective influence on emotional and psychological well-being (Austin et al., 2018; Folwell & Kauer, 2018; Holmes et al., 2020; Hou et al., 2020; Zacchaeus, 2019). Social support structures are categorized as structural, functional, emotional, material, or cognitive, and frequent sources of social support include family, friends, communities, and private or governmental bodies (Zacchaeus, 2019). Shakespeare-Finch and Daley (2017) studied 2,500 Australian EMS professionals and found workplace belongingness to

be one of the strongest predictors of psychological well-being. Cox et al. (2017) conducted a

quantitative study of 90 Canadian veterans and found that organizational cultures promoting

positive social support reduced emotional dysregulation and bottom-up information processing

biases. Strong social ties with fellow employees and positive relationships with managers

increase individuals' likelihood of seeking assistance for mental health concerns (Lawn et al.,

2020; Shakespeare-Finch & Daley, 2017). Positive relationships also increase the likelihood of

the early identification of erratic and dangerous behavior (Lawn et al., 2020; Shakespeare-Finch

& Daley, 2017). Miller et al. (2017) studied 351 EMS professionals in Florida and reported an

inverse relationship between perceived coworker support and burnout. Well-established social

support is related to increased resilience to stressful or traumatic experiences (Feuer, 2021;

Folwell & Kauer, 2018; Miller et al., 2017).

       Although data support the ability of work-related relationships to mitigate the impact of

stress and increase resilience (Folwell & Kauer, 2018; Infurna & Jayawickreme, 2019), Boland

et al. (2019) found social support outside the workplace to be beneficial for mental health.

Engaging in relationships outside the EMS profession reduces burnout and provides EMS

professionals with the distance from the job necessary to adequately recover from stressors

(Boland et al., 2019; Folwell & Kauer, 2018). Healthy social engagement provides an outlet for

appropriate appraisal of traumatic or stressful events, reduces the perpetuation of inappropriate

bottom-up information processing biases, and improves the cultivation of positive coping

mechanisms (Brassington & Lomas, 2020; Nicholson et al., 2017).

Positive Coping Mechanisms

       Individuals use various cognitive and behavioral mechanisms to alleviate the negative

demands of immediate and long-term stress associated with their environments (Baqutayan,

2015). Baqutayan (2015) argued even if an individual does not deliberately use a coping strategy, the individual would unconsciously adopt an approach to balance the effects of physical and emotional strain created by both positive and negative stressors. Duschek et al. (2020) noted that EMS professionals develop flexible and varied coping mechanisms because of stress inoculation experienced in their careers; however, not all coping efforts result in positive outcomes.

The use of positive coping strategies bolsters resilience (Brassington & Lomas, 2020). Cumulative effects of stress are more readily evident in individuals who use inappropriate coping strategies (Holmes et al., 2020). Baqutayan (2015) reported four coping strategies commonly employed by individuals undergoing stress: (a) actively fighting the realities of experienced stress and continuing to struggle toward desired goals, (b) leaving the situation creating stress, (c) engaging in stress-reducing activities such as social support and physical activity, or (d) accepting their situation and passively adapting.

Folwell and Kauer (2018) conducted a qualitative study of 25 EMS professionals and described commonly accessed formal and informal coping strategies. Formal strategies used consisted of activities made available by employers, such as group debriefing and speaking with a professional counselor (Folwell & Kauer, 2018). Informal coping strategies used included exercise and humor (Folwell & Kauer, 2018).

Exercise and Nutrition. In association with good nutrition, physical activity is protective against stressful situations (Schultchen et al., 2019). In a study of 9/11 first responders, Smith et al. (2019) noted that individuals who prioritized physical activity reported fewer PTSD symptoms. Unfortunately, as stress reaches unmanageable levels, the time and energy available for physical activity both decrease, requiring individuals to be more purposeful in their pursuit of physical activities (Schultchen et al., 2019). Limitations to the ability of EMS professionals to

exercise or access healthy food include high call volume and shift work (Holmes et al., 2020).

Organizations can alleviate some of the impacts of occupational limitations by providing

employees with access to exercise equipment, gym memberships, or group activities such as

sports leagues (Folwell & Kauer, 2018).

      Humor. Holmes et al. (2020) reported that 70% of experienced EMS professionals cited

black humor as the coping strategy most commonly used within the profession. Researchers have

extensively documented the use of black humor as a coping strategy across health care

specialties (Watson, 2011). Black humor treats traumatic and emotionally charged subjects in a

satirical or lighthearted manner (Piemonte, 2015), and is often considered an acceptable way for

EMS professionals to suppress emotions (Holmes et al., 2020). Black humor can be a double-

edged sword, however, because although it provides a safe way for individuals to initiate

conversations about stigmatized topics, it fails to properly address the complex and profound

nature of traumatic experiences (Holmes et al., 2020; Piemonte, 2015).

Summary of Mitigating Factors

      Positive workplace cultures promote trust, communication, and peer networks among

individuals working in high-risk occupations (Cash et al., 2018; Drewitz-Chesney, 2019; Holmes

et al., 2020). Resilience and overall mental well-being are positively associated with perceived

social support (Drewitz-Chesney, 2019). Workplaces that engender positive interpersonal

relationships and belongingness reinforce personal resilience, encourage the use of pre-existing

positive coping strategies, and help personal growth (Blisker et al., 2019; Shakespeare-Finch &

Daley, 2017). Appropriate top-down information processing in settings with stress and trauma

exposure reinforces personal growth through transcendence from walking wounded to wounded

healer (Conti-O'Hare, 2002; Nicholson et al., 2017).

PTSS and PTSD in EMS Curriculum

Improvement of self-awareness, resilience, and positive coping mechanisms through education and explicit curricula increases recognition of risk factors and warning signs of PTSD (Horn & Feder, 2018; Michael et al., 2016; Motreff et al., 2020; Rybojad et al., 2016; Sayed et al., 2015). Holmes et al. (2020) conducted the only study found in the literature search of EMS students' preparation for the psychological components of the occupation. Holmes et al. surveyed 302 Australian undergraduate paramedic students and found existing curricular practices unsatisfactory for developing the mental health literacy necessary to thrive in a stressful, high-risk occupation. Austin et al. (2018) reached similar conclusions, with only 30% of EMS professionals studied reporting having received education about coping with traumatic events.

Resilience Training in Existing Curriculum

The national EMS curriculum in the United States does not provide consistent, structured resilience training for EMS students or existing EMS professionals, nor does it address the cultivation of positive coping strategies (Anderson et al., 2017; Holmes et al., 2020; Wild et al., 2018). Few researchers investigated EMS students' mental health and well-being during training (Clark et al., 2021). Initial searches for literature regarding resilience in EMS training returned many more articles regarding musculoskeletal and physical resilience than mental resilience.

The lack of resilience training has been an international concern across the EMS profession (Gayton & Lovell, 2012). Gayton and Lovell (2012) studied Australian EMS professionals and found the inclusion of resilience training and education was disproportionate to the anticipated stressors of the occupation. Swab and Donne (2019) studied 153 EMS professionals and found that most believed they received inadequate mental health and stress

management education in initial certification courses. Instructors devoted only 1% of lecture

time to discussion of the inherent risks of the occupation and protective strategies such as

resilience (Gayton & Lovell, 2012).

EMS curricula focus on teaching students how to deal with mental health crises in

patients (Holmes et al., 2020). No detailed curriculum has emerged for the training of EMS

professionals to recognize or manage personal mental health issues (EMS Agenda 2050

Technical Expert Panel, 2019). Despite calls to improve U.S. education of EMS professionals

regarding the recognition of mental health issues in themselves and colleagues and the promotion

of the overall well-being of EMS professionals (Gayton & Lovell, 2012; Smith et al., 2019), no

plan has emerged to address these concerns within the next 30 years (EMS Agenda 2050

Technical Expert Panel, 2019).

Acknowledging the need for customization to account for unique aspects of the EMS

setting, Blisker et al. (2019) endorsed the use of resilience education in initial training. Vaughn et

al. (2020) tested a self-paced online resilience training program in 227 paramedic students and

found it effectively bolstered scores on the Resilience Scale for Adults. Vaughn et al. (2020)

recommended further research to determine if online resilience training is sustainable across the

profession.

Resilience Training in Continuing Education

Many authors have recommended the incorporation of resilience-focused continuing

education in the health care professions (Vaughn et al., 2020). Despite the evidence supporting

these recommendations, health care organizations have made minimal progress in implementing

resilience-based continuing education programs (McAllister & McKinnon, 2009). Although a

significant body of research supports proactive resilience education for individuals employed in

high-risk occupations to improve mental health outcomes, much of the resultant training is

reactive (Anderson et al., 2017; Chitra & Karunanidhi, 2018; Joyce et al., 2019). EMS

organizations have infrequently and inconsistently provided easily accessible resilience training,

if at all (Newland et al., 2015).

Gayton and Lovell (2012) found that EMS professionals develop enhanced levels of

resilience while advancing from a student to an experienced provider, regardless of formal

training. Gayton and Lovell (2012) reported a significant decline in EMS professionals'

resilience after the first 5 years of their careers. This finding aligns with Brassington and

Lomas's (2020) suggestions to institute ongoing resilience training because personal resilience

waxes and wanes over time, based on context and life circumstances. Social support further

impacts resilience (Gayton & Lovell, 2012; McAllister & McKinnon, 2009). McAllister and

McKinnon (2009) noted that one reason resilience wanes is the lack of social support for

stigmatized experiences or crises considered shameful. The personal resilience of EMS

professionals frequently declines when the accumulation of everyday stressors and occupational

stressors begins to overwhelm an individual's coping mechanisms (Folwell & Kauer, 2018).

Several successful interventions have emerged for improving resilience (Torchalla &

Strehlau, 2018). Such interventions include psychological skills training, mindfulness and self-

care, stress inoculation training, and organizational care improvements (Brassington & Lomas,

2020; Torchalla & Strehlau, 2018). J. Johnson et al. (2020) noted that interventions aimed at

reducing workplace stress and increasing access to training, counseling, and employee assistance

programs are often promoted as the most influential for resilience development, despite a lack of

evidence-based support. Although necessary, organizational care improvements do not alleviate

the inherent occupational stressors associated with the EMS profession (J. Johnson et al., 2020).

Training programs that teach individuals protective psychological skills, mindfulness, and self-care skills improve characteristics associated with resilience, such as self-efficacy and optimism (Robertson et al., 2015). The known risks of the profession and the data supporting resilience interventions mean organizational leaders can make evidence-based decisions regarding the implementation of continuing education programs for employees (Qi et al., 2016). Robertson et al. (2015) conducted a systematic review and identified positive benefits of resilience training beyond improved psychological protection, such as enhanced engagement, reduced fatigue, and improved work-life balance.

Researchers have found that attention bias modification training (ABMT) is a successful adjunct therapy for PTSD and has potential as a proactive, preexposure resilience conditioning therapy for increasing latent inhibition to traumatic stimuli in high-risk individuals (Kuckertz et al., 2014; Linetzky et al., 2015; Wald et al., 2017; Zhang et al., 2018; Zinchenko et al., 2017). ABMT is useful in PTSD therapy because it uses brain plasticity to modify threat responses, extinguish threatening memories, and promote disengagement from hypervigilant states (Badura-Brack et al., 2018; Bomyea et al., 2017; Kuckertz et al., 2014). Application of ABMT trains individuals to confront traumatic experiences actively, reducing habituation of the neural hypervigilance-avoidance cascade and guaranteeing appropriate top-down information processing (Michael et al., 2016; Wald et al., 2016).

Critical Incident Stress Debriefing

Many curricular recommendations have related to evidence-based coping strategies such as exercise, nutrition, and maintaining positive social support (Brassington & Lomas, 2020; EMS Agenda 2050 Technical Expert Panel, 2019; Holmes et al., 2020); however, some curricular recommendations also endorse practices that lack evidence-based support, such as critical

incident stress debriefing (CISD; Swab, 2020; Swab & Donne, 2019). CISD appeared in the

1980s as a group-based psychological technique used to minimize the negative effects of

exposure to potentially traumatic events (Tuckey & Scott, 2014). Despite its popularity--due to

the ease of accessibility and reliance on peer-driven social support (Elhart et al., 2019; Harrison

& Wu, 2017)–little evidence has emerged to support the efficacy of CISD (Elhart et al., 2019).

Instead, data suggest CISD potentiates PTSD development after traumatic exposure (Swab,

2020).

Critics of CISD have argued that employers only make the intervention available upon

employee request (Folwell & Kauer, 2018). Data suggest that CISD should be applied across

multiple sessions in a genuinely empathetic environment (Feuer, 2021). However, many EMS

agencies provide single CISD sessions in potentially questionable (Feuer, 2021; Folwell &

Kauer, 2018). Qi et al. (2016) argued that the singular nature of the assistance provided and the

lack of a formal diagnosis or evaluation by a medical professional drove the decline of CISD. In

their qualitative study, Folwell and Kauer (2018) found that EMS professionals identified CISD

as a helpful outlet for stress management but disliked the limited formal options made available

by employers.

Chapter Summary

When asked, nearly all EMS professionals report having experienced exposure to trauma

or critical stressors during their careers, and roughly half note the occurrence of simultaneous

stressors (Clampett, 2019; Fjeldheim et al., 2014). According to the wounded healer concept,

individuals pursuing service-oriented careers, such as health care, are driven to help others to

perpetuate self-healing from some level of experienced childhood trauma (Conti-O'Hare, 2002).

Transcendence from walking wounded to wounded healer requires an adequate support system,

self-awareness, and mental preparedness to adapt information processing (Conti-O'Hare, 2002;

Karatzias et al., 2020; Motreff et al., 2020; Newcomb et al., 2015). Stressors created by

dysfunctional operations and organizations add to the unavoidable inherent stressors of daily job

functions (Donnelly et al., 2020; Krupnik, 2020). Inherent stressors worsen chronic, cumulative

trauma and mitigating factors--such as self-awareness, knowledge of positive coping

mechanisms, social supports, and resilience--provide protective effects (Donnelly et al., 2016,

2020; Holmes et al., 2020; Krupnik, 2020). The basic qualitative research methods used in the

research are outlined in Chapter 3.

Chapter 3: Methodology

Growing attention to mental health has increased the need for better understanding of the experiences of individuals struggling with issues impacting personal well-being. Individuals employed in high-risk occupations, such as first responders, are 22% more vulnerable to developing PTSD than members of the general population, with EMS professionals exhibiting the highest prevalence of PTSD (Alaqeel et al., 2019; Smith et al., 2019; Walker et al., 2016). EMS students and professionals have inconsistently engaged with curricular content addressing mental readiness for management of occupational stress (Clark et al., 2021; Gayton & Lovell, 2012; Swab & Donne, 2019). Better understanding of students' beliefs regarding mental preparedness in the curricula can guide educational leaders in future decision-making.

The problem is that EMS professionals in the United States lack the resources, education, and support systems necessary for effective management of the chronic traumatic stressors of the occupation, resulting in a mental health crisis (Bentley et al., 2013; Brassington & Lomas, 2020; Skeffington et al., 2016; Varker et al., 2018). The purpose of the basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training conducted per the existing curricula in EMS educational programs in the eastern United States. Two research questions guided the study:

Research Question 1: What are EMS professionals' opinions about the value of EMS curricula in EMS educational programs in the eastern United States with regard to mental preparation for managing occupational stressors?

Research Question 2: How do EMS students from EMS educational programs in the eastern United States describe the training they received to mentally prepare to manage occupational stress?

Details of research design and rationale for the basic qualitative study are justified in the remainder of Chapter 3. Further explained in the chapter is the role of the researcher, research procedures, data analysis, credibility, and ethical procedures.

Research Methodology, Design, and Rationale

The optimal design to obtain robust descriptions to answer the research questions was a basic qualitative design. Price et al. (2018) argued the strength of qualitative research methodology is the provision of detailed descriptions of lived experiences to expand understanding of the human condition. According to Creswell and Poth (2018), qualitative methodology is ideal for empowering participants while minimizing the influence of hierarchical relationships when exploring a complex issue.

Methodology

The focus of the qualitative study was the collection and interpretation of data to establish meaning from the human perspective (Price et al., 2018). The chosen qualitative methodology allowed participants to provide unfiltered explanations and interpretations of their personal lived experiences to create a thick, contextualized description (Merriam & Grenier, 2019; Price et al., 2018). A quantitative design was inappropriate because the study focused on naturalistic inquiry rather than generating measurable proof.

Design

Multiple research designs are available for qualitative studies (Merriam & Grenier, 2019). A basic qualitative design was most appropriate for the study because the purpose of the research was to investigate, interpret, and understand how authentic human experiences lead to meaning (Merriam & Grenier, 2019; Merriam & Tisdell, 2014). The design aligned with the

intent of the study to serve as a preliminary, foundational investigation to support future research.

Other qualitative research designs were not appropriate for the study. Grounded theory was not suitable because generating a theory was not a goal of the study (Creswell et al., 2007). Ethnography was inappropriate because the focus of the study was not to describe or investigate the characteristics of a specific culture (White et al., 2009). A phenomenological design was unsuitable because the study did not seek to investigate a strong, central phenomenological question (Patton, 2002). Basic qualitative design supported the intention to capture and describe the human perspectives of participants without the support of extensive previous research.

The advantage of a basic qualitative design was the increased freedom to explore the research questions. Although other designs require extended observations of participants or extensive resources (Dawson, 2012), the flexible structure of a basic qualitative design minimized the time and resources needed, allowing for the study to be performed within imposed time and geographical constraints. Semistructured interviews and broad research questions reduced the time and resources necessary to complete the study compared with those necessary for other designs.

Role of the Researcher

As an EMS educator in the metropolitan New York City region, I applied my intimate knowledge of unique aspects of the EMS curriculum and educational system to the study. The goal of the study was to accurately capture and represent the perspectives of the participants (Creswell & Poth, 2018). The role entailed ensuring the accurate transcription, analysis, and representation of participants' views and addressing potential threats to reliability and validity by minimizing sources of potential bias (Cypress, 2017; Milne & Oberle, 2005). Participants were

encouraged to speak freely and comprehensively about their experiences by establishing trust

and rapport with them and by using probing and clarifying questions (Milne & Oberle, 2005). As

an observer-participant, facilitation of open, honest interviews with participants and accurate

collection and analysis of the resulting data was ensured.

The goal was to ensure rigor by minimizing sources of bias within the study. Threats to

reliability and validity were addressed before the study began (Cypress, 2017). Critical self-

reflection was used to reduce the researcher's presence in the study and protect rigor by

explicitly acknowledging personal values, biases, and conflicts (Creswell et al., 2006; Cypress,

2017). Because I was an active EMS educator and professional, steps were taken to guard against

conflicting relationships between myself and the participants. Potential participants were

screened for conflicting hierarchical relationships before they became involved in the study to

minimize sources of potential bias. Although the participant group was free of all acknowledged

pre-existing relationships, the potential for future relationships after the study ended remained.

Performing high-quality, ethical research is a priority in all studies (Patino & Ferreira,

2018). Anticipating potential ethical issues before the commencement of the study was important

(Creswell & Creswell, 2018). There were multiple potential ethical concerns, including conflicts

between my dual role as an educator and a researcher, which are inherent when performing

research in a personal work environment (Loftin et al., 2011). External research sites were used

to reduce power relationships. Incentivizing participation in a study raises ethical concerns by

potentially compromising the scientific integrity of the study by undermining participants'

autonomy and perceived ability to withdraw (Stovel et al., 2017; Zutlevics, 2016). For this

reason, no incentives were offered to participants.

Research Procedures

The basic qualitative study was conducted in EMS education programs in the eastern United States. Interview questions and protocols were sent via email to four subject matter experts (SMEs) for review with respect to clarity and content validity, and the questions and protocols were revised based on the returned feedback (Jacob & Furgerson, 2015). The intent of the study was to interview 20 EMS students regarding their perceptions of the mental preparation received via the EMS curriculum.

Population and Sample Selection

The research questions sought an improved understanding of the lived experiences of EMS professionals. Research questions determined the appropriate target population (Guest et al., 2013), EMS professionals who had engaged with EMS curricula as students. Geographical considerations further limited the target population to EMS professionals educated in courses in the eastern United States. As per the National Registry (2017), the estimated size of the target research population was over 120,000 individuals.

The desired minimum sample size was 15. Recruitment of 20 individuals allowed for the achievement of data saturation and control for attrition. Saturation occurs when data are simultaneously rich and thick with no evidence of new themes or codes emerging from additional data (Fusch & Ness, 2015). Over-recruitment ensured the minimum sample size would be reached despite attrition, potential technological failures, and other unforeseeable issues.

The ideal sampling method for the study was purposive sampling. According to Emmel (2013), a qualitative researcher determines an appropriate sample based on the purpose and context of the intended study. In purposive sampling, identified participants provide information-rich personal insight into contextualized, real-world experiences related to a study's problem and

research questions (Emmel, 2013; Groenewald, 2004). The specific nature of the study required participants to have educational experiences in EMS curricula.

At the time of this study, to maintain certification in the United States, an EMS professional had to complete a "refresher" course or continuing medical education program (EMS Agenda 2050 Technical Expert Panel, 2019). Depending on the region, active EMS professionals engage with the EMS educational curriculum every 2-5 years (EMS Agenda 2050 Technical Expert Panel, 2019; National Registry of Emergency Medical Technicians, 2022). EMS education followed a hierarchical structure, requiring individuals to complete an EMT program before pursuing advanced certifications, such as AEMT or paramedic (EMS Agenda 2050 Technical Expert Panel, 2019). Individuals holding higher levels of certification had thus repeatedly engaged with the EMS curriculum to attain their advanced standing.

According to Patino and Ferreira (2018), establishing inclusion and exclusion criteria to guide the selection of study participants allows for the completion of high-quality, accurate research. Inclusion criteria ensure the target population is relevant to a study, and exclusion criteria eliminate impediments to the success of the study (Garg, 2016; Patino & Ferreira, 2018). To be eligible to participate, an individual had to be aged at least 18 years and be enrolled in, or graduated from, an EMS education program located in the eastern United States. Individuals were ineligible to participate if they had graduated from an EMS program more than 2 years earlier.

EMS education programs in the eastern United States were invited to take part in the research study. Primary contacts for EMS educational programs provided access to research sites consistent with the research topic (Kemparaj & Chavan, 2013); these contacts included program directors, training coordinators, and certified instructor coordinators. Initial requests were made

directly to colleagues and via email through an EMS educator forum. Appropriately documented

responses from representatives of eligible EMS education programs served as site permissions.

Site permissions were received from two EMS educational programs:

- a county-based program hosted by a volunteer fire department in New York (see

  Appendix A). According to the site educational coordinator, approximately 80

  EMS students train on-site annually, and

- a privately owned EMS training program in Georgia (see Appendix B). According

  to the executive director, approximately 300-400 students train on-site annually.

Recruitment letters (see Appendix C) were emailed to individuals listed in class rosters

shared by the research sites. Across the research sites, recruitment flyers were posted.

Recruitment procedures included the use of a demographic questionnaire screening tool to ensure

participants met selection criteria (Greiner, 2015; McGaghie & Crandall, 2001). A brief on-site

or virtual presentation was made to bolster recruitment.

Informed Consent was obtained from participants in alignment with ethical research

standards (Nusbaum et al., 2017). Individuals interested in participating received a link via email

to access and electronically complete the Informed Consent form on Google Forms (see

Appendix D). The process took approximately 20 min. Prospective participants had the

opportunity to request further information regarding the Informed Consent form by contacting

members of the research team directly via phone or email. The Informed Consent form included

a detailed description of study procedures, risks, benefits, confidentiality, voluntary participation,

and recording procedures. Once the form was signed and returned by Google Forms, the

individual was directed to the demographic questionnaire to be screened for exclusion criteria

before being considered an active participant.

Instrumentation

The qualitative approach allowed a thorough exploration of possible answers to the research questions through open-ended interviews. A description of the semistructured interview instrument follows.

Interview Protocol

Interviews provide rich, descriptive data regarding perceptions of a meaning associated with participants' experiences (Castillo-Montoya, 2016). According to Dine et al. (2015), determining the instrument appropriate for a study depends on the research questions, specific content desired for analysis, and pre-existing instruments. Because no existing instrument aligned with the specific nature and content of the research questions, the development of an instrument in the form of an interview protocol was necessary.

Targeted interview items aligned the interview protocol with the research questions. The interview protocol refinement framework described by Castillo-Montoya (2016) was used to create and refine the interview protocol. Each open-ended interview item was generated using the following steps (Castillo-Montoya, 2016):

1. Development of items intended to promote rapport or to align to at least one research question.

2. Revision of items for clarity, organization, and promotion of open dialogue.

3. Procurement of feedback from SMEs (see Appendix E).

4. Additional revision based on the feedback.

Questions 1-3 were intended to build rapport. Questions 5, 7, 8, and the follow-up questions to 4, 7, 8, and 10 aligned with Research Question 1. Questions 4, 6, 7, 8, 10 and the follow-up questions to 4, 6, 7, 8, 9, and 10 aligned with Research Question 2.

Instrument Validation

Five SMEs were contacted to review the instrument for content validity. According to

Zamanzadeh et al. (2015), ensuring content validity is crucial because it is a prerequisite for

construct and criterion-related validity. The initial interview protocol consisted of 16 open-

ended, semistructured questions. All SMEs were provided with the research questions and asked

to evaluate each item for relevance to and representation of the desired content (Almanasreh et

al., 2019). Four SMEs responded with feedback: an EMS medical director and licensed EMS

physician, an EMS medical director and certified EMS instructor, a director of a community

college EMS program with over 30 years of experience, and a middle school educator with over

10 years as an active EMS professional. The compiled feedback primarily involved improving

clarity and alignment to the research questions. Based on the SME recommendations, an

additional follow-up question was included to provide better context regarding participants'

experiences in the occupation. Feedback and recommendations were used to revise the interview

protocol. The revised interview script was emailed to the four SMEs for feedback for validation

(see Appendix F). The final interview protocol consisted of 10 interview questions and 8 follow-

up questions (see Appendix G).

Data Collection

The data collection process did not begin until approval was obtained from the

institutional review board (IRB; see Appendix H). Data were collected using semistructured one-

on-one interviews. When participants signed the Informed Consent form on Google Forms, they

were directed to the demographic questionnaire. Screening for characteristic information via a

demographic questionnaire is essential for identifying an appropriate sample and for eliminating

participants meeting exclusion criteria (Polit & Beck, 2020). The remaining individuals made up

the interview recruitment pool. Although multiple EMS education sites were secured for

recruitment, all 20 participants were from the New York site.

Eligible recruited individuals were contacted via email to schedule Zoom interviews.

Performing interviews via virtual conferencing platforms enhances convenience, accessibility,

and participants' comfort in discussing personal topics and reduces travel limitations and time

constraints (Gray et al., 2020). Interviews were conducted using the interview script and

additional probing and clarifying questions as needed. The semistructured interview approach

promoted open dialogue and data collection from participants' responses (Creswell & Creswell,

2018). Each interview lasted approximately 30 min and ran no longer than 1 hr.

Demographic questionnaires, interview recordings, and transcripts were stored on a

password-protected computer and drive to protect participants' identities and privacy. Following

Office for Human Research Protections (OHRP, 2021b) regulations, all records will be retained

in a secure location for 3 years before being destroyed. Paper records will be cross-shredded, and

electronic data will be permanently deleted. Upon conclusion of the study, participants were

debriefed about the collected information and encouraged to discuss the research experience

(McShane et al., 2015). Each participant was provided with a summary of the analyzed transcript

to evaluate to ensure it accurately reflected the presented perspective.

The audio and video of the interviews were recorded and reviewed for any overlooked

non-verbal responses. Notes taken during the interview were recorded in a Microsoft Excel

spreadsheet for review and coding. Demographic questionnaires were cross-referenced for

additional perspective and to triangulate factual data (Noble & Heale, 2019). Recordings were

transcribed verbatim using Temi.com. Demographic questionnaires and interview transcripts

were printed in preparation for analysis.

Data Analysis

The aim of qualitative research is to analyze and make sense of textual, visual, or audio data to explore problems and perspectives. Appropriate data analysis processes depend on the chosen research methodology (Mihas, 2019). Narrative analysis aligned with the aim of the study to identify common themes within interviewees' experiences (Thorne, 2000). Using multiple approaches to analyze data can expand the identification and understanding of themes.

Organizing the Data

Data organization is essential to proper analysis. Appropriate content and analytic coding are crucial to making sense of textual data (Creswell & Creswell, 2018). The audio file of each interview was transcribed and then uploaded to MAXQDA (Version 18.2). This qualitative data analysis software provided a streamlined approach to organizing, exploring, and interpreting data and enhanced the research process (Oswald, 2017). MAXQDA provided a secure platform for storage, analysis, and systematic arrangement of multiple forms of data to identify emerging codes, categories, and themes (Oswald, 2017). Other features, such as diagramming, expanded the software's data organization and analysis functionality.

Approach to Analysis

Narrative thematic analysis was used to analyze the data. After the data were prepared and organized, analysis began with an examination of the transcripts to obtain a general sense of the data. Before interpreting the data, main themes, codes, and categories were identified (Butina, 2015). Each step of the process uncovered meaning from the data to answer the research questions.

Examination

Narrative data were examined upon completion of each interview. Transcripts were printed and reviewed, and initial themes were noted to serve as open codes for MAXQDA (Version 18.2; Burnard et al., 2008; Butina, 2015). A list of central themes was compiled. Data were uploaded into MAXQDA for open coding.

Coding

Coding and content analysis of the data was conducted using MAXQDA (Version 18.2). The research questions served as a guide to identify relevant words, phrases, and ideas from each transcript (Oswald, 2017). Grouping similar thoughts and common words developed overarching codes, and each transcript was analyzed and coded accordingly (Butina, 2015). Interviews were compared to identify similarities and differences (Thorne, 2000). A master list of codes was generated to assist in the development of categories.

Categorization

Codes were grouped logically into categories. Categories represented explicit themes apparent in the data (Butina, 2015). Themes generated from the narrative were used to interpret the data and provided a composite representation of participants' experiences (Oswald, 2017). Major themes were used to organize, and present insights garnered from the data**.**

Reliability and Validity

The goal of ensuring the reliability and validity of a study is rigor (Patino & Ferreira, 2018). Reliability is established through the clear, justified, and consistent use of research methods and analytic processes (Rose & Johnson, 2020). Validity guarantees the accuracy of a study; while the phenomenon being studied is understood, transferable knowledge is created (Cypress, 2017). In qualitative research, achieving reliability and validity means a study's

processes and strategies are credible, dependable, transferable, and trustworthy (Morse et al.,

2002). Multiple methods were employed to ensure the reliability and validity of the study.

Credibility and Dependability

Establishing credibility and dependability within a qualitative study helps ensure high-

quality research (Patino & Ferreira, 2018). Credibility depends on the accurate representation of

the phenomenon studied (J. L. Johnson et al., 2020). Multiple techniques are available to

establish credibility, resulting in thick descriptions (Liao & Hitchcock, 2018; Tracy & Hinrichs,

2017). Purposive sampling, data saturation, triangulation, and member checks were employed to

achieve credibility.

Optimal data sources and sample size were used for the study. Purposive sampling

increased credibility by ensuring alignment between the research goals and participants' lived

experiences (Campbell et al., 2020). Interviews were conducted with participants until data

saturation was achieved to ensure multiple viewpoints were represented and no new or unique

information was available (FitzPatrick, 2019; J. L. Johnson et al., 2020). Twenty participants

were interviewed to ensure the data were complete and saturated.

Merriam and Tisdell (2014) suggested data triangulation and member checks as methods

for corroborating findings and examining the validity of interpretations. Triangulation involves

collecting data from multiple settings to explore a phenomenon and increase the validity of

inferences and the dependability of findings (Curtin & Fossey, 2007; Gibson & O'Connor, 2003;

Kern, 2018). Interviews conducted with members from different EMS communities provided

data representative of multiple perspectives.

Member checks increase the credibility of research. After completing the data analysis,

each participant was provided with a printed copy of their interview transcript and asked to

determine whether the descriptions, themes, and interpretations were complete, realistic, and accurately represented their personal perspectives; they were also asked to identify any discrepancies (Candela, 2019; Creswell & Guetterman, 2020). The member check process was conducted in a private, remote setting to maintain confidentiality.

Strategies for establishing dependability were employed to ensure validity. Stenfors et al. (2020) defined dependability as the ability to reproduce the results of a study in similar conditions. Explicit and transparent descriptions of data collection, preparation, and analysis methods facilitate future replications of those methods (Dodgson, 2017; Haven & Van Grootel, 2019). Including a detailed description of the design and methodology, instrument development, interview protocols, processes, and codebooks provide others with the information needed to audit the research for dependability (Amin et al., 2020). The incorporation of multiple techniques to establish credibility and dependability ensured high-quality research.

Transferability

Measures were taken to ensure that results from the study would be transferable. Establishing the transferability of a study requires the presentation of detailed, contextual information regarding the study and its results, allowing resonance of the findings in other situations (J. L. Johnson et al., 2020). Rich and thick descriptions of the research setting, sample characteristics, and data collection and analysis methods provided the foundation of transferability (Hadi & José Closs, 2015). Multiple EMS professionals from a variety of educational and professional backgrounds were interviewed to guarantee representation of a broad, diverse sample and increase the generalizability of the data.

Trustworthiness

Presenting a trustworthy representation of participants' experiences, beliefs, and perceptions is crucial for quality research. Rose and Johnson (2020) argued that directly addressing existing reliability, validity, and alignment concerns enhances trustworthiness. Inappropriate research designs, inapplicable research methods, and uncorrected credibility issues reduce trustworthiness. Accurate and authentic representation of the investigated experiences with neutral, bias-free reporting of findings ensures trustworthiness (Amankwaa, 2016; Curtin & Fossey, 2007). Explicitly acknowledging and reporting personal biases, values, or beliefs influencing the research process reduces and potentially eliminates bias (Curtin & Fossey, 2007).

<div align="center">

Ethical Procedures

</div>

Ethical guidelines were adhered to throughout the study to ensure human participants were protected. No research was performed before IRB approval (see Appendix H), and all appropriate Collaborative Institutional Training Initiative training was completed and verified. Appropriate arrangements and procedures were established in alignment with the principles of ethical research as outlined in *The Belmont Report* (OHRP, 2021a). Multiple elements were considered to ensure the ethical conduct of the study.

The three essential principles of ethical research were followed: respect for persons, beneficence, and justice (OHRP, 2021a). All participants' autonomy, well-being, and privacy were protected to satisfy the outlined ethical standards (Miracle, 2016). Before individuals participated in the study, they received a thorough explanation of the purpose of the study, any potential risks and benefits of participation, privacy protections, and the right to cease participating at any time without penalty (Barrow et al., 2020). The Informed Consent form was provided electronically to all potential participants, which they had to review and sign before

they could participate in the study (Lee, 2018). Each participant received a copy of the Informed

Consent form for their personal records.

Data were safeguarded to protect participant privacy. All data were stored on a secured,

password-protected drive or in a locked cabinet before being appropriately destroyed after 3

years--via permanent deletion or cross-shredding–as required by U.S. Department of Health and

Human Services regulations (Barrow et al., 2020; OHRP, 2021b). Programs chosen for

transcription and analysis utilized data encryption to ensure confidentiality (Oswald, 2017).

Streamlining of data collection prevented undue burdening of participants (Lee, 2018). Only

individuals directly involved in the research had access to raw data.

Ethical concerns were anticipated and addressed before the beginning of the study.

According to Pitard (2017), the dual role of an educator-researcher raises ethical issues related to

unintentional biases or assumptions and potential power relationships between the educator

researcher and research participants. External research sites beyond personal work environments

were sought to avoid conflicts associated with performing research in a personal workspace

(Loftin et al., 2011). Authority differentials were avoided by screening potential participants for

pre-existing personal or professional relationships before becoming involved in the study (Bell,

2018). Individuals with acknowledged connections were excluded from participation.

Chapter Summary

A basic qualitative design and the narrative analysis approach provided the framework

for the exploration of the research questions in the study. Purposive sampling ensured

participants had experiences relevant to the specific nature of the study. Semistructured

interviews using open-ended questions were conducted at diverse research sites, allowing for the

collection of a broad range of unique perspectives and experiences. Interviews were recorded,

transcribed, and analyzed for themes associated with the research questions. All appropriate

ethical procedures were followed before, during, and after the study to protect participants'

rights.

The results of the study are discussed in Chapter 4. Further details regarding data

collection, analysis, credibility, transferability, dependability, and confirmability are provided.

Description of themes and participants' lived experiences are shared in a narrative form.

Chapter 4: Research Findings and Data Analysis Results

Emergency services personnel are 22% more likely to develop PTSD than the rest of the population due to frequent and consistent exposure to a variety of traumatic occupational stressors (Smith et al., 2019; Walker et al., 2016). EMS professionals exhibit the highest rates of mental health issues among all high-risk occupations, including law enforcement, firefighting, and the military (Alaqeel et al., 2019; Smith et al., 2019; Walker et al., 2016). Without adequate curricular content to prepare EMS students and professionals for the inherent stressors related to the occupation, disorders rooted in inappropriate information processing–such as PTSD, depression, anxiety, and burnout--cannot be properly mitigated (Bomyea et al., 2017; Conti-O'Hare, 2002; Nicholson et al., 2017).

The problem is that emergency medical services professionals in the United States lack the resources, education, and support systems necessary for effective management of the chronic traumatic stressors of the occupation, resulting in a mental health crisis (Bentley et al., 2013; Brassington & Lomas, 2020; Skeffington et al., 2016; Varker et al., 2018). The purpose of the basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training conducted per the existing curricula in EMS educational programs in the eastern United States. The following research questions guided the study:

Research Question 1: What are EMS professionals' opinions about the value of EMS curricula in EMS educational programs in the eastern United States with regard to mental preparation for managing occupational stressors?

Research Question 2: How do EMS students from EMS educational programs in the eastern United States describe the training they received to mentally prepare to manage occupational stress?

The basic qualitative study investigated the research questions by exploring EMS students' opinions and perceptions of EMS curricula, occupational stress, and mental preparedness skills learned via participation in EMS education. Analysis of the data revealed common themes regarding students' opinions of the curricula and perceptions of mental preparedness after participation in EMS training. Data analysis followed the methodology outlined in Chapter 3. The discussion of data collection, data analysis, and results in Chapter 4 corresponds to the semistructured interviews conducted with participants and the participants' responses in those interviews.

Data Collection

Upon receiving approval from the IRB, invitations to participate in the research were sent via email to administrators of the New York and Georgia research sites. Administrators were asked to forward the invitation to students and alumni. A recruitment flyer was also sent to each site administrator and posted in a public location. Both types of recruitment materials presented an overview of the research study, data collection process, and a link to the Informed Consent form.

Data collection was completed between December 2021 and January 2022 using Google Forms and Zoom. Google Forms was used to create two tools: a digital Informed Consent form and a demographic questionnaire. Responses to each form ensured each participant met two primary criteria aligned with the purpose of the study: they were at least 18 years old, and they

were enrolled in or graduated from, an EMS education program located in the eastern United
States.

The attestation at the bottom of the Informed Consent form required an interested
individual to certify their age. Potential participants who self-identified as younger than 18 years
of age were directed to a thank you page indicating failure to meet the study's criteria.
Individuals meeting the age requirement criteria were directed to a thank you page with a link to
the demographic questionnaire.

The online demographic questionnaire, deployed via Google Forms, refined the potential
participant pool and ensured the education criterion was met. Individuals were asked to provide
information regarding the geographical location of their most recently completed EMS course.
Additional questions regarding current level of EMS certification and date of original EMS
course were asked to verify each participant's engagement with EMS curricula.

There were an initial 29 responses to the Informed Consent form, and 26 potential
participants completed the demographic questionnaire. An email was sent to each potential
participant within 1 day of the completion of the Informed Consent form and demographic
questionnaire to schedule an interview via Zoom. One-on-one, semistructured virtual interviews
provided privacy and comfort for participants while reducing time and travel constraints (Gray et
al., 2020). Twenty participants scheduled interviews at times mutually agreeable to each
participant and the interviewer.

All participants consented to the use of video and audio, simulating face-to-face
interview engagement. Interviews were conducted and recorded in Zoom and averaged 27 min in
length. Notes taken during interviews were recorded in a Microsoft Excel spreadsheet and
reviewed for initial codes. Recordings were stored on Zoom and an external password-protected

device with the permission of the participants. Each recording was transcribed via Temi.com,

and the transcripts were stored on an external password-protected device. Data saturation was

achieved after completing 18 interviews (Fusch & Ness, 2015). No deviation from the proposed

data collection plan occurred. Data collection was free of significant or unusual events.

Data Analysis and Results

Participants represented a diverse population of EMS professionals. All 20 participants

were from the New York research site. As outlined in Figure 1, 13 participants were men, six

were women, and one identified as gender fluid.

Figure 1

Participant Demographics
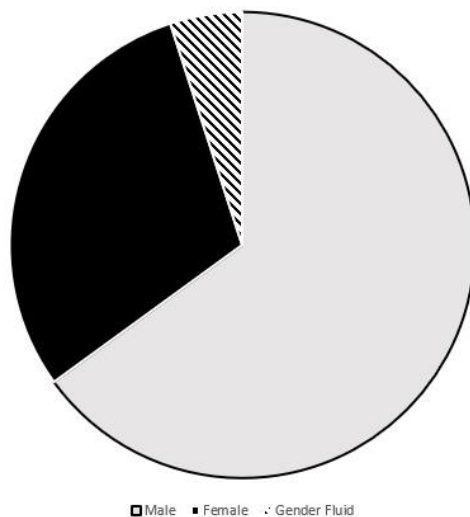
The sample included variety in terms of age, years of EMS experience, level of

involvement in EMS, and EMS certification, which ranged from EMT student to paramedic.

Additional information regarding participant demographics is outlined in Table 1. To protect

participant privacy, all names are pseudonyms.

Table 1

Participant Demographic Details

Participant	Age in years	EMS certification level	Years in EMS	Capacity
Edward	69	Paramedic	48.0	V, PT, E
William	28	AEMT	11.0	V, PT, FT
Evan	27	Paramedic	10.0	FT, PT, PD
Mary	27	AEMT	7.0	V, PD, FT
Joshua	29	Paramedic	2.5	FT
Melinda	57	EMT	9.0	V, PT, E
Brian	29	Paramedic	10.0	FT, E
David	26	Paramedic	4.0	PD
Sarah	30	EMT	11.0	FT
Evelyn	29	EMT, paramedic student	2.0	FT
Douglas	32	Paramedic	4.0	FT, PD
Bethany	25	Paramedic	5.0	V, PD
Roger	59	EMT Student	22.0	V
Anna	24	Paramedic	5.0	FT
James	30	Paramedic	11.5	FT, PD
Jacob	19	Paramedic	4.0	V, PD
Jerry	30	Paramedic	7.0	FT, PD, E
Ralph	47	Paramedic	30.0	FT
Julian	33	Paramedic	7.0	FT, E
Derek	28	Paramedic	5.0	PT

Note. EMS = emergency medical services; V = volunteer; PT = part-time employment; E = educator; AEMT = advanced emergency medical technician; FT = full-time employment; PD = per diem employment, PT = part time employment; EMT = emergency medical technician.

      The study focused on determining the opinions and descriptions of EMS professionals regarding mental readiness to manage occupational stressors after engaging with the existing EMS curriculum. Semistructured interviews followed the validated protocols established for the study. Analysis followed a six-step process (Figure 2) based on the process outlined by Creswell and Creswell (2018).

Figure 2

Researcher's Qualitative Analysis Process

Perform Data Collection
•Compile initial notes during interviews.

Organize collected data.
•Transcribe recordings.
•Examine for generalized sense of data.

Upload transcriptions to MAXQDA.
•Open coding.

Review and revise codes.

Group codes into categories.
•Identify themes.

Use themes to construct narrative.
•Share findings with participants.

Document insights.
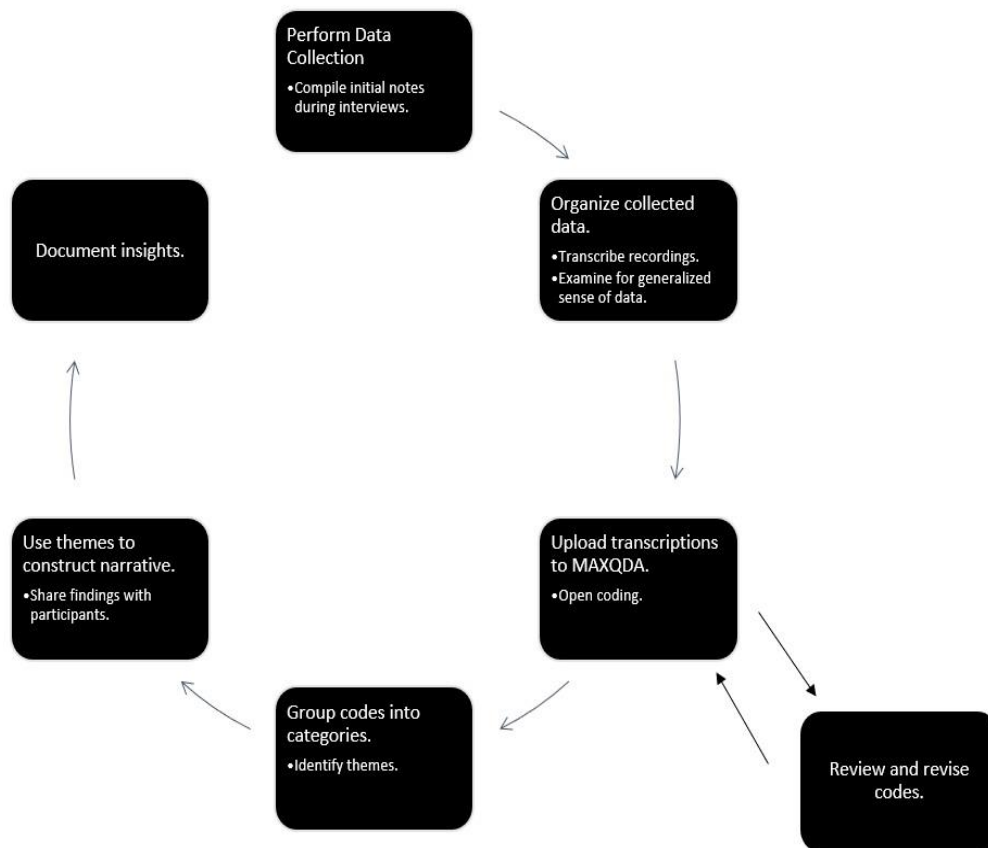
Steps 1 and 2: Collect Data and Organize, Prepare, and Become Familiar With Data

Data collection and organization occurred simultaneously. Notes taken during each interview were reviewed and compared with notes from previous interviews to identify relevant words and phrases to serve as initial codes (Butina, 2015; Oswald, 2017). Upon completion of each interview, the recording was immediately uploaded to Temi.com for transcription. Notes and transcripts were read and reviewed at least twice to establish familiarization with the content (Creswell & Creswell, 2018). All paper copies of notes and transcripts were maintained in a locked cabinet, and all digital copies were maintained on a password-protected device.

Step 3: Begin Coding Data

Digital copies of interview transcripts were uploaded to MAXQDA (Version 18.2) for coding. Each transcript was coded multiple times, starting with the initial codes developed from the interview notes. Similar words, phrases, and patterns were identified within responses and served as additional codes. A comprehensive list of codes was generated from the analysis of the transcripts. The list was reviewed for redundancy and revised for clarity before codes were grouped into categories.

Step 4: Identify Themes

Codes were grouped into categories to identify explicit themes aligned with the research questions (Butina, 2015; Oswald, 2017). Themes emerged organically after the first round of coding. As displayed in Tables 2 and 3, after the second round of coding, four key themes emerged.

Table 2

Coding, Categorization, and Theme Development

Final theme and category	Codes
1. Clinical curricula are valuable.	Patient care
	Pediatric calls stressful
Expectation of innate stress.	Suicides/death
	Treating people you know
Confidence in managing calls.	Frequency of calls builds confidence
	Did I do everything I could have?
Difficult to separate job and stress.	Protocols and policies
2. Informal, experiential learning is high in value.	Internship
	Preceptors
Peers as a resource.	Mentors
	Hands-on
Peers as teachers.	Experience
	Social networks
Desensitization over time.	Friends
	Coworkers
Seeking out and developing personal resources.	Camaraderie
3. Primary path to mental preparedness is via informal, experiential learning methods.	Things you can't unsee
	Exercise
	Hobbies
Experiences change you positively and negatively.	Therapy
	Debriefings (critical incident stress debriefing)
	Maturity vs. youth
Peer-driven stress debriefing programs.	Burnout
Emergency medical services leadership can make positive and negative impact.	
4. Interaction with formal curricula for mental preparedness is limited.	Personal resilience
	No content
	Develop own skills
Low/no/ineffective curricular content.	Stigmatization
	Missing personal signs of stress
Content focused on patients not providers.	Missing signs of stress in peers
	Expedited education
Curricular formality.	Perfunctory content
	"War stories"
Interaction is instructor specific.	Physical safety vs. emotional safety

Table 3

Participant Quotes Illustrating the Final Themes

Final theme	Participant quotes
1. Clinical curricula is valuable.	"As I gain more knowledge about being a paramedic, it helps me stress less. You start to recognize okay, this guy he's not doing so bad. As I become more experienced my stress lessens" (Joshua).
2. Informal, experiential learning is high in value.	"Having those partners that are able to take stress and push it away, having those partners who are good teachers and able to help you out is probably the best resource" (Ralph).
3. Primary path to mental preparedness is via informal, experiential learning methods.	"I don't think the didactic part [prepared me] at all…. I give all the credit to internship. I feel like if I just skipped all of didactic, just did internship I probably would have been fine" (Julian).
4. Interaction with formal curricula for mental preparedness is limited.	"It wasn't really focused on our mental health. It was more focused on our patient's mental health… it wasn't geared toward our mental health at all" (Evelyn). "It was maybe 1/75% of the entire course" (Edward).

Although emerging themes were organized according to the two research questions, significant overlap existed. Theme 1--acknowledgement of the value of clinical curriculum for promoting mental preparedness--was specific to Research Question 1. Themes 2, 3, and 4–high value in informal, experiential learning experiences; informal, experiential learning experiences as the primary path to develop mental preparedness; and limited interaction with formal mental preparedness curriculum–spanned Research Questions 1 and 2. Figure 3 is a visual representation of emergent themes, signified in the boxes. The main themes were apparent in responses from all participants.

Figure 3

Emerging Themes and Sub-Themes
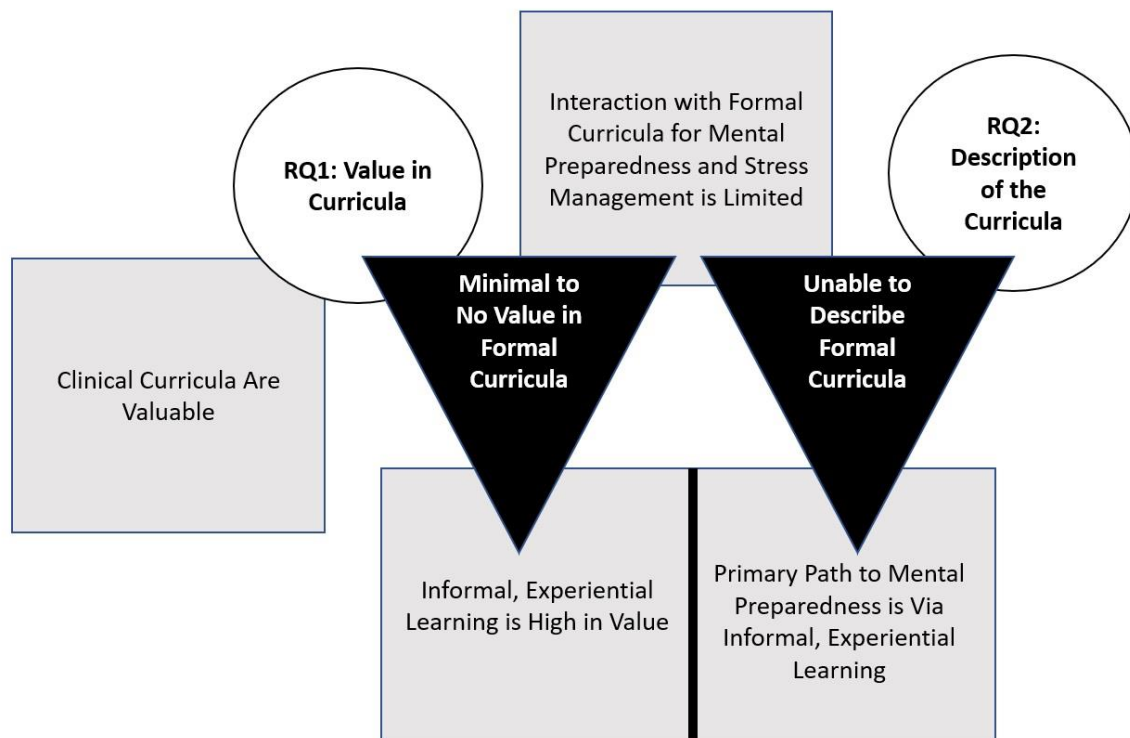
Step 5: Construct Narratives

Each participant was asked via email to review a provided copy of the interview transcript and summary of identified themes. Feedback and clarification of the narratives were requested and obtained from each participant. Participants confirmed that the presented narrative accurately depicted their personal perspectives (Candela, 2019; Creswell & Guetterman, 2020). No revisions of the narratives were required.

Step 6: Document Insights

The semistructured interviews allowed participants to share perspectives and descriptions of EMS curricula. The narratives reflected participants' personal perceptions and opinions of the

EMS curricula in different formats, from various time periods, and as presented by different

instructors. The subsequent sections include a narrative and direct participant quotes supporting

the identified themes.

Theme 1: Clinical Curricula Are Valuable

Participants reported confidence in clinical skills as more valuable for reducing stress

than available mental preparedness instruction. Exposure to a broad clinical curriculum bolstered

resilience to stress. James stated, "Having confidence in my own knowledge and skills and

abilities reduces how stressed I feel during high-stress calls." Fourteen participants associated

strong clinical skills and familiarity with patient care policies and procedures with the reduction

of occupational stress. Derek shared:

> Memorizing and learning everything helped reduce the cognitive load of everything.
>
> Dealing with the situation itself is stressful … but having the muscle memory of 'I know
>
> what I need to do' reduces stress and the only stress [I have] to focus on was the patient.

Ten participants acknowledged the stress release associated with performing patient care

to the best of their ability, regardless of patient outcome. Bethany described a personal coping

mechanism: "I kind of break down the call in my head and talk myself through anything else I

could have done differently when there's not really a lot that could have been done differently."

Other participants described engaging in similar personal debriefing methods. All said this

mental debriefing was self-taught and did not originate from formal curricula. Six participants

said their personal ways of cultivating resilience and desensitizing themselves were more

valuable than what they learned from the curriculum.

Theme 2: Informal, Experiential Learning is High in Value

The theme of informal and experiential learning emerged strongly from the data analysis and overlapped both research questions. Participants felt more mentally prepared by engagement in informal learning opportunities during clinical rotations and on-the-job training than by curricular training. Anna shared:

> You can sit there and lecture somebody and hand somebody a packet that has a million different resources, but until you actually experience something and get to use it and see what works best for you that was the most beneficial for me.

> Jacob stated, "As you get more experience, and just see more patients, do more calls, I think that stress gradually decreases." David agreed: "I'm more fortified by working. By gaining more experience, things start to bother me less. But there are still points where it could still bother you." All participants highly valued these interpersonal relationships.

Theme 3: Primary Path to Mental Preparedness Is via Informal, Experiential Learning Methods

When asked to describe how the didactic portion of their EMS training provided mental preparedness, participants were unable to articulate specifically useful or meaningful parts of the curriculum. Although some participants pointed out that the emphasis placed on curricular content regarding mental preparedness was instructor specific, others agreed with something that Jacob said: "I find it to be more of a formality mentioning the mental stress of the EMS professional, but it's less integrated into the actual curriculum." Five participants felt they were mentally underprepared for entry into the occupation. William said:

There was never a "Hey, let's go around and talk about what you do." I feel it was very

much "Here's what the PowerPoint says, here's what I'm going to spit back at you, and

let's call it a day."

Rather than provide details regarding the curriculum, most participants offered rich

descriptions of how interactions with mentors and partners formed the primary learning pathway

for mental preparedness. All participants cited social networks--such as friends, family, partners,

or co-workers--as the first line of stress management. Julian stated:

I don't think the didactic part did at all, but thankfully we had an internship and going out

there and experiencing it was the buffer of other people who were very strong was

tremendous. I was lucky to have very strong, comfortable people.

When asked to identify skills learned from the curriculum, Ralph stated, "I don't think

there was anything that was beneficial, to be honest." Sixteen participants noted that they derived

skills and techniques for managing occupational stress from the methods and techniques

exhibited by more experienced EMS professionals, modified to suit personal preference. All

interviews included stories about how social networks provided much-needed mental bolstering

during periods of high stress. Brian shared his perspective:

I don't think my actual training in EMT and paramedic school did prepare me well or

give me tools to prepare and deal with the stress. I definitely think mentors and other

people in the field have helped me develop my skills more than any training I've gotten.

Theme 4: Interaction with Formal Curricula for Mental Preparedness and Stress

Management Is Limited

The participants highlighted a desire for a more robust curricula to support mental

preparedness and management of inherent occupational stress and their dissatisfaction with the

existing EMS curricula in this regard. Most participants were unable to identify specific skills

learned from the curricula. Mary stated, "We don't have the testing to see if you're emotionally

capable. That's not available."

Participants overwhelmingly concurred that the existing EMS curricula did not

adequately address mental preparedness or ways to manage stress. Evan noted, "It wasn't the

curriculum at all, it was definitely just the instructors and what they had gone through. The

curriculum was very one-sided." Five participants noted that the curriculum emphasized

awareness of mental health when assessing patients rather than when assessing and managing

personal stress.

When asked how much instructional time was dedicated to teaching curriculum directly

related to mental preparedness and stress management, respondents unanimously reported

virtually no time was committed to preparing students mentally. Derek commented on the

minimal amount of attention mental preparedness received during classroom instruction: "Maybe

in the introduction of the class they said, 'Hey, it's going to be stressful,' but that's about it."

Reliability and Validity

Establishing credibility is essential to ensuring the trustworthiness and dependability of a

qualitative study (Patino & Ferreira, 2018). Credibility is established through a thorough and

accurate representation of participants' perspectives (J. L. Johnson et al., 2020). Thick,

contextualized descriptions of the specific components of the study ensured transferability (Hadi

& José Closs, 2015), and purposive sampling, data saturation, factual and triangulation, and

member checks helped achieve credibility.

Appropriate data collection methods were used for this basic qualitative study.

Conducting on-on-one interviews via Zoom allowed participants to engage in honest, open

dialogue without the influence of others. The interview protocol was created specifically for the study and was reviewed and validated by four EMS education SMEs. Purposive sampling ensured alignment between the research goals and participants' lived experiences as EMS students or professionals (Campbell et al., 2020). During the sampling process, researcher bias was reduced by reviewing the participant pool for individuals with acknowledged personal or professional connections to the researcher (Bell, 2018). No conflicts were identified.

Triangulation consists of collecting data from multiple settings to increase the validity and dependability of findings (Curtin & Fossey, 2007; Gibson & O'Connor, 2003; Kern, 2018). Inclusion of multiple viewpoints was achieved by securing a participant pool representative of a diverse group of EMS professionals. Although two research sites were secured, almost no individuals responded from the Georgia site, and none participated in the study. Despite the participant pool being limited to a single research site, representation of various levels of engagement with EMS curricula and various levels of commitment within the EMS profession was still secured. Triangulation was attained through the depiction of multiple perspectives because participants from the New York site had previously interacted with EMS curricula at additional training sites across time. Demographic information was cross-referenced for additional perspectives and factual data triangulation (Noble & Heale, 2019). Data were collected until no new information emerged, indicating data saturation was achieved (FitzPatrick, 2019; J. L. Johnson et al., 2020). Although saturation was noted upon completing interviews with 18 participants, interviews with all 20 participants were completed.

To increase credibility and reduce researcher bias, member checks were performed. To reduce potential bias, participants were allowed to review and correct their transcripts and the narratives constructed from their transcripts. Each participant was also asked to confirm the

accuracy of the description of their personal perspectives and to identify any discrepancies

(Candela, 2019; Creswell & Guetterman, 2020). Feedback and clarification were obtained.

Ongoing review and analysis of collected data were performed to ensure narratives accurately

reflected study findings. Given the EMS curricula are nationally standardized, the findings of

this study are transferable to EMS educational programs across the United States for the

purposes of reevaluating instructional practices regarding mental preparedness.

Chapter Summary

Participants reported feeling overwhelmingly underprepared to manage occupational

stressors after engaging with the existing curricula. Participants were unable to describe

instances where specific, meaningful skills were taught from curricula to help manage stress or

emotionally charged situations. Participating EMS professionals obtained the most beneficial

experiences regarding mental preparedness through informal learning from mentors, social

networks, cultivating personal resilience, and seeking professional therapeutic help. The

alignment of the theoretical framework with participants' responses, along with the findings,

limitations, recommendations, and implications of the study, are shared in Chapter 5.

Chapter 5: Discussion and Conclusions

The purpose of the basic qualitative study was to investigate EMS professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training conducted per the existing curricula in EMS educational programs in the eastern United States. Given the lack of existing research on the subject, a basic qualitative design was used to generate foundational insight into EMS students' perceptions of their experiences.

The basic qualitative study contributed to the existing body of mental health research focused on EMS professionals. Given the lack of research on the subject, basic qualitative methodology was used to generate foundational insight into the perceptions of EMS students' experiences. Chapter 4 detailed findings resultant from analysis of the data collected from the basic qualitative study. Regarding the two research questions, descriptions of participants' experiences with the curriculum and opinions of the value of the training via the curriculum for mental preparedness were provided.

Research Question 1 focused on personal opinions regarding the value of curricula to mentally prepare individuals to manage occupational stressors. The findings indicated that participating EMS professionals found little to no value in existing curricula regarding mental preparation for occupational stress. The emphasis on clinical skills in formal curricula overshadowed mental preparedness training. The lack of perceived value of formal curricula forced participants to rely on unstructured, informal, and experiential learning opportunities to develop stress management skills and coping mechanisms.

Research Question 2 stimulated the exploration of how EMS professionals describe the mental preparedness training received via existing curricula. Participants were unable to describe any specific formal educational training experiences, stating that curricular time was

disproportionately allocated to ensuring they could recognize and manage clinical signs and

symptoms of psychological stress in others rather than themselves. Sole reliance upon

experiential learning for mental preparation fails to expose individuals to a variety of coping

mechanisms, increasing the psychological consequences of occupational stressors.

The following sections present the study's findings, interpretations, and conclusions.

Limitations of the study are detailed. Recommendations for future research, improved practices,

and implications for leadership are discussed.

Findings, Interpretations, and Conclusions

The following interpretations and conclusions do not exceed the data findings or the

scope of the study. All methods used to collect and analyze data for the study were appropriate

and aligned with the goals and scope of the study. Transcription and member checks guaranteed

the accurate representation of participants' lived experiences.

Findings and Interpretations

Key findings from the study confirm the findings reported in the existing peer-reviewed

literature synthesized in Chapter 2. Dissatisfaction with the mental preparedness provided by the

training received via formal curricula centered on the lack of specific training regarding personal

mental health and protective strategies. The findings highlighted a disconnect between the

curricular ideal of a culture of safety and the reality of how EMS professionals have been

prepared (Clark et al., 2021). The lack of an explicit, describable curriculum for mental

preparedness results in a vulnerable EMS workforce. Authors have suggested that many EMS

professionals rely on informal strategies and coping mechanisms--such as social support systems

and exercise--to manage occupational stress (Boland et al., 2019; Schultchen et al., 2019).

Findings from the study indicated that participating EMS professionals relied on stress

management strategies and coping mechanisms developed before entry into EMS or cultivated

through trial and error during their careers instead of depending on skills learned via the

curriculum.

The first theme was that participants found value in clinical curricula to reduce the impact

of occupational stressors. Adequate clinical preparation is essential. The wounded healer

concept, as modified by Conti-O'Hare (2002), suggests that individuals enter health care

occupations to transcend personal traumas by helping others. The findings suggested that an

EMS professional's satisfaction with their ability to improve patient outcomes based on strong

clinical knowledge reduces the stress they experience. Supporting the claims of information

processing theory confidence in clinical knowledge and skills minimizes the psychological

impact of occupational stressors reducing the potential for the development of inappropriate

information processing biases (Bomyea et al., 2017; Nicholson et al., 2017). Maintenance of

appropriate information processing minimizes an individual's risk of developing PTSD or

associated anxiety disorders (Corrigan et al., 2020). Although the clinical curricula provide EMS

professionals with a valuable cognitive foundation for attending to personal mental preparedness,

Bomyea et al. (2017) noted individuals experience improved mental health outcomes when

provided with adequate mental preparation via a robust, supportive curriculum.

The second and third themes were that participating EMS professionals believed

informal, experiential learning opportunities held more value than formal curricula and that these

opportunities formed the primary path to achieving mental preparedness. In Chapter 4, the

second and third themes were discussed separately to specifically address different research

questions. Although the second and third themes are unique entities, the related findings are

interconnected. The findings indicated that participants believed the catalyst for acknowledging

personal traumas and initiating PTG was experiential learning in the field. According to the

wounded healer concept, recognition of pre-existing traumas is the first step toward progression

along the continuum from walking wounded to wounded healer (Conti-O'Hare, 2002). The

findings indicated that many participants entered EMS after having experienced psychological

injuries and believed experiential learning was the impetus to acknowledging and resolving the

resulting trauma. According to information processing theory, dismissing traumatic experiences

without resolution and extinction of the stimulus overwhelms information processing

mechanisms (Pratiwi et al., 2019). Resultant alterations to the brain's normal top-down data

management create bottom-up information processing biases (Bomyea et al., 2017; Koenig et al.,

2017). Maladaptive information processing biases in walking wounded individuals increases the

risk of them developing long-term psychological issues (Conti-O'Hare, 2002; Corrigan et al.,

2020). The findings indicated that the participants found informal, experiential learning

opportunities with colleagues and mentors reduced the psychological impacts of personal

traumas.

The fourth theme was that participating EMS professionals described limited interaction

with formal curricula regarding mental preparedness and stress management. Findings indicated

the formal curricula did not provide explicit information regarding recognizing or managing the

signs and symptoms of critical, overwhelming stress. According to information processing

theory, individuals entering a high-risk occupation with insufficient mental preparation are more

likely than well-prepared individuals to develop maladaptive stress management skills after

traumatic exposure (Bomyea et al., 2017; Nicholson et al., 2017). The findings also indicated a

lack of explicit education to develop preventative and protective strategies to support positive

mental health outcomes. Although the findings suggested EMS professionals were aware of daily

exposures to traumatic events, it was not clear whether they experienced personal recognition or acknowledgment of alterations to information processing pathways. Without proper training, EMS professionals may be unaware of the development of information processing biases. According to the wounded healer concept, dismissal of traumas and related information processing consequences may result in interruption of transcendence along the continuum from walking wounded to wounded healer (Conti-O'Hare, 2002).

Conclusions

The findings indicated that the participating EMS professionals found little to no value in the curricula to enhance mental preparedness to manage occupational stress. Existing curricula do not explicitly include strategies for protecting or enhancing mental resilience and well-being, resulting in an educational gap for EMS professionals. Although the findings indicated that participants gained the most value regarding mental preparedness from informal, real-life interactions with others, the partners, preceptors, and teachers tasked with ensuring the mental preparedness of novices are ill-equipped to serve as mentors or provide psychological guidance.

Participants were unable to describe specific curricular stress management skills, strategies, or techniques. Lack of interaction with an explicit mental preparedness curriculum places a disproportionate level of responsibility for psychological well-being on informal, experiential experiences. Social support systems and experiential learning play an important role in filling the curricular gap.

<div align="center">

Limitations

</div>

Limitations are unanticipated and uncontrollable factors with potentially negative impacts on a study (Alexander, 2020). To overcome the limitations associated with qualitative methodology, multiple strategies were employed to ensure trustworthiness, credibility,

dependability, transferability, and confirmability (Morse et al., 2002; Rose & Johnson, 2020).

Credibility, or internal validity, was established by ensuring an accurate representation of the

perspectives collected (J. L. Johnson et al., 2020). Although purposive sampling ensured

alignment between participants' lived experiences and the research goals (Campbell et al., 2020),

a noted limitation was the securement of participants from only one research site. Despite this,

participants still represented diverse educational and experiential backgrounds, enhancing

credibility (Noble & Heale, 2019). Each interview was recorded, notes were taken, and member

checks of transcripts were performed to ensure accuracy (Candela, 2019; Creswell &

Guetterman, 2020; Merriam & Tisdell, 2014).

Providing the ability to reproduce a study in similar conditions ensures dependability

(Stenfors et al., 2020). Clearly detailing the research process—including information regarding

the design, methodology, instrument development, interview protocols, notes, and codes—allows

for auditing and replication of the study (Amin et al., 2020; Dodgson, 2017; Haven & Van

Grootel, 2019). During data collection, a reflexive journal was maintained to minimize bias and

to document methodological decision-making. Transparency practiced in all steps of the research

process offers future researchers the opportunity to replicate the study under the same or similar

conditions.

Given that the National Registry enforces a standardized national EMS curriculum

(National Registry of Emergency Medical Technicians, 2020), the setting of the study was

representative of other EMS educational programs in the United States, suggesting the noted

insufficiencies may extend to all U.S. EMS professionals. The experiences of the 20 EMS

students in the study were potentially broad enough to match the experiences of EMS students in

other settings and other populations, regardless of urban, suburban, or rural settings, call volume,

or frequency. Rich, detailed, and contextual data grounded in participants' experiences ensured

transferability to similar situations (J. L. Johnson et al., 2020). Awareness of the inadequacy of

EMS curricula to prepare students mentally for entry into a high-stress environment can be

extended to novices of other potentially stressful health care fields, such as nurses, physician

assistants, and physicians. Emphasis on the importance of experiential learning as the primary

method of learning stress management techniques can also be extended to individuals

undertaking stressful endeavors with minimal curricular support, such as doctoral candidates.

Recommendations

Additional research using the study's interview protocol in different settings is

recommended to confirm the findings. Future research should explore strategies to integrate

structured resilience and mental preparedness training into the curricula. Further investigation is

recommended regarding how EMS professionals' perceptions of mental preparedness change

throughout the course of a career.

Researchers should focus on determining the most effective way to provide mental

preparedness training to EMS professionals on entry into the occupation, throughout a career in

the occupation, and after exposure to significant traumatic events. Although it was beyond the

scope of the study, future investigation is recommended regarding EMS educators' perceptions

of the efficacy of instructor training to leverage existing curricula to prepare students for the

occupation's psychological burden.

Based on the unique structure of EMS in the United States, changes in policies and

practice should begin on a national level with the introduction of a more robust mental

preparedness curriculum. An actionable plan should be implemented to ensure the safety and

well-being of all EMS professionals. Professional development opportunities should be designed

to improve awareness of mental health concerns related to a career in EMS and various outlets available to positively manage stress.

Implications for Leadership

Results of the study are intended to guide meaningful improvements to EMS curricula to support mental preparedness for individuals entering and active within the profession. Educational leaders can use the participants' perceptions to reflect on existing practices and identify areas for growth. Leaders can apply insights to EMS instructors, EMS administrators determining appropriate professional development activities, revision of the national curriculum, and scholars conducting research into how best to support mental preparedness within EMS education and training.

The study was an initial exploration of EMS students' experiences with and perceptions of mental preparedness within EMS curricula. Authors have suggested that mentally vulnerable individuals with unattended traumatic stressors may experience significant psychological impairment such as PTSD, anxiety, depression, and burnout (Corrigan et al., 2020). Individuals can cultivate mitigating factors -- such as social networks, positive coping mechanisms, and increased resilience – with appropriate training and support (Blisker et al., 2019; Shakespeare-Finch & Daley, 2017). Insights from the study indicate that EMS professionals want to learn additional stress management skills before entering the profession to improve career longevity and lifelong mental health outcomes.

When evaluated in a broad context, the application of the study's conclusions has the potential to create positive social impacts. On an individual level, many students enter EMS education with stress management skills and coping mechanisms derived from previous trauma. An EMS curriculum that reduces psychological vulnerability and supports positive resilience

would mitigate the development of maladaptive information processing, alleviating the mental health crisis plaguing EMS professionals (Vigil et al., 2018).

On a familial level, positive outcomes can extend from the positive impacts of reduced personal stress. Forming the primary social network for EMS professionals, family members often bear the brunt of adverse stress reactions (Zacchaeus, 2019). Adequately preparing EMS professionals with a robust curriculum can reduce the stress levels experienced by all their family members.

Educational and organizational leaders facilitate students' transcendence along the wounded healer continuum (Conti-O'Hare, 2002). Prior curriculum evaluations have indicated a lack of guidance for EMS educators to ensure specific, consistent, and structured mental preparedness training is provided to all individuals pursuing a career in EMS (Anderson et al., 2017; Holmes et al., 2020; Wild et al., 2018). As mentors and role models in the profession, educators and leaders provide novices with assistance and guidance regarding the management of occupational stressors. By acknowledging the shortcomings of existing curricula, local, regional, and national EMS leaders can make meaningful revisions to better support the mental health needs of future students. EMS leaders can promote organizational change by recognizing EMS professionals' dependence on informal social networks to manage stress and providing the necessary support for individuals in mentorship roles.

Improving the mental preparedness of EMS professionals promotes positive social change by ensuring a healthy, competent EMS workforce is available to serve communities (Chirico et al., 2020). The consequences of poor psychological health--such as absenteeism, burnout, and clinical errors--put undue strain on the health care system and the patients using it

(Hruska & Barduhn, 2021). A high-quality, robust mental preparedness curriculum would support the health of EMS professionals and the overall health care system.

Conclusion

Key findings of the study suggest that EMS professionals find little to no value in existing curricula regarding mental preparation for managing occupational stress. The formal curriculum promotes an ideal culture of safety without adequately attending to mental preparedness. Lack of explicit, formal education regarding recognition of the signs and symptoms of overwhelming critical stress and the development of positive, appropriate skills and strategies to manage occupational stress increases EMS professionals' psychological vulnerability.

Despite the curricular gaps, the findings suggest that EMS professionals access available resources--such as informal, experiential learning via colleagues and mentors--as an alternative way to adapt to inherent occupational stressors. The findings suggest experiential learning, rather than curricular learning, often serves as the catalyst for acknowledgment of past and present traumas, as the impetus for resolution of the trauma, and as the first step toward PTG. The findings also suggest that an individual's confidence in their clinical knowledge and skills reduces the impact of occupational stress on the individual.

The findings of the study imply that EMS professionals are acutely aware of the inherent psychological impacts of the profession and desire a more robust curriculum for stress management skills. Curricular improvements can support career longevity, improve mental health outcomes, and reduce strain on global health care systems. Results from the study can be extended to help other high-stress populations--such as nurses, physicians, police officers,

firefighters, members of the military, and doctoral students--manage potential mental health

consequences.

References

Alaqeel, M. K., Aljerian, N. A., AlNahdi, M. A., & Almaini, R. Y. (2019). Post-traumatic stress disorder among emergency medical services personnel: A cross-sectional study. *Asian Journal of Medical Sciences, 10*(4), 28- 31. https://doi.org/10.3126/ajms.v10i4.23990

Alexander, P. A. (2020). Methodological guidance paper: The art and science of quality systematic reviews. *Review of Educational Research*, *90*(1), 6- 23. https://doi.org/10.3102/0034654319854352

Allen, M. T., Handy, J. D., Miller, D. P., & Servatius, R. J. (2019). Avoidance learning and classical eyeblink conditioning as model systems to explore a learning diathesis model of PTSD. *Neuroscience and Biobehavioral Reviews*, *100*, 370- 386. https://doi.org/10.1016/j.neubiorev.2019.03.003

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of methods used for estimating content validity. *Research in Social and Administrative Pharmacy*, *15*(2), 214- 221. https://doi.org/10.1016/j.sapharm.2018.03.066

Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research. *Journal of Cultural Diversity*, *23*(3), 121- 127. https://www.tuckerpub.com/jcd.htm

Amin, M. E., Norgaard, L. S., Cavaco, A. M., Witry, M. J., Hillman, L., Cernasev, A., & Desselle, S. P. (2020). Establishing trustworthiness and authenticity in qualitative pharmacy research. *Research in Social and Administrative Pharmacy*, *16*(10), 1472- 1482. https://doi.org/10.1016/j.sapharm.2020.02.005

Anderson, G. S., Vaughan, A. D., & Mills, S. (2017). Building personal resilience in paramedic students. *Journal of Community Safety and Well-Being, 2*(2), 51- 54. https://doi.org/10.35502/jcswb.44

Antony, J., Brar, R., Khan, P. A., Ghassemi, M., Nincic, V., Sharpe, J. P., Straus, S. E., &
        Tricco, A. C. (2020). Interventions for the prevention and management of occupational
        stress injury in first responders: A rapid overview of reviews. *Systematic Reviews*,
        9(121), 1- 20. https://doi.org/10.1186/s13643-020-01367-w

Atkinson, R. C., & Shiffrin, R. M. (1968). Human memory: A proposed system and its control
        processes. *Psychology of Learning and Motivation, 2*, 89-195.
        https://doi.org/10.1016/S0079-7421(08)60422-3

Austin, C. L., Pathak, M., & Thompson, S. (2018). Secondary traumatic stress and resilience
        among EMS. *Journal of Paramedic Practice*, *10*(6)*, 240- 247.
        https://doi.org/10.12968/jpar.2018.10.6.240

Badura-Brack, A., McDermott, T. J., Becker, K. M., Ryan, T. J., Khanna, M. M., Pine, D. S.,
        Bar-Haim, Y., Heinrichs-Graham, E., & Wilson, T. W. (2018). Attention training
        modulates resting-state neurophysiological abnormalities in posttraumatic stress disorder.
        Psychiatry Research: Neuroimaging, *271,* 135- 141.
        https://doi.org/10.1016/j.pscychresns.2017.11.008

Baqutayan, S. M. S. (2015). Stress and coping mechanisms: A historical overview.
        Mediterranean Journal of Social Sciences, *6*(2), 479- 488.
        https://doi.org/10.5901/mjss.2015.v6n2s1p479

Baran, A., Barnett, T., & Silva, A. (2016, September). *Research: Phenomenological study of
        PTSD in the first responder workplace.* EMS1. https://www.ems1.com/ems-
        management/articles/research-phenomenological-study-of-ptsd-in-the-first-responder-
        workplace-v9pe5WWHPJU01WT3

Barrow, J. M., Brannan, G. D., & Khandhar, P. B. (2020). Research ethics. In

StatPearls[Internet]. StatPearls Publishing.

https://www.ncbi.nlm.nih.gov/books/NBK459281/

Bell, K. (2018). The 'problem' of undesigned relationality: Ethnographic fieldwork, dual roles

and research ethics. *Ethnography*, *20*(1), 8- 26.

https://doi.org/10.1177/1466138118807236

Bender, C. L., Giachero, M., Comas-Mutis, R., Molina, V. A., & Calfa, G. D. (2018). Stress

influences the dynamics of hippocampal structural remodeling associated with fear

memory extinction. *Neurobiology of Learning and Memory*, *155*, 412- 421.

https://doi.org/10.1016/j.nlm.2018.09.002

Bentley, M. A., Crawford, J. M., Wilkins, J. R., Fernandez, A. R., & Studnek, J. R. (2013). An

assessment of depression, anxiety, and stress among nationally certified EMS

professionals. *Prehospital Emergency Care*, *17*(3), 330- 338.

https://doi.org/10.3109/10903127.2012.761307

Birur, B., Moore, N. C., & Davis, L. L. (2017). An evidence-based review of early

intervention and prevention of posttraumatic stress disorder. *Community Mental Health*,

53(2), 183- 201. https://doi.org/10.1007/s10597-016-0047

Blisker, D., Gilbert, M., Alden, L., Sochting, I., & Khalis, A. (2019). Basic dimensions of

resilient coping in paramedics and dispatchers. *Australasian Journal of Paramedicine*,

16, 1- 8. https://doi.org/10.33151.ajp.16.690

Boland, L. L., Mink, P. J., Kamrud, J. W., Jerusal, J. N., & Stevens, A. C. (2019). Social support

    outside the workplace, coping styles, and burnout in a cohort of EMS providers from

    Minnesota. *Workplace Health & Safety*, *67*(8), 414- 422.

    https://doi.org/10.1177/2165079919829154

Bomyea, J., Johnson, A., & Lang, A. J. (2017). Information processing in PTSD: Evidence for

    biased attentional, interpretation, and memory processes. *Psychopathology Review*, *4*(3),

    218- 243. https://doi.org/10.5127/pr.037214

Brassington, K., & Lomas, T. (2020). Can resilience training improve well-being for people in

    high-risk occupations? A systematic review through a multidimensional lens. *The

    Journal of Positive Psychology*, 16(5), 1- 20.

    https://doi.org/10.1080/17439760.2020.1752783

Britt, T. W., Jennings, K. S., Cheung, J. H., Pury, C. L. S., Zinzow, H. M., Raymond, M. A., &

    McFadden, A. C. (2016). Determinants of mental health treatment seeking among

    soldiers who recognize their problem: Implications for high-risk occupations. *Work &

    Stress*, *30*(4), 318- 336. https://doi.org/10.1080/02678373.2016.1246490

Brooks, I. A., Sayre, M. R., Spencer, C., & Archer, F. L. (2015). An historical examination of the

    development of emergency medical services education in the US through key reports

    (1966- 2014). *Prehospital and Disaster Medicine*, *31*(1), 90- 97.

    https://doi.org/10.1017/S1049023X15005506

Burnard, P., Gill, P., Steward, K., Treasure, E., & Chadwick, B. (2008). Analysing and

    presenting qualitative data. *British Dental Journal*, *204*(8), 429- 432.

    https://doi.org/10.1038/sj.bdj.2008.292

Butina, M. (2015). A narrative approach to qualitative inquiry. *Clinical Laboratory Science*,

    28(3), 290-196. http://clsjournal.ascls.org/content/ascls/28/3/190.full.pdf

Campbell, S., Greenwood, M., Prior, S., Shearer, T., Walkem, K., Young, S., Bywaters, D., &

    Walker, K. (2020). Purposive sampling: Complex or simple? Research case examples.

    Journal of Research in Nursing, *25*(8), 652- 661.

    https://doi.org/10.1177/1744987120927206

Candela, A. G. (2019). Exploring the function of member checking. *The Qualitative Report,*

    24(3), 619- 628. https://www.nsuworks.nova.edu/tqr/vol24/iss3/14/

Carbajal, J., Ponder, W. N., Witworth, J., Schuman, D. L., & Galusha, J. M. (2021). The impact

    of COVID-19 on first responders' resilience and attachment. *Journal of Human Behavior*

    in the Social Environment, 1- 17. Advance online publication.

    https://doi.org/10.1080/10911359.2021.1962777

Carleton, R. N., Korol, S., Mason, J. E., Hozempa, K., Anderson, G. S., Jones, N. A., Dobson, K.

    S., Szeto, A., & Bailey, S. (2018). A longitudinal assessment of the road to mental

    readiness training among municipal police. *Cognitive Behaviour Therapy*, *47*(6), 508-

    528. https://doi.org/10.1080/16506073.2018.1475504

Carmassi, C., Gesi, C., Simoncini, M., Favilla, L., Massimetti, G., Olivieri, M. C., Conversano,

    C., Santini, M., & Dell'Osso, L. (2016). DSM-5 PTSD and posttraumatic stress spectrum

    in Italian emergency personnel: Correlations with work and social adjustment.

    Neuropsychiatric Disease and Treatment, *12,* 375- 381.

    https://doi.org/10.2147/NDT.S97171

Cash, R. E., White-Mills, K., Crowe, R. P., Rivard, M. K., & Panchal, A. R. (2018). Workplace

      incivility among nationally certified EMS professionals and associations with workforce-

      reducing factors and organizational culture. *Prehospital Emergency Care*, *23*(3), 346-

      355. https://doi.org/10.1080/10903127.2018.1502383

Castillo-Montoya, M. (2016). Preparing for interview research: The interview protocol

      refinement framework. *The Qualitative Report*, *21*(5), 811- 831.

      https://doi.org/10.46743/2160-3715/2016.2337

Cates, K. A., Zeller, M. M., & Faircloth, P. K. (2017). Serving those who serve: Understanding

      emergency service and military personnel and the mental health counselors who serve

      them. *National Forum Journal of Counseling and Addiction*, *6*(1), 1- 12.

      http://www.nationalforum.com/Journals/NFJCA/NFJCA.htm

Chirico, F., Nucera, G., & Magnavita, N. (2020). Protecting the mental health of healthcare

      workers during the COVID-19 emergency. *BJPsych International*, *18*(1), Aritcle E1.

      https://doi.org/10.1192/bji.2020.39

Chitra, T., & Karunanidhi, S. (2018). The impact of resilience training on occupational stress,

      resilience, job satisfaction, and psychological well-being of female police officers.

      Journal of Police and Criminal Psychology, *36*,1- 16. https://doi.org/10.1007/s11896-

      018-9294-9

City of New York. (2021). *Citywide statistics.*

      https://www1.nyc.gov/site/fdny/about/resources/data-and-analytics/citywide-

      statistics.page

Clampett, C. A. (2019). Willingness of medical versus non-medical emergency responders to

accept post-incident intervention. *Annals of Emergency Dispatch & Response*, *7*(2), 23-

27. https://cdn.emergencydispatch.org/AEDR/pdfs/Willingness-of-Medical-versus-Non-

Medical-Emergency-Responders-to-Accept-Post-Incident-Intervention.pdf

Clark, L. V., Fida, R., Skinner, J., Murdoch, J., Rees, N., Williams, J., Foster, T., & Sanderson,

K. (2021). Mental health, well-being and support interventions for UK ambulance

services staff: An evidence map, 2000 to 2020. *British Paramedic Journal*, *5*(4), 25- 39.

https://doi.org/10.29045/14784726.2021.3.5.4.25

Cleland, J. A. (2017). The qualitative orientation in medical education research. *Korean Journal

of Medical Education*, *29*(2), 61- 71. https://doi.org/10.3946/kjme.2017.53

Cohen, K., & Collens, P. (2013). The impact of trauma workers: A metasynthesis on vicarious

trauma and vicarious posttraumatic growth. *Psychological Trauma: Theory, Research,

Practice, and Policy*, *5*(6), 570- 580. https://doi.org/10.1037/a0030388

Conti-O'Hare, M. (2002). *Nurse as the wounded healer: From trauma to transcendence.* Jones

and Bartlett Publishers.

Corrigan, J., Hanna, D., & Dyer, K. F. W. (2020). Investigating predictors of trauma induced

data-driven processing and its impact on attention bias and free recall. *Behavioural and

Cognitive Psychotherapy*, *48*(6), 646-657. https://doi.org/10.1017/S135246582000048X

Cox, D. W., Bakker, M., & Naifeh, J. A. (2017). Emotion dysregulation and social support in

PTSD and depression: A study of trauma-exposed veterans. *Journal of Traumatic Stress*,

30(5), 545- 549. https://doi.org/10.1002/jts.22226

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

https://www.edge.sagepub.com/creswellrd5e

Creswell, J. W., & Guetterman, T. C. (2020). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (6th ed.). Pearson.

https://www.pearson.com/store/en-us/pearsonplus/p/9780136874416.html

Creswell, J. W., Hanson, W. E., Clark, V. L. P., & Morales, A. (2007). Qualitative research designs: Selection and implementation. *The Counseling Psychologist*, *35*(2), 236- 264.

https://doi.org/10.1177/0011000006287390

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches.* (4th ed.) SAGE Publications.

https://www.edge.sagepub.com/creswellqi4e

Creswell, J. W., Shope, R., Clark, V. L. P., & Green, D. O. (2006). How interpretive qualitative research extends mixed methods research. *Research in the Schools*, *13*(1), 1- 11.

https://doi.org/10.1.1.596.9727

Curtin, M., & Fossey, E. (2007). Appraising the trustworthiness of qualitative studies: Guidelines for occupational therapists. *Australian Occupational Therapy Journal*, *54*(2), 88- 94.

https://doi.org/10.1111/j.1440-1630.2007.00661.x

Cypress, B. S. (2017). Rigor or reliability and validity in qualitative research: Perspectives, strategies, reconceptualization, and recommendations. *Dimensions of Critical Care Nursing*, *36*(4), 253- 263. https://doi.org/10.1097/DCC.0000000000000253

Dawson, P. (2012). Temporal practices: Time and ethnographic research in changing

organizations. *Journal of Organizational Ethnography*, *3*(2), 130- 151.

https://doi.org/10.1108/JOE-05-2012-0025

de Terte, I., & Stephens, C. (2015). Psychological resilience of workers in high-risk occupations.

Stress & Health, *30*(5), 353- 355. https://doi.org/10.1002.smi.2627

Dine, C. J., McGaghie, W. C., Pangaro, L., & Shea, J. A. (2015). Instrumentation, data

collection, and quality control. In S. J. Durning & J. D. Carline (Eds), *Review criteria for

research manuscripts,* (2nd ed., pp. 32- 36). Association of American Medical Colleges.

https://www.store.aamc.org/review-criteria-for-research-manuscripts.html

Dodgson, J. E. (2017). About research: Qualitative methodologies. *Journal of Human Lactation*,

33(2), 355- 358. https://doi.org/10.1177/0890334417698693

Donnelly, E. A., Bradford, P., Davis, M., Hedges, C., & Klingel, M. (2016). Predictors of

posttraumatic stress and preferred sources of social support among Canadian paramedics.

CJEM, *18*(3), 205- 212. https://doi.org/10.1017/cem.2015.92

Donnelly, E. A., Bradford, P., Davis, M., Hedges, C., Socha, D., Morassutti, P., & Pichika, S. C.

(2020). What influences safety in paramedicine? Understanding the impact of stress and

fatigue on safety outcomes. *JACEP Open*, *1*(14), 460- 473.

https://doi.org/10.1002/emp2.12123

Drewitz-Chesney, C. (2012). Posttraumatic stress disorder among paramedics: Exploring a new

solution with occupational health nurse using the Ottawa Charter as framework.

Workplace Health & Safety, *60*(6), 257- 263.

https://doi.org/10.1177/216507991206000605

Drewitz-Chesney, C. (2019). Exploring paramedic communication and emotional expression in

the workplace after responding to emergency calls. *Australasian Journal of

Paramedicine*, *16*, 1- 11. https://doi.org/10.3315/ajp.16.714

Duschek, S., Bair, A., Haux, S., Garrido, A., & Janka, A. (2020). Stress in paramedics:

Relationships with coping strategies and personality strengths. *International Journal of

Emergency Services*, *9*(2), 203- 216. https://doi.org/10.1108/IJES-06-2009-0029

Elhart, M. A., Dotson, J., & Smart, D. (2019). Psychological debriefing of hospital emergency

personnel: Review of critical incident stress debriefing. *International Journal of Nursing

Student Scholarship*, *6*, 1- 17 https://jmss.org/index.php/ijnss/article/view/68395

Emmel, N. (2013). *Sampling and choosing cases in qualitative research: A realist approach.*

SAGE Publications. https://doi.org/10.4135/9781473913882

EMS Agenda 2050 Technical Expert Panel. (2019). *EMS Agenda 2050: A people-centered vision

for the future of emergency medical services* (Report No. DOT HS 812 664). National

Highway Traffic Safety Administration. https://www.ems.gov/projects/ems-agenda-

2050.html

Feuer, B. S. (2021). First responder peer support: An evidence-informed approach. *Journal of

Police and Criminal Psychology*, *36*(3), 1-7. https://doi.org/10.1007/s11896-020-09420-z

FitzPatrick, B. (2019). Validity in qualitative health education research. *Currents in Pharmacy

Teaching and Learning*, *11*(2), 211- 217. https//doi.org/101016/j.cptl.2018.11.014

Fjeldheim, C. B., Nothling, J., Pretorius, K., Basson, M., Ganasen, K., Heneke, R., Cloete, K. J.,

& Seedat, S. (2014). Trauma exposure, posttraumatic stress disorder and the effect

of explanatory variables in paramedic trainees. *BMC Emergency Medicine*, *14*(11), 1- 7.

https://doi.org/10.1186/1471-227X-14-11

Folwell, A., & Kauer, T. (2018). 'You see a baby die and you're not fine:' A case study of stress and coping strategies in volunteer emergency medical technicians. *Journal of Applied Communication Research*, *46*(6), 723- 743. https://doi.org/10.1080/00909882.2018.1549745

Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report, 20*(9), 1408- 1416. https://www.nsuworks.nova.edu/tqr/vol20/iss9/3/

Garg, R. (2016). Methodology for research I. *Indian Journal of Anaesthesia*, *60*(9), 640- 645. https://doi.org/10.4103/0019-5049.190619

Gayton, S. D., & Lovell, G. P. (2012). Resilience in ambulance service paramedics and its relationships with well-being and general health. *Traumatology*, *18*(1), 58- 64. https://doi.org/10.1177/1534765610396727

Gibson, N., & O'Connor, H. (2003). A step-by-step guide to qualitative data analysis. *A Journal of Aboriginal and Indigenous Community Health*, *1*(1), 62- 90. http://www.pimatisiwin.com/uploads/1289566991.pdf

Gray, L., Wong-Wylie, G., Rempel, G., & Cook, K. (2020). Expanding qualitative research interviewing strategies: Zoom video communications. *The Qualitative Report*, *25*(5), 1292- 1301. https://doi.org/10.46743/2160-3715/2020.4212

Greiner, B. (2015). Subject pool recruitment procedures: Organizing experiments with ORSEE. *Journal of the Economic Science Association*, *1*(1), 114- 125. https://doi.org/10.1007/s40881-015-0004-4

Groenewald, T. (2004). A phenomenological research design illustrated. *International Journal of Qualitative Methods*, *3*(1), 42- 55. https://doi.org/10.1177/160940690400300104

Guest, G., Namey, E. E., & Mitchell, M. (2013). *Collecting qualitative data: A field manual for applied research.* Sage Publications. https://doi.org/10.4135/9781506374680

Hadi, M. A., & José Closs, S. (2015). Ensuring rigour and trustworthiness of qualitative research in clinical pharmacy. *International Journal of Clinical Pharmacy*, *38*(3), 641- 646. https://doi.org/10.1007/s11096-015-0237-6

Harrison, R., & Wu, A. (2017). Critical incident stress debriefing after adverse patient safety events. *The American Journal of Managed Care*, *23*(5), 310- 312. https://europepmc.org/article/med/28738687

Haven, T. L., & Van Grootel, D. L. (2019). Preregistering qualitative research. *Accountability in Research*, *26*(3), 229- 244. https://doi.org/10.1080/08989621.2019.1580147

Heffer, T., & Willoughby, T. (2017). A count of coping strategies: A longitudinal study investigating an alternative method to understanding coping and adjustment. *PLoS ONE*, *12*(10), Article e0186057. https://doi.org/10.1371/journal.pone.0186057

Hill, M. V., Bleicher, R. J., & Farma, J. M. (2021). A how-to guide: Virtual interviews in the era of social distancing. *Journal of Surgical Education*, *78*(1), 321- 323. https://doi.org/10.1016/j.surg.2020.07.016

Holmes, L., Ciccone, N., Brightwell, R., & Cohen, L. (2020). Preparing student paramedics for the mental health challenges of the profession by using the wisdom of the experienced. *Health Education in Practice*, *3*(2), 39- 53. https://doi.org/10.33966/hepi.3.2.14131

Horn, S. R., & Feder, A. (2018). Understanding resilience and preventing and treating PTSD. *Harvard Review of Psychology*, *26*(3), 158- 174. https://doi.org/10.1097/HRP.0000000000000194

Hou, T., Zhang, T., Cai, W., Song, X., Chen, A., Deng, G., & Ni, C. (2020). Social support and

    mental health among health care workers during Coronavirus disease 2019 outbreak: A

    moderated mediation model. *PLoS ONE*, *15*(5), 1- 14.

    https://doi.org/10.1371/journal.pone.0233831

Hruska, B., & Barduhn, M. S. (2021). Dynamic psychosocial risk and protective factors

    associated with mental health in emergency medical service (EMS) personnel. *Journal of*

    *Affective Disorder*s, *282*, 9- 17. https://doi.org/10.1016/j.jad.2020.12.130

Hunsaker, S., Chen, H., Maughan, D., & Heaston, S. (2015). Factors that influence the

    development of compassion fatigue, burnout, and compassion satisfaction in emergency

    department nurses. *Journal of Nursing Scholarship*, *47*(2), 186- 194.

    https://doi.org/10.111/jnu.12122

Infurna, F. J., & Jayawickreme, E. (2019). Fixing the growth illusion: New directions for

    research in resilience and posttraumatic growth. *Current Directions in Psychological*

    Science, *28*(2), 152- 158. https://doi.org/10.1177/09637219827017

Jacob, S., & Furgerson, S. (2015). Writing interview protocols and conducting interviews: Tips

    for students new to the field of qualitative research. *The Qualitative Report*, *17*(42), 1-

    10. https://doi.org/10.46743/2160-3715/2012.1718

Janka, A., & Duschek, S. (2018). Self-reported stress and psychophysiological reactivity in

    paramedics. *Anxiety, Stress, & Coping*, *31*(4), 402- 417.

    https://doi.org/10.1080/10615806.2018.1454739

Johnson, J., Simms-Ellis, R., Janes, G., Mills, T., Budworth, L., Atkinson, L., & Harrison, R.

(2020). Can we prepare healthcare professionals and students for involvement in stressful

healthcare events? A mixed-methods evaluation of a resilience training intervention.

BMC Health Services Research, *20*(1094), 1- 15. https://doi.org/10.1186/s12913-020-05948-2

Johnson, J. L., Adkins, D., & Chauvin, S. (2020). A review of the quality indicators of rigor in

qualitative research. *American Journal of Pharmaceutical Education*, *84*(1), Article

7120. https://doi.org/10.5688/ajpe7120

JoinFDNY. (2021, January 26). *Get Hired.* https://www.joinfdny.com/careers/ems

Jones, S. (2017). Describing the mental health profile of first responders: A systematic review.

Journal of the American Psychiatric Nurses Association, *23*(3), 200- 214.

https://doi.org/10.1177/1078390317695266

Joyce, S., Tan, L., Shand, F., Bryant, R. A., & Harvey, S. B. (2019). Can resilience be measured

and used to predict mental health symptomology among first responders exposed to

repeated trauma? *JOEM*, *61*(4), 285- 292. https://doi.org/1097/HRP.00000000000001526

Jung, C. G. (1961). *Memories, dreams and reflections.* Fontana.

Karatzias, T., Shevlin, M., Hyland, P., Fyvie, C., Grandison, G., & Ben-Ezra, M. (2020). ICD-11

posttraumatic stress disorder, complex PTSD and adjustment disorder: The importance of

stressors and traumatic life events. *Anxiety, Stress & Coping*, *34*(2), 191- 202.

https://doi.org/10.1080/10615806.2020.1803006

Kearns, M. C., Ressler, K. J., Zatzick, D., & Rothbaum, B. O. (2012). Early interventions for

PTSD: A review. *Depression and Anxiety*, *29*(10), 833- 842.

https://doi.org/10.1002/da.21997

Kemparaj, U., & Chavan, S. (2013). Qualitative research: A brief description. *Indian Journal of*

    Medical Sciences, *67*(3), 89- 98. https://doi.org/10.4103/0019-5359.121127

Kerai, S. M., Khan, U. R., Islam, M., Asad, N., Razzak, J., & Pasha, O. (2017). Post-traumatic

    stress disorder and its predictors in emergency medical service personnel: A cross-

    sectional study from Karachi, Pakistan. *BMC Emergency Medicine*, *17*(26), 1- 7.

    https://doi.org/10.1186/s12873-017-0140-7

Kern, F. G. (2018). The trials and tribulations of applied triangulation: Weighing different data

    sources. *Journal of Mixed Methods Research, 12*(2), 166-181.

    https://doi.org/10.1177/1558689816651032

Kida, S. (2019). Reconsolidation/destabilization, extinction and forgetting of fear memory as

    therapeutic targets for PTSD. *Psychopharmacology*, *236*, 49- 57.

    https://doi.org/10.1007/s00213-018-5086-2

Koenig, S., Uengoer, M., & Lachnit, H. (2017). Attentional bias for uncertain cues of shock in

    human fear conditioning: Evidence for attentional learning theory. *Frontiers in Human*

    Neuroscience, *11*, 1- 13. https://doi.org/10.3389/fnhum.2017.00266

Krupnik, V. (2020). Trauma or drama: A predictive processing perspective on the continuum of

    stress. *Frontiers in Psychology*, *11*, 1248- 1257.

    https://doi.org/10.3389/fpsyg.2020.01248

Kuckertz, J. M., Amir, N., Boffa, J. W., Warren, C. K., Rindt, S. E. M., Norman, S., Ram, V.,

    Ziajko, L., Webb-Murphy, J., & McLay, R. (2014). The effectiveness of an attention bias

    modification program as an adjunctive treatment for post-traumatic stress disorder.

    Behaviour Research and Therapy, *63*, 25-35. https://doi.org/10.1016/j.brat.2014.09.002

Kuhl, E. (2017, February 24 – February 26). *The physiology of emergency response.* [Paper

presentation]. NCEMSF Annual Conference, Baltimore, MD.

https://www.ncemsf.org/conference/conference-archives/379-conference-2017-

articles/618-2017-conference-post

Lawn, S., Roberts, L., Willis, E., Couzner, L., Mohammadi, L., & Goble, E. (2020). The effects

of emergency medical service work on the psychological, physical, and social well-being

of ambulance personnel: A systematic review of qualitative research. *BMC Psychiatry*,

20(348), 1- 16. https://doi.org/10.1186/s12888-020-02752-4

Lebois, L. A. M., Seligowski, A. V., Wolff, J. D., Hill, S. B., & Ressler, K. J. (2019).

Augmentation of extinction and inhibitory learning in anxiety and trauma-related

disorders. *Annual Review of Clinical Psychology*, *15*, 257- 284.

https://doi.org/10.1146/annurev-clinpsy-050718-095634

Lee, V. (2018). Beyond seeking informed consent: Upholding ethical values within the research

proposal. *Canadian Oncology Nursing Journal*, *28*(3), 222- 224.

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6516914/pdf/conj-28-3-222.pdf

Lewis-Schroeder, N. F., Kieran, K., Murphy, B. L., Wolff, J. D., Robinson, M. A., & Kaufman,

M. L. (2018). Conceptualization, assessment, and treatment of traumatic stress in first

responders: A review of critical issues. *Harvard Review of Psychiatry*, *26*(4), 216- 227.

https://doi.org/1097/HRP0000000000000176

Liao, H., & Hitchcock, J. (2018). Reported credibility techniques in higher education evaluation

studies that use qualitative methods: A research synthesis. *Evaluation and Program

Planning*, *68*, 157- 165. https://doi.org/10.1016/j.evalprogplan.2018.03.005

Linares, I. M., Corchs, F. E., Chagas, M. H., Zuardi, A. W., Martin-Santos, R., & Crippa, J. A.

(2016). Early interventions for the prevention of PTSD in adults: A systematic literature

review. *Archives of Clinical Psychiatry (São Paulo)*, *44*, 23- 29.

https://doi.org/10.1590/010160830000000109

Linetzky, M., Pergamin-Hight, L., Pine, D. S., & Bar-Haim, Y. (2015). Quantitative evaluation

of the clinical efficacy of attention bias modification treatment for anxiety disorders.

Depression and Anxiety, *32*(6)*,* 383- 391. https://doi.org/10.1022/da.22344

Loftin, C., Campanella, H., & Gilbert, S. (2011). Ethical issues in nursing education: The dual-

role researcher. *Teaching and Learning in Nursing*, *6*(3), 139- 143.

https://doi.org/10.1016/j.teln.2011.01.005

Maitlis, S. (2020). Posttraumatic growth at work. *Annual Review of Organizational Psychology

and Organizational Behavior*, *7*, 395- 419. https://doi.org/10.1146/annurev-orgpsych-

012119-044932

McAllister, M., & McKinnon, J. (2009). The importance of teaching and learning resilience in

the health disciplines: A critical review of the literature. *Nurse Education Today*, *29*(4),

371- 379. https://doi.org/10.1016/j.nedt.2008.10.011

McGaghie, W. C., & Crandall, S. (2001). Population and sample. *Academic Medicine*, *76*(9),

934- 935. https://doi.org/10.1097/00001888-200109000-00026

McShane, K. E., Davey, C. J., Rouse, J., Usher, A. M., & Sullivan, S. (2015). Beyond ethical

obligation to research dissemination: Conceptualizing debriefing as a form of knowledge

transfer. *Canadian Psychology*,*56*(1), 80- 87. https://doi.org/10.1037/a0035473

Merriam, S. B., & Grenier, R. S. (2019). *Qualitative research in practice: Examples for discussion and analysis* (2nd ed.). John Wiley & Sons. https://www.wiley.com/en-us/9781119452638

Merriam, S. B., & Tisdell, E. J. (2014). *Qualitative research: A guide to design and implementation.* (4th ed.). John Wiley & Sons. https://www.wiley.com/en-us/9781119003601

Mesidor, J. K., & Sly, K. F. (2019). Religious coping, general coping strategies, perceived social support, PTSD symptoms, resilience, and posttraumatic growth among survivors of the 2010 earthquake in Haiti. *Mental Health, Religion & Culture*, *22*(2), 130- 143. https://doi.org/10.1080/13674676.2019.1580254

Michael, T., Streb, M., & Haller, P. (2016). PTSD in paramedics: Direct versus indirect threats, posttraumatic cognitions, and dealing with intrusions. *International Journal of Cognitive Therapy*, *9*(1), 57- 72. https://doi.org/10.1521/ijct.2016.9.1.57

Mihas, P. (2019). Qualitative data analysis. In G. W. Noblit (Ed.), *Oxford research encyclopedia of education*. Oxford University Press. https://doi.org/10.1093/acrefore/9780190264093.013.1195

Miller, A., Unruh, L., Liu, X., Wharton, T., & Zhang, N. (2017). Individual and organizations factors associated with professional quality of life in Florida EMS personnel. *International Journal of Emergency Services*, *7*(2), 147- 160. https://doi.org/1001108/IJES-08-2017-0041

Milne, J., & Oberle, K. (2005). Enhancing rigor in qualitative description. *Journal of Wound, Ostomy and Continence Nursing*, *32*(6), 413- 420. https://doi.org/10.1097/00152192-200511000-00014

Mir, R. (2018). Embracing qualitative research: An act of strategic essentialism. *Qualitative Research in Organizations and Management*, *13*(4), 306- 314. https://doi.org/10.1108/QROM-09-2018-1680

Miracle, V. A. (2016). *The Belmont report*: The triple crown of research ethics. *Dimensions of Critical Care Nursing*, *35*(4), 223- 228. https://doi.org/10.1097/DCC.0000000000000186

Morse, J. M., Barrett, M., Mayan, M., Olson, K., & Spiers, J. (2002). Verification strategies for establishing reliability and validity in qualitative research. *International Journal of Qualitative Methods*, *1*(2), 13- 22. https://doi.org/10.1177/160940690200100202

Motreff, Y., Baubet, T., Pirard, P., Rabet, G., Petitclerc, M., Stene, L. E., Vuillermoz, C., Chauvin, P., & Vandentorren, S. (2020). Factors associated with PTSD and partial PTSD among first responders following the Paris terror attacks in November 2015. *Journal of Psychiatric Research*, *121,* 143- 150. https://doi.org/10.1016/j.jpsychiers.2019.11.018

National Registry of Emergency Medical Technicians (NREMT). (2022). *Recertification*. https://www.nremt.org/Document/Recertification

National Registry of Emergency Medical Technicians (NREMT). (2017). *The National Registry Data Dashboard.* https://www.nremt.org/maps

Newcomb, M., Burton, J., Edwards, N., & Hazelwood, Z. (2015). How Jung's concept of wounded healer can guide learning and teaching in social work and human services. *Advances in Social Work & Welfare Education*, *17*(2), 55- 69. https://search.informit.org/doi/abs/10.3316/aeipt.212510

Newland, C., Barber, E., Rose, M., & Young, A. (2015). Critical stress. Survey reveals alarming

    rates of EMS provider stress & thoughts of suicide. *JEMS*, *40*(10*),* 30- 34.

    https://www.jems.com/special-topics/survey-reveals-alarming-rates-of-ems-provider-

    stress-and-thoughts-of-suicide/

Nicholson, A. A., Friston, K. J., Zeidman, P., Harricharan, S., McKinnon, M. C., Densmore, M.,

    Neufeld, R. W. J., Theberge, J., Corrigan, F., Jetly, R., Spiegel, D., & Lanius, R. A.

    (2017). Dynamic causal modeling in PTSD and its dissociative subtype: Bottom-up

    versus top-down processing within fear and emotion regulation circuitry. *Human Brain

    Mapping*, *38*(11), 5551- 5561. https://doi.org/10.1002/hbm.23748

Noble, H., & Heale, R. (2019). Triangulation in research, with examples. *Evidence Based

    Nursing*, *22*(3), 67- 68. https://doi.org/10.1136/ebnurs-2019-103145

Nusbaum, L., Douglas, B., Damus, K., Paasche-Orlow, M., & Estrella-Luna, N. (2017).

    Communicating risks and benefits in informed consent for research: A qualitative study.

    Global Qualitative Nursing Research, *4*, 1- 13.

    https://doi.org/10.1177/2333393617732017

Office for Human Research Protections. (2021a). *The Belmont report*. U.S. Department of

    Health and Human Services. https://www.hhs.gov/ohrp/regulations-and-policy/belmont-

    report/read-the-belmont-report/index.html

Office for Human Research Protections. (2021b). *2018 requirements (2018 common rule)*. U.S.

    Department of Health and Human Services. https://www.hhs.gov/ohrp/regulations-and-

    policy/regulations/45-cfr-46/revised-common-rule-regulatory-text/index.html#46.115

Oswald, A. G. (2017). Improving outcomes with qualitative data analysis software: A reflective

    journey. *Qualitative Social Work*, *18*(3), 436- 442.

    https://doi.org/10.1177/1473325017744860

Patino, C. M., & Ferreira, J. C. (2018). Inclusion and exclusion criteria in research studies:

    Definitions and why they matter. *Jornal Brasileiro de Pneumologia*, *44*(2), 84-84.

    https://doi.org/10.1590/S1806-37562018000000088

Patton, M. Q. (2002). Two decades of developments in qualitative inquiry: A personal,

    experiential perspective. *Qualitative Social Work*, *1*(3), 261- 283.

    https://doi.org/10.1177/1473325002001003636

Petrie, K., Milligan-Saville, J., Gayed, A., Deady, M., Phelps, A., Dell, L., Forbes, D., Bryant, R.

    A., Calvo, R. A., Glozier, N., & Harvey, S. B. (2018). Prevalence of PTSD and common

    mental disorders amongst ambulance personnel: A systematic review and meta-analysis.

    Social Psychiatry and Psychiatric Epidemiology, *53*(9), 897- 909.

    https://doi.org/10.1007/s100127-018-1539-5

Piemonte, N. M. (2015). Last laughs: Gallows humor and medical education. *Journal of Medical*

    Humanities, 36(4), 375- 390. https://doi.org/10.1007/s10912-015-9338-4

Pitard, J. (2017). A journey to the centre of self: Positioning the researcher in autoethnography.

    Forum: Qualitative Social Research, *18*(3), 1- 20. https://www.qualitative-

    research.net/index.php/fqs/article/download/2764/4131?inline=1

Polit, D. F., & Beck, C. T. (2020). *Nursing research: Generating and assessing evidence for*

    nursing practice. (11th ed.). Lippincott, Williams & Wilkins.

    https://www.shop.lww.com/Nursing-Research/p/9781975110642

Pratiwi, E., Nusantara, T., Susiswo, S., Muksar, M., & Subanji, S. (2019). Characteristics of
students' cognitive conflict in solving a problem based on information processing theory.
International Journal of Learning, Teaching and Educational Research, *18*(2), 76- 88.
https://doi.org/10.26803/ijlter.18.2.6

Price, M., Lancaster, C. L., Gros, D. F., Legrand, A. C., van Stolk-Cooke, K., & Acierno, R.
(2018). An examination of social support and PTSD treatment response during prolonged
exposure. *Psychiatry*, *81*(3), 258- 270. https://doi.org/10.1080/00332757.2017.1402569

Pyles, L. (2020). Healing justice, transformative justice, and holistic self-care for social workers.
Social Work, *65*(2), 178- 187. https://doi.org/10.1093/sw/swaa013

Qi, W., Gevonden, M., & Shalev, A. (2016). Prevention of post-traumatic stress disorder after
trauma: Current evidence and future directions. *Current Psychiatry Report*, *18*(20), 1- 11.
https://doi.org/10.1007/s11920-015-0655-0

Renkiewicz, G. K., & Hubble, M. W. (2021). Secondary traumatic stress in emergency services
systems (STRESS) project: Quantifying and predicting compassion fatigue in emergency
medical services personnel. *Prehospital Emergency Care*, 1- 12. Advance online
publication. https://doi.org/10.1080/10903127.2021.1943578

Ricciardelli, R., Czarnuch, S., Carleton, R. N., Gacek, J., & Shewmake, J. (2020). Canadian
public safety personnel and occupational stressors: How PSP interpret stressors on duty.
International Journal of Environmental Research and Public Health, 17(13), Article
4736. https://doi.org/10.3390/ijerph17134736

Rivard, M. K., Cash, R. E., Woodyard, K. C., Crowe, R. P., & Panchal, A. R. (2020). Intentions

and motivations for exiting the emergency medical services profession differ between

emergency medical technicians and paramedics. *Journal of Allied Health*, *49*(1), 53- 59.

https://www.ingentaconnect.com/contentone/asahp/jah/2020/00000049/00000001/art000

10

Robertson, I. T., Cooper, C. L., Sarkar, M., & Curran, T. (2015). Resilience training in the

workplace from 2003 to 20014: A systematic review. *Journal of Occupational and

Organizational Psychology*, *88*(3), 533- 562. https://doi.org/10.1111/joop.12120

Rose, J., & Johnson, C. W. (2020). Contextualizing reliability and validity in qualitative

research: Toward more rigorous and trustworthy qualitative social science in leisure

research. *Journal of Leisure Research*, *51*(4), 432- 451.

https://doi.org/10.1080/00222216.2020.1722042

Rybojad, B., Aftyka, A., Baran, M., & Rzonca, P. (2016). Risk factors for posttraumatic stress

disorder in Polish paramedics: A pilot study. *The Journal of Emergency Medicine*, *50*(2),

270- 276. https://doi.org/10.1016/j.jemermed.215/06/030

Sanderson, B., & Brewer, M. (2017). What do we know about student resilience in health

professional education? A scoping review of the literature. *Nurse Education Today*, *58*,

65-71. https://doi.org/10.1016/j.nedt.2017.07.018

Sayed, S., Iacoviello, B. M., & Charney, D. S. (2015). Risk factors for the development of

psychopathology following trauma. *Disaster Psychiatry: Trauma, PTSD, and Related

Disorders*, *17*(8), 1- 7. https://doi.org/10.1007/s11920-015-0612-y

Schultchen, D., Reichenberger, J., Mittl, T., Weh, T. R. M., Smyth, J. M., Blechert, J., &

      Pollatos, O. (2019). Bidirectional relationship of stress and affect with physical activity

      and healthy eating. *British Journal of Healthy Psychology*, *24*(2), 315- 333.

      https://doi.org/10.1111.bjhp.12355

Schuurmans, A. A. T., Nijhof, K. S., Cima, M., Scholte, R., Popma, A., & Otten, R. (2021).

      Alterations of autonomic nervous system and HPA axis basal activity and reactivity to

      acute stress: A comparison of traumatized adolescents and healthy controls. *Stress*, 24(6),

      1- 12. https://doi.org/10.1080/10253890.2021.1900108

Seo, J., Pace-Schott, E. F., Milad, M. R., Song, H., & Germain, A. (2021). Partial and total sleep

      deprivation interferes with neural correlates of consolidation of fear extinction memory.

      Biological Psychiatry: Cognitive Neuroscience and Neuroimaging, *6*(3), 299- 309.

      https://doi.org/10.1016/j.bpsc.2020.09.013

Shakespeare-Finch, J., & Daley, E. (2017). Workplace belongingness, distress, and resilience in

      emergency service workers. *Psychological Trauma: Theory, Research, Practice, and

      Policy*, *9*(1), 32- 35. https://doi.org/10.1037/tra0000108

Sipos, M. L., Bar-Haim, Y., Abend, R., Adler, R., Adler, A. B., & Bliese, P. D. (2014).

      Postdeployment threat-related attention bias interacts with combat exposure to account

      for PTSD and anxiety symptoms in soldiers. *Depression and Anxiety*, *31*(2), 124- 129.

      https://doi.org/10.1002/da.22157

Skeffington, P. M., Rees, C. S., Mazzucchelli, T. G., & Kane, R. (2016). The primary

      prevention of PTSD in firefighters: Preliminary results of an RCT with 12-month follow

      up. *PLoS ONE*, *11*(7), 1- 22. https://doi.org/10.1371/journal.pone.0155873

Smith, E., Walker, T., & Burkle, F. M. (2019). Lessons in post-disaster self-care from 9/11 paramedics and emergency medical technicians. *Prehospital and Disaster Medicine*, *34*(3), 335- 339. https://doi.org/10.1017/S1049023X19004382

Stenfors, T., Kajamaa, A., & Bennett, D. (2020). How to… assess the quality of qualitative research. *The Clinical Teacher*, *17*(6), 596- 599. https://doi.org/10.1111/tct.13242

Stovel, R. G., Ginsburg, S., Stroud, L., Cavalcanti, R. B., & Devine, L. A. (2017). Incentives for recruiting trainee participants in medical education research. *Medical Teacher*, *40*(2), 181- 187. https://doi.org/10.1080/0142159X.2017.1395402

Straus, L. D., Drummond, S. P. A., Risbrough, V. B., & Normal, S. B. (2017). Sleep disruption, safety learning, and fear extinction for posttraumatic stress disorder. In *Behavioral Neurobiology of* PTSD (pp. 193- 205). Springer. https://doi.org/10.1007/7854_2017_31

Streb, M., Haller, P., & Michael, T. (2015). PTSD in paramedics: Resilience and sense of coherence. *Behavioural and Cognitive Psychotherapy*, *42*(4), 452- 463. https://doi.org/10.1017/S1352465813000337

Swab, J. (2020). Critical incident stress management: Perspectives on its history, frequency of use, efficacy, and success. *Crisis, Stress, and Human Resilience: An International Journal*, *1*(4), 215- 226. https://www.crisisjournal.org/article/12211.pdf

Swab, J., & Donne, V. (2019). EMS stress management education standards: History and evolution. *Crisis, Stress, and Human Resilience: An International Journal*, *1*(2), 76- 86. https://www.crisisjournal.org/api/v1/articles/10269-ems-stress-management-education-standards.pdf

Swensen, K., Keady, T., & Voss, M. W. (2020). *First responder mental health* (Paper No. 2125).

    All Current Publications. https://digitalcommons.usu.edu/extension_curall/2125/

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the

    positive legacy of trauma. *Journal of Traumatic Stress*, *9*(3), 455- 471.

    https://onlinelibrary.wiley.com/journal/15736598

Theofanidis, D., & Fountouki, A. (2019). Limitations and delimitations in the research process.

    Perioperative Nursing, 7(3), 155- 162. https://doi.org/10.5281/zenodo.2552022

Thomas, D. R. (2017). Feedback from research participants: Are member checks useful in

    qualitative research? *Qualitative Research in Psychology*, *14*(1), 23- 41.

    https://doi.org/10.1080/14780887.2016.1219435

Thompson, N. J., Fiorillo, D., Rothbaum, B. O., Ressler, K. J., & Michopoulos, V. (2018).

    Coping strategies as mediators in relation to resilience and posttraumatic stress disorder.

    Journal of Affective Disorders, *225*, 153- 159. https://doi.org/10.1016/j.jad.2017.08.049

Thorne, S. (2000). Data analysis in qualitative research. *Evidence-Based Nursing*, *3*(3), 68- 70.

    https://doi.org/101136/ebn.3.3.68

Torchalla, I., & Strehlau, V. (2018). The evidence base for interventions targeting individuals

    with work-related PTSD: A systematic review and recommendations. *Behavior*

    Modification, *42*(2), 273- 303. https://doi.org/10.1177/0145445517725048

Tracy, S. J., & Hinrichs, M. M. (2017). Big tent criteria for qualitative quality. In J. Matthes

    (Ed.) *The international encyclopedia of communication research methods*. (pp. 1-10).

    John Wiley & Sons. https://doi.org/10.1002/978111890173.iecrm0016

Tuckey, M. R., & Scott, J. E. (2014). Group critical incident stress debriefing with emergency services personnel: A randomized controlled trial. *Anxiety, Stress, and Coping*, *27*(1), 38-54. https://doi.org/10.1080/10615806.2013.809421

Varker, T., Metcalf, O., Forbes, D., Chisholm, K., Harvey, S., Van Hooff, M., McFarlane, A., Bryant, R., & Phelps, A. J. (2018). Research into Australian emergency services personnel mental health and wellbeing: An evidence map. *Australian & New Zealand Journal of Psychiatry*, *52*(2), 129- 148. https://doi.org/10.1177/0004867417738054

Vasterling, J. J., & Hall, K. A. A. (2018). Neurocognitive and information processing biases in posttraumatic stress disorder. *Current Psychiatry Reports*, *20*(99), 1- 10. https://10.1007/s11920-018-0964-1

Vaughn, A. D., Stoliker, B. E., & Anderson, G. S. (2020). Building personal resilience in primary care paramedic students, and subsequent skill decay. *Australasian Journal of Paramedicine*, *17*, 1- 8. https://doi.org/10.10.33151/ajp.17.803

Vig, K. D., Mason, J. E., Carleton, R. N., Asmundson, G. J. G., Anderson, G. S., & Groll, D. (2020). Mental health and social support among public safety personnel. *Occupational Medicine*, *70*(6), 427- 433. https://doi.org/10.1093/occmed/kqaa129

Vigil, N. E., Grant, A. R., Perez, O., Blust, R. N., Chikani, V., Vadeboncoeur, T. F., Spaite, D. W., & Bobrow, B. J. (2018). Death by suicide -- The EMS profession compared to the general public. *Prehospital Emergency Care*, *23*(3), 340- 345. https://doi.org/10.1080/10903127.2018.1514090

Vyas, K. J., Fesperman, S. F., Nebeker, B. J., Gerard, S. K., Boyd, N. D., Delaney, E. M., Webb-Murphy, J. A., & Johnston, S. L. (2016). Preventing PTSD and depression and reducing health care costs in the military: A call for building resilience among service members. *Military Medicine*, *181*(10), 1240- 1247. https://doi.org/10.7205/MILMED-D-15-00585

Wald, I., Bitton, S., Levi, O., Zusmanovich, S., Fruchter, E., Ginat, K., Charnev, D. S., Pine, D. S., & Bar-Haim, Y. (2017). Acute delivery of attention bias modification training (ABMT) moderates the association between combat exposure and posttraumatic symptoms: A feasibility study. *Biological Psychology*, *122*, 93-97. https://doi.org/10.1016/j.biopsycho.2016.01.005

Wald, I., Fruchter, E., Finat, K., Stolin, E., Dagan, D., Bliese, P. D., Quartana, P. J., Sipos, M. L., Pine, D. S., & Bar-Haim, Y. (2016). Selective prevention of combat-related post-traumatic stress disorder using attention bias modification training: A randomized controlled trial. *Psychological Medicine*, *46*(12), 2627- 2636. https://doi.org/101017/S003329176000945

Walker, A., McKune, A., Ferguson, S., Pyne, D. B., & Rattray, B. (2016). Chronic occupational exposures can influence the rate of PTSD and depressive disorders in first responders and military personnel. *Extreme Physiology & Medicine*, *5*(8), 1- 12. https://doi.org/10.1186/s13728-016-0049-x

Watson, K. (2011). Gallows humor in medicine. *Hastings Center Report*, *41*(5), 37- 45. https://doi.org/10.1002/j.1552-146x.2011.tb00139.x.

Weber, D. L. (2008). Information processing bias in post-traumatic stress disorder. *The Open Neuroimaging Journal*, *2,* 29- 51. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2714576/

White, J., Drew, S., & Hay, T. (2009). Ethnography versus case study. *Qualitative Research Journal*, *9*(1), 18- 27. https://doi.org/10.3316/QRJ0901018

Wild, J., El-Salahi, S., Tyson, G., Lorenz, H., Pariante, C. M., Danese, A., Tsiachristas, A., Watkins, E., Middleton, B., Blaber, A., & Ehlers, A. (2018). Preventing PTSD, depression and associated health problems in student paramedics: Protocol for PREVENT-PTSD, a randomised controlled trial of supported online cognitive training for resilience versus alternative online training and standards practice. *BMJ Open, 8*(12), 1- 10. https://doi.org/10.1136/bmjopen-2018-022292

Wilson, S., Guliani, H., & Boichev, G. (2016). On the economics of post-traumatic stress disorder among first responders in Canada. *Journal of Community Safety & Well-Being*, *1*(2), 26-31. https://doi.org/10.35502/jcswb.6

Zacchaeus, E. A. (2019). The relationship between social support, self-efficacy and PTSD symptoms among trauma survivors in Nigeria's Niger Delta region. *International Journal of Science and Research*, *9*(12), 856- 865. https://doi.org/10.21275/SR201209151130

Zamanzadeh, V., Ghahramanian, A., Rassouli, M., Abbaszadeh, A., Alavi-Majd, H., & Nikanfar, A. (2015). Design and implementation content validity study: Development of an instrument for measuring patient-centered communication. *Journal of Caring Sciences*, *4*(2), 165- 178. https://doi.org/10.15171/jcs.2015.017

Zhang, M., Ying, J., Song, G., Fung, D. S., & Smith, H. (2018). Attention and cognitive bias modification apps: Review of the literature and of commercially available apps. *JMIR mHealth and uHealth*, *6*(5), Article e10034. https://doi.org/10.2196/10034

Zinchenko, A., Al-Amin, M., Alam, M. M., Mahmud, W., Kabir, N., Reza, H., & Burne, T.

(2017). Content specificity of attentional bias to threat in post-traumatic stress disorder.

Journal of Anxiety Disorders, 50, 33-39. https://doi.org/10.1016/j.janxdis.2017.05.006

Zutlevics, T. L. (2016). Could providing financial incentives to research participants ultimately

be self-defeating? *Research Ethics*, *12*(3), 137- 148.

https://doi.org/10.1177/1747016115626756

Appendix A

Permission Letter From Research Site One

July 23, 2021

Dear Nicole,

Please allow this letter to serve as authorization to use the ███████ Fire District building site as a location to conduct the activities outlined in your request, including but not limited to; recruitment, survey, interviews, and data collection.

Permission to conduct the following activities as well;

- Posting or distribution of recruitment material
- Access to rosters for recruitment purposes
- Distribution of questionnaires to students who are recruited which will not take place during instructional time
- Virtual interviews with students who are recruited which will not take place during instructional time.

If you have any further questions please feel free to reach out to me.

Sincerely,

Appendix B

Permission Letter From Research Site Two

August 8, 2021

Good morning,

As the Executive Director of ███████████████Training Center, I would like to volunteer our educational facility and students for research data collection for a doctoral thesis for Nicole Dietsche. We understand that the collection of this research data will require the following activities:

Permission to conduct this research at your site includes the following activities:

- Posting or distribution of recruitment material
- Access to rosters for recruitment purposes
- Distribution of questionnaires to students who are recruited which will not take place during instructional time
- Virtual interviews with students who are recruited which will not take place during instructional time.

Other key staff contacts are: ████████████████████████████
███

███
███

We look forward to being a valuable asset during this research study and hope we can contribute to expanding our educational endeavors.

Please feel free to reach out to me if you require any further.

████████████████████████████
████████████████████████████
████████████████████████████
████████████████████████████

Appendix C

Recruitment Email

Date:

Dear _____

My name is Nicole Dietsche and I am a doctoral student at American College of Education. I am writing to let you know about an opportunity to participate in a dissertation research study. The purpose of the qualitative study is to investigate emergency medical services professionals' opinions and thoughts about mental readiness to manage occupational stressors after receiving training conducted per the existing EMS curriculum.

Participant selection criteria:

- At least 18 years old

- Enrolled in or recently graduated from an EMT or paramedic original or refresher program

- The program was located in the eastern region of the United States

- Have read and signed the informed consent.

Your participation in the study is entirely voluntary. If you wish to withdraw from the research at any time, you may do so by contacting me using the information below.

I may publish the results of this study; however, I will not use your name or any identifiable data you may provide. Your information will remain confidential. If you would like additional information about the study, please contact:

Doctoral Candidate: Nicole Dietsche

Email: nicole.dietsche2049@my.ace.edu

Phone: 631-219-3481

Doctoral Chair: Dr. Junfu Gao

Email: junfu.gao@ace.edu

If you meet the above criteria, are interested in participating in the study, and would like to be included in the potential participant pool, please use the link below to access, review, and accept the informed consent.

Link to approved IRB Informed Consent

Thank you for considering participating in this dissertation research opportunity.

Appendix D

Informed Consent Form

Prospective Research Participant: Please read this consent form carefully and ask as many questions as you like before deciding whether you want to participate in this research study. You are free to ask questions at any point before, during, or after participation in this research.

Project Information

Project Title: Preventative Measures: A Qualitative Study Investigating EMS Students' Perceptions of Mental Preparedness.

Researcher: Nicole Dietsche

Organization: American College of Education

Email: nicole.dietsche2049@my.ace.edu

Telephone: (631) 219-3481

Date of IRB Approval:

Please note that this research study has been approved by the American College Education Institutional Review Board. The IRB approved this study on December 13, 2021.

A copy of the approval letter will be provided upon request.

Researcher's Dissertation Chair: Dr. Junfu Gao

Organization and Position: American College of Education, Core Faculty Department of Teaching and Learning

Email: junfu.gao@ace.edu

Introduction

I am Nicole Dietsche, and I am a doctoral candidate student at American College of Education. I am doing research under the guidance and supervision of my Chair, Dr. Gao. Below, I will give you some information about the project and invite you to participate in this research. Before you decide, you are welcome to speak to anyone you feel comfortable with about the research. As you read through the information, please feel free to ask me via the email or telephone number provided above. If you have questions later, please feel free to ask me then.

Purpose of the Research

The purpose of the research will be to investigate the perceptions of EMS students regarding how well the curriculum prepared them for coping with occupational stressors. This qualitative study will examine the opinions, viewpoints, and beliefs of EMS students who have recently engaged with EMS curriculum. You are being asked to participate in a research study which will assist with gathering these perceptions. Investigation of EMS students' perceptions of the curriculum's efficacy in preparing them for coping with occupational stressors will assist educational leaders in making more informed decisions regarding curricular practices.

Research Design and Procedures

The study will use a qualitative methodology and a basic qualitative research design. The study will comprise of 15-20 participants who will be asked to complete a demographic questionnaire and participate in one individual interview. The demographic questionnaire will be completed via Google Forms to screen for eligible participants. After completion of the questionnaire, each participant will be interviewed individually via a web-based video platform for the convenience of participants. All interviews will be recorded and transcribed to ensure accuracy of collected data.

Participant Selection

You are being invited to take part in this research because of your experience as an EMS student

who can contribute much to the perceptions of mental preparedness in EMS curriculum, which

meets the criteria for this study. Participant selection criteria:

- At least 18 years old

- Enrolled in or recently graduated from an EMT or paramedic program

- The program was located in the eastern region of the United States

- Have read and signed the informed consent.

Voluntary Participation

Your participation in this research is entirely voluntary. It is your choice whether to participate.

If you choose not to participate, there will be no punitive repercussions.

Right to Refuse or Withdraw

Participation is voluntary. At any time you wish to end your participation in the research study,

you may do so by sending me an email explaining you are opting out of the study. There will be

no repercussions for leaving the study.

Procedures

We are inviting you to participate in this research study. If you agree, you will be asked to

complete a brief demographic questionnaire and participate in a one-on-one interview. The type

of questions asked will range from a demographical perspective to direct inquiries about the

topic of mental preparedness in EMS curriculum.

Duration

The questionnaire portion of the research study will require approximately 10 minutes to

complete. If you are chosen to be interviewed, the time allotted for the interview will be no more

than two hours via a web-based video platform at a time convenient for the participant. Prior to

an interview, you will be asked to provide permission to have the interview recorded for the sake

of having accurate transcripts for data.

Risks

The researcher will ask you to share personal and confidential information, and you may feel

uncomfortable talking about some of the topics. You do not have to answer any question or take

part in the discussion if you do not wish to do so. You do not have to give any reason for not

responding to any question.

Benefits

While there will be no direct financial benefit to you, your participation is likely to help us find

out more about EMS students' perceptions of how the curriculum prepared them for working in a

high-risk occupation. The potential benefits of this study will aid the EMS educational

community in future curricular decision-making.

Confidentiality

I will not share information about you or anything you say to anyone outside of the researcher.

During the defense of the doctoral dissertation, collected data will be presented to the

dissertation committee. The collected data will be kept on a password-protected computer in a

password-protected drive and/or in a locked file cabinet. Any information about you will be

coded and will not have a direct correlation, which directly identifies you as the participant. Only

I will know what your pseudonym is, and I will secure your information on a password-protected

computer. No information will be shared to allow anyone to identify the school where

participants attended.

Sharing the Results

At the end of the research study, the results will be available for each participant. It is anticipated

to publish the results so other interested people may learn from the research.

Questions about the Study

If you have any questions, you can ask them at any point. If you wish to ask questions later, you

may contact Nicole Dietsche. This research plan has been reviewed and approved by the

Institutional Review Board of American College of Education. This is a committee whose role is

to make sure research participants are protected from harm. If you wish to ask questions of this

group, please email IRB@ace.edu.

Certificate of Consent

I have read the information about this study, or it has been read to me. I acknowledge why I have

been asked to be a participant in the research study. I have been provided the opportunity to ask

questions about the study and any questions have been answered to my satisfaction. I certify I am

at least 18 years of age. I consent voluntarily to be a participant in this study.

PLEASE FOLLOW LINK TO SIGN THE INFORMED CONSENT

https://bit.ly/DietscheEMSstudy

Print/Type Name of Participant: _____

Signature of Participant: _____

Date: _____

I confirm that the participant was given an opportunity to ask questions about the study, and all

the questions asked by the participant have been answered to the best of my ability. I confirm

that the individual has not been coerced into giving consent, and the consent has been given

freely and voluntarily. A copy of this Consent Form has been provided to the participant.

Print/Type Name of Lead Researcher: Nicole Dietsche

Signature of Lead Researcher: _____

Date: _____

PLEASE KEEP THIS INFORMED CONSENT FORM FOR YOUR RECORDS.

Appendix E

SME Field Test Feedback

Research Question One: What are the emergency medical services professionals' opinions about the value of the emergency medical services curriculum in EMS educational programs in the northeastern United States to prepare mentally for managing occupational stressors?

Research Question Two: How do emergency medical services students from emergency medical services educational programs in the northeastern United States describe the training to prepare mentally to manage occupational stress?

Demographic Questionnaire

1. Name
2. Age
3. Gender
4. Marital Status
5. How old were you when you entered EMS?
6. Did you participate in an EMS Explorer program?
7. When did you complete your initial EMS certification course?

> #7. What year...
> May provide a more specific response and consistent response.

8. When did you complete your most recent EMS certification course (original, refresher, CME refresher)

> #8. The question could be taken in multiple ways resulting a bit of a challenge on analysis. When did they upgrade to a higher level of initial certification ie. AEMT, Paramedic, or their method of recertification and when was that event. It may be better as two questions or one more specific question to get the aspect you are seeking.

9. Where did you complete your EMS training (i.e. university, fire department, municipality-based, technical school, etc.)?
10. How long have you been an EMS professional?

> #10. Seems related to questions 5 and 7. Would it be appropriate to group these three questions in sequence?

11. How would you describe your current involvement in EMS (i.e. full-time employment, part-time employment, per diem, volunteer, etc.)?
12. Have you ever been in the military or law enforcement?
13. Have you ever participated in a critical incident stress management debriefing?

> ? I wonder if a question on current level of certification/licensure would be helpful in demographics section?
>
> And perhaps
>
> Have you received any stress management training that was not related to your role as an EMS provider?

Interview Questions

1. How did your EMS training mentally prepare you to deal with occupational stress?
2. How effective did you feel the curriculum was in mentally preparing you for occupational stress?
3. How would you describe the occupational stress you experience?

> I wonder about a question on how often they experience occupational stress, How frequently do you experience occupational stressful events? Or something to that effect

4. How much time did your EMS instruction dedicate to teaching the curriculum regarding mental preparedness and stress management?
   a. What skills were you taught?

> #4 Since time varies with programs between with different levels of certification and even the same level across different programs would an estimate of "percent of the total class time" be a more comparable than how much time? I would suspect that more time would be devoted in a paramedic class as opposed to EMT simply as a function of class length.

5. What parts of your training did you feel were most helpful?

> Follow up question why did you feel those parts were most helpful?

6. Can you describe a stressful situation you encountered as an EMS student/professional?

> Using "student/professional" may offer two different frames of reference. Students may find different things stressful than a working provider. While the training may provide the ability to manage stress in general, I would suspect it is more focused toward managing stress for the working EMS provider. (Near transfer vs. far transfer) This also seems to be the only item in the questionnaire that drifts toward the student experience.

7. Can you compare how you coped with a stressful situation before your training versus how you cope with a stressful situation now?

Additional Questions for Inquiry (Subject Matter Expert)

KV Wed 7/28/2021 10:48 PM
To: Nicole Dietsche

Please be cautious
This email originated from outside of ACE organization

Ms. Dietsche,

Your subject matter expert questions allowed for me to reflect upon my experiences in EMS over the years and I found them to be thorough in scope which should garner some quality data and future research towards your dissertation. I did have some alternate suggestions for questions that may add more to your research. I have included them for your review below.

Supplemental Subject Matter Expert Questions:

1. Have you experienced any traumatic calls or situations which may have altered your opinion on stress management within the EMS community? Explain.

2. Do you look upon your EMS job with a high level of satisfaction or fulfillment? When you report to work do you view it positively or with a sense of drudgery? Explain.

Thank you and I wish you the best of success as you move forward in your research. If you have any future questions, please do not hesitate to contact me.
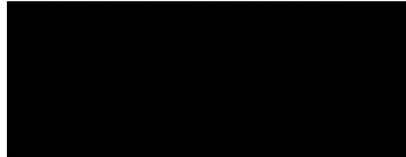
DM

Tue 8/17/2021 2:58 PM
To: Nicole Dietsche

Please be cautious
This email originated from outside of ACE organization

I have reviewed the questions and they appear through and appropriate for your goals.

Research Question One: What are the emergency medical services professionals' opinions about the value of the emergency medical services curriculum in EMS educational programs in the northeastern United States to prepare mentally for managing occupational stressors?

Research Question Two: How do emergency medical services students from emergency medical services educational programs in the northeastern United States describe the training to prepare mentally to manage occupational stress?

Demographic Questionnaire

1. Name
2. Age
3. Gender
4. Marital Status
5. How old were you when you entered EMS?
6. Did you participate in an EMS Explorer program?
7. When did you complete your initial EMS certification course?
8. When did you complete your most recent EMS certification course (original, refresher, CME refresher)?
9. Where did you complete your EMS training (i.e. university, fire department, municipality-based, technical school, etc.)?
10. How long have you been an EMS professional?
11. How would you describe your current involvement in EMS (i.e. full-time employment, part-time employment, per diem, volunteer, etc.)?
12. Have you ever been in the military or law enforcement?
13. Have you ever participated in a critical incident stress management debriefing?

Interview Questions

Comment: How are you collecting the data? eg suspect will need to use an encrypted way to save the data- generally going to be RedCap. For data analysis statistical analysis, would make as many of these responses standardized as possible (eg give them specific options to select from)

Comment: Looking at year duration since they completed their initial course vs how old?

Comment: Do you want to look at how long they were at each level?

Comment: How does this vary from questions 2 and 7? Seems like overlapping info

1. How did your EMS training mentally prepare you to deal with occupational stress?
2. How effective did you feel the curriculum was in mentally preparing you for occupational stress?
3. How would you describe the occupational stress you experience?
4. How much time did your EMS instruction dedicate to teaching the curriculum regarding mental preparedness and stress management?
   a. What skills were you taught?
5. What parts of your training did you feel were most helpful?
6. Can you describe a stressful situation you encountered as an EMS student/professional?
7. Can you compare how you coped with a stressful situation before your training versus how you cope with a stressful situation now?
   a. How do you feel your response to stress has changed after your training?
   b. What skills/resources do you think are most helpful in managing your stress?
   c. Do you feel resources are easily accessible and readily available?

Comment: Many may have an idea what exactly that means, or what they interpret it to be may not how you or I interpret it

Comment: Might be too open ended. Have you needed to take time off from work? Injuries? Exposures?

Comment: Initial education v continuing education?

Comment: Vague- dens training? Specific occ stress training?

Comment: Do they even know what resources are available?

Appendix F

SME Validation

VK Wed 8/11/2021 10:04 PM
To: Nicole Dietsche

Please be cautious
This email originated from outside of ACE organization

Thank you for the email. I can validate and approve all questions and responses that you established within your initial data inquiry.

DM Tue 8/3/2021 1:49 PM
To: Nicole Dietsche

Please be cautious
This email originated from outside of ACE organization

I have nothing else to add – those questions are thorough and expansive and should lead to good feedback and data collection. --

...

Virus-free. www.avg.com

ML Fri 8/13/2021 11:11 AM
To: Nicole Dietsche

Please be cautious
This email originated from outside of ACE organization

Looks fantastic!!

-

CF Thu 8/19/2021 11:10 AM
To: Nicole Dietsche

Nicole, Sorry my bad. Edits look good.

--

Appendix G

Validated Research Instrument Protocol

Thank you for volunteering to participate in the interview aspect of my study. As I mentioned

earlier, my study seeks to understand the opinions of EMS professionals regarding the value of

the EMS curriculum prepares them mentally for managing occupational stressors. The study also

seeks to understand how EMS students describe their experiences with the training and how it

prepared them mentally to manage occupational stress. Our interview today will last

approximately one hour, during which I will ask you about your experiences as an EMS student

and EMS professional, your training, and opinions regarding mental preparedness and

occupational stressors.

You completed a consent form indicating that I have your permission to record our conversation.

Are you still okay with me recording our conversation? __ Yes __No

Before we begin, do you have any questions regarding the consent form? __Yes __No

If yes: Thank you! If, at any point, you would like me to stop recording to keep something off

the record, please let me know.

If no: Thank you for letting me know; I will only take notes of the conversation.

Do you have any other questions before we begin? If, at any time, you have questions, please let

me know, and I would be happy to discuss them with you.

1. How old were you when you entered EMS?

2. How long have you been involved in EMS, and what capacity (i.e., primary employment,
    volunteer)?

3. Can you explain if you enjoy your job in EMS and why?

4. How did your EMS training mentally prepare you to deal with occupational stress?

   a.   What parts of the training do you think could have been done better?

5.   How effective did you feel the curriculum was in mentally preparing you for occupational stress?

6.   How would you describe the occupational stress you experience?

   a.   How often do you experience occupational stress?

7.   What percentage of your EMS instruction was dedicated to teaching the curriculum regarding mental preparedness and stress management?

   a.   What skills were you taught?

8.   What parts of your training did you feel were most helpful?

   a.   Why did you feel these parts were most helpful?

9.   Can you describe a stressful situation you encountered as an EMS student/professional?

   a.   Can you describe a stressful situation you encountered in your EMS career that may have changed your opinion on your mental preparedness to manage stress?

10. Can you compare how you coped with a stressful situation before your training versus how you cope with a stressful situation now?

   a.   How do you feel your response to stress has changed after your training?

   b.   What skills or resources do you think are most helpful in managing your stress?

   c.   Do you feel resources are easily accessible and readily available?

Before we conclude the interview, is there anything else that you would like to share about your experiences that you have not had a chance to discuss?

Appendix H

IRB Approval

AMERICAN COLLEGE of EDUCATION

December 13, 2021

To : Nicole Dietsche
Junfu Gao, Dissertation Committee Chair

From : Institutional Review Board
American College of Education

Re: IRB Approval

"Perceptions of Mental Preparedness in Emergency Medical Services Students: A Qualitative Study"

The American College of Education IRB has reviewed your application, proposal, and any related materials. We have determined that your research provides sufficient protection of human subjects.

Your research is therefore approved to proceed. The expiration date for this IRB approval is one year from the date of review completion, December 13, 2022. If you would like to continue your research beyond this point, including data collection and/or analysis of private data, you must submit a renewal request to the IRB.

Candidates are prohibited from collecting data or interacting with participants if they are not actively enrolled in a dissertation sequence course (RES6521, RES6531, RES6541, RES6551, RES6561, RES6302) and under the supervision of their dissertation chair.

Our best to you as you continue your studies.

Sincerely,

Erin Maurer
Assistant Chair, Institutional Review Board
American College of Education