

Coping Skills Education to Reduce PTSD in EMS Providers

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Table of Contents

Abstract	4
Introduction	6
Background & Significance	7
Needs Assessment	12
Problem Statement	14
Aims and Objectives	15
Review of Literature	15
Theoretical Framework	21
Methodology	23
Setting	23
Study Population	23
Subject Recruitment	24
Consent Procedure	25
Risks/Harms/Ethics	26
Subject Costs and Compensation	27
Study Intervention	27
Outcomes to be Measured	28
Project Timeline	29
Resources Needed/Economic Considerations	30
Evaluation Plan	31
Data Analysis Plan	32
Data Maintenance and Security	33

Results	33
Discussion.....	37
Implications.....	42
Sustainability.....	45
Professional Reporting/Future Scholarship.....	46
Summary	46
References	48
Table 1.....	54
Appendices	55
Appendix A: PRISMA Flow Diagram	55
Appendix B: Table of Evidence	56
Appendix C: Concept Map	62
Appendix D: Consent Form	63
Appendix E: Recruitment Flyer	67
Appendix F: Brief-COPE Inventory	68
Appendix G: PCL-5	70
Appendix H: Project Timeline	71
Appendix I: Resources Needed/Budget	73
Appendix J: Site Letter of Cooperation	74

Abstract

Emergency medical service (EMS) providers are exposed to traumatic events while performing occupational duties. Adaptive copings skills can reduce or prevent the development of PTSD symptoms (Thompson, Fiorillo, Rothbaum, Ressler, & Michopoulos, 2017).

Purpose of the Project

The purpose of this DNP project was to implement a coping skills education intervention and assess if doing so would decrease symptoms of PTSD among EMS personnel. The aim of this project was to reduce symptoms of PTSD among EMS providers through the provision of coping skills education. The main objectives for this project were to develop a coping skills education program for the EMS agency, provide the coping skills education intervention to project participants, and assess in one-month post implementation, if there were significant changes from baseline to indicate if providing coping skills education was effective in PTSD symptom reduction.

Methodology

This project utilized a quasi-experimental design to meet the project objectives. The effectiveness of the intervention was evaluated using pre-intervention and post-intervention assessment tools (Brief-COPE Inventory and the PCL-5). The Brief-COPE Inventory provided information on what coping skills were being used and PCL-5 assessed for PTSD symptom severity.

Results

There was a reduction in PCL-5 scores, however, the reduction was not statistically significant. Comparison of pre- and post-intervention means on the Brief-COPE assessment tool signified a statistically significant increase in coping ability. Although PTSD scores did not

decrease significantly, the coping ability of participants did significantly improve. Also, of note is that in the post-intervention period, there was a statistically significant negative correlation between PCL-5 and Brief-COPE scores, providing some evidence that the coping skills education intervention strengthened the association between PTSD scores and coping.

Implications for Practice

The results of this DNP project have clinical practice, healthcare policy, quality and safety, education, and economic implications, which support the continued provision of coping skills education for emergency medical service providers.

Keywords: emergency medical service personnel, EMS, PTSD, posttraumatic stress disorder, coping, coping skills, coping mechanisms

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Introduction

Emergency medical service (EMS) personnel are exposed to traumatic events while on the job, significantly increasing their risk of developing post-traumatic stress disorder (PTSD). In fact, the PTSD prevalence rate among emergency medical technicians (EMTs), one type of EMS personnel, is approximately 22 percent (Ebadi & Froutan, 2017). This can have a momentous impact on the psychological and physiological health of emergency medical service providers, quality of care for patients, as well as ramifications for healthcare institutions.

Although the job-related exposure to trauma cannot be modified, the ability to cope with the stressors can be changed. This aptitude can be recognized as resiliency, or the ability to adapt to stress-inducing experiences (Thompson, Fiorillo, Rothbaum, Ressler, & Michopoulos, 2017). Coping skills are of particular importance in reference to building resiliency. Resilient people tend to abundantly and frequently employ active coping mechanisms, behavior that is protective against the adverse consequences of exposure to trauma-inducing experiences (Thompson, Fiorillo, Rothbaum, Ressler, & Michopoulos, 2017).

This project aimed to connect the knowledge that positive coping skills help improve resiliency, which can decrease the severity of post-traumatic stress symptoms with the knowledge that emergency service personnel are frequently exposed to trauma-inducing circumstances (Wild et. al., 2016). The intended change in current practice is for coping skills education to become a standardized part of training for this population. The proposed outcome was improved resilience in emergency service providers and an associated decrease in symptoms of post-traumatic stress.

Background & Significance

The condition currently known as PTSD has been described under many names, including ‘shell shock’, a term specifically used to describe symptoms exhibited by war veterans, which failed to acknowledge the external triggers leading to the experienced symptoms (Gilpin & Weiner, 2016). Acute stress disorder (ASD) and posttraumatic stress disorder can develop after experiencing an event felt to be of a stressful or distressing nature (Saddock & Saddock, 2015). In fact, the most recent edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) no longer categorizes ASD or PTSD under anxiety disorders, noting that there must be exposure to a highly distressing event prior to the development of symptoms meeting diagnostic criteria (American Psychiatric Association, 2013). For this reason, DSM-5 has grouped ASD and PTSD under “trauma or stressor-related disorders”, a category newly developed for this edition that more accurately defines the etiology of these disorders (Gilpin & Weiner, 2016). The symptomology of the two disorders are the same, however the time frames dictated by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) help to differentiate ASD from PTSD. For a diagnosis of ASD, symptom duration is between 3 days to no more than 1 month whereas in PTSD, symptoms occur for at least one month (Saddock & Saddock, 2015). Traumatic triggering events could range from a natural disaster such as a hurricane, a severe motor vehicle accident, witnessing a violent crime, etc. This exposure can manifest into symptoms that fall under four clusters described as changes in reactivity and arousal, negative mood and thoughts, avoidant behavior, and intrusive thoughts (Gilpin & Weiner, 2016). With these facts in mind, we can examine the population of focus.

EMS personnel is a very broad term to encapsulate those that work within emergency medical services (EMS). EMS is defined as a system founded and constructed to address

medical crises through response, assessment, and treatment of patients in need including the entire process from the time an emergency is recognized, dispatch of emergency responders, to transport to a medical facility (National EMS Management Association, 2012). There are many functions within the EMS system in order to coordinate this type of service (National EMS Management Association, 2012). In conjunction with this are the numerous roles that fall under the umbrella term of EMS personnel. As recognized by the National EMS Management Association, EMS personnel are persons that are involved with any part of the emergency response process (2012). Included within this population are EMTs and paramedics, along with other members of the EMS team. EMTs are trained to provide basic life support when responding to emergent situations and paramedics are trained to provide both basic and advanced life support in conditions of crisis (The National Highway Safety Administration, 2018). Now with established terminology of EMS personnel, the impact of ASD and PTSD on this population can be assessed.

Observing how prevalent a disorder is among a set population can help illustrate how large an effect the problem has generated. For comparison, the lifetime prevalence of posttraumatic stress disorder (PTSD) in the general population is approximately eight percent (Saddock & Saddock, 2015). As mentioned previously, the prevalence among EMTs is 22%, showing a shocking disparity between that of the community as a whole versus EMTs (Ebadi & Froutan, 2017). Another study focusing on paramedics found that 10.6% developed PTSD (Wild et. al., 2016). This shows that among paramedics, as with EMTs, there is a higher prevalence of PTSD than the general population. Due to their occupation, there is greater exposure to distressing events from which acute stress or PTSD symptoms can arise (Wild et. al., 2016). This project focused on the emergency medical service provider population, as not only was

ASD and PTSD substantially more prominent in this population, it was imperative on multiple fronts to address.

ASD and PTSD in emergency service personnel can have many direct and indirect consequences on multiple levels. On a physiological level, PTSD can result in numerous health issues, including an increased risk of diabetes, cardiovascular disease, Alzheimer's dementia, and untimely death (Wild et. al., 2016). This is in line with other studies on this topic. A study that conducted a literature review on PTSD in relation to senescence and senescence-related medical disorders found that PTSD placed individuals at greater risk for a slew of medical illnesses. Their results found that those with PTSD were at higher risk for hypertension in 58% of studies, cardiovascular disease in 77% of studies, metabolic syndrome in 50% of studies, type 2 diabetes in 75% of studies, gastrointestinal ulcers in 100% of studies, and dementia in 100% of studies; overall, the studies found a 29% increased mortality risk (Lohr et. al., 2015). Another consequence of ASD and PTSD is increased alcohol and substance addiction (Garland & Lewis, 2012).

Trauma exposure and subsequent development of PTSD can lead to negative coping. One such method is "self-medication" through substances in order to manage the symptoms associated with PTSD, such as flashbacks (Garland & Lewis, 2012). The temporary relief obtained from doing so acts as negative reinforcement for this behavior, easily triggered again by future stressful events. Roughly 20% of persons with this disorder use substances for the intent of self-medicating their symptoms (Garland & Lewis, 2012). This statistic becomes even more drastic when compared to those without PTSD symptoms. Those with PTSD have approximately 50% higher lifetime prevalence for substance abuse than those without (Gilpin & Weiner, 2016). The most frequently abused substance among those with PTSD is alcohol. One

study investigating the correlation between PTSD and alcohol use found that these two disorders were often comorbid (Gilpin & Weiner, 2016). PTSD can also manifest other dilemmas that have a wider scope of influence than on the individual level.

One major problem arising from repeated trauma is occupational burnout among emergency service providers. A study in Germany estimates that the rate of burnout among this population ranges from 20 to 40 percent (Baier, Roth, Felgner & Henschke, 2018). This one problem however, can produce a chain reaction. Burnout is positively associated with high absenteeism and intentions to leave the place of employment (Boland et. al., 2018). These findings have led to apprehension regarding staff retention in emergency services (Boland et. al., 2018). This information has substantial importance when the impact of burnout is discussed in relation to how it affects the quality of care provided. EMS provider burnout can often result in injury to patient or care provider, medical errors, adverse events, and behavior that compromises safety (Baier, Roth, Felgner & Henschke, 2018). This makes these effects of ASD and PTSD relevant to the average healthcare consumer. Burnout and all the negative ramifications mentioned influence healthcare organizations through litigations for injuries, adverse events and medical errors. Hospital reimbursement is also affected due to performance evaluations being increasingly linked to insurance reimbursements (Salyers et. al., 2016). From a multitude of standpoints including that of the individual EMS worker, the healthcare organizations or agency, and the community for which they serve, PTSD in EMS workers is a conundrum that demands to be addressed.

Coping skills is a term relatively commonly heard today as greater awareness for mental health has emerged. However, not all coping skills are equally effective; some may even have detrimental effects on the individual. Coping can be divided into two categories to help

differentiate the varying types (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017).

Coping mechanisms that endeavor to modify the quality or the perception of a stressor are categorized as active coping. These include the use of cognitive restructuring, social support seeking, and problem solving (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017).

Coping in which actions or thoughts are applied with the intent to escape the stressor are termed avoidant coping. These include withdrawing socially, self-criticism, and the use of wishful thinking (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017). Avoidant coping strategies are often not effective and are in fact correlated with increased severity of PTSD symptoms (Kerai et. al., 2017). This can be illustrated with one form of negative and avoidant coping strategy called thought suppression. This is often engaged after trauma as a way to escape the intrusive thoughts and feelings regarding the event (Garland & Lewis, 2012).

However, doing so actually perpetuates the cycle of intrusive thoughts and emotions that are classically associated with PTSD (Garland & Lewis, 2012). Knowing that negative coping can result in impaired mental health supports the necessity for education to bring awareness of its impact. Positive coping skills on the other hand, play a major role in preventing the development of PTSD or decreasing the severity of symptoms (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017).

Evidence-based research posits resilience as being the quintessential factor protective against the onset of posttraumatic stress symptoms and other adverse reactions to trauma exposure. In fact, persons who are categorized as having high resilience are discovered to use more active coping than those with lower resilience (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017). Research shows that individuals with higher resilience (defined as feeling emotionally and cognitively in control, with a sense of tenaciousness, and feelings of high self-

worth) were less at risk for PTSD development as well as substance abuse (Gilpin & Weiner, 2016). One study that assessed the development of PTSD symptoms after one, three and six months, based on styles of coping, had findings in line with those conducted previously. This study yielded the following results: use of mostly active coping was correlated positively with resilience at the one month point and the use of avoidant coping was positively correlated with development of PTSD later on (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017).

With the current understanding of coping skills and how it affects resiliency and PTSD development, there remains gaps in knowledge. For the local EMS population, coping skills education was not currently implemented as part of standardized practice. What remained to be discovered is whether the application of coping skills education would mediate the symptoms of PTSD within this population.

Needs Assessment

On a global scale, PTSD in those working in emergency services had been increasingly acknowledged. One study that took place in Karachi, Pakistan, uncovered that EMS workers in that location had a moderate amount of PTSD symptoms present. Their work identified coping styles as one of the major predictors for PTSD symptom development (Kerai et.al., 2017). However, there were no established guidelines in place to boost coping for this population. This was evident from the recommendations given from this study. The investigators suggested that based on their findings (in regards to factors that predict PTSD), the results could help guide interventions to improve mental health in EMS providers (Kerai et.al., 2017). Another study that transpired in Mashhad, Iran, had similar suggestions based on their findings. Positive coping was established to be effective to prevent stress related complications. Due to this outcome, the study investigators urged organizational authorities to establish ways to boost positive coping

among this population (Ebadi & Froutan, 2017). Yet another study conducted in London, United Kingdom, also identified a need for resilience boosting interventions. Their study discovered that PTSD and depression in paramedics could be identified fairly early in training using cognitive predictors, which could be the focus of interventions to improve resilience among paramedics (Wild et. al., 2016). On a national level, there was also a need for improvement in terms of psychological support.

In EMS agencies across the United States as a whole, there was currently a deficit in mental health services provided to employees. A national survey conducted with medical directors, paramedics, EMS managers, and EMTs across all 50 states documented a consensus that psychological services for those working in the EMS industry were severely lacking (National Association of Emergency Medical Technicians, 2016). The results of this survey revealed that mental health support in any capacity was provided in less than 50% of EMS agencies. Only 26% of organizations had a program for substance addiction/abuse, but 92% had policies in place regarding alcohol and substance use; many with punitive consequences for employees found with an addiction problem (National Association of Emergency Medical Technicians, 2016). The survey also compiled data on various other mental health programs and training that showed even more disparaging findings. Only 21% of agencies had training regarding awareness for mental health, despite the knowledge that this line of work can cause extensive psychological damage. Also, only 5% had training to boost resiliency (National Association of Emergency Medical Technicians, 2016). This evidence corroborated the need for more mental health support, especially with resilience training across the United States.

On a state level, New Jersey has attempted to provide more psychological support for EMS agencies. The *New Jersey Medical Services Psychological Support Guidelines* affirmed

that all EMS agencies in the state should provide psychological services, including stress and wellness programs to address issues such as stress management and substance abuse (New Jersey EMS Council, 2017). Some of the goals stated in this document are for agencies to create strategies to improve coping on an individual level, prevent and address substance addiction, and to strengthen mental health (New Jersey EMS Council, 2017). On a state level, the initiative was in place to begin making positive changes in regards to dealing with PTSD in the EMS provider population.

Locally, there was a need to improve what is currently in place to meet these state initiatives. At a local hospital in northern New Jersey, there was currently a demand for more mental health interventions to address PTSD in EMS workers. Currently, there were no interventions specifically addressing coping skills education. However, there was growing interest within the organization to tackle this concern through education to improve coping and boost resiliency for EMS staff. This was evident through supervisors within the organization beginning to take courses on resiliency. This site was the location in which the project intervention of positive coping skills education occurred.

Problem/Purpose Statement

As studies have shown and were previously discussed, PTSD is a devastating disorder that EMS personnel are at much higher risk for than the average population due to their line of work (Wild et. al., 2016). This is a problem due to the negative effect PTSD has on the individual EMS worker, the healthcare agency/organization, and the community that utilizes emergency services (Baier, Roth, Felgner & Henschke, 2018). The purpose of this study was to educate EMS providers on positive coping skills and assess if this education intervention would impact coping strategies used and decrease PTSD symptoms.

Clinical Question

Using a PICOT format, the clinical question was broken down as follows: P (population) = EMS personnel, I (intervention)= coping skills education, C (comparison)= no coping skills education, O (outcome)= decreased acute/post-traumatic stress symptoms, T (time)= one month. This format helped identify the necessary components of the study. The question this project sought to answer was “Does the implementation of coping skills education decrease acute stress or posttraumatic stress symptoms in EMS personnel in one month?”

Aims & Objectives

The overall aim of this project was to reduce PTSD in EMS personnel through the provision of coping skills education. This also corresponded to the goals of the state for EMS agencies to provide interventions for coping (New Jersey EMS Council, 2017).

There were three main objectives for this project: 1) develop a coping skills education program for the organization 2) provide coping skills education to project participants to improve coping skills of project participants; 3) assess if in one-month post implementation, there were significant changes from baseline to show if providing coping skills education was effective among participants.

Review of the Literature

A literature review was conducted in February of 2019 in order to objectively analyze current research on the subject matter with the intent to better inform the DNP student regarding the clinical question. That question was “Does the implementation of coping skills education decrease acute stress or posttraumatic stress symptoms in EMS personnel in one month?” The following databases were utilized for this review: Pubmed, PsychInfo, CINAHL, and Medline. To enable a more extensive search of key terms, the MeSH terms function in Pubmed, the

subject headings function in CINAHL, and the map terms function in PsychInfo was applied.

The population key terms used with the aid of these search term functions were: *emergency medical service personnel, emergency personnel, EMT, paramedic, first responder, EMS, ems personnel*. Outcome key terms using the same search functions were: *PTSD, stress-disorder, posttraumatic, stress and disorders, posttraumatic stress disorder, stress, occupational, stress, psychological, and cumulative trauma disorders*. Intervention key terms using search term functions were: *coping, adaptation, psychological, psychological adaptation, coping skills, coping mechanisms, resilience, hardiness, stress and coping measures, and coping behavior*.

The terms available in each database within each key term category were combined using the Boolean term 'OR'. Combinations of key term categories (i.e population terms plus outcome terms) were then used with the Boolean term 'AND'. After filters were applied, the databases used yielded 105 sources. The filters used for each database will be discussed in detail. See appendix A for the PRISMA flow diagram. Each database will be discussed to examine the elimination process that led to the final review of core sources compiled in the table of evidence (see appendix B).

Using Pubmed, a total of 135 sources were found combining all 3 key term categories (population terms, outcome terms, and intervention terms) before filters were applied. The filters used were full text, a time frame of 5 years, and human subjects only, resulting in 24 total sources. These 24 were further narrowed down using exclusion criteria of a time frame greater than 6 months, not EMS population, and not related to PTSD. This resulted in 3 sources from this database that were included in final review.

In PsychInfo, combining all 3 key term categories yielded 111 sources. This was minimized down to 7 results using the filters full text, English language, and looking only at

works published between 2014 and 2019. From these sources, only 1 was kept for final review after the same exclusion criteria used for Pubmed sources were applied.

The CINAHL database located 153 entries after the 3 key term categories were combined. After full text, works published between 2014-2019, human subjects, and English language filters were employed, 36 results remained. This was further reduced by hand using the exclusion criteria and left only 1 article of relevance.

The last database used was Medline, which was unable to produce results by combining all 3 key term categories. This DNP student then conducted 2 separate searches: EMS terms and PTSD terms then PTSD and coping terms which gave a total of 38 sources after filters were applied (full text, published between 2014-2019, English language, and human subjects). The exclusion criteria for this database had to be adjusted to take into consideration the 2 searches that were necessitated. For the search using EMS and PTSD, sources that did not pertain to both EMS and PTSD were excluded. For the search looking at PTSD and coping, sources that did not include both PTSD and coping were eliminated. This left 3 sources from these searches left for final review.

Grey literature on the topic was searched for using the website [greylit.org](http://www.greylit.org). Several search terms were used in an attempt to find pertinent information, including *emergency medical services* ($n=264$), *posttraumatic stress* ($n=43$), and *coping* ($n=76$). When a 5-year filter was applied to each term, this resulted in 24 results for emergency medical services, 2 for posttraumatic stress, and 16 for coping. After reviewing each source, none were found to be relevant to either PTSD in EMS personnel or coping skills. A very broad search was then used with the key term *mental health* ($n=1643$). This was narrowed down to a more manageable 189 results once the 5-year filter was applied. After manually sorting through the remaining sources,

2 were found to be relevant to the subject at hand. This was included in the final review of non-research evidence.

Analyzing the findings from the final literature review revealed consistencies in regards to EMS personnel having more exposure to trauma than the general population and a significantly higher rate of PTSD symptoms. Martin, Tran & Buser described that EMS personnel were exposed to trauma routinely as part of their occupation (2017). This was further substantiated by a recent systematic review and meta-analysis that also focused on routine job exposure among ambulance personnel. Their results indicated that the most common mental health concern reported among this population was PTSD and the symptoms were present in greater than one out of ten ambulance personnel (Petrie et. al., 2018). This outcome appeared to be relatively consistent across studies. Another systematic review found rates of PTSD among urban paramedics to range from twenty to twenty-two percent (Jones, 2017). A brief found during a search of grey literature provided an additional viewpoint. This issue brief provided by the Center for Health Care Strategies, which compiled the opinions of many healthcare experts, noted that secondary traumatic stress could occur among healthcare personnel exposed to trauma and traumatized patients (Center for Health Care Strategies, 2016). The symptoms of secondary traumatic stress appeared to be aligned with that of posttraumatic stress. The brief explained that the consequences of secondary trauma were physical illness, avoidance, missing work, feelings of emotional detachment or exhaustion, inability to concentrate, thoughts that were disturbing in nature, and chronic fatigue (Center for Health Care Strategies, 2016). The compiled research also provided insight into coping strategies used by the target population.

Coping styles went by many names, generally grouped into a positive and a negative category. Overall, an adaptive style of coping in which the participant was able to face the issues

head-on were deemed positive. An approach style of coping was found to increase posttraumatic growth instead of PTSD and improve well-being, showing that this style of coping not only prevented disease but improved the participant's overall sense of health (Arble & Arnetz, 2016). This deduction was consistent with that of other studies. One study by Skeffington, Rees & Mazzucchelli also attained the conclusion that adaptive coping was less likely to result in PTSD symptoms (2017). With the effects of positive coping established, the negative consequences of ineffective coping styles were also noted. Avoidance coping was associated with substance abuse and decreased well-being as well as negative reinforcement that resulted in symptoms resembling PTSD (Arble & Arnetz, 2016). These findings matched those of other studies. Avoidant styles of coping were positively correlated with more PTSD symptomology (Skeffington, Rees & Mazzucchelli, 2017; Kerai et. al., 2017). Most studies uncovered in the literature review produced results agreeable with one another. However, inconsistencies and what that information may indicate, cannot be ignored.

A study conducted by Oginska-Bolik and Zadworna-Cieslak reported a mix of avoidant and approach coping strategies that correlated with posttraumatic growth as opposed to PTSD after trauma exposure, contradicting what the previously mentioned studies had reported (2018). This study further goes in an opposing direction with one of its major conclusions. As a whole, the researchers of this study endorsed that avoidant strategies correlated with posttraumatic growth to a greater extent than active coping (Oginska-Bolik & Zadworna-Cieslak, 2018). This finding was able to be clarified, however, with the aid of another research study. Avoidance as a way of coping could be beneficial if used in the short term as this offered time for recovery (Arble & Arnetz, 2016). This did not mean that it would continue to be helpful. Used briefly, a person can recuperate long enough to be able to process the events that occurred and activate an

adaptive approach style coping (Arble & Arnetz, 2016). This study warned that prolonged use of avoidant coping often led to decreased well-being (Arble & Arnetz, 2016). This allowed what initially appeared to be an inconsistency to still operate within what is understood from the rest of the literature. Another portion of the clinical question that required answering was if coping skills education was effective for the PTSD symptoms experienced by EMS personnel.

This literature review indicated that there were no studies that provided coping skills education as an intervention to EMS personnel to address PTSD symptoms, despite awareness of how styles of coping could drastically change the outcomes of mental health in this population. This review was however, able to answer if coping skills education could be effective. One study on trauma-informed treatment in adolescents found that a brief group education intervention that included coping skills education had positive results (Gundino et. al., 2014). This study was very brief in duration, yet there was tangible improvement from the study participants. In an average duration of 19 days, PTSD symptoms were decreased among the adolescents (Gundino et. al., 2014). Another interesting finding from this study related not only to the decreased PTSD symptoms, but how the participants coped after the intervention. The study investigators found no change in the amount of coping skills utilized, but discovered that there was significant improvement in the efficacy of coping (Gundino et. al., 2014). This further supported the need for coping skills education, as it is not always enough to simply employ coping skills if these skills are not proving efficacious. Education, as in the case of this study, could help bring value and success to the styles of coping used. This knowledge helped to inform this DNP student of the logical next step.

Based on the literature review, the most plausible intervention would be to implement coping skills education for EMS personnel in order to decrease PTSD symptomology. In fact,

this type of intervention was promoted and encouraged in many of the studies reviewed as actions that would be indicated based on their study results. Jones stated that provision of education and strategies to self-manage symptoms could reduce the risk of PTSD among this population (2017). The issue brief from Center for Health Care Strategies on trauma informed care had similar recommendations. They encouraged positive prevention strategies such as exercise, meditation, and time off from work as ways to handle secondary traumatic stress (Center for Health Care Strategies, 2016). Other studies more directly implicated coping skills education as actions for healthcare agencies to adopt. Skeffington, Rees, and Mazzucchelli maintained that coping strategies would be beneficial for programs that sought to prevent PTSD via education on maladaptive and adaptive coping (2017). This also held true for a study conducted in Karachi, Pakistan, which recognized a need for education covering topics of coping skills and stress management to prevent both mental illnesses and the consequences that come about from those illnesses (Kerai et. al., 2017). Another source obtained from grey literature found that non-research recommendations also held the same view on this intervention. An education manual intended for first responders, specifically those in the police force, recommended for in-services to be provided on an annual basis to address healthy coping in order to reduce PTSD (National Alliance on Mental Illness, 2016). The intervention in which coping skills education to EMS personnel were provided by the DNP student with the intention to decrease PTSD symptoms was in line with recommendations found in this literature review.

Theoretical/Conceptual Framework

The theoretical framework that guided this project implementation was the Knowledge to Action (KTA) Framework. The general concept of the model was as the name implied. It was composed of two separate but integrated sections: 1) creation of knowledge and 2) cycle of

action (Field, Booth, & Gerrish, 2014). These two components could occur consecutively or in a synchronized fashion. First, knowledge was created and then synthesized, a process that was visualized in the KTA framework diagram as a triangular funnel (Field, Booth, & Gerrish, 2014). The results of this synthesis of knowledge was then used to address an identified problem. This brings into the picture the action component of this framework, which helped apply this knowledge to practice in order to address the problem by adapting it to fit into the context of the local situation (Field, Booth, & Gerrish, 2014). Once adapted, several more steps occurred. Barriers and facilitating factors needed to be identified so that an appropriate intervention could be chosen, modified, and implemented; this intervention needed to be monitored, the results evaluated, and the knowledge use sustained in order to complete the KTA cycle (Field, Booth, & Gerrish, 2014). This project's intervention integrated succinctly with this framework.

Following the KTA framework (see Appendix C), knowledge regarding PTSD in EMS personnel, the effects of coping strategies on PTSD, and the effectiveness of coping skills education on PTSD symptomology were gathered and synthesized through a literature review. This was done with the intent of addressing the issue of PTSD in EMS personnel. The knowledge regarding coping skills was adapted to fit the project setting of an EMS agency at a local hospital in northern New Jersey. From there, a coordination with stakeholders helped identify potential barriers and facilitating factors for the proposed intervention of coping skills education. Monitoring was done with assessment instruments and surveys both pre-intervention and post-intervention to gauge if the intervention had the intended effect. The results were presented at the conclusion of the project as a means of disseminating this knowledge.

Methodology

This DNP project was a pilot study, as the literature review showed a lack of studies conducted using this intervention type with the target population.

Design of Project

The approach of this project was quasi-experimental and utilized both surveys/questionnaires and a self-report assessment tool prior to and after the coping skills education intervention was administered. A quasi-experimental design was selected as the best fit for this project's objectives because this approach evaluated if an outcome was associated with an intervention and worked with studies that were not randomized (Schweizer, Braun, & Milstone, 2016).

Setting

This project took place at an EMS agency of a local hospital in northern New Jersey. This pre-hospital system was one of the most all-encompassing and largest in the country, which provided a comprehensive set of emergency services, including 9-11 dispatch, basic life support, advanced cardiac life support and rescue services; this agency also provided Air Medical, Tactile Medicine, and Critical Care services, among others.

Study Population

EMS personnel were the target population for this intervention. The DNP student drew a purposeful sample and enrolled thirty participants from the participating EMS agency, which included EMTs, paramedics, dispatchers, EMS supervisors, and rescue workers, including those involved in the helicopter flight and critical care teams. The decision to include a broad range of professional roles was based on the understanding that EMS personnel included anyone involved in the process of emergency medical services from the point when an emergency is identified through the provision of pre-hospital care to when a patient is brought to the hospital (National

EMS Management Association, 2012). The sample excluded fire fighters, police officers, and registered nurses, consistent with prior studies conducted among EMS personnel and to preserve the integrity of the project. Based on the tenets of the central limit theorem, the targeted sample size was thirty participants (Kwak & Park, 2019).

Subject Recruitment

The DNP student used two methods to recruit participants. The site points of contact (i.e., the EMS coordinator and Training Supervisor) utilized current facility reporting and referral measures to identify employees who met criteria to qualify for the DNP project. Criteria used by the EMS Coordinator and Training Supervisor to identify potential participants for referral to the project was any EMS personnel that meet project inclusion criteria that presented within a critical incident. A critical incident was defined as an event that was sudden and outside what a typical person may experience, which substantially overwhelmed an individual's emotional coping (NM EMS Bureau, 2011). The employee was also provided employee assistance services such as EAP Crisis if required. The EMS Coordinator and Training Supervisor notified participants that presented with the above criteria that the site had partnered with an academic study that sought to improve PTSD symptoms with coping skills education. It was also stated that participation in the study was completely voluntary and would have no bearing on their employment.

The DNP student had developed a recruitment flyer as a second method of participant recruitment (see Appendix E). The proper dates for the recruitment flyer were updated once the basic model was approved. This flyer was displayed in common areas at the hospital EMS agency to provide information about the project. This flyer was also distributed by the EMS coordinator, EMS Supervisor, and the DNP student to EMS personnel employed at the site. The

flyer detailed the purpose of the project, project interventions, the date(s) the intervention occurred, and the DNP student's contact information. The flyer also detailed that participation in the project was completely voluntary and would have no effect on participants' employment. Recruitment was expected to last approximately one month. There was no monetary compensation for participation; however light refreshments were provided during the time of intervention.

Consent Procedure

Each participant received, and was asked to sign, a consent form at the start of the education intervention session (see Appendix D). The consent form was based on the Rutgers IRB template and was tailored to meet the needs of the project. The form detailed that the purpose of the project was to assess the effectiveness of coping skills education in reducing PTSD symptoms among EMS personnel. The consent form informed participants that participation in the project was completely voluntary. Participant anonymity and confidentiality were maintained through the use of randomly assigned study identification numbers, which participants used when completing the survey/questionnaires and screening tools. However, the numbers were linked to respondents through a code key using their initials to ensure that the same number was used by the same participant for both the pre-intervention and post-intervention assessments and in case participants forgot their assigned code. Some demographic information was also collected to allow for comparison of factors that may impact the project results. Demographic data collected were participant gender, age, and years of service. This information was stored together with the file containing participant initials in a locked drawer at the project site only accessible by the DNP student. These study records will be stored at Rutgers University for at minimum six years after the conclusion of the project. Participants

were also provided with the contact number to the IRB director and to the appropriate Human Subjects Protection Program as part of the consent form should they have any questions or concerns.

Risks/Harms/Ethics

This DNP project posed a potential risk to the participants in terms of breach of confidentiality. Participant data collected via surveys/questionnaires and screening tools were randomly assigned a number to mitigate the risk of a breach in confidentiality and allowed this information to be reviewed without links to the participant. Participant demographic data and participant initials were stored in a locked drawer at the project site and only accessible by the DNP student.

There was a potential risk of psychological harm to participants in this DNP project due to the use of PCL-5, a PTSD screening tool, which may trigger painful or distressing memories. Resources were available to participants should any distress occur to address this risk. The information regarding these resources were provided in the consent form to all project participants (see Appendix D). The phone number for Employee Assistance Program (EAP) Crisis was a resource available to participants Monday-Friday from 08:30-17:00. The National Suicide Prevention Lifeline (1-800-327-3678) was also provided. Rutgers Crisis services, located at 183 South Orange Ave. Newark, NJ 07102, was an additional support should more advanced assessments be required. This service could have also been contacted at 973-972-6100. In an emergent situation, the DNP student would have called 911.

Subject Costs and Compensation

There were no costs to the participant to take part in this DNP project. Participants also did not receive any monetary compensation for participation. However, light refreshments were provided by the DNP student during the education intervention.

Study Intervention

The primary project intervention was coping skills education. The time commitment for the education intervention and pre-intervention assessments was a total of one hour and ten minutes, allotting thirty minutes for the coping skills education and twenty minutes for each of the assessment tools. The post-intervention assessments were completed one month after the education intervention and required approximately 40 minutes of participant time.

Prior to beginning the education intervention, participants provided consent at the start of the session, then, each participant was assigned a random number that corresponded to their initials. Demographic data (participant gender, age and years of service) was collected at this time. The assigned number was used for pre-intervention and post-intervention assessments to allow for data comparison without identifiers. Next, each participant was given a survey/questionnaire to gain an understanding of how participants are coping now and what strategies are used. The tool used for this was the Brief COPE inventory, which asked the participant to grade each coping skill on a 4-point Likert scale based on how frequently that item was used (Carver, 1997). Each participant was then given a self-administered screening tool to obtain a baseline of PTSD symptoms. The tool used for this was the PTSD Checklist-5 (PCL-5) (National Center for Posttraumatic Stress Disorder, n.d). After these assessments were completed, the coping skills education was provided by the DNP student in the form of a PowerPoint presentation. The presentation informed participants on the importance of coping skills; the differing types of skills, including adaptive and avoidant coping; and specific coping

mechanisms that fall into those categories. Participants were asked to use the adaptive coping skills learned for the next month and to return for the follow-up one month after the education intervention. The follow-up took place at the project site and post-intervention assessments using the Brief-COPE inventory and PCL-5 were administered by the DNP student. The same tools were used pre-intervention and post-intervention to allow for accurate comparison.

Outcomes to be Measured

The outcome measured for this project was whether PTSD symptoms were decreased after the coping skills education intervention was provided. The Brief Coping Inventory was used to assess the participant's use of coping skills. A paper form of Brief-COPE was distributed to each project participant to complete. This inventory listed twenty-eight coping items that were scored on a four-point Likert scale on how often a skill was utilized (Carver, 1997). This provided data for the project on whether or not the education intervention modified the categories of coping used by participants. Brief-COPE has demonstrated good internal consistency, adequate levels of test-retest reliability and satisfactory predictive validity in a recent study among caregivers based on a Cronbach's alpha range of 0.72-0.84 for internal consistency, test-retest reliability correlation coefficients ranging from 0.44-0.72, and a predictive validity of 0.32-0.33 (DeDios-Stern, Lee & Nitsch, 2017). These findings appeared to be relatively consistent and can be applied to research specifically examining PTSD. Another study that examined PTSD in veterans found that Brief-COPE had good validity as well as internal reliability, with Cronbach alpha ranges between 0.70-0.96 on the different inventory items (Badour, Blonigen, Boden, Feldner, & Bonn-Miller, 2012). The psychometric data for Brief-COPE indicated that it could be safely used for the data collection of this project.

The PCL-5 was the most recent version of the PTSD checklist which had been adapted to reflect changes made to the diagnostic criteria of PTSD in DSM-5 (Cohen, et. al., 2014). As DSM-5 was the most up-to-date diagnostic manual for mental health disorders, PCL-5 was the most valid version of the PTSD Checklist to implement. This assessment tool contained 20 items regarding PTSD symptoms which were rated on a 5-point Likert scale according to severity over the past month (National Center for Posttraumatic Stress Disorder, n.d). PCL-5 was psychometrically valid and reliable; it was able to quantify the severity of posttraumatic stress symptoms and detect changes over time in military personnel and college students (National Center for Posttraumatic Stress Disorder, n.d). A study that examined PTSD in veterans found that PCL-5 had good validity, internal consistency and internal reliability. This particular study had an internal reliability of 0.88 (Zaltaet.al., 2018). Another study looked at the psychometrics of PCL-5 in regards to two studies assessing PTSD symptoms among college students. This study found that PCL-5 had a Cronbach's alpha score of 0.94, indicating excellent internal consistency (Blevins, Weathers, Davis, Witte, & Domino, 2015). PCL-5 was further supported by excellent findings in relation to reliability and validity. The researchers of this study also stated a test-retest reliability of 0.82, a convergent validity of 0.74, and a discriminant validity range of 0.31-0.60 (Blevins, Weathers, Davis, Witte, & Domino, 2015). Based on this information, PCL-5 was a valid and reliable tool to use for the intention of addressing the objectives of this DNP project.

Project Timeline

This DNP project was expected to span approximately three semesters in order to complete the planning, pre-intervention, implementation, and evaluation activities (Appendix H). The PICOT for this DNP project was initially developed in December of the fall 2018 semester.

In January of 2019, the DNP student met with stakeholders to obtain a site letter of cooperation. The proposal had been developed from January through April 2019. In April of 2019, the DNP student developed the education material for the coping skills education intervention submitted with the IRB application so that the project presentation was ready for implementation in the upcoming fall of 2019. This proposal was presented to the DNP team at the end of April 2019. The proposal was submitted to IRB the end of April 2019. After IRB approval, the DNP student began the implementation process. Participant recruitment occurred during the month of September 2019. Once recruitment was completed, consent from participants was obtained, along with data collection of pre-intervention assessments using Brief-COPE and PCL-5 in October of 2019. The DNP student then provided the coping skills education session in October of 2019. Follow-up post-intervention assessments using Brief-COPE and PCL-5 were conducted one month later in November of 2019. Data analysis, study evaluation, and final writing took place starting in November of 2019 through December 2019. The final project presentation was planned for January 2020. Graduation was anticipated to occur in May of 2020.

Resources Needed/Economic Considerations

Any monetary costs for this project were the sole responsibility of the DNP student. Costs for this project came to a total budget of \$270 (see Appendix I). Recruitment flyers, light refreshments for the education session, copies of the assessment tools, purchase of SPSS software, the cost of binding the final project, and dissemination posters were the necessary expenses to carry out this project. Fifty copies of recruitment flyers were printed in order to allow flyers to be distributed by the site points of contact and the DNP student as well as copies to display in the site common area. This was estimated to cost about \$7.50 at 15 cents a copy. Fifty consent forms were also needed, accruing another \$7.50 in costs. Approximately \$30 were

spent on light refreshments that were served during the education intervention. Fifty copies each of the two assessment tools were needed for distribution to participants, costing about \$15 to print. The DNP student also purchased SPSS software in order to perform statistical analysis of the data collected, necessitating a cost of \$60. Five copies of the final project needed to be bound at the conclusion of the project, totaling \$75 in expenses at \$15 each. Lastly, \$75 was needed for dissemination posters used at the university and the project site.

Evaluation Plan

The evaluation plan of this project involved the DNP student, stakeholders, and the project participants. The DNP student administered all pre-intervention and post-intervention assessments as well as implemented the education intervention. The project participants completed the assessment tools that were used for baseline data and comparison. Stakeholders were involved in the evaluation plan as the project results may have potential implications for the organization.

The objectives of this project were to develop a coping skills education intervention for EMS personnel, to provide this education intervention, and to assess if PTSD symptoms in EMS personnel were decreased after coping skills education was provided. This project was quantitative due to the use of assessment instruments that produced quantifiable data. To determine if the project was successful, the project evaluated baseline coping and baseline PTSD symptoms followed by a comparison assessment following the education intervention. Change was evaluated using the assessment tools PCL-5 and Brief-COPE. Brief-COPE was used, as this allowed the DNP student to examine for changes in frequency and types of coping used prior to and after the education intervention (Carver, 1997). The target for determining success for this project was for at least 50% of the participants to experience significant changes in PTSD

symptom reduction one month following the intervention. Significant decreases in PCL-5 scores would indicate that the project was able to fulfill the goal of lowering PTSD symptoms through coping skills education. An estimated change of 10 points indicates clinical significance (National Center for Posttraumatic Stress Disorder, n.d).

Data Analysis Plan

Data analysis was completed through the use of SPSS, a statistical software package. The main outcome this project sought to understand was if providing coping skills education to EMS personnel reduced PTSD symptoms one month after the education intervention. This project collected data prospectively through the use of pre-intervention and post-intervention assessments. The unit of observation for this project was individual participants. The assessment tools PCL-5 and Brief-COPE all used Likert scales, allowing the collection of ordinal data. The responses to individual items were added up to create a composite score, from which means were compared using a paired t-test or Wilcoxon Rank sum test. The ordinal data from pre-intervention and post-intervention were compared using descriptive statistics. Demographic data were also compared using descriptive statistics. The independent variable was coping skills and the dependent variable was PTSD symptoms. The independent variable was measured using the Brief-COPE Inventory and the dependent variable was measured using the PCL-5 assessment tool. For univariate statistics, numbers and percentages were reported as the variables coping skills and PTSD symptoms were categorical. This project used a sample size of 30 participants, allowing for the possible use of parametric statistics.

Data Maintenance and Security

To protect participant confidentiality, no identifiers were used on any assessment tools. A randomized number was assigned to each participant to allow comparison of pre-intervention

and post-intervention results. To ensure that each participant used the same number for all assessment tools, a document linking participant initials to their assigned project number was kept by the DNP student in a locked drawer at the project site. Demographic information was also collected to allow for comparison of factors that may be associated with project results. Demographic data collected were participant gender, age, and years of service. This information was stored together with the file containing participant initials in a locked drawer at the project site only accessible by the DNP student. When not in use for study activities, the document was stored and locked at the project site. All assessment tools were administered by the DNP student. Only de-identified data was collected and used for data analysis.

Once the project had been concluded, the final manuscript completed, and at the point of IRB closure, all data was properly stored according to the guidelines of Rutgers University. Aggregate data and original copies of participant consent forms was retained at Rutgers University by the project chair for six years after project completion in accordance with Department of Health and Human Services regulations 45CFR46.115(b).

Results

The main outcome this project sought to understand was if providing coping skills education to EMS personnel would reduce PTSD symptoms one month after a coping skills education intervention was provided. This section provides pertinent information related to data collection, data analysis, demographics of the participant sample, and the key findings from this project. Please see Table 1 for relevant tables of the results to be discussed.

Data Collection

Data collection was collected prospectively at two points during the project implementation process: pre-intervention and post-intervention. Pre-intervention assessments

and the education intervention were administered on October 3rd, 2019. The following demographic data was also collected from each participant during that time: gender, age, and years of service in EMS. A total of thirty participants completed the PCL-5 and Brief-COPE assessment scales pre-intervention and attended the coping skills education session. Follow-up for post-intervention sessions took place on October 30th, 2019, October 31st, 2019, and November 4th, 2019. Twenty-nine participants came to one of provided follow-up sessions and completed the PCL-5 and Brief-COPE. The administration of PCL-5 and Brief-COPE for both pre-intervention and post-intervention assessments allowed for the accumulated data to be compared.

Final Sample Size and Demographic Information

The final sample size for this DNP project was twenty-nine, as one participant was lost to follow-up. Descriptive statistics were produced using SPSS software to provide a better understanding of the participant sample. Based on gender, participants consisted of 76.7% male, 20% female, and 3.3% transgender. Ages ranged from 26 years to 60 years, with an average participant age of 40.93. Years of service also had a wide range, spanning 1 year to 43 years with an average of 18.5 years.

Data Analysis

All data analyses for this DNP project were performed using SPSS software. PCL-5 and Brief-COPE both utilize Likert scales for individual responses, which allowed for ordinal data to be compiled. PCL-5 had 20 questions, for which the respondent could answer 0 = “not at all,” 1 = “a little bit,” 2 = “moderately,” 3 = “quite a bit,” and 4 = “extremely” (National Center for Posttraumatic Stress Disorder, n.d). Brief-COPE has 28 questions, where the possible responses for each question were 1 = “I haven’t been doing this at all,” 2 = “I’ve been doing this a little

bit,” 3 = “I’ve been doing this a medium amount,” and 4 = “I’ve been doing this a lot” (Carver, 1997).

Calculating composite scores for both assessment tools were necessary prior to beginning statistical analysis. The scores for PCL-5 could be added up to create the composite score ranging from 0 to 80. In order to create a composite score for Brief-COPE, some answers had to be reverse coded in SPSS because individual items included both adaptive and maladaptive coping strategies, which were rated using the same scale listed above. Questions 1 and 19 were self-distraction strategies, 3 and 8 were denial strategies, 4 and 11 were related to substance use, 6 and 16 were behavioral disengagement strategies, 9 and 21 were venting methods, and 13 and 26 were about self-blame, all of which are maladaptive coping mechanisms (Carver, 1997; (Thompson, Fiorillo, Rothbaum, Ressler & Michopoulos, 2017). Once these maladaptive coping mechanisms were reverse-coded, the scores were summed up to create a composite score ranging from 28 to 112. Descriptive statistics were then used to compare pre-intervention and post-intervention PCL-5 and Brief-COPE scores.

Due to the study’s small sample size, the author used the Shapiro-Wilk test of normality to determine the appropriate bivariate statistical test to use for each assessment. A *p* value greater than 0.05 would signify a variable with a normal distribution. Since the *p* value for PCL-5 was 0.038, the variable was determined to be not normally distributed and the Wilcoxon Rank Sum Test was used to compare pre/post-intervention means. The *p* value for Brief-COPE was 0.539, making the data normally distributed, so a paired t-test was used for comparison of means for this variable. The final set of analyses examined the degree of correlation between participant PTSD levels and use of adaptive coping skills. Since PLC-5 was not normally

distributed, pre-intervention and post-intervention PCL-5 and Brief-COPE scores were compared using Spearman's Rho, a nonparametric correlation test.

Findings

This study had several findings that helped to inform the main clinical question posed by this DNP project. A p value of less than 0.05 was used to determine statistical significance. Descriptive statistics were utilized to compare pre-intervention and post-intervention PCL-5 and Brief-COPE scores. The mean preintervention PCL-5 score was 27.14 and the median score was 23, with scores ranging from 3 to 68 points. The mean post-intervention PCL-5 score was 23.62 and the median was 19, with scores ranging from 1-74 points. There was a decrease in PTSD scores among participants; however, the reduction was less than the anticipated 10 points. The number of participants that met the cut off score of 33 or higher for PCL-5, indicating a possible PTSD diagnosis, was 11 out of 30 participants in pre-intervention and 11 out of 29 for post-intervention. The mean pre-intervention Brief-COPE score was 73.17 and the median was 72, with a score range of 54 to 95 points. The mean post-Brief-COPE was 77.41 and the median was 78, with scores spanning 64 to 99 points. There was an overall increase in the use of positive coping skills.

Bivariate statistics were employed to compare means for both assessment tools. Based on the Wilcoxon rank sum test, comparison of pre-intervention and post-intervention PCL-5 means yielded a p value of 0.101, showing that there was no statistically significant difference in pre and post-intervention means. Comparison of pre- and post-intervention means on the Brief-COPE scores yielded a p value of 0.003 using a paired t-test, indicating a statistically significant improvement in coping ability. Therefore, although PTSD scores did not decrease significantly, the ability of participants to cope increased significantly.

There was no significant association between pre-intervention PCL-5 and Brief-Cope scores ($\rho = 0.014, p = 0.928$). However, in the post-intervention period, there was a statistically significant negative correlation between PCL-5 and Brief-COPE scores, ($\rho = -0.413, p = 0.026$). This provides some evidence that the coping skills education intervention strengthened the association between PTSD scores and coping.

Discussion

This DNP project sought to provide a coping skills education intervention with the intention of monitoring if doing so would decrease PTSD symptoms among EMS providers. Recruitment was successful, with only one loss to follow-up. The study did not show evidence for a decrease in PTSD symptoms but did suggest a strengthening of positive coping skills.

Objectives Achieved

This project had the following objectives: to develop a coping skills education intervention for the EMS facility, implement the developed coping skills intervention with the intention of improving the coping skills of participants, and to assess if the intervention resulted in significant changes one month from baseline. This DNP project achieved all of the stated objectives. The author developed a coping skills education PowerPoint that covered the value of coping, discussed the differences between adaptive and maladaptive coping, and provided examples and information on specific adaptive and maladaptive coping skills. This education PowerPoint was then delivered to project participants by the author during the education session. The assessment tools PCL-5 and Brief-COPE were administered prior to the coping skills education intervention and one month after to measure PTSD levels and coping. The use of the same scales pre-intervention and post-intervention allowed for the project to achieve the objective of assessing for significant changes after the education intervention.

Relationship Between Literature, Results and Findings

The literature review previously conducted uncovered several points which can now be related to the results and findings from this DNP project. Previous studies had found that those working in emergency medical services had higher rates of trauma exposure and PTSD symptoms compared to the general population and PTSD was often the most abundant mental health issue among EMS providers (Martin, Tran & Buser, 2017; Petrie et. al., 2018). The scores from pre-intervention PCL-5 showed a range of scores from 3 to 68, a mean score of 27.14, and a median of 26.38 when analyzed using descriptive statistics. With this assessment tool, a cut off of 33 is used to indicate a possible PTSD diagnosis and lower scores may signify subthreshold PTSD symptoms (National Center for Posttraumatic Stress Disorder, n.d). Eleven out of 30 participants had a score of 33 or higher during pre-intervention and 11 out of 29 had a score of 33 or higher in post-intervention. The descriptive analysis of the pre-intervention scores is in line with previous studies, finding that there were high rates of PTSD symptoms among this sample.

Another consistent finding among recent research studies was that adaptive styles of coping are often associated with a reduction in posttraumatic stress (Arble & Arnetz, 2016). Although the decrease in PTSD symptoms in this DNP project was not statistically significant one month after the coping skills education intervention, there was an overall small reduction in mean PCL-5 scores. Brief-COPE scores were significantly increased among the participants in this project, indicating an improvement in adaptive coping. Correlation tests from this project also indicated a negative correlation between PTSD and coping, meaning that as PTSD scores decreased, adaptive coping increased. This indicates that the findings from this study is in concordance with previous research.

Lastly, a pertinent conclusion from another study was that coping skills education enhanced the efficacy of coping among participants (Gundino et. al., 2014). Descriptive statistics from Brief-COPE showed an increase in adaptive coping post-intervention. Bivariate statistics using a paired-t-test found that this increase in use of adaptive coping was statistically significant. Therefore, the findings from this DNP project are consistent with prior research regarding coping skills education as a means of improving adaptive coping.

Facilitators and Barriers

Noteworthy facilitating factors and barriers were present in this DNP project. Major inhibiting factors were the work schedules of EMS personnel, the potential for this project to disrupt the daily operations of the EMS facility, and the school schedule of the DNP student. The work schedules for EMS personnel were difficult to coordinate, creating a barrier to schedule implementation and follow-up times. Not all participants would be available at the same time during the shift or be able to return the same day for the post-intervention assessments. A set time for implementation and follow-up would also put EMS personnel out of commission, disrupting the work flow of the EMS facility. The DNP student's work schedule created an additional conflict by limiting availability for intervention and follow-up dates.

Facilitating factors were that the EMS facility designated as the project site employs a large number of EMS personnel that meet project criteria and project site stakeholders fully supported the project intervention. Due to the facility size, this improved the odds of this project being able to attain the desired sample number. Having the site stakeholders in support of the project facilitated several project requirements. It enabled a smoother transition into implementing project components, as the site stakeholders were in consistent communication with the DNP student. These site points of contact also assisted with putting up recruitment

flyers in common areas and distributing flyers to potential participants. Also, in order to provide the education session and obtain assessments without interrupting the EMS facility daily operations, coordination with site stakeholders took place prior to the session day, which greatly facilitated the process.

The barriers were addressed by incorporating the facilitating factors mentioned. The DNP student met with the site supervisor to coordinate the best dates for implementation and follow-up that accommodated the student schedule and had extra staff on board for the day. Selecting a day with more staff was one method used to decrease work-flow disruption due to the DNP project. The education intervention PowerPoint, pre-intervention PCL-5 and Brief-COPE assessments were also delivered in hourly “rounds,” so that EMS providers who wished to attend the session were able to take turns with one unit being taken “out of service” at a time. This allowed for less disruption to facility operations as well as interruptions to project activities. Multiple follow-up dates were also provided to accommodate participant schedules and to facilitate the odds that participants would be able to complete the post-intervention assessments.

Unexpected Findings

This DNP project anticipated that providing coping skills education would result in 50% of participants experiencing a 10-point reduction in PCL-5 scores. Although there was some reduction in PCL-5 scores, the reduction was not significant and did not reach the intended 10-point reduction. There are several factors that may have contributed to this unexpected finding. This could have been a result of the short duration of this DNP project. Perhaps a longer evaluation period greater than one month would have provided more definitive findings. The project findings did find a negative correlation between PCL-5 scores and Brief-COPE scores, so although the intervention improved coping, it may be that one education session was not enough

to yield a large effect on PTSD symptoms. An external factor may have been the level of trauma the participants experienced prior to the education session and around the time of post-intervention assessments. If the participant experienced relatively low trauma prior to the education, then had a particularly traumatizing experience the next month, the PCL-5 scores may have been impacted.

Process Evaluation Plan

The process of this DNP project generally followed the outlined course of action. A month was allotted for recruitment of participants and took place, as intended, in September, 2019. The education session was delivered in multiple sessions the same day the following month via a PowerPoint presentation. Pre-intervention assessments using PCL-5 and Brief-COPE were administered immediately before the education session. Post-intervention assessments took place approximately one month later, as intended. However, due to multiple sessions being required to maximize chances of participants returning for follow-up with no set times or knowing if participants would remember to come, follow-up was a challenge.

Should this project be implemented again, several changes would enable a smoother process. If one designated off-work time was coordinated for the education session and follow-up, a few issues could be circumvented. There would be no conflict with facility operations, negating the need for many sessions. One follow-up date with a set time would create a more straightforward process. It would provide clearer cut-off points for when post-intervention assessments would be concluded. Overall, although the activities involved in this DNP project were all accomplished, the process evaluation suggests that some improvements could certainly be made to better stream-line the critical components.

Implications/Recommendations

After evaluation of the project results and final outcome of this DNP project, several implications and recommendations can be made. These indications span clinical practice, healthcare policy, quality and safety, education, and economics. These implications are not only site specific, but can be applicable to comparable settings and populations. Each will be thoroughly explained below.

Clinical Practice

Currently, coping skills education for EMS is not standardized or incorporated into practice, as was evident from the literature review. However, findings from this DNP project provide evidence that the provision of coping skills education significantly improved positive coping among participants. Although the reduction of PTSD levels based on pre-intervention and post-intervention assessments were not statistically significant, the improvement in coping may implicate that participants are able to more adaptively cope with posttraumatic symptoms. This implication is further substantiated by the significant negative correlation found during data analysis between PTSD scores and coping. These findings support a recommendation of changing practice to provide coping skills education to EMS providers.

The findings from this DNP project on coping also reinforces recommendations from the NJ EMS Council. According to the *New Jersey Medical Services Psychological Support Guidelines*, all EMS agencies in New Jersey should have psychological services available for their employees (New Jersey EMS Council, 2017). These services should incorporate programs targeting stress and wellness, such as stress management and substance abuse (New Jersey EMS Council, 2017). The results of this project support these suggestions from the NJ EMS council, as it provided evidence that coping skills education can have a beneficial impact on the way EMS providers cope with traumatic stress.

Healthcare Policy

Based on the findings from this DNP project, the policy change recommended would be for coping skills education to be routinely provided to all EMS agency employees. As previously mentioned, coping skills education for EMS personnel are not currently provided in any consistent fashion, if at all.

From the needs assessment conducted for this project, this appears to be a common healthcare policy deficit throughout the U.S. According to a national survey in 2016, only 5% of EMS agencies had any resiliency programs in place (National Association of Emergency Medical Technicians, 2016). From this, it can be inferred that many EMS agencies have not yet adapted coping education into their healthcare policies.

Although this project did not demonstrate a significant reduction in PTSD scores, the improvement in positive coping suggests that the ability to cope with PTSD symptoms did change for the better. This postulates validation for the continued provision of coping education. The results of this project will be presented to the site hospital research department and the EMS facility supervisor and coordinator to encourage policy changes that will incorporate the provision of employee coping skills education.

Quality and Safety

There are implications for the healthcare quality and safety of EMS employees based on the results of this project. The significant increase in post-intervention Brief-COPE scores compared to those at pre-intervention indicate that after the coping skills education intervention, more participants utilized adaptive coping mechanisms. These findings implicate that participants are able to more effectively manage stressors after the intervention.

Previous research on active coping mechanisms have demonstrated an overall more positive view of one's own health and improved well-being (Arble & Arnetz, 2016). It is possible that the significant increase in adaptive coping after the project intervention may have similar implications for quality in terms of sense of well-being and more positive health outlook for participants.

The use of more adaptive coping also enhances safety, as these types of coping are generally safer than those considered maladaptive. One such example would be substance abuse, which is one of many examples of maladaptive coping that can have drastic negative consequences on an individual's safety (Arble & Arnetz, 2016). The positive effects adaptive coping can have in terms of quality and safety of employees supports continued coping skills education.

Education

There is a clear gap in coping skills education prior to the project intervention. This is supported by the previously mentioned survey conducted on a national level for EMS professionals, in which 95% of EMS facilities nationwide do not have resiliency programs or training readily provided to all of their employees (National Association of Emergency Medical Technicians, 2016). The pre-intervention Brief-COPE scores, especially compared to those at post-intervention, indicate that the current practice of not providing educational preparation in this regard is not effective in preparing EMS employees with effective coping skills. It also further highlights the gap in coping skills education.

The findings from this DNP project validate that providing coping skills education was effective due to statistically significant improvement in Brief-COPE scores. These findings can affect how EMS personnel can be educated on this subject. This implies that improvement in

positive coping among EMS employees can be achieved through coping skills education with methods such as the one employed for this project intervention.

Economic

Lastly, this project has economic implications as well. This intervention requires minimal cost to deliver. There are no specific tools or devices necessary, as this intervention can be delivered via a PowerPoint presentation and lecture. This was the method utilized for the project intervention, which demonstrated effectiveness with improving coping among participants.

This type of intervention also does not need to be delivered by a specifically trained or licensed professional. This allows coping skills education to be provided to EMS providers cost-effectively by an employee of the facility.

These two economic factors help negate any potential economic barrier to facilitating the incorporation of coping skills education into EMS facilities. This factor further eases the ability to address the deficits in this area described in the above sections. Due to the economic feasibility of coping skills education in addition to the already discussed supports, it is recommended that these educational resources for coping be customarily offered to all EMS professionals through their agencies.

Sustainability

After completion of the DNP project, the interventions can continue to be maintained. As previously discussed, the project findings indicate that providing coping skills education resulted in statistically significant increases in positive coping among participants. These results will be shared with the project site stakeholders and presented at the site hospital with the provided recommendation that the provision of coping skills education should be continued to maintain

the beneficial results from this project. This project sought to assess participants within various emergency medical service roles to broaden the applicability of the results beyond the project site. This enables some translation of the project findings to other EMS facilities, so that this intervention can be adopted for those settings as well.

Professional Reporting/Future Scholarship

A number of strategies will be employed by the DNP student to disseminate the project results. The DNP project final manuscript will be uploaded to the Rutgers University electronic repository and the final manuscript will be bound in accordance to project guidelines. A final project and poster presentation will also be conducted at Rutgers University and the project site hospital to share the results of the project as a means of professional reporting. A lecture on the DNP project will also be provided by the DNP student at a paramedic course as another method of reporting these findings to healthcare professionals in the emergency medical services field. After the conclusion of the DNP project, the DNP student intends to submit a manuscript of this project to relevant professional journals as a part of future scholarship.

Summary

PTSD among EMS personnel is a serious concern that needed to be addressed. This project sought to answer the question “Does the implementation of coping skills education decrease posttraumatic stress symptoms in EMS personnel in one month?” A quasi-experimental approach was applied to address the following project objectives: develop a coping skills education intervention for the EMS agency, provide the coping skills education intervention to project participants, and assess one-month post implementation, if significant changes from baseline occurred to indicate if providing coping skills education was effective in PTSD symptom reduction. Although the reduction in PTSD scores from pre- to post-intervention were

not statistically significant and the project did not achieve a 10-point reduction in PCL-5 scores among 50% of the participants, there was a significant improvement in adaptive coping among participants. There was also a significant negative correlation found between PTSD scores and coping in the post-intervention period. The findings from this DNP project stipulated that providing coping skills education can improve adaptive coping and implicated that continuing this intervention has positive merit.

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Table 1

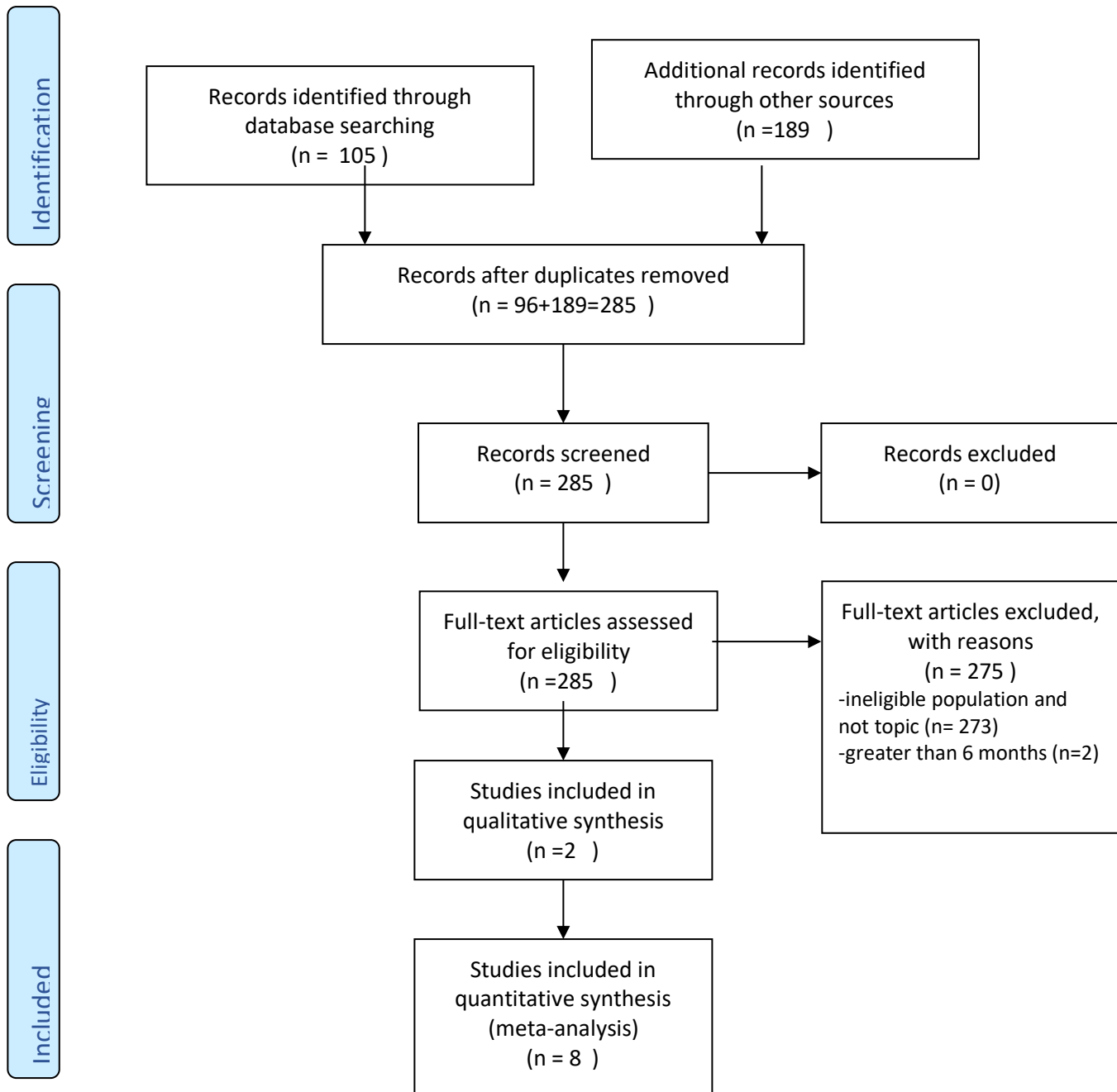
Demographic Data of Project Participants

						<u>Range</u>	
Variable	n	Mean	Median	SD	Potential	Actual	Skew
Gender:							
Male	23						
Female	6						
Transgender	1						
Age		40.93	40	10.017	18-100	26-60	.400
Years of Service		18.50	17.50	10.451	1-50	1-43	.472

Appendix A: PRISMA Flow Diagram



PRISMA 2009 Flow Diagram



Appendix B: Table of Evidence

EBP Question: “Does the implementation of coping skills education decrease acute stress or posttraumatic stress symptoms in EMS personnel in one month?”

P (population) = EMS personnel

I (intervention)= coping skills education

C (comparison)= no coping skills education

O (outcome)= decreased acute/post-traumatic stress symptoms

T (time)= one month

Article #	Author & Date	Evidence Type	Sample, Sample Size, Setting	Study findings that help answer the EBP Question	Limitations	Evidence Level & Quality
1	Eamonn Arble & Bengt B. Arnetz August 8 2016 Citation: Arble, E., & Arnetz, B. B. (2017). A model of first-responder coping: An approach/avoidance bifurcation. <i>Stress & Health: Journal of the International Society for the Investigation of Stress</i> , 33(3), 223-232. doi:10.1002/smi.2692	Quantitative	Sample: first responders (coast guard, customs control, military, emergency medical services, fire department and police services Sample size: 6240 Setting: 6 first responder agencies	Findings: -cumulative stress/trauma decreases well-being -these professions have frequent job exposure to trauma/stress and require coping skills that are effective and sustainable -approach style coping predictive of posttraumatic growth and wellbeing -avoidance coping associated with substance abuse and decreased well-being -avoidance coping may cause negative reinforcement like that of PTSD	-cross-sectional data → cannot determine causal relationships -scales used for survey internally consistent and valid, however may not be as thorough as measures that are more well-validated -some indirect effect coefficients were small but still hold statistical significance -response rate 60% which may underrepresent those lost to follow-up	Level: III Quality: A

				-avoidance is beneficial if used short term to offer time to recover.	-convenience sample used: different sizes among agency types and much smaller female to male ratio	
2	<p>Omar G. Gundino, J. Rebecca Weis, Jennifer F. Havens, Emily A. Biggs, Ursula N. Diamond, Mollie Marr, Christie Jackson, Marylene Cloitre</p> <p>August 27, 2014</p> <p>Citation: Gudiño, O. G., Weis, J. R., Havens, J. F., Biggs, E. A., Diamond, U. N., Marr, M., . . . Cloitre, M. (2014). Group trauma-informed treatment for adolescent psychiatric inpatients: a preliminary uncontrolled trial. <i>Journal of Traumatic Stress</i>, 27(4), 496-500. doi:10.1002/jts.21928</p>	Quantitative	<p>Sample: psychiatric inpatient adolescents age 12-17</p> <p>Sample Size: 38</p> <p>Setting: psychiatric inpatient unit at a NYC public hospital</p>	<p>Findings: lower PTSD and depression levels after brief group education intervention (average duration of 19 days)</p> <p>- no change in amount of coping skills utilized but improvement in efficacy of coping</p>	<p>Limitations: -cannot make definitive conclusions based on study design</p> <p>-variation in amount of sessions and when sessions were received during hospital stay (from beginning, middle, or toward end of stay).</p>	Level: II Quality: A
3	<p>Sara Jones 2017</p> <p>Citation: Jones, S. (2017). Describing the Mental Health Profile of First Responders: A Systematic Review [Formula: see text]. <i>Journal Of The American Psychiatric Nurses</i></p>	Quantitative	<p>Sample: databases (PubMed, CINAHL, PsychInfo)</p> <p>Sample Size: 27 database articles</p> <p>Settings: N/A (Systematic Review)</p>	<p>Findings: -20-22% rates of PTSD in urban paramedics (higher than general population)</p> <p>-provision of education and self-management strategies can reduce risk</p>	<p>Limitations: Studies used different assessment measures and combinations of psychiatric problems</p>	Level: II Quality: A

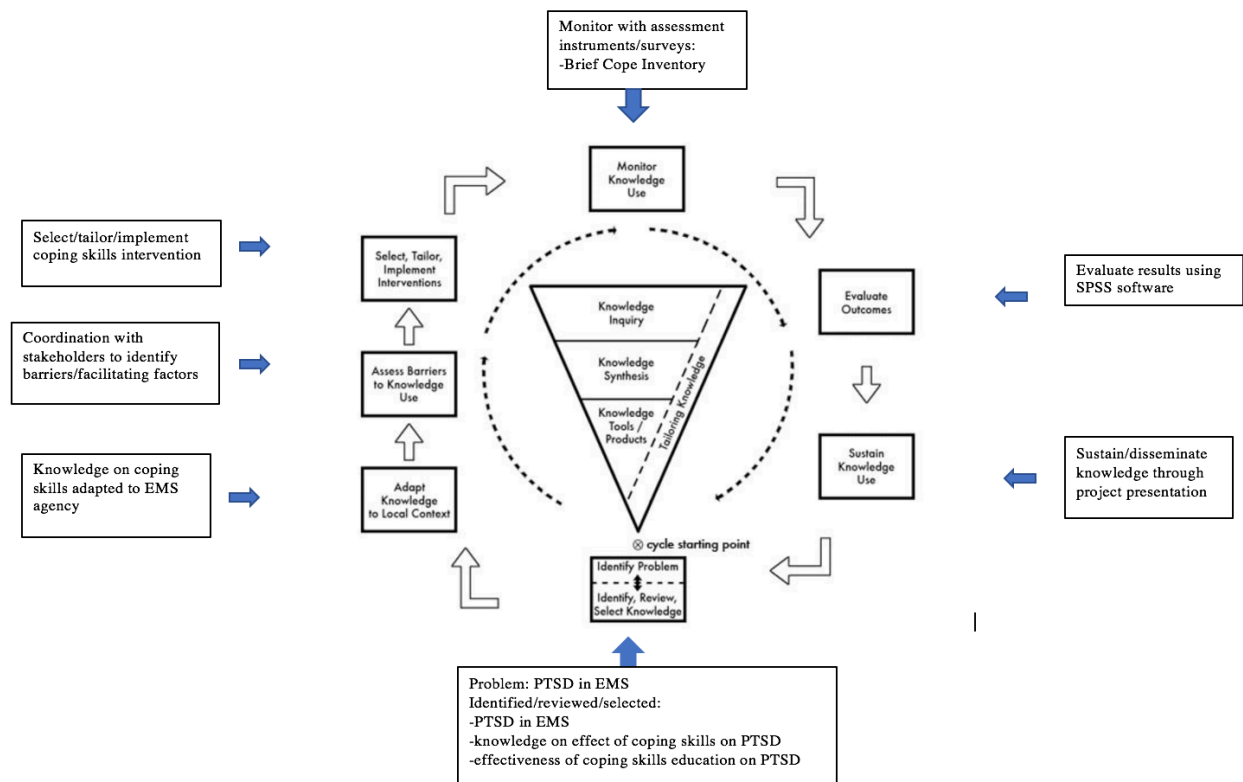
	Association, 23(3), 200-214. doi:10.1177/1078390317695266					
4	<p>Petrie, Katherine Milligan-Saville, Josie Gayed, Aimée Deady, Mark Phelps, Andrea Dell, Lisa Forbes, David Bryant, Richard A. Calvo, Rafael A. Glozier, Nicholas Harvey, Samuel B.</p> <p>June 5, 2018</p> <p>Citation: Petrie, K., Milligan-Saville, J., Gayed, A., Deady, M., Phelps, A., Dell, L., . . . Harvey, S. B. (2018). Prevalence of PTSD and common mental disorders amongst ambulance personnel: a systematic review and meta-analysis. <i>Social Psychiatry And Psychiatric Epidemiology</i>, 53(9), 897-909. doi:10.1007/s00127-018-1539-5</p>	Quantitative	<p>Sample: ambulance personnel</p> <p>Sample Size: 27 studies (total of 30,878 personnel)</p> <p>Setting: N/A (Systematic Review/Meta-Analysis)</p>	<p>Findings:</p> <ul style="list-style-type: none"> -Most common mental health result reported is PTSD -PTSD symptoms in > 1/10 ambulance personnel -evidence supports need for PTSD treatment because personnel studied were from daily events, not any specific event (like 911) -implications: need for ongoing measures for prevention and support and not just after critical events 	<p>Limitations: - included studies were cross sectional and cannot determine causality</p> <ul style="list-style-type: none"> -limited to English language studies -may be publication bias because smaller studies found higher prevalence rates 	Level: II Quality: A
5	<p>Christopher Menschner and Alexandra Maul</p> <p>April 2016</p> <p>Citation: Center for Health Care Strategies. (2016). Key ingredients for successful trauma-informed care implementation</p>	Qualitative	<p>Sample: N/A (issue brief)</p> <p>Sample Size: N/A (issue brief)</p> <p>Setting: health care sector</p>	<p>Findings:</p> <ul style="list-style-type: none"> -secondary traumatic stress can occur among healthcare personnel exposed to trauma/traumatized patients -consequences of secondary trauma: physical 	<p>Limitations: -this brief was a demonstration project meant for multiple sites, limiting the applicability to specific locations and populations</p>	Level: IV Quality: B

	<p>[Data file]. Retrieved from http://www.chcs.org/media/ATC_whitepaper_040616.pdf</p>			<p>illness, avoidance, absenteeism, emotional exhaustion/detachment, poor concentration, disturbing thoughts, chronic fatigue</p> <ul style="list-style-type: none"> -secondary traumatic stress prevention can improve staff morale, reduce staff turnover, and allow better staff functioning -encourage positive prevention strategies such as exercise and meditation and time off 		
6	<p>Petra M. Skeffington, Clare S. Rees and Trevor Mazzucchelli (2017)</p> <p>citation: Skeffington, P. M., Rees, C. S., & Mazzucchelli, T. (2017). Trauma exposure and post-traumatic stress disorder within fire and emergency services in Western Australia. <i>Australian Journal of Psychology</i>, 69(1), 20-28.</p>	Quantitative	<p>Sample: fire and emergency service workers</p> <p>Sample Size: 210</p> <p>Setting: Department of Fire and Emergency Services in Western Australia</p>	<p>Findings:</p> <ul style="list-style-type: none"> -population had higher exposure to trauma -higher reported rates of PTSD symptoms -maladaptive coping correlates with more symptoms of PTSD -adaptive coping less likely to result in PTSD symptoms -study indicates coping strategies would be beneficial for programs aimed at preventing PTSD (education on maladaptive and adaptive coping) 	<p>Limitations:</p> <ul style="list-style-type: none"> -participants may have minimized responses that were negative due to stigma or not wanting to portray profession negatively -used DSM-IV criteria because prevalence data based on DSM-IV (most recent version is DSM-V) 	<p>Level: III</p> <p>Quality: A</p>

7	<p>Salima Mansoor Kerai, Uzma Rahim Khan, Muhammad Islam, Nargis Asad, Junaid Razzak and Omrana Pasha</p> <p>(2017)</p> <p>citation: 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. <i>BMC Emerg Med</i>, 17(1), 26. doi:10.1186/s12873-017-0140-7</p>	Quantitative	<p>Sample: EMS personnel</p> <p>Sample size: 518</p> <p>Setting: EMS/ pre-hospital setting in Karachi, Pakistan</p>	<p>Findings:</p> <ul style="list-style-type: none"> -younger EMS personnel had higher PTSD symptom severity -dysfunctional coping/ avoidant coping correlated with higher PTSD symptomology -implicates need for coping skills and stress management education to prevent mental illness and its consequences in this population 	<p>Limitations:</p> <ul style="list-style-type: none"> -did not use clinician-based diagnostic interview -CAGE-AID tool is blunt, can determine if there is a problem with substances but cannot determine severity -may be underreporting do to mental health stigma 	<p>Level: III</p> <p>Quality: A</p>
8	<p>Nina Ogińska-Bulik, Magdalena Zadworna-Cieślak</p> <p>(2018)</p> <p>Citation: Oginska-Bulik, N., & Zadworna-Cieslak, M. (2018). The role of resiliency and coping strategies in occurrence of positive changes in medical rescue workers. <i>Int Emerg Nurs</i>, 39, 40-45. doi:10.1016/j.ienj.2018.02.004</p>	Quantitative	<p>Sample: medical rescue workers</p> <p>Sample Size: 80</p> <p>Setting: public emergency service centers in central Poland in the Lodz city region</p>	<p>Findings:</p> <ul style="list-style-type: none"> -active coping, religion, support seeking, distraction, and planning were associated with posttraumatic growth and not PTSD -avoidant strategies correlated with posttraumatic growth to greater extent than active coping 	<p>Limitations:</p> <ul style="list-style-type: none"> -small sample size -only men -stigma may affect accurate reporting from participants 	<p>Level: II</p> <p>Quality: A</p>

9	<p>Colleen E. Martin, Jana K. Tran, Sam J. Buser</p> <p>(2017)</p> <p>Citation: Martin, C. E., Tran, J. K., & Buser, S. J. (2017). Correlates of suicidality in firefighter/EMS personnel. <i>J Affect Disord</i>, 208, 177-183. doi:10.1016/j.jad.2016.08.078</p>	Quantitative	<p>Sample: fire fighter and EMS personnel</p> <p>Sample Size: 3036</p> <p>Setting: a large urban fire department</p>	<p>Findings:</p> <ul style="list-style-type: none"> -firefighters and EMS personnel exposed to trauma routinely as part of occupation -emotional support from peers is protective factor against suicidality -severity of PTSD associated with higher suicide risk 	<p>Limitations:</p> <ul style="list-style-type: none"> -did not use a measure for suicidality that was more standardized -used PCL-C (based on DSM-IV) instead of PCL-5 (based on DSM-5) -all participants performed both fire fighter and EMS duties 	<p>Level: III</p> <p>Quality: A</p>
10	<p>Laura Usher, Stephanie Friedhoff, Sam Cochran, and Anand Pandya</p> <p>(2016)</p> <p>citation: National Alliance on Mental Illness. (2016). Preparing for the unimaginable: How chiefs can safeguard officer mental health before and after mass casualty events. Washington, DC: Office of Community Oriented Policing Services.</p>	Qualitative	<p>Sample: N/A (educational guide)</p> <p>Sample size: N/A (educational guide)</p> <p>Setting: police organizations</p>	<p>Findings:</p> <ul style="list-style-type: none"> -long term effects of trauma include PTSD, alcoholism, and suicide -many negative outcomes can be prevented or decreased through resilience building within agencies, promotion of effective coping strategies, and proactive support -avoidant coping common but can have negative impacts if it continues -one recommendation for resilience building is providing in-service annually on healthy coping strategies 	<p>Limitations:</p> <ul style="list-style-type: none"> -focus is on police officers 	<p>Level: IV</p> <p>Quality: A</p>

Appendix C: Concept Map



(Field, Booth, & Gerrish, 2014)

Appendix D: Consent Form

Rutgers School of Nursing
Stanley S. Bergen Building
Rutgers, The State University of New Jersey
65 Bergen Street

CONSENT TO TAKE PART IN A RESEARCH STUDY

TITLE OF STUDY: Coping Skills Education to Reduce PTSD in EMS Providers

Principal Investigator: Lily Yang BSN, RN

STUDY SUMMARY: This consent form is part of an informed consent process for a research study and it will provide information that will help you decide whether you want to take part in this study. It is your choice to take part or not. The purpose of the research is to: examine if coping skills education given to EMS personnel will show a reduction in posttraumatic stress symptoms. If you take part in the research, you will be asked to complete an anonymous survey/questionnaire regarding coping and a PTSD assessment tool both before and after the education intervention. Your time in the study will take approximately 20 minutes for each survey questionnaire, 20 minutes for each assessment tool, and 30 minutes for the education intervention. The duration of the study is one month. There is a risk of psychological harm from participation in this study due to the use of a PTSD screening tool. Resources will be provided to you should any distress occur during the study. Participation will not have any impact on employment. Possible benefits of taking part may be improved knowledge on coping skills and how these skills can be used. Your alternative to taking part in the research study is not to take part in it.

The information in this consent form will provide more details about the research study and what will be asked of you if you choose to take part in it. If you have any questions now or during the study, if you choose to take part, you should feel free to ask them and should expect to be given answers you completely understand. After all of your questions have been answered and you wish to take part in the research study, you will be asked to sign this consent form. You are not giving up any of your legal rights by agreeing to take part in this research or by signing this consent form.

Who is conducting this research study?

Lily Yang is the Principal Investigator of this research study. She is a doctoral student attending Rutgers University in the psychiatric mental health nurse practitioner track. A Principal Investigator has the overall responsibility for the conduct of the research. However, there are often other individuals who are part of the research team. Lily Yang may be reached at [REDACTED].

The Principal investigator or another member of the study team will also be asked to sign this informed consent. You will be given a copy of the signed consent form to keep.

Why is this study being done?

The purpose of this study is to assess the effectiveness of coping skills education in decreasing symptoms of posttraumatic stress in EMS personnel.

Who may take part in this study and who may not?

All EMTs, paramedics, dispatchers, EMS supervisors, and rescue workers, including those involved in the helicopter flight team and critical care transport are welcome to participate. Firefighters, police officers, and registered nurses will not be included in this study.

Why have I been asked to take part in this study?

If you are asked to participate in this study, you meet the participant requirements outlined above.

How long will the study take and how many subjects will take part?

The duration of the study is one month. During the education session, participants will be asked to complete an anonymous survey/questionnaire which will take approximately 20 minutes. Participants will also be asked to complete a PTSD screening tool which will also take approximately 20 minutes. Then, the primary investigator will provide a 30-minute coping skills education session. One month later, participants will be followed-up to complete another 20-minute survey-questionnaire and 20-minute PTSD screening tool. This study is looking to recruit a minimum of 30 participants.

What will I be asked to do if I take part in this study?

Should you participate in this study, you will be asked to attend the education session on coping skills and return for the follow-up session in one month. Both the education session and follow-up session will take place at [REDACTED]. You will be asked to complete an anonymous survey/questionnaire and PTSD screening tool both before the education session and during the follow-up session. The education session will be presented via a PowerPoint presentation covering the following information: the importance of coping skills, the differing types of coping, and specific coping mechanisms that fall into the differing types. The anonymous survey/questionnaire that will be administered is called the Brief-COPE Inventory, which will ask you to rate 28 items based on how much or how frequently you use that specific method of coping. The PTSD screening tool that will be given to you is called PTSD Checklist-5 (PCL-5). This is a self-administered assessment tool which will ask you to rate 20 questions detailing responses that may occur due to a stressful situation based on how much that question has affected you in the past month.

What are the risks and/or discomforts I might experience if I take part in this study?

There will be no negative consequences in regards to employment from participation in this study. The only personal information needed for the study are participant initials in order to compare before and after intervention results. This poses minimal risk as efforts will be

exercised to protect participant confidentiality. Personal health information collected via surveys/questionnaires and screening tools will be randomly assigned a number so that this information can be reviewed without links to you. The list linking participant initials to their randomly assigned number will only be accessible by the primary investigator.

There is a potential risk of psychological harm from participation in this study due to the use of a PTSD screening tool, which may trigger painful and/or distressing memories. Resources will be available to you should any distress occur. [REDACTED] resources available include: EAP Crisis available at [REDACTED] Monday-Friday from 08:30-17:00. The National Suicide Prevention Lifeline is 1-800-327-3678. Rutgers Crisis Clinic is also available for more advanced assessments at 973-972-6100 and are located at 183 South Orange Ave. Newark, NJ 07102. In an emergent situation, the primary investigator will call 911.

Are there any benefits to me if I choose to take part in this study?

The benefits of taking part in this study may be improved knowledge of coping skills and how to use these skills. However, it is possible that you may not receive any direct benefit from taking part in this study.

What are my alternatives if I do not want to take part in this study?

Your alternative is not to take part in this study.

How will I know if new information is learned that may affect whether I am willing to stay in the study?

During the course of the study, you will be updated about any new information that may affect whether you are willing to continue taking part in the study. If new information is learned that may affect you after the study or your follow-up is completed, you will be contacted.

Will there be any cost to me to take part in this study?

There will be no cost to participate in the study.

Will I be paid to take part in this study?

You will not be paid to take part in this study.

How will information about me be kept private or confidential?

All efforts will be made to keep your personal information in your research record confidential, but total confidentiality cannot be guaranteed. Each participant will be given a randomly assigned number that will correspond to the participant's initials (kept on a single document). This data is necessary to ensure that the same numbers are used on the before and after survey/questionnaires and PTSD screening tools. Only the primary investigator will have access to this document.

What will happen to my information collected for this research after the study is over?

The information collected about you for this research will not be used by or distributed to investigators for other research.

What will happen if I do not wish to take part in the study or if I later decide not to stay in the study?

It is your choice whether to take part in the research. You may choose to take part, not to take part or you may change your mind and withdraw from the study at any time.

If you do not want to enter the study or decide to stop taking part, your employment status with [REDACTED] will not change, and you may do so without penalty and without loss of benefits to which you are otherwise entitled.

You may also withdraw your consent for the use of data already collected about you, but you must do this in writing to Lily Yang at [REDACTED].

Who can I call if I have questions?

If you have questions about taking part in this study or if you feel you may have suffered a research related injury, you can contact the study investigator: Lily Yang at [REDACTED]

If you have questions about your rights as a research subject, you can call the IRB Director at: (973)-972-3608 or the Rutgers Human Subjects Protection Program at (973) 972-1149.

AGREEMENT TO PARTICIPATE**1. Subject consent:**

I have read this entire consent form, or it has been read to me, and I believe that I understand what has been discussed. All of my questions about this form and this study have been answered. I agree to take part in this study.

Subject Name: _____

Subject Signature: _____ Date: _____

2. Signature of Investigator/Individual Obtaining Consent:

To the best of my ability, I have explained and discussed all the important details about the study including all of the information contained in this consent form.

Investigator/Person Obtaining Consent (printed name): _____

Signature: _____ Date: _____

Appendix E: Recruitment Flyer

Research Study Participants Needed Coping Skills Education to Reduce PTSD in EMS Providers

Participation in this research study is completely voluntary.

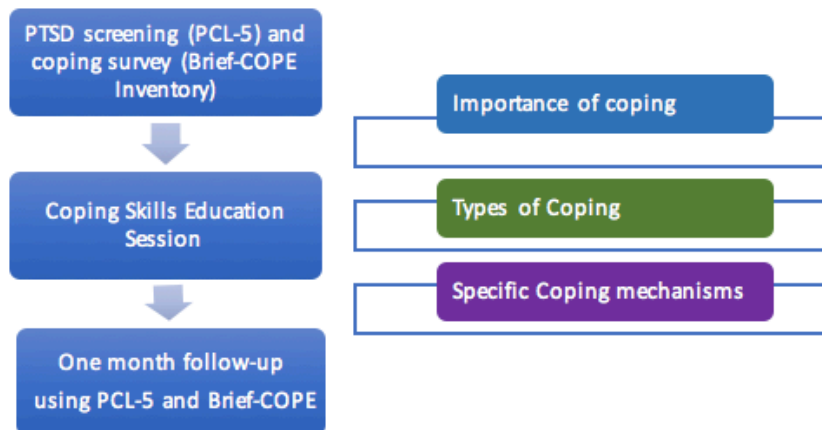
Who is eligible to participate? All EMTs, paramedics, dispatchers, EMS supervisors, or rescue worker are welcome to participate in this education session on coping skills.

Type of research study: This is a research study conducted by a psychiatric mental health nurse practitioner track DNP student (the principal investigator) for their DNP project.

Research study purpose: This study is trying to discover if coping skills education will decrease PTSD symptoms in EMS.

Interventions for this study:

Learning Objectives of Education Session:



Time Needed:

- ❖ Education session: Total of 1 hour and 10 minutes (20 minutes per assessment tool and 30 minutes for education session)
- ❖ Follow-up in one month: Total of 40 minutes (20 minutes per assessment tool)

Project benefits: Free coping skills education session and assessments.

Light refreshments will be served during the education session.

Location of education session and follow-up: [REDACTED]

Date: TBA

For more information contact the principal investigator:

Lily Yang

65 Bergen St. Newark, NJ 07107

RUTGERS

Rutgers School of Nursing
Stanley S. Bergen Building
Rutgers, The State University of New Jersey
65 Bergen Street
Newark, NJ 07101-1709

6-28-19: Version 3

Appendix F: Brief-COPE Inventory

Rutgers School of Nursing
Stanley S. Bergen Building
Rutgers, The State University of New Jersey
65 Bergen Street
Newark, NJ 07101-1709

Brief COPE

There are many ways to try to deal with problems. These items ask what you've been doing to cope with this one. Obviously, different people deal with things in different ways, but I'm interested in how you've tried to deal with it. Each item says something about a particular way of coping. I want to know to what extent you've been doing what the item says. How much or how frequently. Don't answer on the basis of whether it seems to be working or not-just whether or not you're doing it. Use these response choices. Try to rate each item separately in your mind from the others. Make your answers as true FOR YOU as you can.

1 = I haven't been doing this at all 2 = I've been doing this a little bit 3 = I've been doing this a medium amount 4 = I've been doing this a lot

1. I've been turning to work or other activities to take my mind off things.
2. I've been concentrating my efforts on doing something about the situation I'm in.
3. I've been saying to myself "this isn't real."
4. I've been using alcohol or other drugs to make myself feel better.
5. I've been getting emotional support from others.
6. I've been giving up trying to deal with it.
7. I've been taking action to try to make the situation better.
8. I've been refusing to believe that it has happened.
9. I've been saying things to let my unpleasant feelings escape.
10. I've been getting help and advice from other people.
11. I've been using alcohol or other drugs to help me get through it.
12. I've been trying to see it in a different light, to make it seem more positive.
13. I've been criticizing myself.
14. I've been trying to come up with a strategy about what to do.
15. I've been getting comfort and understanding from someone.
16. I've been giving up the attempt to cope.
17. I've been looking for something good in what is happening.

18. I've been making jokes about it.
19. I've been doing something to think about it less, such as going to movies, watching TV, reading, daydreaming, sleeping, or shopping.
20. I've been accepting the reality of the fact that it has happened.
21. I've been expressing my negative feelings.
22. I've been trying to find comfort in my religion or spiritual beliefs.
23. I've been trying to get advice or help from other people about what to do.
24. I've been learning to live with it.
25. I've been thinking hard about what steps to take.
26. I've been blaming myself for things that happened.
27. I've been praying or meditating. 2
8. I've been making fun of the situation.

(Carver, 1997)

Appendix G: PCL-5



Rutgers School of Nursing
Stanley S. Bergen Building
Rutgers, The State University of New Jersey
65 Bergen Street
Newark, NJ 07101-1709

PTSD Checklist (PCL) - 5

Name: _____

Date: _____

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

In the past month, how much were you bothered by:	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing, and unwanted memories of the stressful experience?	0	1	2	3	4
2. Repeated, disturbing dreams of the stressful experience?	0	1	2	3	4
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	0	1	2	3	4
4. Feeling very upset when something reminded you of the stressful experience?	0	1	2	3	4
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	0	1	2	3	4
6. Avoiding memories, thoughts, or feelings related to the stressful experience?	0	1	2	3	4
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	0	1	2	3	4
8. Trouble remembering important parts of the stressful experience?	0	1	2	3	4
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	0	1	2	3	4
10. Blaming yourself or someone else for the stressful experience or what happened after it?	0	1	2	3	4
11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?	0	1	2	3	4
12. Loss of interest in activities that you used to enjoy?	0	1	2	3	4
13. Feeling distant or cut off from other people?	0	1	2	3	4
14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	0	1	2	3	4
15. Irritable behavior, angry outbursts, or acting aggressively?	0	1	2	3	4
16. Taking too many risks or doing things that could cause you harm?	0	1	2	3	4
17. Being "superalert" or watchful or on guard?	0	1	2	3	4
18. Feeling jumpy or easily startled?	0	1	2	3	4
19. Having difficulty concentrating?	0	1	2	3	4
20. Trouble falling or staying asleep?	0	1	2	3	4

Total _____

(VISN 4 MIRECC, n.d).

Appendix H: Project Timeline

Completion Date	Planning	Pre-intervention	Implementation	Evaluation
Fall 2018 December	PICO Development			
Spring 2019 January	Meeting with DNP Chair and Team member			
Spring 2019 January	Meet with Stakeholders/ Site Letter of Cooperation			
Spring 2019 January-April	Proposal Development			
Spring 2019 April	Development of Education session materials			
Spring 2019 April	Presentation of Proposal to DNP team			
Spring 2019 May		IRB submission		
Fall 2019 September			Recruitment of study participants (one month)	
Fall 2019 October			Data collection: Pre-intervention assessment (Brief-COPE and PCL-5)	
Fall 2019 October			Intervention Implementation: Coping skills education session	

Fall 2019 November			Data collection: Post-intervention assessment (Brief-COPE and PCL-5)	
Fall 2019 November				Data analysis
Fall 2019 November- December				Evaluation/Final Writing
Spring 2020 January				Presentation of final project/Dissemination
Spring 2020 May				Graduation

Appendix I: Resources Needed/Budget

Expenses	Cost	Total Cost
Recruitment Flyers	50 @ \$0.15 each	\$7.50
Consent forms	50 @ \$0.15 each	\$7.50
Light Refreshments	\$30	\$30.00
Copies of Assessment Tools	100 @ 0.15 each	\$15.00
SPSS Software	\$60	\$60.00
Binding of Final Project	5 copies @ \$15 each	\$75.00
Dissemination Posters	\$75	\$75.00
Total Budget		\$270.00

Appendix J: Site Letter of Cooperation

Date: *February 20, 2019*

Re: Letter of Cooperation For:



Dear Lily Yang,

This letter confirms that I, as an authorized representative [REDACTED] [REDACTED] allow the Principal Investigator access to conduct study related activities at the listed site(s), as discussed with the Principal Investigator and briefly outlined below, and which may commence when the Principal Investigator provides evidence of IRB approval for the proposed project.

- **Research Site(s):** [REDACTED]
[REDACTED]
- **Study Purpose:** The purpose of this study is to provide coping skills education to EMS personnel to decrease symptoms of PTSD.
- **Study Activities:**
 - Pre-intervention PTSD screening using PCL-5 checklist and assessment of coping using Brief-COPE Inventory
 - Provide education on coping skills
 - Ask participants to use coping skills taught for one month duration
 - Second PTSD checklist and Brief-COPE Inventory will be conducted to assess effectiveness of intervention one month later
- **Subject Enrollment:**
 - Sample target: minimum 30 participants
 - Inclusion criteria:
 - EMTs, paramedics, dispatchers, EMS supervisors, rescue workers
 - EMS personnel involved in helicopter flight team and critical care transport (except those meeting exclusion criteria stated below)
 - Exclusion criteria:
 - Fire fighters, police officers, RNs
- **Site(s) Support:** [REDACTED] research primary points of contact will be [REDACTED]
[REDACTED] Using our present reporting

and referral measures for employees that may qualify for study, will provide work space and computer access when needed, and will work directly with principal investigator with other study related tasks. This includes assistance in dissemination of study questionnaires and assistance in identifying employees for focus group representation of various disciplines.

- **Data Management:**

- Pre-intervention and post-intervention survey/questionnaire (Brief-COPE Inventory) and PCL-5 checklist screening will be administered without using participant identifiers. Each participant will be randomly assigned a number to correspond to pre/post-intervention results.
- The document linking participant initials to participant number will be stored in a locked drawer only accessible by investigator.

- **Anticipated End Date:** The anticipated end date will be December 2019.

We understand that this site's participation will only take place during the study's active IRB approval period. All study related activities must cease if IRB approval expires or is suspended. I understand that any activities involving Personal Private Information or Protected Health Information may require compliance with HIPAA Laws and Rutgers Policy.

Our organization agrees to the terms and conditions stated above. If we have any concerns related to this project, we will contact the Principal Investigator. For concerns regarding IRB policy or human subject welfare, we may also contact the Rutgers IRB (see orra.rutgers.edu/hspp).

Regards,



February 20, 2019

Signature

Date Signed



EMS Coordinator

Full Name

Job Title