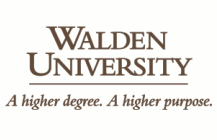

2019

Negative Appraisal Correlation to PTSD Symptoms Among Law Enforcement Officers

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
2019

Abstract

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by

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MS, Walden University, 2013

BS, Walden University, 2011

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Psychology

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Abstract

Law enforcement officers are exposed to traumatic events through their daily work responsibilities. Traumatic events have increased within recent decades and can have long-term and critical outcomes on officers such as health concerns, long-term psychological issues, social impairment, and work performance. Thus, this quantitative study was conducted to explore negative appraisals of cumulative traumatic events and their relation to post-traumatic stress disorder (PTSD) symptoms in law enforcement officers. Based on the theoretical framework for the study, Ehlers and Clark's cognitive model, negative appraisals involve how an individual interprets a situation, negative appraisals of traumatic events lead to maladaptive behavior and the inability to cope causes persistent PTSD symptoms. Investigative and patrol law enforcement officers from central Florida completed surveys based on cumulative trauma, negative appraisals, and post-traumatic stress symptoms. Results of multiple regression analysis and Pearson's correlation coefficient indicated that cumulative trauma did not predict negative appraisals; however, cumulative trauma and negative appraisals significantly predicted PTSD symptoms. This study can enhance positive social change by encouraging future studies on cognitive processing and the development of specialized prevention and intervention protocols to assist in diminishing long-term effects of traumatic events.

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Dedication

To my Lord and Savior Jesus Christ, I owe everything. You pushed me forward into the abyss of the unknown, while watching me kick and scream with hesitation. You blessed me with higher abilities and strength that showed up like a new friend during this journey. You provided miracles and endurance in ways I could never have imagined. I am so glad you never gave up on me and continued to meet all my needs.

My love, trust, and reverence for the Lord has grown beyond measure. I can rest and lay down my sword in victory – for His glory.

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With eternal gratitude, thank you Dr. Kristen Beyer for keeping your hand firmly on my back and making sure I stood tall through it all. Your support, guidance, and positive words were nourishment to my soul.

For the two angels who were strategically placed in my path, Dr. Victoria Meyer and Theresa Wood, thank you for your everlasting friendship and support during this fascinating and often perplexing journey. I love you both dearly and your shared success has been the birth of my success and I am eternally grateful.

For my precious parents who waited patiently for the completion of this journey, but went home to the Lord before its conclusion. I was born a week late, so I am sure it is no surprise to see I am still running late. Love you both to infinity.

For my special friends and extended family who completed the circle of encouragement and confidence, thank you for your belief in me and support through the most stressful of times. I promise I will not put you through this again.

"A brilliant mind never rests, but ascends into a state of consciousness that reveals truth"

-Ginger L. Jenkins, 2015

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Chapter 1: Introduction to the Study

Exposure to traumatic events often leaves law enforcement officers searching for meaning. Cognitive behavioral theorists believe that this process allows individuals to appraise the situation and adapt to the adversity (Park, Mills, & Edmondson, 2012). However, appraisal of adverse events throughout life can affect emotional response, capacity to cope, and ability to adapt during intense stress (Gonzalez-Prendes & Resko, 2012).

I hypothesized that negative appraisal, an officer' s interpretation of a traumatic event, directly relates to presenting PTSD symptoms. Empirical research supports the theory that exposure to traumatic events promotes PTSD symptoms in law enforcement officers (Chopko, Palmieri, & Adams, 2015; Colwell, Lyons, Bruce, Garner, & Miller 2011; Cortez & Ball, 2014; Monson, Paquet, Daniel, Brunet, & Caron, 2016). However, over the past decade, minimal studies have addressed the relationship between negative appraisal and increased post-traumatic stress symptoms within this population (Galatzer-Levy et al., 2013).

Exposure frequency and prevalence of PTSD for law enforcement officers necessitates the need to reduce and/or prevent the negative effects of trauma by identifying cognitive processes and behavioral traits that can be modified through training and intervention (Wild et al., 2016). Trauma exposure presents a variety of short and long-term effects as well as a varying severity of impairment (Hartley, Sarkisian, Violanti, Andrew, & Burchfiel, 2013). For example, Colwell et al. (2011) found that

officer's involvement in shooting incidents or near-death encounters were four times more likely to present with PTSD symptoms, and five times more likely to exhibit PTSD symptoms when responding to deadly traffic accidents. Moreover, behavioral traits can help predict the likelihood of PTSD symptoms; resilience, extraversion, agreeableness, conscientiousness and openness to experience reduce risk of PTSD symptoms (Jakšić, Brajkovic, Ivezic, Topic, & Jakovljevic, 2012; McCanlies, Mnatsakanova, Andrew, Burchfiel, & Violanti, 2014), whereas low self-esteem, inability to cope with factors related to stress, and negative life satisfaction increase the risk of developing PTSD (McCanlies et al., 2014).

The aim of the current study was to explore the relationship between negative appraisals by law enforcement officers and symptoms associated with PTSD. This study addresses the need to better understand negative appraisal predictors related to trauma regarding self, worldviews, and thoughts associated with self-blame. Understanding the dynamics of emotional processing of stressful traumatic events and associated triggers that law enforcement officers encounter more frequently than other occupations can assist the development of training methods and advanced screening tools for psychological and physiological well-being. Although there is no control over frequent exposure to trauma, law enforcement officers can be equipped with quality cognitive and emotional training to limit the effects of PTSD symptoms and enhance job performance. The study may provide information that can help develop prevention and intervention protocols to assist in diminishing long-term effects of traumatic events.

This chapter provides the background and statement of the problem that precipitates this study, including current limitations to research on the study topic. Also discussed is the purpose of the study, hypotheses, and research questions. The theoretical framework, including a brief overview of cognitive-behavior theory, emotional processing theory, cognitive appraisal theory, and cognitive theory model are also presented and explained. Further discussion of the nature of this study includes methodology and data analysis, key term definitions, significance of the study, followed by scope, delimitations, limitations, and assumptions.

Background

Continued exposure to dangerous and life-threatening traumatic events directly impact law enforcement officers' physiological and psychological well-being (Colwell et al., 2011), and there is an increased risk of post-traumatic stress disorder (PTSD) symptoms in this population due to prolonged exposure (Berger et al., 2012; Carlson et al., 2016; Chopko, Palmieri, & Adams, 2017; Colwell et al., 2011; Park, et al., 2012). For instance, Berger et al. (2012) found that in a sample of rescue workers, 10% presented with PTSD symptoms. Similarly, Colwell, Lyons, and Garner (2012) indicated that prevalence of PTSD for law enforcement officers ranged from 7% to 26%. Nonetheless, researchers have identified predictive factors or characteristics that contribute to making this population a more resilient group (Colwell et al., 2012).

Appraisal is one of the factors that can affect development of PTSD symptoms. Negative appraisals of life and worldviews prior to trauma exposure increase the

development of PTSD symptoms (Yuan et al., 2011). Additionally, cognitive appraisals impact the functioning and overall well-being of officers following trauma exposure, more so than years of service or trauma severity (Colwell et al., 2011). Substantial differences also exist between post-trauma appraisals based on type of exposure; exposure type can be categorized as either (a) direct or experiencing life threat to self or (b) indirect or witnessing life threat or harm to others (Chopko et al., 2017). Additionally, although both law enforcement officers and military personnel experience direct and indirect exposure on a continued basis (Chopko et al., 2017), military training better prepares personnel to deal with stressful circumstances (Hartley, Violanti, Mnatsakanova, Andrew, & Burchfiel, 2013, p. 335). Further, cognitive appraisal of self and world are often determinant factors in adapting and coping with continued exposure (Chopko et al., 2017). Personality characteristics allow professionals to appraise and assess the trauma, regarding well-being and ability to cope (Colwell et al., 2011).

The effects of trauma exposure and increased symptoms of PTSD in law enforcement officers have been well documented in prior research (Chopko et al., 2015, 2017; Colwell et al., 2012; Hartley et al., 2013). Over the past decade, studies have identified frequency and severity of traumatic events as indicators of predicting levels of PTSD symptoms (Chopko et al., 2017; Galatzer-Levy et al., 2013). However, research concentrated on negative appraisal of an adverse event and its relation to symptoms of PTSD for this population is limited.

Continued daily exposure to traumatized victims and circumstances beyond their control can obstruct a law enforcement officer's decision-making and judgment skills. Law enforcement officers maintain dual roles in the community as citizens and enforcers of law. These roles are developed through community relationships, work-related conflicts, and organizational structures. Social stressors along with organizational stress often taxes positive coping skills for law enforcement officers, which can increase the risk of PTSD symptoms when exposed to traumatic events (Finklestein, Stein, Greene, Bronstein, & Solomon, 2015). Further, anxiety, depression, and other symptoms of PTSD affect law enforcement officers work performance (Finklestein et al., 2015). Poor work performance and negative coping skills have been found to be predictive factors attributing to PTSD trauma (Craun, Bourke, Bierie, & Williams, 2014). These job-related consequences influence the efficiency of services provided by law enforcement officers.

Despite the research substantiating the relationship between PTSD and a traumatic event, not everyone subjected to a traumatic event presents with PTSD symptoms (Colwell et al., 2011). Underlying factors, inherent and intrinsic, determine how an officer processes and attaches meaning to the event. The cognitive processing of a traumatic event in terms of significance and meaning was best described by Lazarus's (1966) cognitive appraisal theory. Based on this theory, individuals' process the effects of the trauma as it relates to their personal well-being (primary) and ability to cope (secondary; Park et al., 2012).

In this study I sought to understand the relationship between negative appraisal of traumatic events and its effect on PTSD symptoms in law enforcement officers. Prior research provided the foundation to explore the topics found in this dissertation. As exposure to traumatic events increase, PTSD symptoms in law enforcement officers also increase (Chopko et al., 2015, 2017; Hartley et al., 2013). Having a better understanding of the predictive variables as well as other risk factors that affect negative appraisals and promote PTSD symptoms can assisted in developing better training programs, clinical interventions, and assessment protocols tailored to specific needs rather that an "one size fits all" approach (Colwell et al., 2011).

Problem Statement

The problem addressed in this study is that little is known about the relationship between negative appraisal of traumatic events and its effects on PTSD symptoms in law enforcement officers, and research on this topic is limited. Research has focused on the cause of PTSD in populations of traumatized individuals such as abuse survivors, natural disaster victims, and war veterans (Berger et al., 2012), but research concerning cognitive appraisals and PTSD within the law enforcement population lacks substance (Grupe, Wielgosz, Davidson, & Nitschke, 2016; Kilpatrick, Badour, & Resnick, 2017). The inability to discover current literature on this topic is indicative of the importance of this study. For example, to provide a foundation for this study, current research dates back 6 to 7 years. Negative appraisals and cognitive processing research was prolific more than a decade ago, but it addressed the needs of mental health workers and emergency

healthcare providers (Oliver & Brough, 2002). However, relevant research on cognitive functioning and appraisal in law enforcement professionals has indicated the stress and underlying factors that increase the risk of developing PTSD (Colwell et al., 2011), which can include negative coping strategies (Colwell et al., 2012). Since then, negative appraisal of traumatic events has received little consideration for first responder service agencies, particularly this subgroup (Craun et al., 2014). Thus, a better understanding of primary and secondary appraisals as they relate to interpretation and coping strategies associated with increased PTSD symptoms could assist in limiting the effect. Research analyzing these variables contributes to both physical and psychological well-being for law enforcement officers.

It is important to address the adversity from exposure to traumatic events for law enforcement officers. The level of stress and repeated exposure associated with this occupation taxes the ability to cope (Colwell et al., 2011). Increased mental and emotional processing may cause fatigue, resulting in inadequate functioning. Additionally, not being able to predict or avoid futures events as well as organizational structure and lack of social support may affect ability to deal with trauma. With mass violence occurring more frequently, this research is necessary. This research could help identify negative factors related to increased PTSD symptoms in addition to protective factors that promote resiliency (Yuan et al., 2011), which can be used to develop interventions for stress and PTSD symptoms. Enhanced job performance and increased career longevity for law enforcement officers will positively affect services offered to the

public during an emergency. Better well-being for law enforcement officers helps them protect families, homes, businesses, and livelihoods.

Purpose of the Study

The purpose of this quantitative study was to explore the relationship between law enforcement officers' negative appraisal of cumulative traumatic events and PTSD symptoms by analyzing collected survey data. The independent variables included demographic variables as well as cumulative traumatic events (i.e., type, frequency, and severity) and negative appraisals associated with assumption of self, worldview, and self-worth. Dependent variables included symptoms of PTSD in correspondence with the modified fifth version of the DSM (Sveen, Bondjers, & Willebrand, 2016). Intrusion, avoidance, negative alterations in mood and cognition, and arousal and reactivity alterations were assessed through the Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5), a self-report instrument (Sveen et al., 2016).

Research Questions and Hypotheses

This research was designed to explore factors of world assumptions related to negative appraisals of traumatic events and the relationship to PTSD symptoms in law enforcement officers. The World Assumptions Scale (WAS), Critical Incident History Questionnaire (CIHQ), and the PCL-5 were used to investigate this topic. Therefore, the research questions and hypotheses tested consisted of the following:

Research Question 1: Do cumulative traumatic events predict negative appraisals in law enforcement officers?

$H_0$1: Cumulative traumatic events do not predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and World Assumptions Scale (WAS).

$H_1$1: Cumulative traumatic events predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and World Assumptions Scale (WAS).

Research Question 2: Do cumulative traumatic events and negative appraisals (self, world, worth) of traumatic events predict PTSD symptoms in law enforcement officers?

$H_0$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do not predict PTSD symptoms in law enforcement officers as assessed the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

$H_2$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do predict PTSD symptoms in law enforcement officers as assessed by the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

Theoretical Framework

I used Ehlers and Clark's (2000) cognitive model of PTSD to explain common reactions to a traumatic event. Not everyone develops PTSD after experiencing a traumatic event; however, based on Foa et al.'s (2006) emotional processing theory,

when individuals are unable to emotionally process the trauma and its effects, PTSD symptoms increase due to sense of current danger and subsequent anxiety (Ponnamperuma & Nicolson, 2016). Moreover, continued maladaptive behavior and cognitive processing suppresses the feelings and limits the ability to modify the negative appraisals and trauma memory, thus increasing PTSD symptoms (Ponnamperuma & Nicolson, 2016).

Due to the frequency of traumatic events experienced by law enforcement officers, it is necessary to understand their cognitive processing both before and after an event. How they process and attribute meaning following an event often determines the likelihood of presenting PTSD symptoms. Based on Ehlers and Clark's (2000) cognitive model, negative appraisal of traumatic events causes a perceived threat to self as well as discrepancies in how meaning is associated with worldviews (as cited in Park et al., 2012). Relying on the theoretical foundation of the cognitive model, I was able to explore responses from law enforcement officers' pre- and post-trauma and identify both positive and negative effects limiting and causing PTSD symptoms, respectively.

The cognitive model incorporates Lazarus's (1966) concept of cognitive appraisal, referring to an individual's subjective "interpretation of a situation that influences the extent to which the situation is perceived as stressful" (Campbell, Johnson, & Zernicke, 2013, p. 442). Based on this theory, the process includes a primary appraisal of the situation to determine the meaning of the situation itself and whether it is an opportunity or a threat. The secondary appraisal addresses the feelings attached to the

stressor and the ability to cope or take advantage of the situation (Campbell et al., 2013). Lazarus and Folkman (1984) also developed the cognitive–relational theory to explain the process of subjective reasoning and appraisal to determine significance and relevance of the trauma and coping strategies (Oliver & Brough, 2002). This cycle is a pattern of subjective appraisals of external stress that work with internal coping strategies to mediate the related emotional stress (Oliver & Brough, 2002).

Based on the cognitive model theory, appraisal of trauma, which is perceived as a current or continued threat, and/or create stress and anxiety, lead to persistent symptoms of PTSD in many individuals (Ponnamperuma & Nicolson, 2016). The theory tries to explain why some individuals present with PTSD symptoms, whereas others adapt to the stress, process the thoughts and feelings, and move on. However, determining specific factors is difficult because there is a variety of known risk factors associated with both the development of negative appraisals and PTSD symptoms such as personality traits associated with resiliency that have had both positive and negative effects (Yuan et al., 2011). Further, positive social support contributes to resiliency, whereas low social support relates with PTSD (Yuan et al., 2011). Both predictive and protective risk factors were accounted for in this study.

Chapter 2 provides a more thorough understanding of the theoretical framework and hypotheses of this study. The chapter provides prior research based on the use of the theories, with any similarities noted. Moreover, the rationale for the selection of the

theory is offered as well as how the research questions relate and provide substance to the prior theories.

Nature of Study

Although there are several research methods used in psychology, a nonexperimental predictive correlational design best fit the needs of this study. Furthermore, a positivistic approach to this quantitative study meant that the relationship of the phenomena is best understood through an objective perspective (Gelo, Braakmann, & Benetka, 2008). In using a quantitative paradigm for this study, I was able to test hypotheses and confirm or reject them. Therefore, the goal of this correlational research design was to determine the extent to which the independent and dependent variables within this study relate through multiple regression analysis. The independent variables included demographic variable, exposure to traumatic events, and negative appraisal (self, worldview, and self-worth). The dependent variables were symptoms of avoidance, intrusion, cognitive and mood alterations and reactivity and arousal differences related to DSM-V criteria. Additionally, covariate variables may exist; however, they were not identified.

Through cross-sectional data collection and analysis, I evaluated assessments from active patrol and investigation officers in Central Florida. An invitation to participate in completing an assessment survey was displayed on both the Police and Sheriff departments Facebook pages (see Appendix E). Active duty and retired officers were welcome to take the survey. Approval by the organizations was implied by the

posting of the invitation for participation in the survey. Recruitment continued for approximately 4 weeks, with the goal of collecting a minimum of 100 completed surveys. To test the hypotheses in the study, multiple regression analysis was used to analyze the data.

Definition of Terms

The following definitions of terms are considered as significant components in the framework of the research study and are defined accordingly.

Anxiety: In this study anxiety is defined as a normal phenomenon and response to impending danger and stress (APA, 2013a). Anxiety is a coping mechanism that allows an individual to process extreme stressors and challenges throughout life. Anxiety may present with feelings of distress, nervousness, apprehension, or fear (APA, 2013b). Although anxiousness exists in everyday life and is often acute in nature, it could become chronic. When anxiety begins to affect daily activities, becoming intrusive and extreme with no explanation of any correlation to outside stressors or stimuli, it may then be considered a disorder (Kilpatrick et al., 2017).

Critical incidents or traumatic event: Based on Mitchell's (1983) theory, the term *critical incident* was characterized as exposure to a duty-related event that may cause an officer to experience varying degrees of psychological and physical trauma and symptomatic distress (Weiss et al., 2010). Though response and reactions vary between officers, some will experience maladaptive coping and/or traumatic stress symptoms (Kilpatrick et al., 2017). Critical incidents include (a) death of a fellow officer, either in

the line of duty or suicide, (b) terrorist attack causing mass casualties, (c) a violent personal attack, (d) natural or manmade disasters, (e) death of a child, or (f) a sudden event that overwhelms an officers' ability to cope with the adverse effects of the trauma (Chopko et al., 2015; Pickens, 2010). Critical incidents, traumatic events, traumatic stress and trauma are synonymous throughout this study.

Negative appraisal: An individual's appraisal of the significance of an event or situation as stressful or threatening (Oliver & Brough, 2002). Lazarus (1991) believed that the subjective evaluation of an event by an individual has more of an effect on the psychological well-being than the actual presence of the stress or threat. Unsuccessful coping can lead to maladaptive negative thoughts that can lead to persistent PTSD symptoms (Ponnamperuma & Nicolson, 2016).

Law enforcement officer: Active duty and retired Police and Sheriff department officers were considered synonymous throughout this dissertation.

Post-traumatic stress disorder (PTSD): For purposes of this dissertation, determination of PTSD followed the diagnostic criteria set forth in the DSM-V manual (APA, 2013b). Criteria included exposure to trauma and presenting with "three distinct types of persistent post-trauma symptoms" (APA, 2013b, p. 467). The distinct types included arousal, physiological response, avoidance and emotional symptoms related to the traumatic event (APA, 2013b). Effects of PTSD included alterations to the law enforcement officers' arousal and reactivity, behavior and cognition, avoidance, attitude, and trust issues. The concept of PTSD provides a framework for incorporating further

knowledge into the complicated and painful effects experienced by law enforcement (Finkelstein et al., 2015).

Trauma or traumatic stress: The cognitive response to a traumatic event. Presenting symptoms include "re-experiencing and avoidance across cognitive, affective, behavioral, and physiological modes of experience" (Carlson & Dalenberg, 2000, p. 5).

Assumptions

There are several assumptions in this study that require clarification. First, it was assumed that the law enforcement officers would be apprehensive in participating in the study because the questions would pertain to their weaknesses and emotions. Second, the basis of this study was to understand how this population perceives themselves and the world as it relates to their interpretation of a traumatic event. Perception and interpretation are items that can be difficult to quantify in self-reporting questionnaires and are underestimated. Third, there was the assumption that most if not all the participants have been exposed to a traumatic event. Gathering information from law enforcement officers in patrol or investigative positions provided a more stratified sample of experience, exposure, and years served. Fourth, there was the assumption that voluntary participation would not bias the study and participants would be honest and forthcoming in their responses. Finally, it was assumed that the CIHQ, WAS, and PCL-5 were appropriate for measuring the independent and dependent variables and that the instruments were valid in measuring the factors they are required to measure.

Scope and Delimitations

The scope of this study involved exploration of negative appraisal in relation to exposure to trauma the development of PTSD symptoms within a sample of law enforcement officers. Within the context of negative appraisals and cumulative trauma (independent variables), collected data was focused on the officers' negative cognitions of self, worldview, and self-blame post-trauma, as these factors have been noted in prior studies as being predictors PTSD symptoms (dependent variable; Colwell et al., 2012; Oliver & Brough, 2002; Ponnamperuma & Nicolson, 2016; Yuan et al., 2011). Thus, I sought to determine the relationship between the independent variables (cumulative trauma and negative appraisals) and dependent variable (PTSD symptoms meeting DSM-V criteria).

The study was limited to the Police department and the Sheriff department. Additionally, the study included active-duty and retired investigators and patrol officers and sheriffs. Civilian employees, volunteer, reserve and part-time officers were excluded to avoid potential confounding variables. To determine eligibility, an online survey was included with a demographic section requiring volunteers to list their rank and/or current status. To ensure generalizability of the findings, several factors of the target population were considered. First, I attempted to achieve a large sample size that is representative of the population. Second, the sample reflected characteristics indicative of the population. The aim of the study was to recruit active duty and retired officers and sheriffs who had

been exposed to a traumatic event, with the expectation of providing relevant data that would assist in future studies and intervention.

Limitations

Limitations existed due to the sample being studied and the use of self-reporting instruments may have caused response bias. Difficulty with memory recall was also an issue and consideration was taken in both instances. Observer bias was controlled for by staying objective through the analysis process. Furthermore, cross-sectional data collected did not allow for drawing conclusions on the causality of the variables; however, relationship between the variables was demonstrated (Chopko et al., 2015). These factors presented an obstacle in determining a meaningful relationship among the variables in the study. Additionally, the instruments selected for this study were developed to measure the following independent variables, cumulative trauma and negative appraisal, in addition to the dependent variable, PTSD symptoms. This allowed for collection and analysis of data that confirmed the hypotheses.

To control for the noted limitations, the goal of this study was to ensure that the sample size was significantly represented. To do this, communication with the Office of Communications and Neighborhood Relations and the Sheriff's Office media relations department was necessary. Approval from both organizations were sought to recruit volunteers via Facebook. A post was sent via e-mail to each organization to ensure organizational site requirements were met. Currently, the Police department has over 35,000 followers on Facebook, and the Sheriff department has over 59,000 followers.

Significance

The significance of the study includes expanding prior negative appraisal of trauma-related research regarding crisis intervention services. Current empirical research associated with negative appraisals of trauma within the law enforcement population is limited. Much of research within the last 10 years has concentrated on various types of trauma exposure in other samplings as it related to PTSD (Cohen & Collens, 2013; Ponnamperuma & Nicolson, 2016). For example, researchers have addressed types of trauma and its relation to PTSD symptoms due to recent disasters (Berger et al., 2012; Ponnamperuma & Nicolson, 2016). However, the lifetime prevalence of PTSD in the United States has risen in the past 20 years, with an estimated increase of 3.5% to 6.8% (Gradus, 2017). The number of studies on PTSD indicates the importance and need for limiting the effects for all populations. Due to the occupational hazards associated with law enforcement, identifying negative appraisals of self, worldviews, and worth was necessary. Identifying the cognitive processing associated with the causation can better assist in the development of preventive measures.

Positive social change implications for this research include assisting in the development of an improved prevention program for law enforcement officers. This may help officers who are experiencing debilitating effects of PTSD. Although trauma cannot be eliminated, this study can assist in identifying negative cognitions presented in officers to limit the effects. Prevention measures have been used in this population for more than two decade; critical incident stress debriefing has been a long-time staple for the use of

promoting positive emotional processing of critical incidents or traumatic events (Mitchell, 1983). With the current research I sought to enhance intervention strategies and services that may benefit this target population.

Summary

Current research is limited on negative appraisals of trauma exposure and the effects of PTSD symptoms. But prevalence of PTSD symptoms in law enforcement officers have increased over the past two decades (Berger et al., 2012; Hartley et al., 2013). Similarly, an increase of trauma exposure coincides with prevalent PTSD symptoms during this span (Chopko et al., 2015; Weiss et al., 2010). Though trauma exposure research has significantly increased, cognitive appraisal processing research has remained stagnant.

This research was focused on aspects of negative appraisal (self, world, and worth) that have been found to contribute to the effects of PTSD (Colwell et al., 2012; Ponnamperuma & Nicolson, 2016). Given the increase of prevalence of PTSD and continued trauma exposure, it is imperative to identify individual factors that influence officers' negative appraisals. Only recently has the DSM-V revised the PTSD diagnostic criteria to include a negative cognitive cluster that explains how negative alterations in cognition and mood include negative affect and distorted cognitions and blame (APA, 2013b). The goal of this study was to contribute in the development and application of intervention programs and protocol to reduce negative emotions and thoughts. Additional

research is essential for limiting the effects of symptoms of PTSD caused by factors associated with negative appraisals of traumatic exposure.

Inferential statistics were used to define the sample in this correlational, quantitative research study. Active-duty and retired investigative and patrol officers and sheriffs from the Central Florida were asked to participate in this study. Pearson correlation coefficient (r) and multiple regression analysis were used to predict the variance between the independent variables (cumulative trauma, and negative appraisals) and dependent variables (PTSD symptoms; Pallant, 2016).

In the next chapter, an introduction to relevant literature including prior and recent studies is provided. Also included is a list of strategies used to elicit research studies from prior authors. A description of the theoretical framework of this study precedes the review of prior literature essential to understanding the topic of this research.

Chapter 2: Literature Review

Introduction

This chapter includes prior research concerning factors related to negative appraisals and correlation to PTSD symptoms in the daily life of law enforcement officers. Long-term effects of PTSD symptoms are often disregarded by law enforcement officials when dealing with trauma exposure (Dückers & Thormar, 2015). The study of factors related to negative appraisals of trauma exposure and underlying effects of PTSD are essential to understanding the need for appropriate debriefing, defusing, and training methods that can assist in limiting long-term effects.

Gaps in the current literature exist and are the focal point of discussion in the following literature review. Due to the frequency and severity of exposure to trauma in the law enforcement profession, it is necessary to provide a better understanding of mediating factors that limit the effect of PTSD symptoms. Current studies that address the topics of negative appraisal and PTSD symptoms for this population are limited; thus, there is a need for this research. In the following literature review, several topics are discussed: (a) negative appraisals of a traumatic event, (b) PTSD, (c) PTSD after trauma, (d) pre-trauma factors, (e) peri-trauma dissociation, (f) post-trauma factors, (g) anxiety, (h) hyperarousal, and (i) critical incident intervention. The chapter concludes with the summary of findings.

Literature Search Strategy

A key concept of this dissertation is that mediating factors related to world assumptions of negative appraisals influence presenting PTSD symptoms. Recent empirical research has been focused on PTSD and the impact of traumatic incidents on individuals, which is orientated to the field of psychotherapy. A digital search of literature was executed through psychology and sociology electronic databases including, but not limited to ProQuest Central, PsycARTICLES, MEDLINE, and SocINDEX. Additional archives for law enforcement data were obtained through Lexis-Nexis Academic, and ProQuest Central.

Boolean search parameters used combinations of keywords including *critical incident, debriefing, decision-making, hyperarousal, exposure, negative appraisal, PTSD, police trauma, resilience, world assumptions, traumatic event, and training and debriefing, crisis services,* along with alternatives of keywords. Terms including *negative appraisal and PTSD* returned four results. The virtual Boolean search structures included sequences of keywords including *negative appraisal, hyperarousal, critical incidents, crisis services,* and *trauma exposure* as well as variations of keywords. The phrase *traumatic event* and *PTSD* produced 168 results, and when separating the terms as Boolean parameters produced 206 results, with 198 noted as peer-reviewed journal articles. Additionally, one article was in PsycINFO using the terms *negative appraisal, PTSD, resilience,* and *world assumptions*. Using the terms *negative appraisal* returned

fifteen results. Within these results, articles on *psychological distress, PTSD, traumatic stress, severe mental illness, depression,* and *suicide* were found.

Distinctive library databases were also used to search various combinations of the terms. For example, ERIC database returned 22 results when searching the term *negative appraisal*, whereas *traumatic exposure* returned 34 results, *PTSD* and *resilience* returned 50 results, and a combination of *police officers, PTSD* and *critical incidents* returned 83 results. In PsycINFO, using Boolean search parameters *police officers, critical incident exposure* and *post-traumatic stress disorder* returned 27 results. However, these articles lacked relevance to the current study. Adding the third search parameter *investigation* yielded 10 results, three of which were relevant to this study. The search terms *negative trauma appraisal* and *post-traumatic stress disorder* returned 15 results, which included articles already collected for this research. Among the results of these studies, psychophysiology of cognitive changes and emotion regulation, risk factors, drug abuse, and therapeutic processes were included, but little in relation to critical incidents resulting in PTSD in a law enforcement setting. Studies published in the past 5 years were used to provide a foundation for this dissertation.

Within the following literature review, negative appraisal of traumatic event exposure as it relates to PTSD symptoms in law enforcement is addressed. The type of literature included the fields of cognitive and social psychology, critical thinking, decision-making and judgment skills, and post-traumatic stress symptoms. Contained within the field of research concerning mediating factors related to negative appraisal is

literature on impact of trauma, influences on judgment and choices, world assumptions, and psychological distress. The primary goal of the literature review was to examine the relevant literature and advancement of mediating factors related to world assumptions of negative appraisals and how it relates to PTSD symptoms. Additionally, the review of literature assisted in substantiating the theoretical underpinning of this research. Empirical research provides both a starting point in identifying the framework of negative appraisals to traumatic exposure but also delves deeper into its correlation with symptoms of PTSD.

Theoretical Foundation

Empirical and theoretical research models focused on the conceptualization of emotional processing of traumatic events within law enforcement are well-founded. Moreover, world assumptions of negative appraisal have been a focal point for additional fields of study including firefighters, paramedics, and rescue teams (Park et al., 2012). Law enforcement officers are often the first to respond to traumatic incidents that can often change officers' perspective of self and/or worldview. The appraisals by individuals vary depending on the nature and severity of the trauma they have experienced. Finding better delineations of meaning associated with a threat can improve cognitive therapy and reduce PTSD symptoms (Mitch, 2017). The aim of this dissertation was to explore the relationship between negative appraisal of trauma exposure and the effects of PTSD on law enforcement officers; therefore, I chose Ehlers and Clark's (2000) cognitive model to guide the research and test hypotheses. Of the various theories associated with cognitive

and emotional appraisals, Ehlers and Clark's model was the best fit for this research study.

Ehlers and Clark's (2000) cognitive theory is embedded in an array of cognitive-based theories used to understand negative appraisals of traumatic events and PTSD symptoms (see also Park et al., 2012). Overall, these theories ascribe to the concept that traumatic events impact individual belief systems of the world, causing negative processing of the event that contributes to acute and chronic PTSD symptomatology (Park et al., 2012). Cognitive based-theories have been used to describe the causes of PTSD for several years. Though other theories have tried to explain the origin of the disorder from multiple perspectives such as psychodynamic, biological, and behavioral perspectives, there is a consensus of the detrimental effect trauma has on existing belief systems (Park et al., 2012).

Furthermore, the appraisal system posited by Ehlers and Clark (2000) is not substantiated by a specific appraisal theory. It is to be assumed that depending on the circumstance, the model would incorporate a given theory (e.g., Clark 1986; Horowitz, 1986; Janoff-Bulman, 1992; Lazarus, 1991). However, given the implications, the cognitive theory is supported through empirical PTSD research (King, McKenzie-McHarg, & Horsch, 2017). Evidence-based research substantiates the use of Ehlers and Clark's model in the diagnosis and treatment of PTSD symptomatology (King et al., 2017).

The cognitive theory model has been used in various populations to diagnose and treat PTSD symptoms (Ponnamperuma & Nicolson, 2016). The cognitive model helps to understand individual differences in evaluating and processing the trauma (Rigoli, Silva, de Oliveira, Pergher, & Kristensen, 2016). For example, Ponnamperuma and Nicolson (2016) applied the cognitive model to their study of Sri Lankan children who were impacted by a 2004 tsunami and found that negative appraisals best predicted PTSD symptoms (Ponnamperuma & Nicolson, 2016). Additionally, Green (2016) illustrated Ehlers and Clark's (2000) cognitive model, as well as Janoff-Bulman's (1989) world assumptions theory, when determining a correlation between world assumptions and traumatic stress within a similar population. Finally, Nygaard & Heir (2012) postulated that prior world assumptions relating to PTSD symptoms and quality of life did not have a positive correlation in their study; however, when controlling for quality of life variable, the authors found that higher levels of exposure had a direct impact on both world assumptions and PTSD symptoms.

Ehlers and Clark's (2000) cognitive model has also been used to identify negative appraisals of trauma related events and the relation to PTSD symptomatology. Werner and Griffin (2012) associated Ehlers and Clark's (2000) theory with the reduction of emotional processing and inability to expand on prior trauma during treatment due to persistent dissociation. Additionally, Evans, Pistrang, and Billings (2013) focused on supportive and unsupportive interactions following a traumatic event in relation to resilience and presenting PTSD symptoms in their study. The authors questioned the

limited research between support systems and PTSD by suggesting that previous studies relied on quantitative measures of social support as a dependent variable that either existed or not, rather than an independent variable that continually changed (Evans et al., 2013). Further, the limited attention to support interactions may be reflective of the individualistic approach taken by Ehlers and Clark (2000) and other authors in relation to PTSD (Evans et al., 2013).

The research questions in this study attempted to further build on this theory as it relates to the law enforcement population. The cognitive model has been successfully adapted into a cognitive-therapy based program, which assists in reducing negative trauma-related appraisals and symptoms related to PTSD (Kleim et al., 2012). In determining whether a correlation exists within the given population, information obtained may assist in the development of a more efficient and effective therapeutic prevention and treatment program which could assist in reducing or eliminating PTSD effects.

In the next section, the literature review examined the related research thoroughly and provides relevant information on the key variables. Strengths and weaknesses of prior studies are also discussed. Gaps in research are also identified along with an explanation of how this study extended prior knowledge on the subject.

Literature Review Related to Key Variables

A comprehensive search was conducted to identify relevant literature focused on the topic of this research, which revealed that most studies on traumatic events

concerning law enforcement were focused on events using deadly force with officer involved shootings (Chopko et al., 2017; McCanlies et al., 2014). The use of deadly force qualifies as only one type of traumatic event and often encompass the death of adolescents, infants, and mass fatalities (Cohen & Collens, 2013; Meffert et al., 2014). This information benefits the current research study, as it pertains to identifying cumulative traumatic events and negative appraisal in association to the effects of PTSD. The following literature provides insight into the key variables of this study beginning with PTSD.

Post-Traumatic Stress Disorder

One of the key variables in this study is the concept of PTSD. A fundamental aspect to the concept of PTSD is the thought that PTSD includes interaction, perception, and reaction within an individual's environment. PTSD is established in both psychology and sociology research; hence, social interaction is fundamental aspect of PTSD formulating it as a relevant scope of study for crisis services specialists.

In the *Diagnostic and Statistical Manual of Mental Disorders* fifth amended version, it is noted that PTSD starts with direct association in or seeing an event that the individual identifies as traumatic. The event must include the danger of genuine bodily harm, risk of death, or a real demise. Prior to 2013, a major aspect of the PTSD diagnostic criteria was that the individual felt vulnerability, dread, or frightfulness because of the incident; however, the current revision dismissed this prerequisite, suggesting diagnostic accuracy had not increased with inclusion (APA, 2013b).

Additionally, PTSD and acute stress disorder diagnostic criteria are classified as trauma and stressor related disorders, having been removed from the anxiety disorder class (APA, 2013b). A clinical subtype for PTSD included in the 2013 DSM-V classifies those individuals who encounter derealization or depersonalization with PTSD as having dissociative symptoms (APA, 2013b). To further elaborate, the following sections include factors that highlight the psychological and physiological effects of PTSD.

Post-Traumatic Stress Disorder After Trauma

Symptomatology includes emotional effects such as hypersensitiveness to potential threat stimuli, avoidance of perceived threats (Onnis, Dadds, & Bryant, 2011), hyperarousal (Duranceau, Fetzner, & Carleton, 2014), and intrusive thoughts (Nassif & Wells, 2013). Intrusive thoughts are associated with significant stress and are a precursor to negative stress response long-term (Nassif & Wells, 2013). Engagement in extended stages of worry and stress increases intrusive thought processing within the days following the incident (Nassif & Wells, 2013). Thus, intervention is required to decrease the risk of presenting PTSD symptoms (Nassif & Wells, 2013).

In addition to intrusive thoughts, a distinguishable component of PTSD is avoidant conduct. Individuals experiencing trauma will often modify their conduct and behavior to keep the event of a future trauma from occurring (Landen & Wang, 2010). When working within crisis services unit, officers are required to frequently interact socially by understanding the conduct of others and the subsequent reactions (e.g., through verbal and nonverbal correspondence). For those suffering PTSD symptoms

daily, interaction may be impeded. Any discussion of thoughts of a traumatic event may promote negative emotions, fear responses, diminished interest, and detachment (Landen & Wang, 2010).

Pre-Trauma Factors

Exposure to severe trauma has increased dramatically (Bolton, Jordan, Lubin, & Litz, 2017). Lifetime exposure ranges anywhere from 50% to 90% in developed countries, and war-torn countries such as Syria, Iraq, and Afghanistan could reach 100% (Bolton et al., 2017). Though exposure percentages remain escalated, not all individuals exposed will present with symptoms of PTSD; though many experience mild to moderate symptoms of PTSD, an estimated 10% to 20% have been found to develop chronic PTSD (Bolton et al., 2017).

Several pre-trauma factors or characteristics have been identified as precursors in the development of PTSD. First, sociodemographic factors have been found to play a key role in developing PTSD after exposure to severe trauma (Chopko, Palmieri, & Adams, 2013). Moreover, research has indicated no difference between genders and only a slight correlation with age and economic status (Bolton et al., 2017). Second, cognitive and personality factors have also been documented as having a direct effect in the development of PTSD symptoms (Galatzer-Levy et al., 2013). Lower level of cognitive functioning and level of education have directly correlated with higher rates of PTSD in military veterans, firefighters, and civilians exposed to disasters (Bolton et al., 2017).

Personality characteristics associated with symptoms of PTSD have been recognized in many studies (Chopko et al., 2017; Galatzer-Levy et al., 2013; Kilpatrick et al., 2017). Characteristics include (a) hostility toward others and with life in general, (b) negativity, and (c) continued avoidance of distressing emotions and thoughts (Bolton et al., 2017). Prior history of exposure to severe traumatic events and repeated exposure increase the risk in developing PTSD (Bolton et al., 2017). Individuals with a family history of psychopathology were more at risk in acquiring symptoms of PTSD, and was an important predictor of lingering affects following exposure (Bolton et al., 2017).

Post-Trauma Factors

Many factors promote symptoms of PTSD when exposed to a traumatic event. Social support from family, friends, and colleagues in the profession assist in diminishing the after-effects (Bolton et al., 2017). Comfort and stability during the healing process allow others to listen and assist in working through feelings and emotions to deter avoidant behavior (Bolton et al., 2017). Life satisfaction and resiliency mitigate the effects of PTSD (McCanlies, Gu, Andrew, Burchfiel, & Violanti, 2017). Intervention and psychotherapy programs play an intricate role in assisting individuals whom are at risk of PTSD symptomatology (Galatzer-Levy et al., 2013).

Peri-Trauma Dissociation

Peri-traumatic dissociation has been defined as temporary symptoms of dissociation experienced by an individual during or immediately after exposure to a severe traumatic event (Bolton et al., 2017). Symptoms include disorientation, feelings of

being outside of oneself, as if it were happening to someone else, loss of interest, and/or the inability to connect memory, thoughts and sense of identity (Bolton et al., 2017). Development of avoidant coping skills and dissociation remain the strongest predictors of PTSD (Bolton et al., 2017).

Boden, Fergusson, Horwood, & Mulder (2015) study focused on a sample devastated by a natural disaster. In their findings, the researchers show a direct correlation between increased risk of PTSD symptomatology and intense peri-traumatic stress (Boden et al., 2015). The effects existed during the event, and developed into persistent disruptive effects from the remains of the disaster (Boden et al., 2015). Overall, general disruption of daily activities, loss of employment, loss or damage to home and other related factors escalate levels of stress and become unbearable (Boden et al., 2015).

Anxiety

Anxiety is relatively common in high stressful professions (Regehr & LeBlanc, 2017). High levels of apprehension and worry can disrupt normal functioning and turn into anxiety (Regehr & LeBlanc, 2017). Regehr & LeBlanc (2017) suggested anxiousness can cause “impairments in verbal reasoning, especially in preforming high demand tasks” (p. 185). Elevated cortisol levels have been found to interfere with cognitive processing, memory, and learning (Regehr & LeBlanc, 2017).

Hyperarousal

A state of increased anticipation to an unpredictable stimulus, while remaining in a constant state of vigilance describes hyperarousal and hypervigilance symptoms

(Grupe, Wielgosz, Davidson, & Nitschke, 2016). The APA (2013a) provided the DSM-5 criteria baseline to better understand indicators associated with PTSD symptoms. Key indicators associated with hyperarousal include (a) uncontrollable behavior and anger, (b) destructive and/or reckless behavior, (c) lack of concentration, (d) trouble sleeping, and (e) excessive startle response (APA, 2013a).

Accordingly, a current investigation of trauma in combat veterans observed hyperarousal to be present in numerous veterans ascertained to have PTSD (Holowka, Marx, Kaloupek, & Keane, 2012). Effects of hyperarousal in veterans continue long after exposure and symptoms are unreceptive to treatment (Holowka et al., 2012). Correspondingly, Duranceau, Fetzner, & Carleton (2014) sought to determine the association between PTSD symptoms including hyperarousal and distress tolerance. The study found that hyperarousal and re-experiencing symptoms of PTSD had the strongest effect between distress tolerance and alcohol and substance abuse (Duranceau et al., 2014).

Knight and Herwitz (2010) stated that the idea of hyperarousal is distinct and includes recognizable behavior that is related with post-injury conduct. Hyperarousal is characterized as intense watchful and readiness, increased arousal, and dynamic filtering of one's situation for potential dangers or threat. This definition relates to behaviors associated with hyperarousal that are quantifiable by the *Hyperarousal Scale* (Knight & Herwitz, 2010). The later reviews, began to interface the presence of hyperarousal with different side-effects or disorders, for example, PTSD (Knight & Herwitz, 2010).

Cumulative Trauma Exposure and Critical Incidents

The phenomenon of trauma related critical incidents and PTSD relates to the emotional engagement and cognitive processing of extreme human brutality (Colwell et al., 2012). Thousands of critical incidents happen every year, with many being successfully dealt with by law enforcement officers, while some incidents are not. An estimated 80% of victims in a 2011 British Crime Survey were 'very' or 'comparatively satisfied' with the response received after a critical incident (Cohen & Collens, 2013), indicating an improvement over preceding years, where 30% of victims were less than 'comparatively satisfied'. Critical incident stress in the field of law enforcement has been authenticated by various scientific literature including numerous studies that involved first responders in other fields such as military and fire fighter services (Colwell et al., 2012).

Cumulative Trauma Exposure

There is a common thread that links critical incident exposure to crisis service specialists, including firefighters, law enforcement, and paramedics (Dückers, & Thormar, 2015; Regehr & LeBlanc, 2017). First responders are relied upon to act quickly and thoroughly in high stressful events, while responding to a variety of life-threatening scenarios (Regehr & LeBlanc, 2017). Often law enforcement is first on the scene and required to play a variety of roles. Assessment of the situation and crowd control requires the ability to make sound judgments and react accordingly (Regehr & LeBlanc, 2017).

While the frequency of effects of critical incidents has increased over the past ten years, studies focused on the law enforcement population and effects of trauma have diminished. Recent studies have addressed emergency service workers (Berger et al., 2012; Cohen & Collens, 2013; Dückers & Thormar, 2015; Regehr & LeBlanc, 2017). Studies that have identified law enforcement critical incident exposure delineated the frequency of traumatic events as well as the severity of trauma (Hartley et al., 2013; Weiss et al., 2010).

Researchers have theorized that prior stressful traumatic events augment the severity of psychological and physical distress in a current event (Carlson & Dalenberg, 2000; Chopko et al., 2017; McCanlies et al., 2014). Chopko et al. (2017) posited daily stressors such as a heavy workload, lack of organizational support and structure, and continuous stress lead to chronic symptoms that have a negative impact on job performance. This in turn, increases the response and severity of exposure to a critical incident. It has also been noted that self-reporting by officers is often underestimated, due to the underlying fear that it may affect job performance (Chopko et al., 2017; Colwell et al., 2011; Galatzer-Levy et al., 2013).

Critical Incidents

The theory of critical incident is deep seeded and originated in the mid-1950s (Flanagan, 1954). In the beginning, Flanagan (1954) facilitated a system which analyzed employee's behavior when placed in various stressful situations. The idea behind the theory was to determine the best fit for job placement. Mitchell (1983) furthered the

scope in his study of crisis service workers by determining that a sudden traumatic event which is stressful in nature overtaxes an individual's coping abilities, causing a variety of negative effects. Based on Mitchell's (1983) perception, the theory has continued to follow the same context. For this dissertation, critical incident and trauma was defined as exposure to a duty-related event that may cause an officer to experience varying degrees of psychological and physical trauma and symptomatic distress (Weiss et al., 2010).

Critical incident stressors have been identified as precursors to post-traumatic stress as it characterized by the American Psychiatric Association (APA, 2013a), a disorder initially added to the DSM III in 1980. Kilpatrick et al. (2017) further defined trauma as having two definitions, "stressors (i.e., stimuli) and stress response (i.e., emotional and behavioral responses following exposure to stressors)" (p. 64). In the Kilpatrick et al. (2017) study, researchers postulated that socio-demographic characteristics attributed to PTSD prevalence when presented with traumatic stressors more so than exposure alone. Socioeconomic and demographic factors including gender, age, race and ethnicity, marital status, level of education and income can increase the risk of developing PTSD.

Weiss et al. (2010) sought to quantify exposure to critical incidents. The research group developed the CIHQ, which indexes cumulative exposure by measuring frequency and severity. In doing so, "differential effects of scaling frequency" could be analyzed as well as idiographic and nomothetic severity of exposure (Weiss et al., 2010, p. 5). This was one of the first studies that considered whether an officer had experienced a critical

incident event (Weiss et al., 2010). Previously, studies had quantified severity of exposure nomothetically, by measuring severity whether the individual experienced the event or not (ideals associated with how they would react; Weiss et al., 2010). In furthering the concept of a severity rating, the researchers followed an idiographic approach to measure individual aspects of severity and/or risk potential for those experiencing a critical incident event (Weiss et al., 2010). As a result, Weiss et al. (2010) was able to determine whether participants held the same feelings and perceptions of severity overall or a more distinctive personal view of the exposure.

In a 2015 study by Chopko et al., the researchers replicated Weiss et al.'s (2010) study using a smaller sample of rural agencies as opposed to the large urban sampling found in the aforementioned study. Utilizing the CIHQ, similar results were observed. Prior studies indicated less frequency of critical incidents for small to mid-size agencies, thus minimizing the effects of PTSD symptoms (Weiss et al., 2010). However, the study found a greater correlation between the exposure of critical incidents and symptoms of PTSD in the smaller agency sample (Chopko et al., 2015). Overall, comparable results were found between the two studies.

Similarly, Hartley et al. (2013) assessed both frequency of a critical incident as well as recency (severity) of the event in relation to PTSD symptoms. In this study, a higher prevalence of both frequency and recency of exposure was documented (Hartley et al., 2013). The findings coincide with prior studies involving crisis service personnel (Kaufmann, Rutkow, Spira, & Mojtabai, 2013). A focal point of this study was the

measure of frequency and recency of police-specific critical incident exposure (i.e., fellow officer shot, dead body, abused children) over the prior year. Measures were correlated separately by gender in association with PTSD symptoms. Results of the study indicated 15% of men and 18% of women participating, presented with PTSD symptoms (Hartley et al., 2013). Moreover, higher PTSD prevalence was found in female officers that had not been involved in shooting versus those involved (Hartley et al., 2013). Men were found to have higher PTSD symptoms based on recency (severity) of the traumatic event rather than frequency (Hartley et al., 2013).

Previous studies have shown how levels of empathy and multiple roles taken by law enforcement officers in their communities can affect their individual and social lives. A study by Pickens (2010) illustrated empirical literature focused on various factors and variables that were associated with critical stress and PTSD in McDonough's (1996) research study. In McDonough's (1996) study, the researcher introduced the term *post-operational trauma*, which is the effects an officer experiences after the involvement of a shooting or use of deadly force. In the study McDonough (1996) provided examples of post-operational trauma which included administrative, governmental, and legal penalties placed on law enforcement officers. Unfortunately, the actual stress from the experience of the critical incident was not the focus; however, the results related to variables such as administrative ultimatums, occupational dissatisfaction, organizational performance, and working conditions still have an impact on the overall well-being of the officer(s) involved. There are significant features between the stress associated with governmental

and organizational administration, as opposed to the nature and scope of the stress, as well with the trauma of encountering the operational stress associated with critical incidents that law enforcement officers must confront daily. In several illustrations, the regular occurrence of critical incidents in the law enforcement population are comparable to military combat with the same damaging results (Colwell, et al., 2012).

Critical Incident Intervention

Menard and Arter's (2013) study addressed organizational and social stressors including critical incident exposure that affect law enforcement officers; findings suggested the need for early intervention and prevention methods to be in place to promote quality psychological and physical well-being for this population. Moreover, Menard and Arter (2013) stressed the significance in applying evidence-based mediations to intervention and prevention of PTSD indicators following exposure to a critical incident, rather than relying on intervention methods which lack empirical support.

Additionally, Menard and Arter (2013) found prevalence of PTSD and alcohol abuse in law enforcement officers at a rate of 7% to 19% and as high as 53% directly and indirectly associated with PTSD, in contrast with 6.9% in the overall population. Menard and Arter's research sought to correlate critical incident exposure, advancement of PTSD indicators, and maladaptive coping methodologies in relation to alcohol consumption. The colleagues further supported the empirical research between exposure to critical incidents and prevalence of PTSD symptoms with their findings (Menard & Arter, 2013). Furthermore, law enforcement officers exposed to critical incidents could use positive

adaptive coping techniques, for example, treatment or exercise that assist in recovery from exposure (Menard & Arter, 2013). Unfortunately for many, adaption of negative maladaptive techniques occurs, such as avoidance, depression, dissociation, or substance abuse which can lead to chronic PTSD (Menard & Arter, 2013).

Research over the past decade has focused on crisis service populations, by supplementing prior empirical research on increased PTSD symptoms and exposure to critical incidents (Chopko et al., 2015; Chopko et al., 2017; Galatzer-Levy et al., 2013; Menard & Arter, 2013). Consensus between studies supports Mitchell's (1983) theory that intervention or prevention is necessary in limiting onset of PTSD symptoms. The most common intervention used is the Critical Incident Stress Debriefing method (Mitchell & Everly, 1996). Moreover, Mitchell & Everly (1996) presented a defusing process to be used prior to the debriefing procedure. The theory formulated a three-stage phase as a precursor to debriefing which would commence within a three to eight-hour window following an incident, and ideally no longer than twelve hours. This three-stage process identifies the role played by the individual and gathers basic information concerning the incident. The stages include introduction, exploration, and information. Once this information is obtained, Mitchell and Everly (1996) suggested the debriefing procedure would follow within 24 to 72 hours after the episode. Both the defusing and debriefing process are part of the Critical Incident Stress Management (CISM) system (Pack, 2012).

Conversely, Shave (2010) detailed an absence of empirical evidence encompassing psychological debriefing conditions following a critical incident. The researcher further stated that several methodical assessments and analyses found fault in the efficacy of the debriefing technique (Shave, 2010). Tuckey and Scott (2014) furthered this theory by concentrating on group debriefing after exposure versus individual, due to prior studies identifying the inefficacy of critical incident stress debriefing in an individual single-session environment. Results from the study, found no evidence to support the effectiveness of critical incident stress debriefing in preventing PTSD symptoms in a group setting (Tuckey & Scott, 2014). Notwithstanding, critical incident stress debriefing has been found to promote short term overall quality of life and limit alcohol consumption (Tuckey & Scott, 2014). The researchers also noted that due to the nature of the study assumptions cannot be made on long term effects (Tuckey & Scott, 2014). Based on the limitations of this intervention, researchers have suggested using critical incident stress debriefing as an initial intervention method then progressing to a psychotherapy-based method when appropriate (Litz, Gray, Bryant, & Adler, 2002).

Cognitive behavioral therapy has been identified as being an effective method in treating at risk individuals (Litz et al., 2002). This process helps to understand avoidant behavior and the underlying mechanisms. In Shubina's (2015) review of literature, the author provided an overview on the efficacy of the method. Through cognitive-behavior therapy individuals learn that the stressors they are experiencing, both physically and emotionally can be caused by prior experiences and beliefs. Perception and

misinterpretation of thoughts and beliefs cause a nonadaptive behavior to develop (Shubina, 2015). Thus, cognitive-behavioral therapy assists the individual in identifying the distorted and dysfunctional cognitive thoughts and beliefs associated with the PTSD symptoms, then modifies those behaviors by "restructuring the content of thought" (Shubina, 2015, p. 212).

Cognitive-behavior therapy is just one of the many methods used today to treat PTSD symptoms. The American Psychological Association (2017) also recommended "cognitive processing therapy (CPT), cognitive therapy (CT), prolonged exposure therapy (PE) and suggests the use of brief eclectic psychotherapy (BEP), eye movement desensitization and reprocessing (EMDR), and narrative exposure therapy (NET)" in treating PTSD (p. ES-6). In a 2015 study Lloyd et al. found significant reduction of PTSD symptoms when using cognitive processing therapy, which were comparable with other studies. Additionally, it has been noted that effects of CPT treatment are continually maintained after therapy has terminated (Shubina, 2015).

Next, cognitive therapy assists in preventing and/or reducing symptoms of anxiety and depression, while increasing quality of life (American Psychological Association, 2017). Through cognitive therapy, individuals are assisted in processing and restructuring negative thoughts and beliefs (both internal and external) allowing for the ability to manage anxiety (Shubina, 2015). Prolonged exposure therapy aids individuals in confronting the traumatic memory and feelings associated with the exposure (American Psychological Association, 2017). Studies have indicated exposure therapy reduces

PTSD symptoms as well as symptoms of anxiety and depression (Shubina, 2015; van Minnen, Harned, Zoellner, & Mills, 2012). Contraindications of negative effects have been documented throughout these studies; however, many concur that the benefits out way the risk (American Psychological Association, 2017). Lastly, the American Psychological Association (2017) indicated there was a moderate strength of evidence supporting the use of brief eclectic psychotherapy, eye movement desensitization and reprocessing, and narrative exposure therapy in reducing PTSD symptoms and depression.

Negative Appraisals

Park et al. (2012) identified only a few studies prior to their research, which specifically addressed the effect of cognitive appraisals and "development and maintenance of PTSD" symptoms (p. 4). However, the theory of cognitive appraisals of potentially traumatic events has been analyzed for many decades (Ehlers & Clark, 2000; Foa et al., 2006; Janoff-Bulman, 1989; Lazarus, 1991). Based on the cognitive model theory, negative appraisal of a traumatic event creates the sense of a "pervasive threat to safety, sense of self, or future" (Park et al., 2012, p.3).

Colwell et al. (2012) suggested that core beliefs and worldviews associated with cognitive appraisal will often determine whether the individual assesses the event in a positive or negative manner. Salters-Pedneault, Ruef, & Orr (2010) discovered distinctive personality traits of crisis services specialists that limited the residual effects of trauma exposure. Such personality traits among crisis services personnel included camaraderie,

extraversion, risk taking, conscientiousness, loyalty, and consideration. However, officers were found to have a higher startle reaction, while firefighters encountered a higher heart rate and increased blood pressure amid stress (Salters-Pedneault et al., 2010). The personality traits incorporated into this cohesive structure and culture allows the group to respond and cope with continued trauma and stress that are profoundly distinct from the overall population. Characteristics differ between crisis services subpopulations, which require an individual view of each subpopulation. Hartley et al., (2013) found a direct association between elevated PTSD symptoms and frequency and severity of trauma. Past research proposed that police officers present with traumatic symptoms, such as, nervousness, hyperarousal, depression, substance abuse, and relationship issues (i.e. marital status) in the wake of trauma exposure (Galatzer-Levy et al., 2013). This dissertation study concentrated on law enforcement officers and the effect of cumulative exposure to trauma, negative appraisals and PTSD symptoms.

Summary and Conclusions

Within this literature review, prior research has delineated the severity of exposure to traumatic incidents, negative appraisal, and PTSD symptoms in relation to law enforcement officers. Moreover, officers have been found to experience a higher level of exposure to critical incidents in their profession. Thus, this population is more at risk for developing side effects identified with PTSD than the overall population (Carlson et al., 2016). Negative appraisals not only promote symptoms of PTSD but also affect the

law enforcement officer's relationship within the organization, family and societal interaction (Kilpatrick et al., 2017).

Prior studies have explored these effects in military veterans who experienced traumatic stress in conflict (Hartley et al., 2013). Repercussion of critical incidents in crisis services and the efficacy of intervention methodology have also been studied. While research has furthered in exposure of traumatic events and critical incident exposure; what has yet to be established in the literature is whether there is a significant correlation to PTSD symptomatology for law enforcement officers and negative appraisals of the event. After carefully reviewing the existing research containing exposure of traumatic events as it related to negative appraisals, within the law enforcement population and PTSD, the design of this research was determined. Chapter 3 discusses the methodology, participants, instruments, and procedures used to conduct the study.

Chapter 3: Methodology

Introduction

Law enforcement officers experience higher levels of traumatic event exposure than the general population (Chopko et al., 2015; Hartley et al., 2013; Weiss et al., 2010). Cognitive appraisals of events can be a positive, with coping strategies that allow for processing and the integration of positive personal beliefs and worldviews. However, for many law enforcement officers, continued exposure breaks down positive world assumptions (Colwell et al., 2011). Negative appraisals of traumatic events accentuate personal vulnerability and the inability to control surroundings. Continued maladaptive thoughts and behavior prevent an individual from adapting and understanding the meaning, which in turn can cause persistent symptoms of PTSD (Ponnamperuma & Nicolson, 2016).

Gaps in prior research necessitated the need for further exploration into the relationship between PTSD symptoms and negative appraisals of traumatic incidents. Within this chapter, analysis of the following is provided: (a) research design and rationale; (b) population; (c) sampling and sampling procedure: (d) procedures for recruitment, participation and data collection; (e) instrumentation and operationalization of constructs; (f) threats to validity; and (g) ethical procedures and a summary for transitioning into the next chapter.

Research Design and Rationale

The goal of this study was to collect self-reported data for predicting the relationship between the independent variable (cumulative traumatic events) and the dependent variable (negative appraisals). The analysis of this data determined whether a relationship existed with the dependent variable of PTSD symptoms meeting DSM-V criteria. Additionally, demographic variables were taken into consideration. Multiple regression analysis and Pearson's correlation coefficient assisted in determining the results. Cumulative traumatic events included frequency and severity of the trauma. Negative appraisals were identified with Janoff-Bulman's (1989) WAS that measures thoughts and beliefs that may be impacted by traumatic events including negative cognitions of self, worldview, and self-worth. Further, levels of PTSD symptomatology were determined by the PCL-5 scale and included the following criteria: (a) arousal, (b) physiological response, (c) avoidance and (d) emotional symptoms related to exposure of the traumatic event (APA, 2013a).

Quantitative methodology has been the research approach psychology theorists have relied on to substantiate their beliefs (Yilmaz, 2013). Quantitative paradigms are founded on the empirical philosophies of positivism and post-positivism, which help describe research results and standards (Kuhn, 1970). Positivism is a scientific approach that can best be expressed mathematically when describing the phenomena through instruments, measures, and data collection (Yilmaz, 2013), which is what quantitative research is founded on (Burgess, 2014). When using a quantitative analysis, the positivist

approach is to be independent from the research and remain objective. The research should (a) aim to explain and predict; (b) develop research questions and hypotheses through inductive reasoning; (c) eliminate personal feelings or input that could bias the study; and (d) determine findings based on logic alone (Patterson & Morin, 2012).

On the other hand, post-positivism involves the ability to recognize that measurements and observations are imbedded with different types of bias and error, and it is impossible to measure the phenomena realistically (Clark, 1998). The objective of this approach is to understand the fallibility of measures and to achieve verification and replication of observable findings with an objective ideal. A post-positivism approach can be useful in quantitative studies, whereas individual attitudes and personal beliefs often influence responses to questionnaires and surveys (Welford, Murphy, & Casey, 2012). This approach assists in analyzing behaviors, allowing for a better understanding of the feelings and actions of the participants. As a result, a quantitative study yields data to determine whether a relationship exists between the variables by running statistical analyses to test hypotheses, which can generalize results to a population and provide a base for future studies (Burgess, 2014).

In this study, I used a predictive correlational design approach, which allowed for a better understanding of the relationship between negative appraisals and PTSD symptoms in law enforcement officers. In general, correlational designs are used to determine whether differences in the independent variable or variables relate to differences in the dependent variable or variables (Sousa, Driessnack, & Mendes, 2007).

This type of design assesses “direction, degree, magnitude, and strength of the relationships or associations” (Sousa et al., 2007, p. 504). Thus, correlation analysis helped to understand the relationship and variances between the variables within the research questions. This assisted in the acceptance and rejection of the hypotheses in this study. The predictive correlational design was best suited for this study due to its ability to predict variances between the dependent and independent variables and determine whether a relationship existed (Sousa et al., 2007).

To analyze the association between negative appraisals (criterion variable) in law enforcement officers, the predictor variables included frequency and severity of trauma (cumulative trauma). Likewise, when analyzing the relationship between symptoms of PTSD (criterion variable), the predictor variables included cumulative trauma and negative cognitions of self, worldview, and self-blame (negative appraisals). This predictive correlational study was nonexperimental, meaning that predictor variables were not controlled, manipulated, or altered and randomization of participants did not exist (Thompson & Panacek, 2007). As a result, the research relied on observation, interpretation, and interaction as it naturally occurred to draw conclusions (Thompson & Panacek, 2007).

Although a nonexperimental study was the best fit for this dissertation, there were constraints to this design. For instance, this type of design is prone to participant bias due to the retrospective nature of the design (Thompson & Panacek, 2007). Moreover, this design was limited on its ability to determine cause and effect between the variables, so it

lacks scientific rigor and accuracy (Thompson & Panacek, 2007). Because the intent of the study was not to prove causality, the threat to validity is mitigated (Burgess, 2014). Furthermore, the generalizability of a nonexperimental design is weak due to its limited ability to manipulate or control variables. In this case, the independent variables of the study have already occurred, therefore limiting access and resources for manipulation (Sousa et al., 2007). However, some characteristics or variables should not be manipulated due to ethical reasons (Sousa et al., 2007).

Due to time and resource constraints, as well as the noted limitations, this study did not meet the requirements for a quasi- or true experimental design (Burgess, 2014). I followed prior nonexperimental, cross-sectional design formats that provided an avenue to advance knowledge in this discipline (Colwell et al., 2011; Colwell et al., 2012; Ponnamperuma & Nicolson, 2016). Thus, the collection and analysis of data in this study may further prior knowledge by providing conclusive affirmation of a relationship between cumulative trauma, negative appraisals, and PTSD symptoms.

Methodology

Population

Once study objectives have been determined, the next step in the research process is to define the target population, which helps determine eligibility for participation (Lavrakas, 2008). The target population for this research study were active-duty and retired law enforcement officers from the Florida Police and Sheriff departments, which currently employ a combined 2,800 sworn officers and professional staff, respectively.

The two departments are responsible for serving and protecting residents living in Central Florida and surrounding areas, including the multitude of tourists who visit the city throughout the year. The target population contained active-duty and retired ranked and unranked officers with varied years of service from diverse backgrounds. Participation in this study was voluntary, but there were requirements that had to be met to be considered eligible. First, the potential participants had to be active-duty or retired detective, investigative, and/or patrol officers/sheriffs. Second, at least 1 year of service was required for participation. Civilian, volunteer, reserve, and part-time employees of the department were excluded from participation. Surveys completed by nonqualified participants were not included in the final analysis.

Sampling and Sampling Procedures

With the target population identified, the next step was to determine a sampling technique for a representative sample and accurate generalizations of the law enforcement population. The focus of researchers in quantitative studies is to use sampling procedures that are based on statistical probability theories, known as probability sampling (Schutt, 2012). There are two different approaches to sampling: probability and nonprobability. Probability sampling is defined as giving every individual in the target population an equal chance of being selected (Etikan et al., 2016), which allows for better representation of the population through randomization and the ability to develop generalizations concerning the entire population. Techniques used in probability sampling include simple random, systematic, stratified, and cluster (Burgess, 2014). In

contrast, nonprobability sampling is collecting units from the population without a statistical random selection method (Schutt, 2012). Thus, the collected samples may not represent the population, which limits the ability to generalize. Though there are also limitations concerning the subjective nature of this sampling procedure (Etikan et al., 2016), nonprobability sampling is still an effective and practical method to use and is good to use when there are financial or time constraints (Bernard, 2013).

The feasibility of using a probability sampling procedure in this study exceeded available time and access to necessary resources. Therefore, a nonprobability sampling procedure was selected. There are several types of nonprobability sampling including convenience, quota, purposive, and snowball methods. Based on the criteria associated with the target population, a purposive sampling method was the most appropriate for the research design. When using a purposive sampling method, it is assumed that the purpose of selecting participants is based on knowledge and experience with the "phenomenon of interest" (Palinkas et al., 2015, p. 2). I found willing participants to share their experiences and perspective in an "articulate, expressive, and reflective manner" (Etikan et al., 2016, p. 2). In this study, nonrandom purposive sampling was used, as it was an appropriate method based on the research design (nonexperimental, predictive, correlational analysis; Burgess, 2014). However, there are noted limitations with bias and the inability to generalize findings between this population and other populations (Palinkas et al., 2015).

To draw the sample, the following procedures were determined. First, notification of acceptance to begin the study from the Internal Review Board (IRB) of Walden University was required. Then, I sent an e-mail to each of the organizations' media departments requesting the use of their Facebook platform to solicit volunteers for participation in the online survey. The population of this study consisted of ranked and unranked, active-duty and retired law enforcement, in an investigative or patrol role, with at least 1 year of service from the Police and Sheriff departments. Through the Facebook platform (see Appendix E) a notification was presented soliciting qualified volunteers to participate in this research study. The volunteers were informed that participation in the study was voluntary. Volunteers were informed that at any time they could decline participation in the study by closing their browser prior to clicking on the submit button at the end of the survey.

Additionally, for the protection of all participants, the study included only competent adults, capable of understanding the complexity and purpose of the research. This study did not solicit requests to individuals outside the parameters of the stated population. Defining the population with units for inclusion and exclusion helped ensure an accurate sampling frame while taking precautions to not identify participants (Creswell, 2013). I believed that the scope for inclusion was defined well enough to eliminate sampling errors. To determine eligibility, the online survey included a demographic survey (see Appendix D), which requested general information pertaining to gender, age, marital status, years of service, job position, race, and military service.

Anonymity and confidentiality was taken into consideration, and the survey did not collect personal information (i.e., name, address, e-mail, phone number, or badge number). Within the Facebook post (see Appendix E), a link provided a description of the study, researcher-related contact information, an informed consent form, and a link to the survey questionnaire. Completion and submittal of the survey questionnaire constituted as acknowledgement of consent by the individual. Participants were given up to 4 weeks to view and complete the online survey.

After operationalizing the sampling frame, I determined the sample size. It is important to have an appropriate sample size to test the hypothesis and answer the research questions (Bernard, 2013). Statistical criteria were considered when estimating the sample size and determining the validity (Burgess, 2014). A power analysis was also necessary to determine the probability of not committing a Type II error (Pallant, 2016). Sample size, significance level (Type I error) in which the null hypothesis is rejected, and effect size all factor into the power analysis, limiting the ability of failure to reject a null hypothesis when it is false (Type II error; Pallant, 2016, p. 206). I used G*Power 3.1 to determine the size of the sample to achieve sufficient power, given the effect size I wanted to detect. Using the G*Power 3.1 software for the priori power analysis, and *t* tests for correlations, with a medium effect size $\rho = .30$, an alpha level of $\alpha = 0.5$ and statistical power of (1-β error probability) = 80% the sample size requirement for this study was 64. Based on the 2,800 active-duty law enforcement officers that make up a large portion of the target population, a necessary response rate would be less than 2%,

but research has indicated an average response rate of 50% for this type of study (McCanlies et al., 2013).

Procedures for Recruitment, Participation, and Data Collection

The recruiting process commenced once approval from the IRB was received (#09-27-18-0179644). At this point, contact was made with the media department from the Police and Sheriff organizations. Through e-mail, a request was made for the use of the Facebook platform with regard to recruiting volunteers to participate in this research study. An explanation of the nature of the study, informed consent form, and link to the online survey was included in the Facebook post. Additionally, the post emphasized that the study was voluntary and anonymous and confidential. Participants were informed that there was no incentive to participate in the study and refusal to participate involved no penalty or ramification. Furthermore, all were informed that they would not be subjected to any undue psychological or physical distress or harm and could choose to opt-out by closing the online browser prior to completion of the survey or clicking the submit button.

Participation

Basic demographic information was collected including gender, race, age, marital status, education level, military service, job position, and years of service. This information was collected through the online survey, which was included in the link provided in the Facebook post. The survey requested that no personal identifiable information be given, ensuring complete anonymity and confidentiality.

An informed consent form was included in the posting. Within the informed consent form was a description of the nature of the study, explanation as to why the volunteers were candidates for the study, and necessary steps taken to protect the individuals' anonymity. Assurance of conformity to APA ethical standards is found in the form as well as the right to drop out of the research study without consequence or loss of benefits at any point. Finally, the form stated that completion and submittal of the online survey constituted the consent for use of the individuals' collected data.

Data Collection

Complete confidentiality and anonymity continued throughout the data collection and analysis of the study. An online survey program hosted through "Lime Survey", an open source survey tool was optimal for this research as it allowed for the volunteers to remain anonymous. The link to begin the survey was located at the end of the informed consent form statement, ensuring the participant had read the form and acknowledged that they understood the statement. After clicking on the link provided in the Facebook post, the participant was redirected to the Lime Survey website, via internet connection on mobile devices and computers. Online survey instruments have been very effective in assessing PTSD symptoms for many years (Green, 2016).

All collected data and information provided by participants was used for the sole purpose of this research study and was securely stored and remains confidential. In complying with IRB requirements and ethical research procedures, all electronic data collected was stored on encrypted removable USB drive that is stored in a locked file box

located in a locked desk drawer of my office. Per Walden University requirements, all data is stored for a minimum of five years. It was assumed that there would not be a need for follow-up or debriefing. However, the informed consent form included contact information pertaining to the agencies' employee assistance programs.

Instrumentation and Operationalization of Constructs

Instrumentation

A list of instruments used, the developer(s) information, year of publication, and permission request for use of the instruments is included in this section. Also a description of the appropriateness to the current study, published reliability and validity values relevant for use in this study, as well as, the population and established reliability and validity in the previous study sample are included. Three different instruments were included in the online survey (Appendices A–C). Each of the instruments assessed specific indices and assisted in answering the research questions and testing the hypotheses.

Critical Incident History Questionnaire (CIHQ)

The first instrument, the CIHQ (see Appendix A), was specifically formulated for use with the law enforcement population in 2010 by Weiss et al. The instrument was designed to measure cumulative exposure of frequency and severity of trauma to critical incidents that commonly occur throughout the duration of a career in law enforcement (Weiss et al., 2010). The questionnaire presented with 34 items divided into 6 indices focused on various traumatic stressors and the respondents were to provide an exact

number of times that they had experienced each of the indices. Respondents selected values between 0–9, or a range of 10–20, 21–50, or 51+ depending on the exposure. The authors also included the ability to determine severity perception versus actual by including both a nomothetic and idiographic index. This allowed the researcher to understand the difference between officers that had experienced a specific trauma and their perception as to the severity of how they felt or reacted had they been exposed. Weiss at el., (2010) stated the question regarding severity as "In your opinion, how difficult would it be for police officers to cope with this type of incident?" (p. 4). A Likert scale was used for determining value of severity with "0 = *not at all* to 4 = *extremely*" (Weiss et al., 2010, p. 4). This study utilized two of Weiss at el.'s six indices including actual frequency and variety frequency. The other four indices not used included nomothetic severity, idiographic severity and actual × nomothetic to measure data. Actual frequency calculated the actual number of traumatic incidents the participants had been exposed to and was determined by the authors to have a high level of inter-correlation of α =.87 and test-retest r^a = .63. The variety of severity indices also provided good internal consistency of α =.75 and test-retest r^a = .66. This index conceptualized the variety of incident types rather than the frequency. Permission was obtained from the authors of each instrument for the use in the existing study; approval was received from the IRB.

Post-Traumatic Stress Disorder Checklist for DSM-5 (PCL-5)

The PCL-5 will gauge different levels of PTSD symptomatology (Weathers et al., 2013; see Appendix B. The checklist produced scores which correspond with 20 DSM-V symptoms of PTSD, divided into four subscales that cluster symptoms as they related to avoidance, intrusion, negative alterations of cognitions and mood, and alterations in arousal and reactivity (Sveen et al., 2016). A five-point Likert type scale (1 = *not at all* to 5 = *extremely*) was used to measure the value of degree for the extent the participant was bothered by the symptom within the last month (Sveen et al., 2016). There are three formats of the PCL checklists; with or without Criterion A assessment and an extended version of Criterion A with a revised Life Events Checklist for DSM-5 (U.S. Department of Veterans Affairs, 2017). The use of the PCL-5 without Criterion A version best fit this study as it could be used when another method measured trauma exposure (i.e., CIHQ; U.S. Department of Veterans Affairs, 2017). Sveen et al. (2016) stated that the PCL-5 had satisfactory internal consistency, test-retest reliability and aspects of convergent validity. In the authors pilot study, they found an internal consistency between α =.76 - .97 and test-retest r = .49-.77. Sveen et al.'s (2017) study focused specifically on parental PTSD symptoms following a child being severely burned. Additionally, Bovin et al. (2016) examined the psychometric properties of the PCL-5 in two separate samples of veterans and found "good internal consistency (α =.96), test-retest reliability (r= .84), and both convergent and discriminant validity" (p. 1379). Prior to the changes in the PCL-5, Chopko et al. (2015) replicated Weiss et al.'s (2010) study of the law enforcement

population. The authors study found that PTSD symptoms from the PCL-S which aligned with the DSM-IV had the strongest correlation from the perspective of divergent validity with the CIHQ indices with a mean $r = .36$ and similar internal consistency at $\alpha = .80$ (Chopko et al., 2015).

World Assumptions Scale (WAS)

The WAS (see Appendix C) was used to analyze officers' basic assumptions about self, world view, and self-worth. The development of this 32-item self-report scale by Janoff-Bulman, (1989) was considered to be the "most widely used measure of beliefs and attitudes after traumatic events" (Elklit, Shevlin, Solomon, & Dekel, 2007, p. 292). Assessment of an individual's perspective of self and worldview was divided into eight subscales, which identified with the three higher-order scales that reflect basic assumptions of: (a) self-worth, (b) benevolence of the world, and (c) meaningfulness of the world (Elklit et al., 2007). Janoff-Bulman (1989) theorized that shattering of one's world assumptions following a traumatic event created negative assumptions that had been identified in individuals with PTSD symptoms (Nygaard & Heir, 2012). A 6-point Likert scale (1 = *strongly disagree*, 6 = *strongly agree*), was used by the participants to indicate the level of agreement or disagreement with each item (Colwell et al., 2012). Janoff-Bulman's (1989) initial validation of the instrument showed moderate reliability $\alpha = .67$ to .78 (Colwell et al., 2012).

Colwell et al.'s (2012) longitudinal study focused on law enforcement and cadets, to determine if there were differences in basic assumptions at the beginning of a career

prior to exposure of traumatic events. Findings from the study revealed that officers and cadets alike indicated that meaningfulness of the world had more impact on their world assumptions following a traumatic event than the other two high-order scales (Colwell et al., 2012). Officers that had identified with the world being more meaningful the prior year noted a stronger impact following a recent exposure in the follow-up study (Colwell et al., 2012). Pearson correlations for each of the three main assumptions in the study included, (a) meaningfulness in the world, r (38) = .43, p = .01, benevolence of the world, r (38) = -.08, p = .64, and worthiness of the self, r (38) = .10, p = .54 (Colwell et al., 2012). Also included in the online survey was a demographic survey (Appendix D). Demographics included general information pertaining to gender, age, marital status, and years of service, job position, race, and military service.

Operationalization of Constructs

Shuttleworth (2008) defined operationalization of variables as the process of clearly defining independent and dependent variables into a measurable unit. This allowed the variables to then be measured empirically and quantitatively (Shuttleworth, 2008). In psychological research, it was necessary to determine how concepts or emotions are measured. Not only did this increase the quality of the current research study and allow for statistical analysis, it also assists other researchers in replicating the research (Shuttleworth, 2008).

To begin, response by participants to the instruments and the demographic survey produced both nominal and ordinal data, which allowed the ability to test the relationship

using inferential statistics (Burgess, 2014). Demographic variables that were considered control variables in this study included gender, ethnicity, marital status, level of education, military service, years of employment, age, and current position. Gender, was considered a binary variable and was coded as a dummy variable (i.e., male = 1, female = 2). Then, nominal variables from the demographic survey included ethnicity, marital status, and current position, allowed participants to select the category that best described them. For example, ethnicity included; 1 = African-American, 2 = White, 3 = Hispanic/Latino, and/or 4 = Other. Whereas, marital status allowed participants to select from the following; 1 = married, 2 = divorced/separated, 3 = single, or 4 = widowed. For current position, participants had the choice of; 1 = patrol, 2 = detective, 3= corporal, 4 = sergeant, 5 = lieutenant.

Ordinal variables from the demographic survey that was included were; years of employment, age, military service, and level of education. Coding for level of education included; 1 = high school/GED, 2 = associate degree, 3 = bachelor's degree, 4 = master's degree. Military service was coded by years of service; 1 = none, 2 = 1 – 4 years, 3 = 4 – 6 years and 4 = more than 6 years. Employment and age allowed participants to select a range of years. This included; 1 = 1 – 5 years, 2 = 6 – 10 years, 3 = 11 – 15 years, 4 = 16 – 20 years and 5 = 20 and above for employment. Similarly, age was listed as; 1 = 21 – 30 years, 2 = 31 – 40 years, 3 = 41 – 50 years, 4 = 51 – and older.

After that, the focus turned to the independent variables in the study. The first independent variable operationalized was cumulative trauma. In the current study,

cumulative trauma was defined as the quantity of frequent and severe duty-related exposure to critical traumatic incidents, horrific in nature. This included: (a) death of a fellow officer, either in the line of duty or suicide, (b) terrorist attack causing mass casualties, (c) a violent personal attack, (d) natural or manmade disasters, (e) death of a child, or (f) a sudden event that overwhelmed an officers' ability to cope with the adverse effects of the trauma (Pickens, 2010). An example of an incident addressed was; "Having to kill or seriously injure someone in the line of duty" (Weiss et al., 2010, p.4). Participants responded to 34 incidents divided into 2 indices focused on various traumatic stressors found in Weiss et al.'s (2010) CIHQ instrument. Respondents provided an exact number of times that they had experienced each of the indices which determined frequency of exposure. The values were 0 – 9, or a range of 10 – 20, 21 – 50, or 51+ depending on the exposure. Variety, measured severity perception using a Likert scale that determined the value by selecting, "0 = *not at all* to 4 = *extremely*" (Weiss et al., 2010, p. 4).

Next, the operational definition for negative appraisal was based on the cognitive-relational theory that explained how an individual appraised the significance of an event or situation and then perceived it as being irrelevant, stressful or threatening (Oliver & Brough, 2002). Lazarus (1991) believed that the subjective evaluation of the event by an individual had more of an effect on the psychological well-being than the actual presence of the stress or threat. Reaction to the outcome resulted in either a positive or a negative response. Unsuccessful coping could lead to maladaptive negative thoughts and concepts

associated with the fear or stress. Janoff- Bulman (1989) formulated the WAS to measure personal beliefs of self, world, and worth. An example of a statement made in the scale was: “The good things that happen in this world far outnumber the bad.” (Janoff-Bulman, 1989). The scale allowed respondents to use a Likert scale (*1 = strongly disagree to 6 = strongly agree*) to determine the degree of agreement or disagreement with each statement.

In the study, negative appraisals were used as both the dependent variable and independent variable based on the research question addressed. This study sought to predict a relationship between the independent variable of cumulative trauma and dependent variable of negative appraisals. Then, predicting a correlation between both cumulative trauma and negative appraisals as independent variables and PTSD symptoms as the dependent variable.

PTSD symptoms were quantified using Weathers et al. (2013) PCL-5 checklist. Similar to the prior questionnaires, the PCL-5 checklist used a five-point Likert type scale (1 = *not at all* to 5 = *extremely*) to measure the value of degree for the extent the participant was bothered by the symptom within the prior month (Sveen et al., 2016). An example of a question asked in the checklist included: “Avoiding activities or situations because they reminded you of a stressful experience from the past?” (Weathers et al., 2013, p. 1). Green (2016) indicated that reporting “moderately, quite a bit, or extremely” which were three, four, and five respectively on the PCL-5 Likert scale, is considered as presenting with the symptom (p. 49). The PCL-5 instrument was scored by the number of

symptoms presented by the participant, instead of calculating the total score of all items (Weathers et al., 2013). Sveen et al. (2016) noted the PCL-5 as being a valid and reliable instrument to gauge traumatic stress symptoms.

Data Analysis Plan

To begin, SPSS statistical software, developed by IBM© was used to ensure data analysis was statistically substantial and intact. This process was necessary in this quantitative research study, as the statistical analysis was used to test the hypotheses and allowed for acceptance or rejection of the original theory (Hollins Martin & Fleming, 2010). The research study was based on Ehlers and Clark's (2000) cognitive model theory of understanding emotions related to the development of PTSD symptoms. The aim of the research study was to explore the relationship between negative appraisals of traumatic events and PTSD symptoms among law enforcement officers. Specifically, focus on the officers' perception of self and worldview associated with negative appraisals and how they related to or predicted PTSD symptoms.

Simpson (2015) provided the basis for collecting and analyzing data through descriptive and inferential statistics. Descriptive statistics was used to describe data collected, which gave the researcher the ability to learn more about the sample population and establish context. Information obtained from the demographic survey yielded both nominal and ordinal data suitable for the analysis. Through descriptive statistics, single variables were described using frequency distribution, central tendency, and variability

(Burgess, 2014). On the other hand, multiple variables required the use of correlation and multiple regression to analyze the data (Burgess, 2014).

Data collected from the demographic survey, along with the CIHQ, PCL-5 and WAS instruments yielded both nominal and ordinal, non-dichotomous data that was used to make comparisons and draw conclusions using inferential statistics (Simpson, 2015). Another important part of interpreting and analyzing data was the use of parametric and nonparametric statistics. Parametric statistics assumed that the sample data was normally distributed, and parameters were defined (Simpson, 2015). Nonparametric statistics, in contrast, made no assumptions and was often used when analyzing the value of variables that were not normally distributed (Simpson, 2015). Examples of parametric tests included t-tests, analysis of variance (ANOVA), linear regression, and Pearson's coefficient. There were a variety of nonparametric tests that could be used; however, Spearman's rank correlation coefficient was the only one utilized (Simpson, 2015).

At this point, restatement of the research questions and hypotheses to be tested was necessary. This provided the foundation for a well-developed quantitative study. Hollins Martin and Fleming (2010) described quantitative research as a collection of data that is transformed into numbers and measurements then statistically analyzed to determine if the effect or treatment of the study made a difference or not. Though this study was not considering a causal effect, it was still vitally important to use statistical techniques that assisted in accepting or rejecting the following hypotheses.

Research Question 1: Do cumulative traumatic events predict negative appraisals in law enforcement officers?

$H_0$1: Cumulative traumatic events do not predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and the World Assumptions Scale (WAS).

$H_1$1: Cumulative traumatic events predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and the World Assumptions Scale (WAS).

Research Question 2: Do cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events predict PTSD symptoms in law enforcement officers?

$H_0$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do not predict PTSD symptoms in law enforcement officers as assessed the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

$H_2$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do predict PTSD symptoms in law enforcement officers as assessed by the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

In examining the variables tested (cumulative trauma, negative appraisal, and PTSD symptoms); there were several statistical tests suitable for the study. First,

descriptive statistics assisted in describing the sample studied. As previously noted, central tendency and measure of variability determined the mean and standard deviation. This allowed the data to be analyzed and conclusions to be drawn, pertaining to specific values shared by the sample. Then, through inferential statistical analysis, Pearson's correlation coefficient was used for parametric data analysis and Spearman's rank correlation coefficient for nonparametric testing, along with multiple linear regression (Simpson, 2015).

Simpson (2015) stressed the importance for providing an in-depth description of statistical techniques that were used to analyze the data. This provided a clear outline for the researcher to follow during statistical analysis, and allows for other authors to replicate the study. Replication is valuable for many reasons, including (a) ensuring the results are reliable and valid, (b) the ability to determine the generalizability to different law enforcement groups or locations, and (c) providing a foundation for future research concerning the long-term effects (Burman, Reed, & Alm, 2010).

By utilizing both descriptive and inferential analysis in this nonexperimental quantitative research study, the goal was to understand if a relationship existed between the frequency and severity of traumatic events and negative appraisals. If so, was there a relationship to presenting PTSD symptoms? Pearson's correlation coefficient and multiple linear regression assisted in determining if there was a relationship or not. There were issues that needed to be addressed concerning the use of regression analysis. Validation of the regression analysis was necessary to ensure the numerical values being

quantified between the variables accurately described the data (Pallant, 2016). Pallant (2016) suggested testing the assumptions of multicollinearity, linearity, homoscedasticity, normality and independence of residuals to ensure that none of the assumptions had been violated. This was checked through the residuals scatterplot generated during the multiple regression process (Pallant, 2016). Burgess (2014) referenced Bernard (2013) when stating a violated requisite assumption was unacceptable when performing an accurate inferential statistical analysis. Residual scatterplots and additional information pertaining to assumption testing was provided in Chapter 4.

Another issue addressed when using multiple regression analysis was outliers. During the initial cleaning and screening of data, extreme scores were identified and given a score for the variable that was higher than other scores in the cluster but not significant enough to affect the results (Pallant, 2016). Pallant (2016) quoted Tabachnick and Fidell (2007, p. 128) when defining "outliers as those with standardized residual values above about 3.3 (or less than -3.3)" (p. 149). Then, there was the concern of potential confounding and/or covariate variables that may need to be accounted for. Throughout the proposal process, special attention was given to identifying and defining the independent and dependent variables in this study. There were no confounding and/or covariate variable present during the analysis (Pallant, 2016).

To recap, Simpson (2015) noted quantitative research studies required the use of both descriptive and inferential statistics and reasoning to interpret the results of the data that was collected. Parametric estimates were set for the statistical analysis including

establishing a confidence level, confidence interval and statistical power (Pallant, 2016). Prior to establishing parameters for the sample, Bernard (2013) posited using a significance level of .05, statistical power of .80 (overcoming Type II errors), and medium effect size of p=.30 to determine an adequate sample size. Correlation t-tests were used to calculate the degree of error in testing the null hypothesis. Parameters for this study were set at a 95% confidence level, 5% confidence interval and an 80% statistical power. SPSS software was used to conduct the statistical analysis, identify missing data (ensuring validity), and develop tables and graphs that assisted in explaining the results of the data collection. The data was coded and an ID number was assigned for each subject. To summarize, the data analysis plan developed within, was consistent with the guidelines of a nonexperimental, quantitative, predictive correlational research design. Pearson's correlation coefficient and multiple regression analysis was used to test Ehlers and Clark (2000) cognitive model theory relating to trauma exposure, negative appraisals, and presenting PTSD symptoms.

Threats to Validity

Benge, Onwuegbuzie, and Robbins (2012) believed validity assessment was the most important part of all research studies, regardless of the method or research design. The authors felt that if the findings from the study could not be validated, then the research lacked merit or value and basically was worthless (Benge et al., 2012). Even more troubling, was that lack of validity could lead to interpretations that were misleading and even harmful (Benge et al., 2012). The following threats to external

validity were addressed, including; (a) reactivity concerns, (b) interaction effects of selection and experimental variables, and (c) specificity of variables. The first threat discussed was testing reactivity, though it did not pertain to this study. Testing reactivity referred to experimental studies that required participants to be subjected to a pretest prior to the treatment to determine the effect of the treatment itself. Results of the pretest could affect the overall findings. Benge et al., (2012) suggested using a design that did not require a pre-test.

During data collection there could have been an event or circumstance that occurred, which could have been unrelated to the experimental variable but could have still influenced the overall outcome of the dependent variable the longer the study continued (Benge et al., 2012). For example, in this study the experimental variable was cumulative trauma. The CIHQ instrument measures severity and frequency of trauma over a period of time. If a major disaster or mass shooting occurred during the study, it could have affected the outcome of both negative appraisals and PTSD symptoms. The theory behind this was that there could have been an increase in the dependent variables as well as the lack of willingness of participants to continue with the study, due to the recency of the trauma. The results of the study could have interpreted findings that were incorrect and not validated. This was not the case for this study, as there were no extenuating circumstances that surfaced.

Maturation is defined as history, as it was associated with a length of time that occurred during the research study (Benge et al., 2012). However, maturation suggested

that the occurrences that affect the experimental variables came from within the study participants rather than an external force. Benge et al. (2012) provided examples of motivation, learning, boredom, and fatigue. Issues related to maturation were controlled by limiting the number of instruments used during the study and the time it took to complete the questionnaires. Instrumentation concerns, on the other hand resulted from measurement tools that yielded scores that lack the necessary level of reliability and/or validity (Benge et al., 2012). It was vital to the research study that the instruments used, measure what they were intended to measure. Validation of reliability, along with content, criterion, and construct validity of the measures to this population was necessary prior to the commencement of the data collection. Experimental mortality referred to response and drop-out rate of participants. Benge et al. (2012) described this threat as selected individuals that either decided to not participate in the study at all, or failed to complete each phase of the study, causing the results to become biased. Drop-out rate and incomplete data packets were a concern for the researcher, however, increased response rate of the projected sample size necessary for this study to be statistically significant controlled for drop-out or uncompleted surveys received.

Prior to discussing threats to construct and/or statistical conclusion validity, selection-maturation interaction was addressed. Selection-maturation is a combination of selection bias of participant threats and interactional internal mechanisms involved in the maturation process that cause misinterpretations of the results and the belief that the experimental variable caused the effect when it did not (Benge et al., 2012). Next, the

researcher ensured that their knowledge of construct validity was correct. In the simplest of terms, a construct was a psychological process or characteristic that was used as a tool to label a group or cluster of co-varying human behaviors (Binning, 2018). Therefore, the validity of the construct referred to the level in which conclusions were made from the measurable factors of the variable in the study to the theoretical construct in which these factors were based (Strauss & Smith, 2009). Specifically, what was the extent the measure, measured the characteristics of the behavior that it was supposed to be measuring (Strauss & Smith, 2009).

Selection of the three instruments used in this study had been thoroughly analyzed and determined to be a good fit for the research based on the constructs. However, prior research had limited information pertaining to construct validity for the three instruments which was a concern. Weiss et al.'s (2010) Critical Incident History Questionnaire indicated that convergent and divergent validity was statistically significant and had a strong interrater reliability for the instrument.

In Kaler et al.'s, (2008) assessment of psychometric properties of the World Assumptions Scale, the authors estimated internal reliability between .60 and .83 and support of construct validity in its ability to identify with the constructs of post-traumatic stress. Then, Bovin et al. (2016) determined the PCL-5 had good convergent and discriminant validity and was consistent in diagnosing PTSD in veterans when used with Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers, Blake, et al., 2013). To ensure statistical significance of the study and research validity, it was the goal of the

researcher to reaffirm the operational definitions and measurement procedures of the variables; identify, control and eliminate extraneous and confounding variables; and "observe and measure dependent variables under natural conditions" (Garcia-Perez, 2012, p. 1).

Statistical conclusion validity, also known as conclusion validity focused on the appropriateness of statistics used and statistical tests, as well as, Type I and Type II errors to determine whether the variables were related to each other or not (Garcia-Perez, 2012). Garcia-Perez (2012) added that the researcher should "accept the assumed risks of Type I and Type II errors, use statistical methods that guarantee the assumed error rates, and consider these as an essential part of the research process" (p. 2). Two different types of threats have been identified based on the Type I and Type II errors: (a) invalid statistical measures that were used to analyze the data, which are irrelevant to the characteristics of the research design or cannot reliably answer the research question; and/or (b) proper statistical measures are "used but are applied under conditions that alter the stated risk probabilities" (Garcia-Perez, 2012, p. 2).

There are several indicators that promote threats to statistical validity. Garcia-Perez (2012) mentioned low statistical power, inaccurate effect size estimation, violation of test assumptions, unreliability of statistical measures, range restriction, treatment implementation unreliability, repeated testing for significant relationships, extraneous variance in the context of an experimental setting, and respondent differences. Prior

issues were kept in mind when limiting the effects of Type I and Type II errors. This ensured statistical validity in the research study.

Ethical Procedures

An email was sent to the Police and Sheriff departments media personnel requesting use of their Facebook page to solicit volunteers to participate in the research study. Included in the email was an explanation of the study, a copy of the Informed Consent form, and a link to the online survey. Posting of the invitation implied approval by both organizations.

Within the description of the nature of the study, an explanation as to why the officers' were considered candidates for the study, and the necessary steps taken to protect the individuals' anonymity and confidentiality were given. Assurance of conformity to APA ethical standards was found in the Informed Consent form, including a comprehensive explanation concerning the officer's voluntary response, the right to drop out of the research study without consequence or loss of benefits at any point, known risks, monetary compensation, privacy, and contact information of the researcher for questions or concerns. A short summary was also included as to the possible benefits of research findings.

A section of the informed consent form explained that the online survey questionnaire did not ask or require information pertaining to personal identification. This provided that each participant understood that responses were completely anonymous and confidential. It went on to explain how the surveys would be stored on encrypted USB

drive and password protected, then held by the researcher for five years in a locked file box and locked desk draw located in the researchers' office. Lastly, the Informed Consent form provided direction for any individual in need of assistance.

Contact information for the agencies Employee Assistance Program office was listed. Through this service the individual could be paired with a professional counselor or clinician that best fit their needs. While it was hopeful that participation in this study did not promote prior traumatic effects, it was an inherent risk. The employee assistance program is utilized by both agencies and referral was not necessary. Overall, the Informed Consent form constituted the totality of the recruitment process. Signatures of consent forms were not collected, to ensure anonymity and confidentiality of participants.

This dissertation proposal was approved by the IRB. This provided authorization for data collection, including the expiration date thereof. All study-related information such as standardized tests, survey's, and collected data was overseen and held by the researcher. The goal of the study was to raise awareness and understanding of the prevalence and severity of cumulative trauma and its effect. During the six week study, the researcher sought to gather enough data to ensure the study was statistically valid; in theory, 64 to 65 responses with a goal of at least 100 responses.

Dissemination of findings was shared through the community stakeholders Facebook pages, upon completion of data analysis and finalization of research study. Additionally, a copy of the results was mailed to the administrative leaders of each organization. The timeline for completion of data analysis was approximately five weeks

with the finalization of the research study to conclude shortly thereafter. Findings were also provided to the oversight bodies, including Walden University, the dissertation committee, and IRB. There was no foreseeable conflict of interest, as the data obtained through the online survey ensured anonymity for all those who participated.

Summary

To summarize, the intent of the design and methodology of this research was to provide a clear understanding of the quantitative methods used to study the ill effects of traumatic experiences, negative appraisals and related PTSD symptomatology among law enforcement officers. In providing a well-documented research design, it was the goal of the researcher to assist future research in replicating this study. The study incorporated a quantitative, nonexperimental, predictive correlational design approach to collect self-reported data from voluntary participants of the Police and Sheriff departments.

Test instrumentation included validated measures used in similar populations. The Critical Incident History Questionnaire was developed for use within the law enforcement community. Whereas, the World Assumptions Scale and PTSD Checklist for DSM-5 were commonly used in determining the extent of negative self and world assumptions and presenting PTSD symptoms. A demographic survey was also used to collect descriptive data that provided a snapshot of the sample population at a specific moment in time for contextual purposes. Demographic survey collected general information pertaining to gender, age, marital status, and years of service, job position, race, and military service.

Chapter 3 provided an outline of the research design and rationale of this dissertation incorporating; a detailed description of the population, sampling methods, recruitment, participation, data collection, instrumentation, operationalization of constructs and definitions, data analysis plan, potential threats to validity and ethical procedures. Within the data analysis plan, the nonexperimental study used descriptive and inferential statistics, as well as, parametric and nonparametric testing for predictive purposes. Central tendency, measures of variance, multiple regression analysis and Pearson's correlation coefficient was used to analyze the data and test the hypotheses. The basis of this research study was to understand if frequency and severity of trauma predicted negative appraisals and if so, did both cumulative trauma and negative appraisals predict PTSD symptoms. In conclusion, methods of research in this study focused on collecting data as it related to cumulative trauma, appraisals and PTSD. Prior research had considered an association between traumatic events and PTSD symptomatology in a variety of different populations; however, research pertaining to the law enforcement population was lacking. Negative appraisal research within the law enforcement population was even scarcer.

In the following section, a brief review of the purpose of the study, research questions, and hypotheses along with an outline of the results was presented. The results section identified the given time frame allowed for data collection, the recruitment and actual response rate. Applicable differences in collection of data from the perceived plan were described in Chapter 4. Descriptive and demographic characteristics of the sample

population were also included as well as sample size representation. Results of the study were provided by SPSS statistical analysis software. Multiple regression analysis and Pearson's correlation coefficient was used to test the hypotheses. Cronbach's alpha determined internal consistency and reliability. Finally, tables and figures illustrated the findings.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to ascertain whether a relationship existed between negative appraisals of cumulative traumatic events by law enforcement officers and symptoms of PTSD. The first research question sought to determine whether cumulative traumatic events predicted negative appraisals in law enforcement officers. Then second research question furthered the inquiry by analyzing cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events and its prediction of PTSD symptoms in law enforcement officers. Data collected helped test the following hypotheses:

$H_0$1: Cumulative traumatic events do not predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and World Assumptions Scale (WAS).

$H_0$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do not predict PTSD symptoms in law enforcement officers as assessed the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

Chapter 4 consists of a description of the data collection process, including (a) data collection time frame, (b) data collection discrepancies, (c) description of descriptive and demographic characteristics of the sample, and (d) a description of sample representation and external validity. Presentations of study results include descriptive and

inferential statistical analysis. The sample's characteristics are described along with statistical assumptions, probability values, confidence intervals, and effect sizes. Tables and figures are used to illustrate the results of the statistical findings. A summary provides an overview the findings and how they promote positive social change and further research among law enforcement officers and the community they serve.

Data Collection

An online survey (see Appendix E), developed through "Lime Survey" was provided in a link, posted on the Facebook page of the Police. The survey was also posted on the Sheriff's Department Facebook page but was deleted by the administrator within the first week. The Sheriff's Department determined that due to time restraints and the nature of the research study that it would decline participation in the study. There was also a concern for possible reoccurrence of traumatic memories to surface, potentially causing additional harm to their officers.

The survey generated the collection of data used to test the relationship within the independent variable of cumulative traumatic events (i.e., type, frequency, and severity) and dependent variable of negative appraisals (assumption of self, worldview, and self-worth). Then, the data were analyzed in predicting the relationship of both cumulative trauma and negative appraisals as the independent variables to the dependent variable PTSD symptoms. Data collection occurred during a 6-week period, where 320 law enforcement officers ranging in rank of patrol officer to sergeant responded to the survey. Of the 320 responses, only 313 of the surveys were completed and used; thus, the sample

size of this study was 313. Of the 313 officers who completed the survey, all reported that they were actively working in the field of law enforcement at the time of their participation.

Of the 2,800 active-duty officers eligible to participate in the survey, the response rate was 11.1%. The response rate exceeded the minimum requirement necessary of 64 participants; this allowed for the results of the sample to be considered statistically valid based on the use of G*Power 3.1 software (Faul et al., 2007). Furthermore, the sample size of 313 adequately supported the research, with a confidence level of 95%, 5% confidence interval and statistical power of .80. Data collected from "Lime Survey" were exported into the SPSS version 25.0 statistical software and analyzed.

Results

Descriptive Statistics

In Table 1, the demographic characteristics of the participants in the study are shown. Demographic results indicated that most of the sample was Caucasian 55.9%, male 86.9%, with 65.5% actively working as patrol officers. Additionally, 30.4% reported being married and 20.4% indicated having 1 to 4 years prior military service. Overall, 54.0% of participants were 21–30 and held an associate's degree (54.0%).

Due to the impact of PTSD symptoms involving military service, the demographic survey included a section for prior military service. Responses indicated that 69.0% of participants reported not serving. In summary, the participants of this study

consisted mainly of white men, age 21–40, that had been in their current role for an average of 3 to 10 years and are predominantly patrol officers and detectives.

Table 1

Demographics (N = 313)

Gender			Age		
Male	272	86.9%	21-30	162	54.0%
Female	41	13.1%	31-40	109	34.8%
			41-50	22	7.0%
			51-above	13	4.2%
Marital Status			**Education level**		
Single	124	39.6%	Diploma/ GED	7	2.2%
Married	95	30.4%	Associate	169	54.0%
Divorced	94	30.0%	Bachelor's	123	39.3%
Widowed	0	0	Master's	14	4.5%
Ethnicity			**Prior Military Service**		
African-American	80	25.6%	0 years	216	69.0%
White	175	55.9%	1-4 years	64	20.4%
Hispanic/ Latino	58	18.5%	4-6 years	30	9.6%
			6yrs-above	3	1.0%
Current Position			**Years Employed as PO**		
Patrol	205	65.5%	1-5 years	154	30.6%
Detective	104	33.2%	6-10 years	145	44.7%
Corporal	3	1.0%	11-15 years	6	10.6%
Sergeant	1	.03%	16-20 years	5	9.4%
			20-above	3	4.7%

In addition to the demographic content of the online survey, the CIHQ (Weiss et al., 2010) was included to assess the frequency and severity of cumulative trauma. Weiss et al.'s (2010) actual frequency index had a good internal consistency, with Cronbach

alpha coefficient reported of .87. The variety index provided good internal consistency of $\alpha = .75$. In the current study, the actual frequency index had a strong internal consistency of $\alpha = .91$, whereas the variety index indicated an internal consistency of $\alpha = .65$. Parametric methods, Pearson's coefficient and multiple linear regression analysis were appropriate methods for testing the relationship between cumulative trauma, negative appraisals and PTSD (Pallant, 2016).

Of the 34 potential cumulative traumatic events presented in the CIHQ, participants indicated a mean of 134.01 (*SD* = 9.84) critical incidents experienced throughout their career (see Table 2). Variety of the traumatic events expressed in the CIHQ indicated an average of 72.68 (*SD* = 2.03) having experienced more than one critical incident. Frequency of officers (93.8%) in the sample indicated that they had been seriously injured intentionally. Similarly, 92.5% indicated that a serious injury occurred accidentally. Participant responses based on the CIHQ indicated higher levels of cumulative traumatic events than that of prior research (Green, 2016; Weiss et al., 2010). Interpretations of findings are discussed in Chapter 5.

Table 2

Critical Incidents Experienced (CIHQ)

Critical incident	% of frequency	Mean of incident variety	*SD*
Being seriously injured intentionally.	93.8	2.89	.530
Being seriously injured accidentally.	92.5	2.85	.628
Being present when a fellow officer was killed intentionally.	91.9	2.83	.664
Being present when a fellow officer was seriously injured intentionally	67.7	1.39	.913
Being present when a fellow officer was seriously injured accidentally.	89.4	.93	.246
Being present when a fellow officer was killed accidentally.	88.4	1.83	.544
Being seriously beaten	87.2	.92	.270
Being taken hostage	72.8	.78	.436
Receiving threats towards your loved ones as retaliation for your police work	93.1	2.87	.588
Being shot at	90.0	2.78	.755
Being threatened with a gun	87.5	1.81	.564
Being threatened with a knife or other weapon	81.6	1.70	.704
Being trapped in a potentially life-threatening situation	90.0	1.86	.476
Being exposed to serious risk of AIDS or other life-threatening diseases	85.6	.90	.302
Having your life threatened by an aggressive and dangerous	93.4	1.92	.373
Being exposed to a life-threatening toxic substance	85.3	1.77	.624
Having to kill or seriously injure someone in the line of duty	90.6	1.87	.462
Having to shoot at someone in the line of duty, without	86.9	1.80	.583
Making a mistake that led to the serious injury or death of a fellow officer	90.3	1.86	.487
Making a mistake that lead to the serious injury or death of a bystander	90.0	1.86	.496
Being involved in a high-speed chase where lives were in	93.8	2.89	.530
Seeing someone dying	92.5	1.90	.402
Encountering the body of someone recently dead	91.9	1.89	.428
Encountering a decaying corpse	65.9	.71	.475
Encountering a mutilated body or human remains	89.4	.93	.245
Making a death notification	88.4	1.83	.544
Encountering a child who had been sexually assaulted	87.2	1.81	.561
Encountering a child who had been badly beaten	72.8	1.52	.844
Encountering an adult who had been sexually assaulted	93.1	2.87	.588
Encountering an adult who had been badly beaten	90.0	2.78	.755
Encountering a child who was severely neglected or in dire need of medical attention because of neglect	87.5	1.81	.564

(table continues)

Critical incident	% of frequency	Mean of incident variety	*SD*
Seeing animals that had been severely neglected, intentionally injured, or killed	81.6	1.70	.704
Having your life endangered in a large-scale man-made	92.5	1.90	.402
Having your life endangered in a large-scale natural disaster	91.9	1.89	.428

The WAS (Janoff-Bulman, 1989) measure was included in the online survey to generate responses to how participants viewed the world. Table 3 includes the correlation results between the three subscales of the WAS scores, which indicated a significant relationship between the subscales. Further interpretation of the relationship between the variables is discussed in the next section.

Table 3

World Assumptions Scale Subscale Correlation

	Benevolence-T	Meaningfulness-T	Self-Worth-T
Benevolence-T	-	.389**	.121*
Meaningfulness-T		-	.214
Self-Worth-T			-

Note. ***p* < .01 level **p* < .05 level (2-tailed)

WAS subscales were also shown to significantly correlate with an officer's current position and years of employment (see Table 4). Significance was found between an officer's current position and benevolence (r = .202, p < .01) and self-worth (r =.562, p < .01). Positive feelings of self-worth (r =.152, p < .01) correlated with years of service.

Table 4

World Assumptions Scale and Demographic Correlation (N = 313)

	Benevolence -T	Meaningfulness - T	Self-Worth - T
Current Position	.202**	.101	.562**
Employment	.20	.80	.152**

Note. **$p < .01$ level (2-tailed)

The PCL-5 (Weathers et al., 2013) was included to gauge different levels of PTSD symptomatology through a questionnaire, producing scores that corresponded with 20 DSM-V symptoms of PTSD. Figure 1 shows normal distribution of the four subscales of the PCL-5. According to Chopko et al. (2015), the PCL-5 had good internal consistency with a Cronbach alpha coefficient reported of .80. In the current study, the Cronbach alpha coefficient was .78.

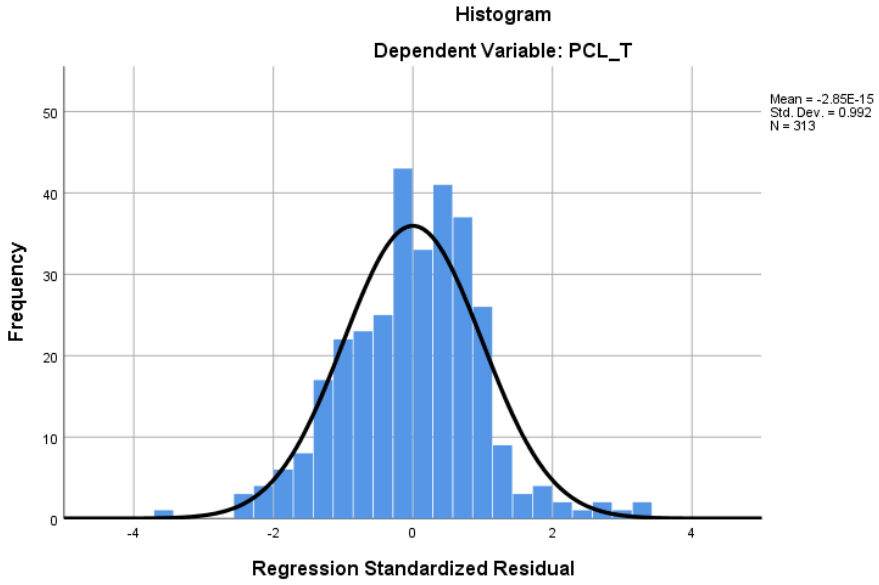

Figure 1. Post-traumatic stress disorder checklist histogram.

Statistical Assumptions

Common statistical assumptions must be met to ensure accuracy when testing hypotheses (Field, 2013). Use of multiple linear regression in this inferential analysis required assumptions about the data to be unviolated (Pallant, 2016). Validation of the regression analysis was necessary to ensure the numerical values that were quantified between the variables accurately described the data (Pallant, 2016). This required a thorough analysis of the data to ensure that multicollinearity, linearity, homoscedasticity, normality, and independence of residuals were not violated. Multicollinearity exists when there is an excessive degree of correlation between the independent variables (r =.9 and above; Pallant, 2016). Table 5 summarizes the collinearity values that were within range and showed no violation of assumptions.

Table 5

Multicollinearity Coefficients

Model	Collinearity Statistics	
	Tolerance	VIF
WAS_BW	.709	1.411
WAS_BP	.856	1.168
WAS_Justice	.720	1.389
WAS_Control	.651	1.535
WAS_Rand	.696	1.437
WAS_SW	.665	1.504
WAS_SC	.756	1.323
WAS_Luck	.685	1.460
PCL-5 Intrusion	.649	1.540
PCL-5 Avoidance	.804	1.243
PCL-5 Arousal	.681	1.468
PCL-5 Cognition/Mood	.681	1.469

Note. a. Dependent variable: Frequency summed

Additionally, the use of residual scatterplots identifies differences between the predicted dependent variable and obtained scores (Pallant, 2016). These differences allowed for the checking of normality, linearity, and homoscedasticity assumptions. Pallant described normality, as residuals that were normally distributed around the predicted dependent variable to be considered. Linearity indicated a straight-line of residuals that related with the predicted dependent variable. See Figures 2 and 3 which indicated normal distribution and linearity. Next, homoscedasticity suggested that the variance between the predicted dependent variable and residual scores are similar (Pallant). Regression analysis indicated no variance in this assumption. The Mahal distance value within the residual's statistics section suggested that the maximum value of the data set was 24.80, well within range of the critical value of 26.13 based on 8 independent variables (Tabachnick & Fidell, 2007). Overall, it has been concluded that statistical assumptions of this multiple regression analysis had not been violated.

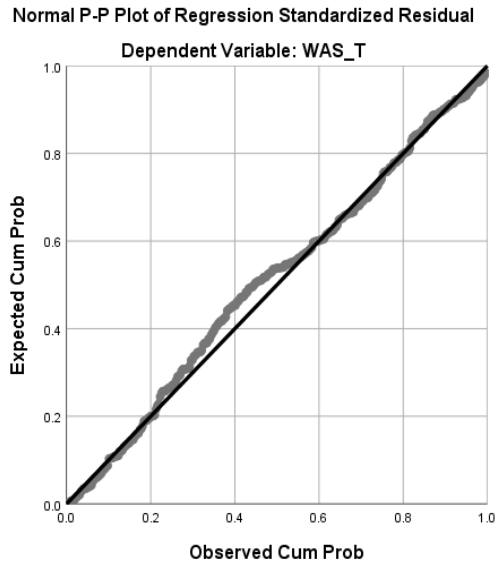

Figure 2. Critical incident history questionnaire and world assumptions scale standardized residual p-plot.

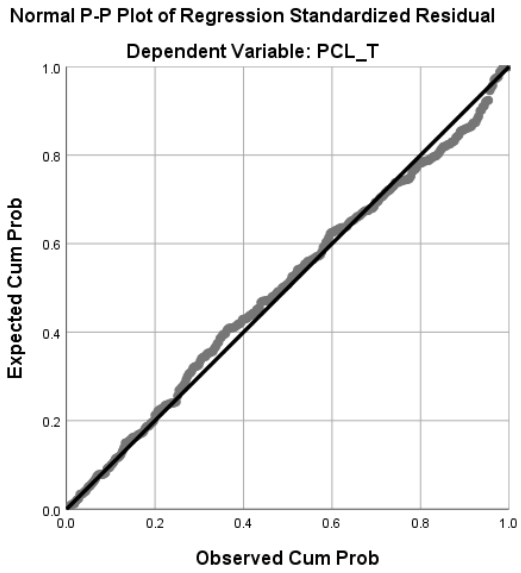

Figure 3. World assumptions scale and post-traumatic stress disorder checklist standardized residual p-plot.

Inferential Statistics

The data sets obtained for this research indicated normal distribution throughout the scales. Pearson's correlation coefficient was used to determine the direction, strength and significance of the relationship between the predictor and criterion variables. Multiple regression analysis was used to explore the inter-relationship between the set of variables that allowed for a better statistical evaluation of the hypotheses tested. The first hypothesis tested was:

$H_0$1: Cumulative traumatic events do not predict negative appraisals in law enforcement officers as determined by the Critical Incident History Questionnaire (CIHQ) and World Assumptions Scale (WAS).

Table 6 provided the results of Pearson's product-moment correlation coefficient tests used to analyze the relationship between the CIHQ indices and WAS subscales. There was a nonsignificant correlation between the variables. Weak correlation was found between increased levels of frequency associated with weakened assumptions of self-control (r = -.067, n.s.), and self-worth (r = -.003, n.s.). Increased exposure to cumulative trauma weakly correlated with increased assumptions of benevolence of the world (r = .047, n.s.), luck (r = .044, n.s.), benevolence of the people (r = .004, n.s.), justice (r = .038, n.s.), controllability (r = .015, n.s.), and randomness (r = .012, n.s.). Similarly, CIHQ variety results determined that the findings were nonsignificant. Results of the correlation between increased severity of trauma weakly associated with greater assumptions of self-control (r = .008, n.s.), benevolence of the world (r = .014, n.s.), luck

(*r* = .008, n.s.), self-worth (*r* = .039, n.s.), justice (*r* = .015, n.s.), controllability (*r* = .102, n.s.), and randomness (*r* = .011, n.s.). Then, increased severity of exposure associated with weakened assumptions of benevolence of the people (*r* = -.043, n.s.) was also nonsignificant.

Table 6

Pearson Correlation Critical Incident History Questionnaire and World Assumptions Scale

Scale	WAS-BW	WAS-BP	WAS-Justice	WAS-Control	WAS-Randomness	WAS Self-worth	WAS-Self Control	WAS-Luck
CIHQ Act Freq	.047	.004	.038	.015	.012	-.003	-.067	.044
CIHQ Variety	.014	-.043	.015	.102	.011	.039	.008	.008

Note. $N = 313$ $^{**}p < .01$ level $^{*}p < .05$ level (2-tailed)

Pearson's correlation coefficient was also used to test the relationship between CIHQ cumulative traumas, WAS subscales, and PCL-5 subscales (see Table 7). Negative correlation between frequency and three of the four PCL-5 subscales: avoidance (*r* = -.134, *p* < .05), arousal (*r* = -.141, *p* < .05), and cognition-mood (*r* = -.153, *p* < .01), significantly indicated that the more participants experienced traumatic events, the symptoms of traumatic stress decreased. The association between increased frequency exposure and decreased symptoms of intrusion (*r* = -.075, n.s.) were not significant. Further, no significance was found between increased severity exposure of traumatic events and weakened expression of symptoms of intrusion (*r* = -.046, n.s.), arousal (*r* = -.043, n.s.), cognition-mood (*r* = -.048, n.s.), and avoidance (*r* = -.028, n.s.).

Of the eight WAS subscales, only one was found to be statistically significant with PCL-5 symptom expression. Participants experiencing greater assumptions of justice presented with less symptoms of avoidance (r = -.122, p < .05). Conversely, no significance was found between increased assumptions of benevolence of the world and of people and less symptom expression of intrusion (r = .033, n.s.), (r = -.042, n.s.), avoidance (r = -.037, n.s.),(r = -.014, n.s.), arousal (r = .016, n.s.), (r = .028, n.s.), and cognition-mood (r = -.021, n.s.), (r = .086, n.s.), respectively.

Table 7

Pearson Correlation Critical Incident History Questionnaire, World Assumptions Scale, and the Post-Traumatic Stress Disorder Checklist

	PCL-5 Intrusion	PCL-5 Avoidance	PCL-5 Arousal	PCL-5 Cognition-Mood
WAS BW	.033	-.037	.016	-.021
WAS BP	-.042	-.014	.028	.086
WAS Justice	-.090	-.122*	-.061	-.023
WAS Con	.014	-.072	-.056	-.040
WAS RAN	.050	-.001	.051	.055
WAS SW	.027	.038	.057	.010
WAS SC	.036	.035	.039	-.043
WAS L	.087	-.031	.025	-.009
CIHQ Variety	-.046	-.028	-.043	-.048
CIHQ Act Freq	-.075	-.134*	-.141*	-.153**

Note. N = 313 **p < .01 level *p < .05 level (2-tailed)

Controllability and randomness (meaningfulness subscale) indicated nonsignificant correlation with the PCL-5. Increased controllability assumptions weakly correlated with increased symptoms of intrusion (r = .014, n.s.) whereas, increased

assumptions of controllability decreased feelings of avoidance (r = -.072, n.s.), arousal, (r = -.056, n.s.), and cognition-mood, (r = -.040, n.s.). Greater assumptions of randomness in relation to the officers PCL-5 scores weakly increased indications of intrusion (r = .50, n.s.), arousal (r = .051, n.s.), cognition-mood (r = .055, n.s.). Then, increased randomness assumptions weakly decreased symptom indications of avoidance (r = -.001, n.s.). Self-worth assumptions associated with a weak increase of symptoms of intrusion (r = .027, n.s.), avoidance, (r = .038, n.s.), arousal (r = .057, n.s.), and cognition-mood (r = .010, n.s.). Self-controllability and luck scoring with the PCL-5 continued the trend of weak correlation within the variables. Greater self-controllability assumptions of the participants presented a slight increase of intrusion(r = .036, n.s.), avoidance (r = 0.35, n.s.), arousal (r = .039, n.s.), and cognition-mood (r = -.043, n.s.) symptoms. An increase of assumptions of luck had differing results with the PCL-5. Symptoms of intrusion (r = .087, .n.s.), and arousal (r = .025, n.s.) slightly increased, whereas, symptoms of avoidance (r = -.031, n.s.), and cognition-mood (r = -.009, n.s.) decreased. To recap, data analysis of assumptions of the world and PTSD symptoms resulted in nonsignificant correlation, with the exception of statistical significance between justice and avoidance.

A multiple regression analysis was carried out to explore whether frequency and variety of cumulative trauma could significantly predict participants' world assumptions (see Table 8). This assisted in determining whether to reject the first hypothesis or fail to reject. The results of the regression indicated that the cumulative trauma model was not a significant predictor of benevolence of the world, R^2 = .2%, $F(2,310)$ = .245, p = .783;

meaningfulness, R^2 = .4%, F(2,310) = .694, p = .500; or self-worth, R^2 = .1% F(2,310) = .194, p = .824.

Table 8

Regression Analyses of Cumulative Trauma and the Three Subscales of World Assumptions Scale (N = 313)

	WAS-Benevolence				WAS-Meaningfulness				WAS-Self-Worth			
Variable	*B*	*SE B*	*β*	*Sig.*	*B*	*SE B*	*β*	*Sig.*	*B*	*SE B*	*β*	*Sig.*
Act. Freq.	.009	.015	.035	.535	.011	.017	.036	.580	-.008	.023	-.019	.733
Variety	-.023	.072	-.018	.747	.063	.079	.045	.291	.055	.109	.029	.612

Table 9 presented individual variances between the individual WAS subscales, frequency, and variety: benevolence in world, R^2 = 0%, F(1,311) = .136, p = .712, R^2 = 0%, F(1,311) = .063, p = .802; benevolence of the people, R^2 = .1%, F(1,311) = .235, p = .628, R^2 = .2%, F(1,311) = .584, p = .445; justice, R^2 = .1%, F(1,311) = .226, p = .635, R^2 = 0%, F(1,311) = .071, p = .790; controllability, R^2 = .2%, F(1,311) = .531, p = .467, R^2 = 1%, F(1,311) = 3.280, p = .071; randomness, R^2 = 0%, F(1,311) = .025, p = .875, R^2 = .0%, F(1,311) = .035, p = .851; self-worth, R^2 = .1%, F(1,311) = .226, p = .635, R^2 = .2%, F(1,311) = .469, p = .494; self-control, R^2 = .3%, F(1,311) = .944, p = .332, R^2 = 0%, F(1,311) = .018, p = .893; and luck, R^2 = .7%, F(1,311) = 2.155, p = .143, R^2 = 0%, F(1,311) = .020, p = .887, respectively. Based on individual accounts, the variances did not significantly differ from overall cumulative trauma.

Table 9

Regression Analyses of Cumulative Trauma and the Eight Primary Subscales of World Assumptions Scale

	CIHQ Frequency				CIHQ Variety			
Variable	*B*	*SE B*	*β*	*Sig*	*B*	*SE B*	*β*	*Sig*
Ben_World	-.002	.005	-.021	.712	.013	.050	.014	.802
Bene_People	-.003	.005	-.027	.628	-.037	.049	-.043	.445
Justice	.002	.003	.027	.635	.008	.031	.015	.790
Controllability	.003	.004	.041	.467	.064	.035	.102	.071
Randomness	-.001	.005	-.009	.875	.009	.047	.011	.851
Self-Worth	.003	.007	.027	.635	.043	.063	.039	.494
Self-Control	.006	.006	.055	.332	.008	.057	.008	.893
Luck	.006	.004	.083	.143	.006	.040	.008	.887

Note. $N = 313$; $p < .05$ level (2-tailed)

Based on the statistical results, the first hypothesis must fail to be rejected. Overall, the analysis indicated that actual frequency and variety did not significantly predict participant's world assumptions. The cumulative trauma model explained 2% of the variance, and was not a significant predictor of benevolence. The final predictive model for the benevolence subscale was: Benevolence = 22.861 + (-.023* Variety) + (.009* Frequency). The cumulative trauma model explained 4% of the variance, and was not a significant predictor of meaningfulness. The final predictive model for the meaningfulness subscale was: Meaningfulness = 19.803 + (.082* Variety) + (.009* Frequency). Then, the cumulative trauma model explained 1% of the variance, and was

not a significant predictor of the self-worth subscale. The final predictive model for the self-worth subscale was: Self-worth = 35.193 + (.055* Variety) + (-.008* Frequency). *B* values for each of the models are provided above.

Additional multiple regressions were preformed to investigate whether cumulative trauma and negative appraisals significantly predicted PTSD symptoms based on the PCL-5 (see Table 10 and 11). This assisted in testing the second hypotheses:

$H_0$2: Cumulative traumatic events and negative appraisals (self, world, and worth) of traumatic events do not predict PTSD symptoms in law enforcement officers as assessed the World Assumptions Scale (WAS) and Post-traumatic Stress Disorder Checklist-DSM-5 (PCL-5).

Table 10

Regression Analyses for Variables Predicting PTSD Symptoms (Intrusion and Avoidance)

	PCL-5 Intrusion				PCL-5 Avoidance			
Variable	*B*	*SE B*	*β*	*Sig*	*B*	*SE B*	*β*	*Sig*
Act. Freq.	.001	.008	.009	.871	.011	.004	.148	.009*
Variety	-.062	.076	-.046	.417	-.021	.041	-.028	.617
Bene_World	.051	.087	.033	.559	-.030	.047	-.037	.518
Bene_People	-.065	.088	-.042	.463	-.012	.048	-.247	.805
Justice	-.223	.140	-.090	.113	-.164	.075	-.122	.031*
Controllability	.031	.122	.014	.801	-.084	.066	-.072	.203
Randomness	.082	.093	.050	.375	-.001	.050	-.001	.987
Self-Worth	.033	.069	.027	.633	.025	.037	.038	.501
Self-Control	.048	.076	.036	.529	.026	.041	.035	.622
Luck	.167	.108	.087	.123	-.032	.058	-.031	.587

(table continues)

Table 11

Regression Analyses for Variables Predicting PTSD Symptoms (Arousal and Cognition)

	PCL-5 Arousal				PCL-5Cognition			
Variable	*B*	*SE B*	*β*	*Sig*	*B*	*SE B*	*β*	*Sig*
Act. Freq.	-.049	.019	-.141	.012	-.042	.016	-.153	.007
Variety	-.071	.094	-.043	.452	-.064	.075	-.048	.397
Bene_World	.030	.107	.016	.782	-.032	.086	-.021	.711
Bene_People	.053	.108	.028	.626	.132	.087	.086	.128
Justice	-.185	.173	-.061	.285	-.056	.139	-.023	.687
Controllability	-.149	.150	-.056	.323	-.085	.121	-.040	.480
Randomness	.101	.114	.051	.373	.089	.091	.055	.330
Self-Worth	.085	.084	.057	.314	.012	.068	.010	.863
Self-Control	.064	.093	.039	.495	-.056	.075	-.043	.453
Luck	.059	.133	.025	.657	-.017	.106	-.009	.876

Note. $N = 313$ $*p < .05$

First, the regression investigated whether frequency and variety of traumatic events could significantly predict symptoms of PTSD associated with the PCL-5. Frequency was determined to predict 2.2% of the variance and that the model was a significant predictor of avoidance symptoms, $F(1,311) = 6.94$, $p = .009$. The frequency model was also a significant predictor for arousal, $R^2 = 2\%$, $F(1,311) = 6.338$, $p = .012$; and cognition/mood, $R^2 = 2.3\%$, $F(1,311) = 7.406$, $p = .007$. Frequency did not significantly predict intrusion symptoms, intrusion, $R^2 = 0\%$, $F(1,311) = .026$, $p = .871$.

On the contrary, variety and intrusion, R^2 = .2%, F(1,311) = .661, p = .417; avoidance, R^2 = .1%, F(1,311) = .251, p = .617; arousal, R^2 = .2%, F(1,311) = .568, p = .452; and cognition/mood, R^2 = .2%, F(1,311) = .719, p = .397, was nonsignificant in contributing to the prediction of PCL-5 symptoms.

Similarly, a regression was executed to determine whether WAS subscales could significantly predict PCL-5 symptoms (Table 10 and 11). Benevolence subscales were found to be nonsignificant predictors of PTSD symptoms: benevolence of the world and intrusion, R^2 = .1%, F(1,311) = .342, p = .559; avoidance, R^2 = .1%, F(1,311) = .419, p = .518; arousal, R^2 = 0%, F(1,311) = .076, p = .782; and cognition/mood, R^2 = 0%, F(1,311) = .137, p = .711. Then, benevolence of the people and intrusion, R^2 = .2%, F(1,311) = .539, p = .463; avoidance, R^2 = 0%, F(1,311) = .061, p = .805; arousal, R^2 = .1%, F(1,311) = .237, p = .626; and cognition/mood, R^2 = .7%, F(1,311) = 2.329, p = .128 were not significant.

Regression analysis of the meaningfulness subscales indicated that justice explained 1.5% of the variance and was a significant predictor of avoidance symptoms, F(1,311) = 4.721, p = .031; (B = -.164, p < .05) (Table 10 and 11). The justice subscale and remaining PCL-5 subscales did not contribute significantly to: intrusion, R^2 = .8%, F(1,311) = 2.519, p = .113; arousal, R^2 = .4%, F(1,311) = 1.146, p = .285; and cognition/mood, R^2 = .1%, F(1,311) = .163, p = .687. The controllability subscale resulted in nonsignificant findings with the PCL-5: intrusion, R^2 = 0%, F(1,311) = .063, p = .801; avoidance, R^2 = .5%, F(1,311) = 1.629, p = .203; arousal, R^2 = .3%, F(1,311) =

.980, p = .323; and cognition/mood, R^2 = .2%, F(1,311) = .501, p = .480. Randomness' ability to predict symptoms associated with the PCL-5 indicated that it did not contribute to the model. Results included: intrusion, R^2 = .3%, F(1,311) = .789, p = .375; avoidance, R^2 = %, F(1,311) = .000, p = .987; arousal, R^2 = .3%, F(1,311) = .796, p = .373; and cognition/mood, R^2 = .3%, F(1,311) = .953, p = .330.

Finally, a regression was conducted on the three self-worth subscales and their ability to predict symptoms associated with the PCL-5 (Table 10 and 11). Unfortunately, each of the subscales produced nonsignificant findings. Self-worth and intrusion, R^2 = .1%, F(1,311) = .229, p = .633; avoidance, R^2 = .1%, F(1,311) = .453, p = .501; arousal, R^2 = .3%, F(1,311) = 1.018, p = .314; cognition/mood, R^2 = 0%, F(1,311) = .030, p = .863, were found insignificant. The same was found with self-control and intrusion, R^2 = .1%, F(1,311) = .396, p = .529; avoidance, R^2 = .1%, F(1,311) = .387, p = .534; arousal, R^2 = .2%, F(1,311) = .468, p = .495; and cognition/mood, R^2 = .2%, F(1,311) = .564, p = .453. The regression of the subscales luck, indicated a strong relationship with intrusion, R^2 = .8%, F(1,311) = 2.396, p = .123, but unfortunately did not meet the criteria of significance. The other nonsignificant results related to luck were: avoidance, R^2 = .1%, F(1,311) = .295, p = .587; arousal, R^2 = .1%, F(1,311) = .198, p = .657; and cognition/mood, R^2 = 0%, F(1,311) = .025, p = .876.

Results of the multiple regressions determined that cumulative trauma could not predict negative appraisals, but the two together could predict PTSD symptoms. In testing the second hypotheses, significance was found to exist between cumulative trauma and

symptoms of PTSD. Specifically, frequency of trauma which predicted 2.2% of the variance and the model was considered a significant predictor of avoidance symptoms, $F(1,311) = 6.94$, $p = .009$, ($B = .11$, $p < .05$). Frequency of trauma was also significantly predicted arousal, $R^2 = 2\%$, $F(1,311) = 6.338$, $p = .012$; and cognition/mood, $R^2 = 2.3\%$, $F(1,311) = 7.406$, $p = .007$. Additionally, it was discovered that one of the eight WAS subscales predicted symptoms associated with PCL-5 subscales. Within the meaningfulness subscale, justice explained 1.5% of the variance and was a significant predictor of avoidance symptoms, $F(1,311) = 4.721$, $p = .031$; ($B = -.164$, $p < .05$). Based on the findings, the second hypothesis must be rejected. Statistical significance indicated a relationship between frequency and PTSD symptoms, as well as negative appraisals and PTSD symptoms. The significance found in the predicted variances for cumulative trauma and negative appraisals of PTSD symptoms allowed for the study to reject the second hypothesis.

Summary

In conclusion, the results of the data collection in the research study identified a weak correlation, which resulted in a nonsignificant relationship between cumulative trauma and negative appraisals. However, a strong correlation was discovered between cumulative trauma, negative appraisals, and PTSD symptoms. This determination allowed for the research questions to be answered and hypotheses to be tested. Based on the statistical analysis, the first hypothesis failed to be rejected. Statistical significance was not found between cumulative trauma and negative appraisals. On the other hand,

predictive significance was indicated between cumulative trauma and PTSD symptoms, in addition to, negative appraisals and symptoms of PTSD. This allowed for the rejection of the second hypothesis. In the next chapter an interpretation of the findings, limitations of the study that surfaced during the overall process of data collection, purposed recommendations for future research, and examination of implications associated with positive social change in limiting PTSD symptoms in officers were provided.

Chapter 5: Findings, Conclusion, and Implications

Introduction

The goal of this quantitative correlational research study was to examine the relation between negative appraisal of cumulative traumatic events and PTSD symptoms in law enforcement officers. The need was to better understand how cumulative trauma affected the negative appraisal predictors used by officers. Understanding the dynamics of emotional processing of stressful traumatic events and associated triggers that law enforcement officers encounter more frequently than other occupations can help in developing training methods and screening assessments for well-being.

To fulfill the purpose of the study, two hypotheses were tested with collected data from the sample. The results for the first hypothesis indicated that cumulative traumatic events were not significant in predicting negative appraisals in law enforcement officers. Regression analysis determined significance in the testing of the second hypothesis, which allowed for rejection of the hypothesis. This chapter includes the interpretation of the findings along with the implications for adapting this research into a positive social change that limit PTSD symptoms in officers.

Interpretation of the Findings

Cumulative Trauma

Cumulative trauma in some aspect has been studied for several years. Researchers had been concerned over sudden traumatic events that could overwhelm an individual's coping abilities, causing a variety of negative effects (Mitchell, 1983). In this study, two

hypotheses were developed to explore world assumption beliefs related to cumulative trauma and how it related to symptoms of PTSD in law enforcement officers. The first hypothesis was designed to determine whether frequency and severity of trauma as measured by the CIHQ predicted negative appraisals in law enforcement officers as measured by the WAS. I worked to expand both Chopko et al.'s (2015) and Weiss et al.'s (2010) studies, which were focused on the frequency and severity of traumatic events and its affliction of negative cognitive processing resulting in the prevalence of PTSD symptoms. Weiss et al. first introduced the CIHQ measure to index the history of exposure to critical incidents that a law enforcement officers encountered throughout their career. Chopko et al. continued the research by testing the CIHQ measure with PTSD assessments in a smaller population.

In the current study, officers from Police and Sheriff Departments were invited to participate via a Facebook page request. The study continued over a 6-week period at which time 320 participants submitted surveys with 313 being completed. As previously noted, the Orange County Sheriff Department removed the Facebook request within the first week of posting. There is no way to determine whether officers from that jurisdiction completed a survey. The sample in this study was larger than that of Chopko et al.'s (2015) study (N = 193) but not as large as Weiss et al.'s (2010; N = 706). Scoring of the CIHQ in the prior studies was divided into six exposure indices, the first two relating to frequency and the other four measuring severity. In the current study, two of the six indices were used. Actual frequency captured the actual number of incidents or midpoint

of each range if the officer selected a range. Variety captured the severity of the incident in which an officer experienced at least once in their career. Internal consistency of this measure $\alpha = .91$ was higher than in Weiss et al.'s study $\alpha = .87$.

In the current study, the CIHQ measure indicated the frequency of traumatic event occurrence to be much greater than that of prior research. Of the 313 participants, 300 reported being seriously injured intentionally (93.8%). This study differed from Hartley et al.'s (2013) study, where 75% reported traumatic incident involvement in the past year. In Chopko et al.'s (2015) study, 33% of the officers in the study reported being shot at between one and nine times, whereas 30% reported the same regarding life threatening events. Chopko et al.'s findings were also consistent with Weiss et al.'s (2010) study in which 38% was reported.

Further, the CIHQ scoring of cumulative trauma in association with Janoff-Bulman's (1989) WAS was found to be nonsignificant in predicting aspects of benevolent, meaningful and self-worth beliefs that have been shown to weaken with the increased exposure to cumulative trauma. Thus, it was determined that officers' world assumptions were not predicted by cumulative trauma, which failed to reject the first hypothesis. This differs from previous research that suggested a strong correlation between critical incidents and WAS variables (Green, 2016). In this study, $p < .05$ was not obtained between the two measures and the statistical significance $R^2 = .04\%$ or lower for the three subscales did not support rejecting the null hypothesis.

Negative Appraisals

To further support the failure to reject the first null hypothesis, interpretation of negative appraisals is necessary. The process of people shattering world assumptions following a traumatic event can create negative beliefs that have been identified in individuals with PTSD symptoms (Janoff-Bulman, 1989; Nygaard & Heir, 2012). This effect on world assumptions helps explain negative appraisals of traumatic events and PTSD symptoms (Park et al., 2012). The cognitive model explains that a negative appraisal of a traumatic event provokes a perceived threat to self as well as discrepancies in how meaning is associated with worldviews (Park et al., 2012). Relying on the theoretical foundation of the cognitive model, data were analyzed and both positive and negative effects of cumulative trauma and PTSD symptoms were identified.

Continued exposures to frequently severe traumatic experiences diminish primary cognitive beliefs in benevolence, meaningfulness of the world, and self-worth as described by Janoff-Bulman (1989). Officers in this study reported frequency exposure decreased weakened assumptions regarding benevolence of the world, benevolence of people, and randomness. World assumptions concerning justice, controllability, self-worth, self-control and luck increased with trauma frequency in this sample. Weak correlation and nonsignificant variance found in the current study did not quantify into rejecting the first null hypothesis.

Post-Traumatic Stress Disorder

The cognitive model set forth by Ehlers and Clark describes PTSD as a result of how trauma is perceived and mentally integrated when it occurs (Green, 2016). Combined with Janoff-Bulman's (1989) world assumption theory, when traumatic experiences are appraised in a positive manner rather than negatively, the victim is less likely to suffer from long-term effects of the trauma (Ehlers & Clark, 2000). Positive coping strategies are implemented by the victim to lessen the traumatic symptoms (Green, 2016). However, when traumatic events are negatively appraised, an increase of hypersensitivity, hyperarousal, avoidance and intrusive thought processing occur. All are components of PTSD and can be identified by a modification in conduct or behavior to keep the event of a future trauma from occurring (Landen & Wang, 2010).

The second research question in this study was designed to understand whether a relationship existed between negative appraisals of cumulative traumatic incidents in the prediction of PTSD symptoms as assessed by the CIHQ, WAS, and PCL-5. The null hypotheses stated there was no relationship between the independent and dependent variables. The second null hypothesis was rejected based on the statistical significance found between CIHQ, WAS subscales, and PCL-5 scoring. Multiple regression was run to investigate whether the cumulative trauma and negative appraisals significantly predicted PTSD symptoms. Statistical evidence was found between frequency of cumulative trauma and three of the four symptom clusters of PCL-5. The frequency regression model was a significant predictor of increased symptoms of avoidance,

arousal, and cognition/mood. Justice, on the other hand, was the only individual WAS subscale that significantly predicted PTSD symptoms. Based on the statistical significance, the findings indicated that increased exposure frequency significantly associated with decreased avoidance, arousal, and cognition/mood symptoms of PTSD, after controlling for variety of exposure. Further, perceptions of justice significantly related with increased avoidance symptoms after controlling for other world assumptions.

Limitations of the Study

There were several limitations for this study. First, limitations occurred over the generalizability of findings based on the mechanism used to collect data. Participation in the study required that participants view the Facebook page associated with their employer. In addition to this, the participant had to open the request to participate post and then willing to engage in the study. The Police Department Facebook page had several posts added per day. The ability to find the study post as time progressed limited the ability of recruiting participants. The majority of surveys completed (N = 235) was during the first 2weeks. In addition, 52.8% of the participants were between the ages of 21–30, and only 4.1% were over the age of 51, which could be due to the lack of Facebook use by older officers. Social media has been found to be used by younger adults 18–29 years of age (Smith & Anderson, 2018). It has also been stated that LinkedIn is used by more professionals than Facebook (Smith & Anderson, 2018). There was no way of knowing whether the response rate was representative of the population.

Another limitation is that the CIHQ is a valid trusted measure, but the interpretation of the design when coding data was challenging. The measure requested the respondent to write in a number if an incident was more than 1 or less than 9. However, when coding the data, the measure required the written number to be coded as one, regardless of what the written number was. Another limitation in study was the accuracy in reporting as noted earlier, response rate of frequency and severity far exceeded prior research.

Reliance on self-reported instruments to identify world assumption beliefs and PTSD symptom expressions was limited due to the need for openness and recall of a significant number of traumatic events over the course of a career. Validated self-report instruments have the ability to capture other forms of stress and psychological distress, even though the instrument was designed to measure specific world assumption beliefs or symptoms of PTSD (Green, 2016). The WAS has been criticized for lack of construct validity (Elklit et al., 2007; Kaler et al., 2008). A study recently conducted, analyzed the structural validity of the WAS by using the eight-factor model rather than other combinations used in the past (i.e., three factor, four factor, and six factor; van Bruggen et al., 2018). The authors supported the use of the eight-factor model in examining the theory of shattered assumptions, but suggested that improvement is still necessary for the factorial validity (van Bruggen et al., 2018). The PCL-5 has also been criticized by authors questioning its ability to specifically diagnose a disorder, particularly due to the low cutoff scores often applied in the determination of PTSD diagnosis (Ibrahim et al.,

2018; Green, 2016). Since this research study was designed to predict a relationship between cumulative trauma, negative appraisals and symptoms of PTSD, it appears that the criticism over the PCL-5 is not warranted. This study did not set out to determine whether officer's that present with PTSD symptoms indeed suffer from the disorder, or perhaps suffer from other related psychopathological symptoms equivalent to symptoms of PTSD (Green, 2016).

On the other hand, issues with appropriateness of statistics used and the statistical testing were of major concern (Garcia-Perez, 2012). Known as statistical conclusion validity, Garcia-Perez (2012) suggested that limiting the effects of Type I and Type II error, which can occur in the presence of low statistical powers, inaccurate effect size estimation, violation of test assumptions, unreliability of statistical measures, range restriction, repeated testing for significant relationships and respondent differences is vital. This was a concern due to the lack of statistical significance found throughout the correlation and regression analysis in testing the first hypothesis. Data coding and error correction was re-verified in addition to the recoding of the negative worded items in the WAS. The data collected reflects the perspective of the participants in this study therefore ensuring accuracy. However, it appeared that the collected data lacked meaningfulness and generalizability of the population.

Recommendations

Recommendations for future research have evolved from the noted limitations within the current study. In this study, statistical significance was unattainable for the

first hypothesis. A variety of possibilities may have contributed to this issue. First, a recommendation that future research, recruit participants whom are willing to participate in a longitudinal rather than cross-sectional study similar to that of Colwell et al.'s (2012) study. In their study, the authors recruited officers and academy cadets to compare core beliefs with the general population and assess how beliefs related to cumulative trauma changed over a year. In the longitudinal study, the authors sought to understand whether worldview beliefs differed from the population in general and if the worldviews were less positive then the previous year. The current research would benefit from having a one-year follow-up. Over the past three years, officers in this area have experienced heightened trauma, due in part to the mass-shooting at the Pulse nightclub in 2016, that left 49 dead and another 53 wounded. Future research should utilize different approaches to analyze officer's response and core-belief differences immediately following or shortly after a major event such as this. This requires the need for accessibility and means of contact with prior participants in response to the traumatic events.

It was also recommended to use a different measure for analyzing cumulative trauma, or perhaps a combination of self-report scales that measure frequency separate from severity. There is a need for examining the impact of the various types of traumatic events that are experienced over the course of an officer's career (Green, 2016). Officer's world assumptions have been found to differ depending on the type and severity of the traumatic event. Having a deeper level of detail of an officer's experiences and feelings would play an intricate role in understanding the effect it has on their psychological well-

being (Green). The population would benefit from a future study that incorporated instruments capable of measuring these effects. Lastly, little is known of how officer training affects the impact of cumulative trauma and negative appraisals (Weiss et al., 2010). This was an area of study that has been unexplored till now and would provide beneficial insight.

Implications

This study sought to provide a foundation for promoting positive social change in future research studies concerning the law enforcement population. A perception of the outcome has been embedded in this study from the very beginning. From prior studies it was perceived that bountiful information would be obtained from this study, which could limit traumatic effects to some degree and promote positive change. That thought process was so powerful that it created additional testing of the data to ensure the results were correct. At that point in time the realization of researcher bias was confirmed and the possibilities that were generated from the results were exciting. Failing to reject a null hypothesis is not a failed study. Confirming what is already believed, does not limit the action of future researchers. The lack of statistical findings promoted the need for this study to be duplicated in a different surrounding.

Studies over the past two decades have indicated prevalence of PTSD symptoms within the law enforcement population. The cause and effect have been identified and treatment programs and training protocols have been implemented. This study had the opportunity to identify both protective and negative factors related to world assumptions

and increased symptoms of PTSD. What this study found was that a majority of the sample presented with a variety of symptoms of PTSD and their assumptions of the world around them assisted in limiting the effects. While this study may not have assisted in developing or improving programs that assisted in negative appraisal assessment, it was believed that this study would bring about positive social change in that it substantiates the progress that has been made.

The cognitive model theory explained how some individuals were able to adapt to frequent and severe stress while others could not (Ehlers & Clark, 2000). Colwell et al.'s (2012) study attempted to discern the difference between core beliefs in officers and general population. Individuals that become law enforcement officers appear to possess the cognitive processing necessary to adapt to frequent and severe trauma. For those that do not, officer training and intervention protocols provide the foundation and support needed to promote positive change. Law enforcement training has evolved into the enhancement of job performance by equipping officers with quality cognitive and emotional training, which limits the negative appraisal effects, in turn limiting PTSD symptoms. Overall, this is a positive social change for the law enforcement community as well as the population in general.

Conclusion

The purpose of conducting this quantitative research study was to explore the assumptions of worldviews in relation to cumulative trauma in law enforcement officers. It was believed that cumulative trauma had a significant relationship with increased

negative appraisals which in turn promoted symptoms of PTSD. Therefore, the overall purpose of the study was to understand the cognitive processing of how law enforcement officers processed traumatic experiences and the lasting effects.

The participants in this study indicated that they held positive assumptions with justice, controllability, randomness, self-worth, self-control, and luck within the first ten years of their career. Analysis indicated that cognitive processing of the officers limited the effect of the traumatic events, thus decreasing the effects of PTSD. Severity of trauma weakened officers' beliefs in benevolence of people, though strengthened by the officers' belief in controllability, self-worth and how lucky they felt they were. However, this was not the case for all participants. In the current study, frequency of traumatic events significantly predicted symptoms of PTSD. This could be explained as a portion of officers were unable to process an event, prior to another event occurring.

The lack of significance that was found between cumulative trauma and negative appraisals could be explained as a failed research study. On the contrary, this study has opened new avenues for future research. The study also substantiated that training and prevention programs have improved, due in part, to a better understanding of the relationship between world assumptions and trauma. In all, the social impact of this study indicated that training programs are in place and assists in limiting the effects of cumulative trauma and PTSD symptoms. This is a positive and significant finding.

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Appendix A: Critical Incident History Questionnaire

Instructions: Below is a list of critical incidents to which police officer may be exposed at some time during their career. Please read each item and in the left-hand column, give your best estimate of the number of times that you have personally experienced that incident ***in the line of duty***. Next, in the right-hand column, please give your opinion about how difficult it would be for police officers to cope with each type of incident, ***not how difficult it would be for you personally***. Please make an estimate for each incident, even if you have never been exposed to it.

Please indicate how many times you have experienced each incident in the line of duty by writing in the box the number if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident?**				
	Not at all	**A littl e bit**	**Mod- eratel y**	**Quit e a bit**	**Extre - mely**
1. Being seriously injured intentionally.	0	1	2	3	4
Write in if from 0 - 9 ∋ 10 – 20 21 – 50 51+					
2. Being seriously injured accidentally.	0	1	2	3	4
Write in if from 0 - 9 ∋ 10 – 20 21 – 50 51+					
3. Being present when a fellow officer was killed intentionally.	0	1	2	3	4

Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
4. Being present when a fellow officer was seriously injured intentionally.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
5. Being present when a fellow officer was seriously injured accidentally.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
6. Being present when a fellow officer was killed accidentally.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
7. Being seriously beaten.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
8. Being taken hostage.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
9. Receiving threats towards your loved ones as retaliation for your police work.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
10. Being shot at.					0	1	2	3	4

Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
11. Being threatened with a gun.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
12. Being threatened with a knife or other weapon.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
13. Being trapped in a potentially life-threatening situation.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
14. Being exposed to serious risk of AIDS or other life-threatening diseases.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
15. Having your life threatened by an aggressive and dangerous animal.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
16. Being exposed to a life-threatening toxic substance.					0	1	2	3	4

Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
17. Having to kill or seriously injure someone in the line of duty.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
18. Having to shoot at someone in the line of duty, without injuring them.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
19. Making a mistake that lead to the serious injury or death of a fellow officer.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
20. Making a mistake that lead to the serious injury or death of a bystander.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
21. Being involved in a high-speed chase where lives were in danger.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
22. Seeing someone dying.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					

23. Encountering the body of someone recently dead.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
24. Encountering a decaying corpse.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
25. Encountering a mutilated body or human remains.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
26. Making a death notification.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
27. Encountering a child who had been sexually assaulted.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
28. Encountering a child who had been badly beaten.					0	1	2	3	4
Write in if from 0 - 9	Ə	10 – 20	21 – 50	51+					
29. Encountering an adult who had been sexually assaulted.					0	1	2	3	4

Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					
30. Encountering an adult who had been badly beaten.					0	1	2	3	4
Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					
31. Encountering a child who was severely neglected or in dire need of medical attention because of neglect.					0	1	2	3	4
Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					
32. Seeing animals that had been severely neglected, intentionally injured, or killed.					0	1	2	3	4
Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					
33. Having your life endangered in a large-scale man-made disaster.					0	1	2	3	4
Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					
34. Having your life endangered in a large-scale natural disaster.									
Write in if from 0 - 9	ə	10 – 20	21 – 50	51+					

Appendix B: World Assumptions Scale

Use the scale below to indicate your response to Questions 1 to 32 listed below.

1 – Strongly Disagree	4 – Slightly Agree
2 – Moderately Disagree	5 – Moderately Agree
3 – Slightly Disagree	6 – Strongly Agree

1. Misfortune is least likely to strike worthy, decent people.	1	2	3	4	5	6
2. People are naturally unfriendly and unkind.	1	2	3	4	5	6
3. Bad events are distributed to people at random.	1	2	3	4	5	6
4. Human nature is basically good.	1	2	3	4	5	6
5. The good things that happen in this world far outnumber the bad.	1	2	3	4	5	6
6. The course of our lives is largely determined by chance.	1	2	3	4	5	6
7. Generally, people deserve what they get in this world.	1	2	3	4	5	6
8. I often think I am no good at all.	1	2	3	4	5	6
9. There is more good than evil in the world.	1	2	3	4	5	6
10. I am basically a lucky person.	1	2	3	4	5	6
11. People's misfortunes result from mistakes they have made.	1	2	3	4	5	6
12. People don't really care what happens to the next person	1	2	3	4	5	6
13. I usually behave in ways that are likely to maximize good results for me.	1	2	3	4	5	6
14. People will experience good fortune if they themselves are good.	1	2	3	4	5	6
15. Life is too full of uncertainties that are determined by chance.	1	2	3	4	5	6

16. When I think about it, I consider myself to be very lucky.	1	2	3	4	5	6
17. I almost always make an effort to prevent bad things from happening to me.	1	2	3	4	5	6
18. I have a low opinion of myself.	1	2	3	4	5	6
19. By and large, good people get what they deserve in this world.	1	2	3	4	5	6
20. Through our actions we can prevent bad things from happening to us.	1	2	3	4	5	6
21. Looking at my life, I realize that chance events have worked out well for me.	1	2	3	4	5	6
22. If people took preventative actions, most misfortune could be avoided.	1	2	3	4	5	6
23. I take the actions necessary to protect myself against misfortune.	1	2	3	4	5	6
24. In general, life is mostly a gamble.	1	2	3	4	5	6
25. The world is a good place.	1	2	3	4	5	6
26. People are basically kind and helpful.	1	2	3	4	5	6
27. I usually behave so as to bring about the greatest good for me.	1	2	3	4	5	6
28. I am usually very satisfied with the kind of person I am.	1	2	3	4	5	6
29. When bad things happen, it's because people haven't taken the necessary actions to protect themselves.	1	2	3	4	5	6
30. If you look closely enough, you will see that the world is full of goodness.	1	2	3	4	5	6
31. I have reason to be ashamed of my personal character.	1	2	3	4	5	6
32. I am luckier than most people.	1	2	3	4	5	6

Appendix C: Posttraumatic Stress Disorder Checklist – DSM-5

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

	Not at all	A Little Bit	Moderately	Quite a Bit	Extremely
Repeated, disturbing *memories, thoughts,* or *images* of a stressful experience from the past?	1	2	3	4	5
Repeated, disturbing *dreams* of a stressful experience from the past?	1	2	3	4	5
Suddenly *acting* or *feeling* as if a stressful experience from the past *were happening again* (as if you were reliving it)?	1	2	3	4	5
Feeling *very upset* when *something reminded you* of a stressful experience from the past?	1	2	3	4	5
Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of a stressful experience from the past?	1	2	3	4	5
Avoiding *thinking about* or *talking about* a stressful experience from the past or avoiding *having feelings* related to it?	1	2	3	4	5
Avoiding *activities* or *situations* because they *reminded you* of a stressful experience from the past?	1	2	3	4	5
Trouble *remember important parts* of a stressful experience from the past?	1	2	3	4	5
Loss of interest in activites that you used to enjoy?	1	2	3	4	5
Feeling *distant* or *cut off* from other people?	1	2	3	4	5

Feeling *emotionally numb* or being unable to have loving feelings for those close to you?	1	2	3	4	5
Feeling as if your *future* somehow will be cut sh*ort*?	1	2	3	4	5
Trouble *falling* or *staying asleep*?	1	2	3	4	5
Feeling *irritable* or having *angry outbursts*?	1	2	3	4	5
Having *difficulty concentrating*?	1	2	3	4	5
Being "*super-alert*" or watchful or on guard?	1	2	3	4	5
Feeling *jumpy* or easily startled?	1	2	3	4	5

Appendix D: Demographic Survey

Age	21-30 31-40 41-50 50-above
Gender	Male Female
Ethnicity	African American White Hispanic/Latino Other
Marital status	Married Divorced/Separated Single Widowed
Education level	Diploma/GED Associate Bachelor's Master's
Military service	0 years 1-4 years 4-6 years more than 6 years
Current position	Patrol Detective Corporal Sergeant Lieutenant
Employment	1-5 years 6-10 years 11-15 years 16-20 years 20-above

Appendix E: Facebook Post

Help Me - Help You – With this Doctoral Research Study of PTSD in First Responders!

Doctoral student, Ginger Jenkins, is looking for current and retired officers to share their experiences with traumatic events! Whether you feel that you may be experiencing traumatic symptoms or not, your voice matters. Recent changes in PTSD health benefits for first responders have assisted in providing much needed help for those in need. I want my Walden University dissertation study to have an impact and provide a platform for officers to speak out about their concerns and issues, please help me achieve this goal by taking the time to complete the survey. Please click on the link below to learn more, God Bless and thank you for your service in the community!!

Appendix F: Use of the Critical Incident History Questionnaire for Doctoral Research Study

From: Weiss, Daniel [redacted]
Date: Thu, Jun 21, 2018 at 1:58 PM
Subject: Re: Use of the Critical Incident History Questionnaire for Doctoral Research Study
To: Ginger Jenkins [redacted]

This serves as permission to use the CIHQ.

_____

Daniel S. Weiss, Ph.D.
Editor in Chief Emeritus, *Journal of Traumatic Stress*
Professor of Medical Psychology
Department of Psychiatry
University of California San Francisco
[redacted]

Appendix G: Use of the World Assumptions Scale for Doctoral Research Study

From: Ronnie Janoff-Bulman [redacted]
Sent: Friday, May 4, 2018 9:04 AM
To: Ginger L. Jenkins
Subject: RE: Use of the World Assumptions Scale for Doctoral Research Study

Dear Ginger,
I've attached a copy of the World Assumptions Scale for use in your research (scoring is at the end). I'm pleased my work has been helpful to you. Your study seems very interesting and I wish you all the best in conducting your research.
Ronnie Janoff-Bulman

Professor Emerita
Department of Psychological and Brain Sciences
University of Massachusetts
[redacted]