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Impact of Stress Inoculating Training on Police in Aftermath of Critical Incidents

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Walden University
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Abstract

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MS, Walden University, 2011

BS, National American University, 2003

Dissertation Submitted in Partial Fulfillment

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Abstract

Critical incidents (CI) have increased over the last several decades, with police officers experiencing more trauma and a rise in psychological problems. Stress inoculation training (SIT) could possibly lower symptoms of posttraumatic stress experienced by the police officers who have responded to CIs. To date, little research exists specific to using SIT to lower symptomatic effects of CIs in police officers. The purpose of this quantitative ex post facto study was to examine and compare symptoms of posttraumatic stress, depression, and anxiety for police officers who have or have not received SIT prior to a CI. The theoretical foundation was Selye's general adaptation system, a 3-stage response to a stressor: alarm reaction, resistance, and exhaustion. Survey data from a convenience sample of 85 police officers were collected using a demographic survey and the Posttraumatic Stress Disorder Checklist – Civilian version. A Cronbach's Alpha test and a multivariate analysis of variance were used to determine whether SIT has affected anxiety and depression. According to study findings, police officers who received SIT showed no statistical significance for anxiety and depression compared to police officers who did not receive SIT. This study promotes positive social change by contributing knowledge and awareness to the law enforcement field who may find these results important to consider when planning training courses for their personnel.

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Dedication

I dedicate this dissertation to my wife, Michele Ford, who has been there for me since the beginning of this process. She encouraged me to continue moving forward even at times where I wanted to quit and walk away. There is no doubt in my mind that without her sacrifice, love, encouragement, and support my journey would not have been possible. To my daughters, Hannah Smith and Lilian Ford, who had sacrificed time with their father, thanks for standing by me and understanding the importance of this journey during your younger years.

To my parents, Woodrow and Kathleen Ford, you have always expressed your encouragement for me to continue and do my best, your support and love has been felt throughout this journey.

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To all the law enforcement personnel at the Aurora, Colorado Police Department and the El Paso County, Colorado Sheriff's Department who graciously assisted by participating in this study. I truly appreciate the information you provided, without your participation this dissertation could not have been completed.

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Chapter 1: Introduction to the Study

Introduction

In recent decades, police officers have experienced an increase in critical incident exposure as faster cars, more powerful automatic weapons, and other means of violence have become increasingly available (citation). The resulting exposure to the increased violence can have significant and negative impacts on police officers (Augustin & Fagan, 2011). When officers experience psychological trauma, this can lead to consequences such as health and emotional problems that can affect their career and personal life (Augustin & Fagan, 2011). Providing effective means to cope with these consequences can contribute to positive outcomes to the aftermath of a critical incident for the police officers.

The focus of this study is on differences between police officers in stress reactions who have or have not received Stress Inoculation Training (SIT) prior to critical incident response in the line of duty. A critical incident (CI) is defined by Clement (2012) as a distressing, traumatic event overwhelming an individual's ability to cope. Using a quantitative survey approach, this research compares two groups: those who have and have not received SIT prior to responding to a CI. My goal was to determine whether there are significant differences in stress reactions between the two groups. By examining the difference of those officers who received SIT and those who have not, I sought to identify the potential positive changes SIT can have on police officers who received SIT prior to responding to a CI.

Background

Little research exists specific to SIT and CIs in which police officers have been used as participants. Daniels, Bilksy, Chamberlain, and Haist (2011) studied techniques school resource officers use to prepare both physically and mentally for a CI within a school setting. Three school police officers who had been involved in a barricade situation were interviewed to determine best training practices used for preparation for such incidents (Daniels, et al., 2011). This study further provided information about stressors the officers faced during this type of event and ways to lower future potential stressors during Cis (Daniels, et al., 2011). The results of this study showed that training prior to a CI helped the mental and physical preparation of those officers involved in a CI (Daniels, et al., 2011). Following the CI, psychological evaluations suggested that postincident debriefings also played a significant role in lowering stress reactions and the potential development of psychological problems (Daniels, et al., 2011). This study possibly showing a combination of training and post incident debriefing together plays a role in lowering psychological trauma.

Janka (2012) reviewed death-related critical incidents to identify those that produced the most symptoms of posttraumatic stress. The author compared police officers' responses on posttraumatic stress disorder (PTSD) surveys in response to CIs such as fatal accidents, homicides, suicides, natural deaths, and shootings (Janka, 2012). The results indicated no significant differences in symptoms of posttraumatic stress based on the type of CI (Janka, 2012). Suggesting there to be no correlation between CI's and PTSD.

Clement (2012) interviewed 12 police officers on tactical units with years of experience ranging from 5-25 years to explore their resilience during CIs. Clement identified six central themes and determined the strongest theme to be readiness and preparation to face the CI. This study showed that the police officers were able to remain resilient during a CI when they had been through intense training that included physical and mental preparation for the CI (Clement, 2012).

Menard and Arter (2013) studied alcohol use as a coping strategy by police officers who have been involved in a CI. Menard and Arter found police officers who have been involved in a CI may consume more alcohol following the CI when placed into social situations. This study demonstrated a correlation between police officers drinking alcohol following a CI as means of coping with departmental and personal stressors (Menard & Arter, 2013). Which in turn could potentially cause future problems the officer may endure such as extended use of sick time or excessive force issues.

Papazoglou and Andersen (2014) studied police recruits who were provided CI training during the academy phase of their career. They suggested that the police trainers should provide SIT to the police recruits to prepare the recruits for the potential psychological problems that can follow Cis (Papazoglou & Andersen, 2014). This study demonstrated that providing information about coping to the police recruits prior to a CI resulted in better mental preparation for the CI, and following the incident, improvements in how to acknowledge and receive help for potential psychological implications (Papazoglou & Andersen, 2014).

SIT was developed from the seminal work of Meichenbaum (1977) as a form of cognitive-behavioral therapy tailored to individual or specific group needs through stress inducing scenarios to help lower psychological trauma experienced from a CI. While there is research on overall stress and critical incidents on police officers' mental health (Daniels et al., 2011; Devilly et al., 2006; Menard & Arter, 2013; Robinson, 2004), there has been a lack in studies on the use of SIT since Meichenbaum's introduction. The most recent study being from Heath (2015), who suggested there has been positive psychological responses from officers who attended SIT. Another gap exists in the use of police officers as participants in these studies either due to lack of participant cooperation or individual police departments not allowing the use of their officers (Chae & Boyle, 2013). Such research is vital because of the implications for best practices for future major critical incidents.

Problem Statement

Menard and Arter (2013) reported that many police officers experience a cumulative type of stress secondary to repeated exposure to confrontation, violence, death and the perpetual risk of injury. Such CIs are traumatic events that may cause an individual's emotional resources to become overtaxed, possibly resulting in a gamut of reactions ranging from exhaustion to increased and unrelenting mental health symptoms (Menard & Arter, 2013). Alison and Crego (2012) defined a CI as highly risky and uncertain events with possible outlasting negative effects on those directly involved.

My goal in this study was to examine whether SIT delivered prior to a CI produced a decrease in symptoms of anxiety and depression in police officers who

responded to those incidents, for example, a hostage-taking situation, a lost child, officer-involved shooting, officer killed in the line of duty, or a homicide. CIs can play an important role in the development of psychological problems such as drug and alcohol abuse, depression, and anxiety, being symptoms of PTSD in police officers. They may affect officers early in their career, particularly when a CI results in multiple casualties (Chae & Boyle, 2013). Previous research has shown SIT to be effective in reducing symptoms of PTSD following a CI (Heath, 2015; Patterson, Chung & Swan, 2012; Vonk, 2008).

Purpose of the Study

The purpose of this quantitative study was to compare the differences between police officers stress reactions for those who have and have not received SIT prior to a CI. A CI is defined as a distressing, traumatic event overwhelming an individual's ability to cope (Clement, 2012). The hypothesis was that the officers who received SIT, the independent variable, prior to the CI will show a reduction in symptoms of posttraumatic stress such as anxiety and depression, when compared to officers who did not receive SIT. Symptoms of posttraumatic stress were measured by the Posttraumatic-Stress Disorder Checklist – Civilian version (PCL-C) (Lang & Stein, 2005). The results of this study may potentially add to the literature on best practices for law enforcement officers prior to CIs to help mitigate the traumatic effects of future incidents.

Research Questions and Hypotheses

Police officers often experience immediate and long-term symptoms of posttraumatic stress such as depression and anxiety following exposure to a CI (Janka,

2012). It is hypothesized that SIT will reduce post critical incident psychological problems in police officers who respond to these incidents compared to those officers who have not received the training.

Research Question 1 – Will police officers who received SIT prior to responding to a critical incident show lower anxiety in PCL-C scores than police officers who have not received SIT?

$H_1$1 – Police officers who received SIT prior to responding to a critical incident will show lower scores for anxiety in PCL-C scores compared to police officers who have not received SIT.

$H_0$1 – Police officers who received SIT prior to responding to a critical incident will show no difference in PCL-C scores for anxiety compared to police officers who have not received SIT.

Research Question 2 – Will police officers who received SIT prior to responding to a critical incident show fewer symptoms for depression in PCL-C scores than police officers who have not received SIT?

$H_1$2 – Police officers who received SIT prior to responding to a critical incident will show lower scores for depression on PCL-C scores compared to police officers who have not received SIT.

$H_0$2 – Police officers who received SIT prior to responding to a critical incident will show no difference in PCL-C scores for depression compared to police officers who have not received SIT.

The independent variable in this study is completion of SIT and whether a police officer did or did not receive such training prior to involvement in one or more CIs according to Clement's (2012) definition . The dependent variables under examination are symptoms of posttraumatic stress, anxiety and depression, measured by scores on the PCL-C (Lang & Stein, 2005; Appendix G). The PCL-C is used to measure symptoms of stress such as recurring disturbing dreams, thoughts, memories and images (Lang & Stein, 2005). It further measures symptoms of depression such as loss of interest, feeling distant from others, loss of sleep, irritable and difficulty concentrating (Lang & Stein, 2005).

Theoretical and Conceptual Framework for the Study

The concept of CI stress is derived from the seminal work of Selye's (1956) general adaptation system, whose theories about stress include three stages of physical response to a stressor: alarm, resistance, and exhaustion:

1. The alarm reaction exhibits excitability and increased adrenaline within the system. This includes the counter shock phase, which includes the operation of defensive processes.
2. The resistance stage occurs when the initial alarm reaction disappears, and the body adapts to the stressor.
3. The exhaustion stage occurs when the body cannot adapt to the stressor, which can lead to death.

SIT uses these physical responses to enhance the real life experiences a police officer may encounter.

Police officers responding to a CI may experience an adrenaline rush causing their defense processes to heighten because they may have to defend themselves or others, this being the alarm reaction (Selye, 1956). The resistance stage occurs after the incident when officers have been on the scene for a period, and their adrenaline begins to drop as police officers begin taking roles during the investigation (Galatzer-Levy et al., 2013; Selye, 1956). The exhaustion stage occurs after the CI is over and the officer has left the crime scene. They may then potentially show signs and symptoms of stress and PTSD (Janka, 2012; Selye, 1956). Using PCL-C, the data collected could reflect the amount of stress police officers have experienced.

Nature of the Study

This quantitative ex post facto study examined whether completion of SIT lowers the effects of anxiety and depression that are symptoms of post-traumatic stress on police officers who have responded to one or more CIs. The purpose of this study is consistent with research (Lang & Stein, 2005; Wilkins, Lang, & Norman, 2011) performed on this same topic. This research design is appropriate because it evaluated and compared the mean scores on the PCL-C for anxiety and depression that might be affected by the independent variable, SIT. A multivariate analysis of variance (MANOVA) was used to evaluate differences in levels of anxiety and depression self-reported by police officers who have experienced CIs who have received SIT prior to the CIs compared to police officers who have not received SIT. A MANOVA provided between-group comparisons of levels of anxiety and depression to determine if the differences in group means are statistically significant.

Independent Variable

The target population was further divided into two groups according to police officers who received SIT prior to a CI and those who had not. The independent variable in this study was SIT and whether a police officer did or did not receive the training prior to an involvement in one or more CIs. This study is not designed to provide SIT to police officers but collect data from police officers who have already received SIT within 2 years of this study. Typically, police departments have limited training during a year period and may only have the opportunity to provide SIT every 2 years (Papazoglou & Andersen, 2014).

Dependent Variables

Two dependent variables were examined: symptoms of anxiety and symptoms of depression. The dependent variables were measured by respective scores for anxiety and for depression on the PCL-C) Lang & Stein, 2005).

Methodology

The target population for this study consisted exclusively of full-time police officers who had been first responders in a CI during the line of duty and who are employed by either the Aurora, CO Police Department or El Paso County, CO Sheriff's Departments. Chae and Boyle (2013) suggested the use of police officers from urban and rural departments as participants in future studies obtaining larger samples. They noted that previous research used small samples, less than 100 participants, which could have possibly influenced the findings of the studies. I have secured approval from the El Paso County, Colorado, Sheriff's Department and the Aurora, Colorado, Police Department to

recruit participants, using urban and rural departments together. Each department employs more than 500 officers potentially providing potentially larger sample sizes as suggested by Chae and Boyle (2013).

Police officers were provided a recruitment e-mail to determine who was willing to provide a completed PCL-C. The participants who agreed to participate were directed to Survey Monkey where they were provided a screening questionnaire to determine eligibility and to continue to the consent form. They were then directed to the PCL-C checklist and demographic survey from which data was collected. Eligible police officers were officers who were first responders to CIs and who are currently police officers within the selected departments.

Data was collected through Survey Monkey and transferred into SPSS to further analyze the data for comparison for each research question. A MANOVA was used within the SPSS program to compare the mean self-reported PCL-C scores for anxiety and depression for those who received SIT and for those who did not receive SIT.

Definitions

Anxiety

The *Diagnostic and Statistical Manual for Mental Disorders (5th ed.)* defines anxiety as the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension (APA, 2013). Anxiety can also be defined as recurrent, unexpected panic attacks that cause persistent concern (Van der Velden et al., 2010).

Alcohol or Substance Abuse

Alcohol or substance abuse are described as a pattern of use leading to clinically significant impairment or distress resulting in a failure to fulfill major role obligations at work, school, or home (APA, 2013). This disorder impairs productivity and functioning placing financial and psychological burdens on those around the individual (Grant et al., 2015).

Critical Incident (CI)

A CI is defined as a distressing, traumatic event overwhelming an individual's ability to cope (Clement 2012). It can be further described as an event that is traumatic, unexpected, and a serious threat to the well-being of the individual involved directly with the incident, which can produce significant emotional reactions (Bohl, 2013). Mitchell (1983) included any event or situation that causes an emergency services worker to experience unusually strong emotional reactions that may interfere with the individual's functioning at the scene or following the event.

Depression

Depression is defined as a condition that includes poor appetite, insomnia, low energy or fatigue, low self-esteem, poor concentration, or feelings of hopelessness (APA, 2013). Police officers who suffer from depression may take off more time from work, distance themselves from coworkers and loved ones, possibly lead up to suicidal ideations or thoughts (Chae & Boyle, 2013).

Emotional Regulation

Emotional regulation may come from a model of conditioning, activity planning, and the programming of one's actions (Bilyalova, Ryseva, & Kalashnikova, 2016). It may contain a special set of personality traits consisting of emotional stability, sociability, intelligence, a high standard of conduct and self-control (Bilyalova, Ryseva, & Kalashnikova, 2016). Maintaining emotional regulation may assist with the psychological outcomes after a CI (Bilyalova, Ryseva, & Kalashnikova, 2016).

Post-Traumatic Stress Disorder (PTSD)

PTSD can develop following direct involvement in or witnessing of an event during which the individual perceives life-threatening conditions (APA, 2013). According to APA (2013), the event must involve exposure to actual or threatened death, serious injury, or sexual violence in one or more of the following ways:

- Directly experiencing the traumatic event(s);
- "Witnessing, in person, the event(s) as they occurred to others" (p. 427);
- "Learning that the event(s) occurred to a close relative or close friend" (p. 427):
- "Experiencing repeated or extreme exposure to aversive details of the traumatic event(s)" (p. 427).

The *DSM-5* no longer requires PTSD diagnostic criteria as being "that the individual must have felt helplessness, fear, or horror due to the incident" (APA, 2013, p. 1146).

Post-Traumatic Stress Symptoms

These symptoms are those listed in the *DSM-5* for PTSD, but the individual does not necessarily have all the symptoms listed for PTSD and does not meet criteria to be diagnosed with the disorder. Symptoms include negative moods and thoughts such as depression; susceptibility to increased arousal and anxiety such as being easily startled and hypervigilant; avoidance of situations likely to remind the individual of the traumatic event; and reliving the traumatic event through intrusive thoughts, nightmares and flashbacks, that consist of feeling like the traumatic event is happening again (APA, 2013).

Stress Inoculation Training (SIT)

The stress inoculation training police officers attended would consist of stress inducing scenarios through three phases, educational phase, rehearsal phase, and application phase (Meichenbaum, 2007). The training may consist of active shooter training or other training resulting in numerous casualties caused by a single incident (Saunders, Driskell, Johnston, & Salas, 1996).

Assumptions

An assumption involving the participants is that the participants' willingness to take part in the study would not bias the study and that participants would complete the instruments honestly, to the best of their abilities, and that they would complete the instruments fully, by understanding and answering all the questions. Further, it is assumed that the participants understand what SIT consists of and will answer honestly as to whether they have received this training or not. These assumptions are essential

because the data collected must be assumed to be valid from the perspective of each participant to make the analysis accurate, meaningful, and generalizable to the appropriate population of similar police officers.

Finally, it is assumed the PCL-C is appropriate for measuring experiences related to critical incident exposure and psychological trauma. The final assumption is that the PCL-C effectively measures the factors for which they were designed to measure, anxiety and depression (see Lang & Stein, 2005). The civilian version of the PCL is being used because police officers do not face CI's everyday and some may not have experienced a CI at all. A military version of the PCL does exist; however, it focuses on mass casualty incidents during time of war, which police officers have not experienced war type incidents (Lang & Stein, 2005). Using a MANOVA is appropriate because it is used to test two dependent variables when there is only one independent variable (Tabachnick, 1996).

Scope and Delimitations

Aspects that are specifically addressed in this study are posttraumatic stress symptoms experienced by police officers who have responded to a CI in the line of duty. Also addressed is whether SIT might possibly reduce posttraumatic stress symptoms in officers exposed to one or more CIs if SIT is delivered prior to the critical incident. This question is important because SIT could potentially reduce emotional harm suffered by first responders during CIs. A potential threat to external validity is that the researcher does not have control over the nature or the outcomes of the SIT that was provided to the

participants prior to the study. Similarly, the researcher does not have control over the CIs experienced by participants.

The participants for this study are police officers who have had an increased likelihood of exposure to a CI and who have been offered SIT in their workplace. The results of this study may only be generalized to police officers who work in similar police departments and who represent similar demographics, training, and experience. Potential threats to internal validity consist of aspects of the participants' history, including the possibility that the participant has not been a police officer long enough to have responded to a CI. Another threat consists of there being no control over the possible confounds due to this study being a quasi-experimental study. The following conditions potentially change circumstances defined for the study and outcomes: (a) participant maturity; (b)not understanding the psychological trauma they are experiencing that could alter psychological interpretations pertinent to the study; (c) unintended conclusions participants may draw about themselves and their distress while completing the PCL-C; and (d) research mortality related to participants dropping out of the study prior to completion.

Limitations

The results of the study could be limited by the data being collected through self-reported questionnaires. There are limitations inherent in studies using self-reporting instruments, such as biased recall, fear of acknowledging weaknesses, or inaccuracies in recollection (Lang & Stein, 2005). For example, participants were asked to rate the accuracy of statements such as, "Feeling very upset when something reminded you of a

stressful experience from the past." The participant could rate this low, because they may feel this response will be provided to their superiors or it could make them feel they are not in control of their feelings of stress. To promote openness and honesty in participants' completion of instruments, the anonymity and confidentiality of the collection and protection of data was emphasized.

Law enforcement jobs can differ significantly between agencies by locality, such as rural, urban, federal, or corrections. This study is limited to two police agencies similar in size, one being a city agency and one being a county agency that includes rural areas. Therefore, the generalizability of this study is limited beyond populations of career police officers. The study was restricted to police officers working in a patrol capacity from two moderate sized agencies within the state of Colorado. It did not collect data on or from parttime, reserve, or volunteer officers. Civilian employees and high-ranking police officers (i.e. lieutenants, captains, chiefs, etc.) were excluded as to avoid potentially confounding variables, because their responses might not be similar to those of rank and file officers.

Limitations to using an ex post facto design may include the possibility of inherent compounds in the variables studied since there is no random assignment to treatment. The generalization of the sample may be limited because it cannot be considered as random sampling.

To avoid potentially confounding variables for this study, other types of emergency services agencies, such as paramedics and fire departments, were not included. Therefore, a singular type of police agency, moderate-sized law enforcement

agencies, provided the participants. Other types of law enforcement agencies, such as federal law enforcement or corrections agencies were not included in this study. Potential confounds of this study included the possibility of not receiving the responses from participants necessary to prove or disprove the hypothesis. There was also the possibility of a department denying the use of their officers due to a recent CI lowering the amount of the participant pool. A final potential confound was that the participants may not be completely honest on the questionnaires; therefore altering the outcome of the collected data.

Significance

SIT could provide police officers with the ability to be mentally prepared for real-life CIs, such as those with an active shooter. SIT may lessen the chance of psychological trauma after a real-life critical incident (Miller, 2009). The findings from the study could make an important contribution to the field because the potential impact of CIs on police officers may be psychologically overwhelming. CIs involving multiple casualties are becoming prevalent in the United States (Overberg et al., 2013). Thirty such incidents occurred in 2013 alone, 18 of which were considered family violence problems and 12 incidents in the public (Overberg et al., 2013). Well-trained police officers need to properly handle these situations in a manner that reduces their chance of experiencing negative psychological reactions (Papazoglou & Andersen, 2014). According to Marmar et al. (1996), CI training may reduce the psychological trauma and this may lower potential negative impacts on police officers who respond to CIs.

If SIT is found to be an effective training strategy to use prior to an officer responding to a CI, the results from this study could potentially make the following contributions to social change. Police departments who do not use SIT could be provided with information about how SIT can reduce posttraumatic stress symptoms in officers who face CIs. The findings could assist police officers with lowering future potential psychological trauma. The results could also assist other first responders and military personnel. If the results show that SIT does not lower post-traumatic stress symptoms, future studies could be developed to find what may be more effective for the police officers.

Summary

The purpose of this study was to determine whether SIT can lower the effects of posttraumatic stress on police officers who have responded to one or more CIs, or whether SIT has no effect on the officers' experiences following the CI. The focus of this study was based on two research questions that examine symptoms of posttraumatic stress, anxiety, and depression that could emerge following the experience of a CI. Although there is plenty of research on police officer responses to CIs (Daniels et al., 2011; Devilly et al., 2006; Menard & Arter, 2013; Robinson, 2004), little exists on the effects of SIT following a CI. With this gap of SIT research, more needs to be understood about whether SIT could reduce post-traumatic stress experienced by police officers following CIs.

Chapter 2 will discuss a review of the existing literature and how older and more recent research explored posttraumatic stress that police officers experience after a CI.

Although there are gaps in the research pertaining to SIT, there are origins of the concept of SIT and CI's within the law enforcement realm through research pertaining to CI stress management. This chapter further explores potential negative consequences of exposure to a CIs including trends in mental health problems.

Chapter 2: Literature Review

Introduction

The literature reviewed for this study (Elliot & Eisdorfer, 1982; Meichenbaum, 1977; Remsberg, 1986; Sanow, 2010) has shown that, although military and emergency service personnel have many similarities to police officers, studies need to be specifically done on police officers due to responding to CIs on a daily basis and being the first responders to calls prior to the arrival of emergency service personnel. A gap within the literature is the lack of police officers used as participants in studies about CI stress response either due to lack of cooperation from police officers, or police departments not allowing police officers to be used as participants. Although there is significant research on CIs (Augustin & Fagan, 2011; Clair, 2006; Galatzer-Levy et al., 2013; Heglund, 2009; Lamphear, 2011; Menard & Arter, 2013; Sheehan, 2004), there is a lack of research on the effectiveness of SIT and the effects on police officers involved in CIs.

Purpose of the Study

The purpose of this study was to compare the impact of CIs on police officers who have and have not received SIT. A CI is defined as a distressing, traumatic event overwhelming an individual's ability to cope (Clement, 2012). It may consist of a hostage-taking situation, a lost child, an officer-involved shooting, an officer killed in the line of duty, or a homicide. The hypothesis is that the officers who received SIT prior to that incident may have a reduction in posttraumatic stress symptoms compared to officers who did not receive that training, as measured by the PCL-C (see Janka, 2012). The

study may potentially add to the literature on best practices prior to CIs in order to help mitigate the traumatic effects of future incidents on police officers.

This chapter includes a section on the literature search strategies used for the study. This is followed by the literature review broken down by the major themes found in the literature as it related to this research. The themes identified in the literature review were stress in policing, mental disorders, CIs, SIT, and critical incident stress management (CISM).

Literature Search Strategy

The databases used to obtain current and past peer-reviewed articles, dissertations, and seminal literature researched included EBSCO Host, Psych INFO, Psych ARTICLES, and ProQuest. The primary keywords and abbreviations used in these databases were *critical incidents, stress, mental health disorders, posttraumatic-stress disorder, PTSD, substance abuse, law enforcement, police officers, stress inoculating training,* and *mass casualties*. The sources used to retrieve the obtained information were located within the libraries and peer-reviewed journals of the American Psychological Association, Drexel University, University of Liverpool, and Walden University. Combinations of the keywords used, *stress inoculating training and law enforcement or police, posttraumatic-stress disorder and law enforcement or police, and PTSD* and *stress inoculating training* resulted in little research published after the 1990s. Due to the results from these searches, older articles were used when these studies took place having very few results from within the last 10 years.

Theoretical Foundation

The theoretical framework is Selye's (1956) seminal work in developing a model to describe responses to stress. His model of stress includes three stages of physical response to a stressor: alarm, resistance, and exhaustion (Selye, 1956). Selye's (1973) theory of coping with stress details three stages: adaptive coping, maladaptive coping, and active coping. Coping strategies are important following a CI in order to lessen potential long-term psychological damage (Mitchell, 1983).

Selye's Stress Model

The general adaptation syndrome is a stress model created by Selye (1956). He defined stress as "the nonspecific response of the body to any demand made upon it" (Selye, 1973, p. 692). The word *nonspecific* referred to shared elements of responses by the body regardless of the nature of the stressor. Selye (1956) determined there are three stages of the general adaptation syndrome:

1. The alarm reaction exhibits excitability and increased adrenaline within the system. This includes the counter shock phase, which includes the operation of defensive processes.
2. The resistance stage occurs when the initial alarm reaction disappears and the body adapts to the stressor.
3. The exhaustion stage occurs when the body cannot adapt to the stressor, which can lead to death.

According to Lazarus and Folkman (1984), stress is the perceived demands of a situation that exceed or tax the system's resources and the ability to meet those needs.

They described stress as contributing to a negative impact on health issues resulting from work and personal stressors (Lazarus & Folkman 1984). Such outcomes might include heart disease, stroke and possibly cancer. They further suggested that people tend to deal with stress using their own resources such as substance abuse, use of tobacco, or eating disorders (Lazarus & Folkman, 1984).

Cannon (1932) coined the term *homeostasis* to refer to biological processes by which an organism stabilizes and maintains itself. According to Cannon (1932), there are several physiological threats to homeostasis including traumatic pain, activation of the sympathetic nervous system, emotional distress, and exposure to cold. Cannon compared psychosocial threats to homeostasis by describing the *flight or fight response* as a negative feedback system that assists in controlling the internal environment of an individual in response to a stressor. Cannon suggested that a quick activation of the sympathetic nervous system raises the likelihood of survival by making adjustments and compensations necessary to preserve the internal environment of an individual and to facilitate the flight response of escape from the stressful stimulus and/or to ready the individual's capacity to fight to alleviate the stressor.

The concept of a CI (Mitchell, 1983) as it relates to police officers is an important aspect of this study. Empirical research has explored CIs related to the work of police officers as well as the effects of CIs on individuals, which is mainly oriented to the field of psychology. The term CI is specifically described as a significant event in an individual's life that has a strong potential for creating complications (Mitchell, 1983). In 1990, Mitchell and Bray identified several situations experienced by police officers

and other emergency service personnel that were likely to create a higher risk of negative consequences. These events included deaths of police personnel and other emergency service workers, disaster or terrorism incidents where multiple casualties were involved, situations that presented a very high risk of threat or injury to emergency service personnel, incidents where victims were personally known to the responding emergency service personnel, and any other strongly negative, powerful, and significant events related to first responder work (Mitchell & Bray, 1990).

Police officers responding to a CI may experience an adrenaline rush due to excitability of the call they are responding to (Chae & Boyle, 2013), their defense processes begin to work in the case they have to defend themselves or others during the CI. This would fall under the first stage of Selye's (1956) general adaptation system being the alarm reaction. During the investigation stage of the CI and police officers have been on scene for a period, the adrenaline may begin to drop and police officers calm down enough to know what roles they must play at that time, whether collecting evidence or scene security (Galatzer-Levy et al., 2013). This stage is the resistance stage for Selye's (1956) adaptation system where the body begins to adapt to the stressor and the initial reaction of the excitement disappears. Finally, after the CI is over and the officer has left the crime scene, after an undetermined timeframe, police officers may potentially show signs and symptoms of stress related issues and PTSD (Janka, 2012). This is the third stage of Selye's (1956) adaptation system where the body cannot adapt to the stressor so it becomes exhausted and stress sets in (Janka, 2012).

Janka (2012) has recommended using the PCL-C because it could measure the amount of stress police officers experienced before, during, and after a CI. The PCL-C presents items designed to measure stress resulting from a traumatic CI for both police officers and civilians. Since police officers respond to potentially traumatic CIs nearly every day, the PCL-C could potentially provide results that may show levels of posttraumatic stress.

Literature Review: Key Variables and Concepts

Overview of the Stress of Policing

Police officers face a significant number of stressors daily in both their professional and personal lives (Devilly, Gist, & Cotton, 2006). The stress associated with the fast-paced, high-stakes work environment of a police officer has been associated with a variety of mental health disorders including antisocial behaviors, PTSD, and substance abuse potentially leading to suicide (Devilly, Gist, & Cotton, 2006). Menard and Arter (2013) reported that many police officers have experienced a cumulative type of stress to repeated exposure to confrontation, violence and death, and the perpetual risk of injury. These recurrent negative experiences have set the stage for such mental health complications as drug and alcohol abuse, dissociative disorders, and PTSD.

Considering the stressors police officers face, SIT programs have taken place in police departments to help officers learn how to control what may upset them and trigger their autonomic nervous system at the time of a call (Saunders, Driskell, Johnston, & Salas, 1996). SIT was developed by Meichenbaum (1977) in the 1970s as a form of cognitive-behavioral therapy and can be tailored to individual or specific group needs

through stress inducing scenarios. Three phases are used in SIT, which are the educational phase, the rehearsal phase, and the application phase (Meichenbaum, 2007). These phases have remained the same from Meichenbaum's study in 1977 to his 2007 study. These phases are described in further detail later in this chapter. Still, with 698,460 police officers employed in 2011 (United States Department of Justice, 2012), not all work in police departments have provided such training (Cummings & Jones, 2010). Moreover, although many police officers are trained to control their fears and feelings during the time they are on a call for service, successfully doing so is not possible for all police officers in all situations. This is particularly true during and following a mass casualty critical incident, where multiple victims, including children, have been wounded or killed (Clair, 2006; Galatzer-Levy et al., 2013). Indeed, no amount of training can prepare an officer for what he or she may see during such events,

In emergencies, police officers are expected to keep their emotions under control and not act out irrationally, the negative result of which is a buildup of stress (Clement, 2012). CIs can cause police officers to become easily angered or agitated due to the overstimulation of the officers' senses with smells, sights, and sounds that can be horrifying, deafening, and distracting. Officers could make the wrong decisions and become hostile toward suspects and victims to whom they are trying to render aid (van der Velden, Kleber, Grievink, & Yzermans, 2010). Police officers who have not received any type of SIT have eventually withdrawn from coworkers, family and friends out of fear or anger and as an attempt to maintain control of strong emotions (Janka, 2012). Some police officers have abused alcohol or narcotics to maintain what they perceive as

control and cover of their reactions to stress (Menard & Arter, 2013). Officers may decide not to speak with someone outside the law enforcement realm because they do not want to appear weak and vulnerable to their community, and this may further increase their stress (Augustin & Fagan, 2011).

Negative Effects of Police Stress

A review of the literature has shown that after serving for many years, police officers have protected their true feelings through emotional and physical withdrawal, particularly in reaction to a CI (Violanti et al., 2007). According to Reiser (1975), a Cincinnati Police Chief, C. Goodin, remarked that career officers, according to recent figures, have died younger than most other occupational groups and have suffered particularly high incidents of health problems. Goodin further remarked that stress has been the reason named time and again by researchers of occupational hazards as the major debilitating factor in the police officer's job (as cited in Reiser, 1975).

Karlsson and Christianson (2003) provided questionnaires to 162 police officers five different times between May 1995 and May 1997 to determine possible coping problems and themes of stress. They found that police officers who responded to major incidents early in their career had long-term negative psychological effects, such as PTSD, depression, alcoholism and anxiety. Violanti et al. (2011) determined after a study of 100 police officers that those with a higher body mass index (BMI) suffered higher levels of stress following a CI and were more prone to mental health problems. Violante et al. (2011) also found severe symptoms of PTSD, depression, and anxiety among those police officers with high BMI ratings.

Police officers may get to a point in their lives where their job is more important than their families, causing them to wear themselves out by working more and leaving less time for them to perform tasks they enjoy doing, such as exercising, sleeping, or pursuing other hobbies (Clair, 2006). Further signs of stress have resulted in the excessive use of force and citizen complaints, extensive use of sick leave, showing up late to work, and not following departmental policies (Clair, 2006). In a study of 128 police officers in 11 states, Clair (2006) found a correlation between PTSD and use of excessive force, extensive use of sick time, and excessive complaints.

The negative effects of stress such as mental disorders and personal/professional problems can worsen during and following CIs as a result of the stress of these calls. Mental health problems have occurred more readily among police officers who have responded to CIs rather than simply to normal police calls (Clement, 2012; Meaker, 1998; Sheehan, 2004). Officers who have responded to CI calls several times throughout their career have experienced psychological disorders over a shorter period of time compared to officers who have not had such experiences (Clement, 2012).

Mental Disorders

According to van der Velden et al. (2010), police officers can develop mental disorders throughout their career due to organizational stressors and life events. Organizational stressors can be due to changes in policies within the police departments, changes in command staff, promotions, demotions, and everyday calls for service. These calls for service are calls such as homicides, sexual assaults, officer involved shootings, and line of duty deaths (Kureczka, 1996). Due to these stressors police officers could

potentially suffer from mental disorders such as anxiety, depression, and PTSD, frequently resulting in suicide within a 510-year period (Galatzer-Levy et al., 2013).

Anxiety and Depression in Police Officers. Anxiety can be common among police officers who have responded to CIs over time. Anxiety may include recurrent, unexpected panic attacks that cause the officer persistent concern (Ven der Velden et al., 2010). The *DSM-5* (APA, 2013) defines anxiety as "the apprehensive anticipation of future danger or misfortune accompanied by a feeling of dysphoria or somatic symptoms of tension. The focus of anticipated danger may be internal or external (p. 820)." Van der Velden et al. (2010) followed a group of 473 police officers in the Netherlands after a CI over a period of 4 years. The police officers were assessed for signs of anxiety, depression, and anger issues during this time period. Van der Velden et al. concluded that 55% of the officers suffered some form of anxiety, depression, or anger problem over the course of the study, and those who resigned did so because of fear of another CI or the inability to cope with the aftermath of an incident (van der Velden et al., 2010). Eau Clair, Wisconsin Police Chief J. Matysik (as cited in Vetter, 2008, p. 1) suggested that officers are more susceptible to a higher suicide rate, substance abuse, and anger issues because they constantly see the worst of people along when responding to high stress calls (Vetter, 2008). The stress of not being able to cope, manage negative effects of stress, and/or lower stress can result in suicide (Ramos, 2010). Officers may end their career in alcohol/substance abuse, which sometimes can be a forerunner of suicide (Ramos, 2010). Instead of getting professional help, officers are medicating themselves with alcohol and substances to temporarily distract them from the pain they are in

(Violanti et al., 2011). Eventually the pressure and pain overwhelm them, and they see no end to the pain or no other way out, so in despair, they begin to have suicidal ideations (Violanti et al., 2011). Due to these issues, SIT could potentially assist officers with the knowledge of how to cope with these issues understanding professional help is an important option.

Police departments attempt to identify officers with anxiety or substance abuse, or who are unable to control their anger (Campfield & Hills, 2001). Although not completely effective in deterring officers from experiencing anxiety disorders, training and preparation can help them identify such symptoms so that they can obtain professional assistance more quickly (Campfield & Hills, 2001). Many departments have high stress training in place to prepare officers for the stress they will encounter during an incident, and debriefing sessions designed to help officers identify reactions they may experience following the incident (Daniels et al., 2011).

PTSD. The *DSM-5* lists several criteria for PTSD (APA, 2013). PTSD begins with direct involvement in or witnessing an event during which the individual perceives life-threatening conditions (APA, 2013). The event must involve the threat of serious bodily injury, the threat of death, or an actual death. The *DSM-5* no longer requires PTSD diagnostic criteria as being "that the individual must have felt helplessness, fear, or horror due to the incident, as the recent revision removed this requirement, noting that its inclusion did not increase diagnostic accuracy" (APA, 2013, p. 1146). An additional "change in the diagnostic criteria for both PTSD and acute stress disorder is the placement of these disorders under the disorder category of trauma and stressor-related

disorders and their removal from the class of anxiety disorders" (APA, 2013, p. 1146). Acute stress disorder differs from PTSD because symptoms will occur within 1 month of the extreme stressor, whereas PTSD requires more than 1 month of symptoms (APA, 2013). If acute stress disorder is caught within that 1-month timeframe, appropriate interventions can head off the development of PTSD (APA, 2013). A "clinical subtype for PTSD was added in the 2013 *DSM-5* to allow for individuals who experience derealization or depersonalization with PTSD, classifying their PTSD as potentially having dissociative symptoms" (APA, 2013, p. 427).

Galatzer-Levy et al. (2011) conducted a study of 400 police from four different police departments. The purpose of this study was to determine if there was a relationship between police officers who responded to CIs and PTSD. This study also examined whether police officers who suffered from PTSD within the first 5 years of their career had PTSD due to the amount of incidents they responded to during this time, or if police officers could potentially decrease the symptoms of PTSD with less exposure to Cis (Galatzer-Levy et al., 2011). The study concluded that police officers were more susceptible to PTSD because of the amount of critical exposure during their career (Galatzer-Levy et al., 2011).

Police Suicide

Police suicide can be due to a buildup of CI trauma, organizational stress, shift work, personal relationship problems, and substance abuse (Chae & Boyle, 2013). Although suicide can be caused from a combination of the above-mentioned issues, it continues to be a large problem among the law enforcement community (Chae & Boyle,

2013). For this section, suicide will be defined as the taking of one's own life. Suicidal ideations refer to thoughts of suicide, and therefore is a possible warning of potential, impending suicide.

Due to the amount of stressful calls to which police officers have responded, they began to suspiciously look at everyone, including those they love (Violanti et al., 2011). With this build-up of mistrust of others, organizational stressors, substance abuse, and CI trauma, suicide may seem the only way out of the stress and potential psychological trauma. Chae and Boyle (2013) suggested not all police officers will commit suicide due to these factors. The majority of officer suicides have come from larger departments where mistrust, organizational stressors, substance abuse, and CI trauma have been more common (Chae and Boyle, 2013).

Critical Incidents

The Federal Bureau of Investigations (FBI; 1999) has defined CIs as including line-of-duty shootings; death, suicide, or serious injury of coworkers; multi-casualty homicides; and hostage situations, some of which may require the use of a specialized police team or a Special Weapons and Tactics (S.W.A.T.) teams specifically trained to handle and deal with such situations. Police officers respond to CIs differently than do paramedics, firefighters, nurses, and doctors. Police officers are more often the first type of emergency personnel on scene, therefore, having to deal with the initial impact of an immediate scene. Law enforcement officers might each day encounter automobile accidents, serious personal injury, physical assaults, homicide, sexual assault, and line-of-duty death, all of which can cause anxiety (Thornton, 2014).

Stress Inoculation Training

Meichenbaum (2007) developed stress inoculation training (SIT) in the 1970s as a form of cognitive-behavioral therapy. This form of therapy can be tailored to individual or specific group needs by using scenarios that induce stress specific to the individual or the group. The procedure for SIT is divided into three phases: the educational phase, the rehearsal phase, and the application phase (Meichenbaum, 1977). During the educational phase, participants learn about the autonomic nervous system and how stressors elicit physiological arousal. To demonstrate, anxiety-inducing thoughts are produced to arouse physiological responses by an instructor or counselor within a classroom setting. The rehearsal phase applies direct action and the use of cognitive coping strategies to decrease autonomic arousal. Participants describe stressful situations to the instructor and the counselor or instructor provides relaxation exercises to help with coping skills for those scenarios. This is also when the trainee's negative self-statements are recognized by the instructor or counselor, and coping statements are rehearsed to replace these to help develop the ability to cope with feelings of stress or being overwhelmed. Application training puts everything learned into perspective, and stressful conditions are simulated as means to learn how to deal with the stress using the previous phases (Meichenbaum, 1977). An example is when police officers perform active shooter training using real-life simulations in which actors are used as victims, witnesses, and suspects. By using actors, this forces police officers to respond as they would in a real-life situation. When the officers become stressed in these real-life simulations, they use what they have learned in

SIT to stay focused throughout each situation, manage their autonomic arousal, thus remaining calm.

Meichenbaum (2007) suggested that "stress is in the eye of the beholder," thereby providing individualized role-playing scenarios where police officers learn how to cope with high stress situations. Following the training, stress prevention techniques, such as debriefings, can be put into place by the instructors or counselors to help highly distressed populations, such as police officers, cope with stressful situations (Devilly, Gist, & Cotton, 2006). These stressful situations can come in many different forms, including time-limited reactions to active shooter situations, officer involved shootings, line of duty deaths, terrorist attacks, and CIs involving multiple deaths. Such training can reduce the risk of long-term damage following actual CIs (Devilly, Gist, & Cotton, 2006).

Remsberg (1986) stated that police officers should be mentally and physically prepared through intense repeated training such as SIT; otherwise, they may believe luck will save them. The mental thought process is called "mental movies," preparing officers to work on their skills for altercations they may encounter (Remsberg, 1986). Through these mental skills that officers repeatedly rehearse, they can visualize defeating a threat in their mind or how to adjust properly to the aftermath of a critical event. The resulting positive mindset can enable the officer to defeat an actual threat physically and mentally. Practicing high stress tactics, physical moves, takedowns, and firearms skills trains the body to respond by memory (Remsberg, 1986).

Mental skills, such as mentally preparing and training through situations, have been shown to be a solid basis for police officers defeating stress through protecting themselves and winning battles (Remsberg, 1986). Officers who have mentally and physically trained themselves may be more confident and competent in their abilities to perform their jobs (Meichenbaum, 2007). Police officers who have been mentally and physically prepared to win in every CI have depended on 75% mental skills, 15% shooting skills, 5% physical skills, and 5% luck (Meichenbaum, 2007). These percentages have shown that luck has not been a definitive factor in an officer's ability to survive a CI, because mental skills have outweighed all other skills. Effective training has led to mental preparedness by rehearsing ways to overcome potentially negative outcomes (Meichenbaum, 2007).

A scarcity of research exists (Saunders et al, 1996; Sanow, 2010) regarding SIT since Meichenbaum developed this procedure in the 1970s, and some research has suggested that. SIT may not be effective all the time (Saunders, et. al., 1996). According to Saunders et al. (1996), SIT was originally designed by Meichenbaum to be performed in clinical intervention type settings. They further suggested that some participants of SIT have become negatively affected if the training brought back memories of a previous negative event.

Saunders et al. (1996) performed a study to determine if the effects of SIT reduced anxiety and improved performance of police officers, addressing the question as to whether SIT has been effective. The independent variable being SIT training, the trainee population, settings, group size, number of training sessions, skills practices, and

trainer experience. Saunders used 1,837 participants, of which, some being exposed to normal performance anxiety and some exposed to a high level of anxiety. The goal was to see if there was a significant difference in lowering the amount of stress in the group using SIT. This study did show that SIT did have a high reduction of normal performance anxiety and had a moderate reduction in individual with high levels of anxiety, being the dependent variables (Saunders et al., 1996).

According to Sanow (2010), active shooter training using SIT may work well with police departments who trained their personnel in how to apply these techniques during a CI. But, with the potential of multiple agencies become involved in the training, it could become confusing and stressful to police officers possibly because of the inability to talk to one another during the training (Sanow, 2010). This stress could potentially lead to challenging situations during actual scenarios when other agencies arrive on a scene to assist. Without the opportunity to speak to one another, it could potentially become worse for police officers' stress levels possibly because they may not know who the suspect is and who the officers are if other police officers were to arrive on scene out of a uniform (Sanow, 2010). These training scenarios may increase stress levels possibly due to police officers shooting victims who may have armed themselves, or other police officers who arrived out of a uniform (Sanow, 2010).

In sum, the research performed on SIT has been completed mostly with participants outside of law enforcement. The gap in the literature on the effect of SIT has been due to the lack of research evaluating the effects of SIT on police officers who have responded to CIs. The lack of police personnel as study subjects, in this researcher's

opinion, may possibly be due to the lack of cooperative police departments or possibly the lack of cooperation by the officers themselves.

Organizational Responses to Critical Incidents

Police officers who have responded to CIs could have potentially been impacted psychologically, physically, and emotionally (Arter, 2013; Devilly, Gist, & Cotton, 2006; Elliot & Eisdorfer, 1982; Meichenbaum, 2007; Pulley, 2004). An article written by Kureczka (1996) suggested that approximately 70% of police officers who used deadly force in the line of duty left their job in law enforcement within five years, with a departmental financial cost of $100,000 for replacing a 5-year veteran due to benefits, testing for replacements, and lost knowledge accrued by the veteran officer.

Police departments have taken many routes to alleviate the perceived stress and maladaptive stress reactions following a CI response. In 1994, Congress passed the Violent Crime Control and Law Enforcement Act, which has required departments to implement training programs to educate officers and assist them with stress management. Amaranto, Steinberg, Castellano, and Mitchell (2003) observed, "Appropriate prevention, intervention, and treatment of stress associated with police work are essential to preventing psychosocial impairments that contribute to misconduct" (p. 49). One proactive intervention suggested has been to hold in-house training classes educating officers on the psychological, emotional, and physical reactions to stress, emphasizing the benefits of psychological services and preparing officers to support colleagues who have suffered from CI stress (Mashburn, 1993), no other studies have been located to determine if this suggested intervention has been effective.

Another organizational strategy to manage stress related to CIs has been to provide a system of support for officers called a peer counseling team consisting of other trusted police officers working internally within the police department. Beginning in the early 1970s, consultations with trained peers or another officer who had experienced similar stressors and had a shared understanding of the occupational and family environments, have become an integral part of many departmental employee assistance programs (Goldstein, 2006). The purpose of these teams has been to handle minor stressors and counsel families of police officers (Mashburn, 1993). The effectiveness of this intervention was evaluated 13 months after the date of the original peer support session. The results indicated there were symptoms of PTSD; however, those symptoms were present in victims who were victimized the worst, such as severe burns victims. One ethical challenge has been ensuring confidentiality in peer-support agreements, resulting in the suggestion that peer support members sign a confidentiality agreement advising no information is to leave the session (Goldstein, 2006).

CI stress debriefing has by far been the most common response used by police departments following a CI in the hope of preventing maladaptive stress reactions (Mashburn, 1993). This will be described in the next section.

Strategies to Manage Critical Incident Stress

Critical Incident Stress Debriefing (CISD)

Purpose of CISD. To prevent or minimize post-traumatic stress symptoms following CI events experienced by law enforcement officers, early psychological intervention is necessary (Carlier et al., 2000). An example of such an early intervention

is CISD, utilized for the purpose of the prevention of PTSD (Carlier et al., 2000). CISD was founded on the belief that immediately talking through traumatic experiences will help people recover from psychological damage or possibly prevent it. Mitchell's work in the early 1980s with first responders, such as firefighters and emergency medical workers, prompted him to develop CISD (Everly & Mitchell, 1995). The purpose of CISD was intended to mitigate the psychological impact of a traumatic event, prevent the subsequent development of PTSD, accelerate the potential toward full recovery, and serve as an early identification tool for individuals who will require professional mental health follow-up subsequent to a traumatic event (Mitchell & Everly, 1995).

Prevalence of CISD. Debriefings and a shorter version, known as a defusing, have been used in high-risk occupational groups such as firefighters, law enforcement officers, emergency medical workers, disaster response personnel, dispatchers, and public safety personnel to better handle trauma caused through work-related incidents (Everly & Mitchell, 1995). Everly and Mitchell (1995) reported that in 1995 approximately 360 CISD teams around the world were available to most first responding agencies. Mitchell and Everly's International Critical Incident Stress Foundation, which has trained approximately 40,000 individuals each year since approximately 2006, has provided debriefing and similar services to survivors of trauma beyond the law enforcement community (Heglund, 2009). There have not been new numbers provided to show a growth in the amount of individuals trained to date.

Debriefing Process. The debriefing process is a type of crisis intervention implemented within a group setting by psychologically trained individuals; however, it is

not psychotherapy (Mitchell & EverIy, 1995). A mental health professional with at least a master's degree in psychology, social work, psychiatric nursing, or counseling co-facilitates the intervention groups with peer support members (Mitchell & EverIy, 1995).

Facilitators trained in crisis interventions, stress, PTSD, and the CISD process have typically guided a group who has experienced a CI through a 7-phase debriefing process (Mitchell & EverIy, 1995). In the first phase, the introduction phase, team members, being therapists and peers support members, are introduced and the CISD process is explained in detail. The objectives have been to ease anxieties, motivate members to discuss the CI, and discuss confidentiality (Mitchell & Everly, 1995). Because it is presumed that the facts of an incident are easier to discuss than the emotions that accompany it, in the *fact phase*, being the second phase, members have discussed their roles in the incident and their perceptions of the events during this phase. Members are encouraged to participate during this process but contribute only if they want to. The third phase, the *thought phase,* begins when the facilitator has requested that each member share his or her first thought or most significant thought concerning traumatic events during the CI. This phase has served as a transition phase between cognition and emotion, and members are placed in various positions along this continuum in order to assist with getting others to talk and not sit silently (Mitchell & Everly, 1995). The most emotionally powerful experience has occurred in the fourth phase, the *reaction phase*. In previous phases members of the debriefing have talked about their roles and involvement using their method of placement in the seating structure; for example, if seated in a circle they start with one person and move clockwise. In the reaction phase members have

spoken more freely. The facilitators have been asked some variation of the question, "What type of personal effect did this have on you?" The *symptom phase,* which is the fifth phase, has served as another time of transition. The objective of this phase has been to facilitate the process of the members transitioning from the emotionally laden reaction phase back toward cognitively oriented material (Mitchell & Everly, 1995). The symptom phase is started when the participants are asked to relate any stress-related symptoms. Common reactions may be muscle tremors, indecisiveness, and anger about what participants might have experienced during the CI. As a way of normalizing their reactions, the facilitator has explained that these reactions are common physical and emotional symptoms of stress. The *teaching phase*, being the sixth phase, has helped with normalizing many of the reactions identified in the symptom phase. While identifying a range of distress symptoms, team members have provided information regarding symptoms that could develop in the future. Education has been provided to officers and their families about diet, exercise, rest and healthy coping strategies for stress management (Mitchell & Everly, 1995). The seventh and final phase, *reentry,* has provided an opportunity for participants to ask any remaining questions. Statements are made in order to provide closure and to clarify material previously discussed throughout the previous six phases. Mitchell and Everly (1995) suggested that summary comments have been important because they express respect, appreciation, and support for the members and their families. Facilitators then have responded to questions and have provided educational handouts and referral sources in the case of future issues that could arise (Mitchell & Everly, 1995).

Many law enforcement agencies have adhered to a standard timeframe of when CISD has been provided after a CI. These agencies have believed that debriefing will lessen the possibility of the psychological symptoms and development of PTSD (Amaranto et al., 2003). Typically, debriefing has taken place in a meeting with police officers two or three days following a CI. Although primarily designed to be used in a group setting and not designed to be used with individuals or couples, debriefings have also been provided to individuals, couples, and families (Horn, 2002).

Research Findings about CISD. Randomized controlled trials have been conducted to evaluate the effectiveness of debriefings delivered at varying intervals following an incident (Carlier et al., 2000; Bisson & Deahl, 1994). When individual debriefing occurred 24–48 hours post-CI, Carlier, et. al. (2000) found a significantly greater decline in psychological symptomatology in debriefed respondents at a four-month follow-up compared to non-debriefed respondents. When debriefings were carried out either individually or in pairs two to 19 days post-CI, a 13-month follow-up recorded a significantly greater reduction in psychological symptomatology (PTSD, depression, anxiety) in the debriefed group compared to the non-debriefed group (Bisson & Deahl, 1994). When debriefings were initiated two weeks after the CI, at four-month follow-up, no significant differences in psychological symptomatology were apparent among debriefed and non-debriefed respondents (Carlier et al., 2000). It is difficult to determine if there was a significant difference between the two studies because Carlier et al. (2000) provided results after a four month follow up. The Carlier et al. (2000) study did not

provide a 13-month follow up to determine if there was a reduction in psychological symptomology.

Several important points have consistently emerged from these research findings. Those who have received CI debriefing compared to those who have not have clearly fared better when it comes to post-incident psychological symptoms. Immediate (within 24-48 hours), debriefing sessions have had a more significant positive effect on reducing post-traumatic stress symptomatology than a debriefing session that has occurred beyond 48 hours after a CI. Additionally, researchers have suggested that debriefing should address the stressor criterion for PTSD diagnosis following a CI (Carlier et al., 2000). This debriefing suggestion separates CIs from other stressful life events, such as relationship problems and work conflicts, which do typically contribute to PTSD and do not qualify subjects for the debriefing program used for CIs.

Other research findings have not been consistent with these and have not found CISD to be effective in reducing psychological symptoms. Addis and Stephens (2008) found that CISDs performed immediately following a CI response had no long-term prevention impact on the mitigation of PTSD symptoms. In fact, the experience of debriefing was found to be associated with significantly *higher* PTSD symptoms possibly due to forcing participants to relive the traumatic experience (Kitchiner & Aylard, 2002).

A study performed by Griffiths and Watts (1992) examined the relationships between stress debriefing and stress symptoms in emergency personnel who had responded to bus crashes. They found, after twelve months after debriefings, those who attended debriefings had significantly higher levels of symptoms of PTSD than those who

did not attend the debriefings. They also found that there was no relationship between the perceived helpfulness of debriefing and the symptoms reported. The study coincided with previous findings of Addis and Stephens (2008) where greater post-traumatic stress symptoms for police officers, had a potential expanded risk of PTSD in debriefed participants. Although participants reported 15 years after the stress debriefing that debriefings were helpful, Addis and Stephens (2008) found that the participants were still experiencing PTSD symptoms.

Gist (1996) suggested there are exaggerations and misstatements thus false data collection, in the results from CISD outcomes, which have not been challenged in the past by other researchers. He also suggested that consistently, research (Amaranto et al., 2003; Bisson & Deahl, 1994; Carlier et al., 2000; Mitchell & Everly, 1995) showed lack of preventative effects from debriefing, that there was no differential ill effect from the absence of debriefing, and that those who sought the intervention did not find it necessary to seek outside intervention (Gist, 1996). This is similar to previous findings that PTSD symptoms have been present several years after CI debriefings (Addis & Stephens, 2008; Bledsoe & Barnes, 2003; Gist, 1996; Griffiths & Watts, 1992).

Other research about traumatic stress has suggested two primary reasons debriefing may be ineffective: the lack of ongoing support from departments and the lack of the use of future debriefings when more than one session may be necessary for those who may have missed a session or who have needed further help stress (Addis & Stephens, 2008).

Methodological Issues. An issue researchers commonly criticized relates to methodology. Randomized controlled trial (RCT) studies have not typically been used because participants are chosen at random and placed into groups receiving different interventions, including a control group that has received no intervention being ethically problematic. RCTs can be extremely difficult to conduct in the "real-world' (Bledsoe & Barnes, 2003). During randomized controlled trials, officers are randomly assigned to CISD or to a control group that did not receive CISD. Law enforcement agencies frequently have required officers to attend the "experimental condition" that has consisted of CISD, but the agency has not provided a control group. Most law enforcement agencies have refused to provide a control group because of the ethical concern that this group would not receive an intervention that could be potentially helpful.

Proponents of CISD have been consistent in stating that for CISD to be effective, adherence to the original CISD protocols is important. The original CISD protocols consisted of seven key phases that included being able to assess the impact of the CI, identifying immediate issues, diffusing, predicting reactions, conducting a review of the CI, bringing closure to the incident, and assisting in the re-entry process back into the community. Researchers have deviated from the original protocol by conducting a form of CISD with individuals rather than in a group setting as in the original CISD protocol, and from these individual experiences, researchers have attempted to generalize about any negative results observed as opposed to those which resulted from a group setting.

McNally et al. (2003) performed an extensive review of the literature research findings, arguments for and against CISD. During the post-CI recovery period,

debriefing was considered a brief intervention and not a long-term fix for recovery in the early stages following a CI (Miller, 1998). As CISD may possibly have a positive effect on traumatic symptoms in the short term but an adverse effect at long-term outcomes (Addis & Stephens, 2008), researchers suggested that formalized follow-up sessions over a prolonged period of time should be provided (Bisson & Deahl, 1994; Busuttil & Busuttil, 1997). However, no such studies have occurred to show an outcome after such a prolonged period. Debriefing has typically been presented as means of addressing inevitable negative emotions, both short-term and long-term, and may have undermined positive feelings by continuously bringing up the negative emotions (Addis & Stephens, 2008).

Critical Incident Stress Management (CISM). An all-encompassing, multifaceted approach to aid first responders is CISM. CISM has been a multi-faceted crisis intervention that can be provided pre-CI, during the CI, and post-CI, such as a natural disaster, mass casualty, or active shooters where the impact is widespread and the victims are many. CISM has been "considered comprehensive in that it has consisted of interventions applied to individuals, small functional groups, large groups, families, organizations, and even communities" (Mitchell et al., 1999, p. 149). CISM has had six components: training, developing support, defusing, CISD, counseling and support. Training has taken place before a CI and has included mental preparedness and stress management education as key components in the training. Another component has included developing support services for large-scale disasters and CIs. Defusing, or a shortened version of debriefings, has been the third component and has been provided

within hours of a CI for the purpose of triage and acute symptom mitigation, similar to performing a quick fix to a wound. The fourth component of CISM has been to combine CISD and CISM by having the participants discuss their roles in the incident and explain how they are feeling or felt at the time the incident was occurring. The last two components included in CISM have been individual counseling or psychological support, family crisis intervention organizational consultation and referral for assessment and treatment when warranted (Mitchell et al., 1999).

The original goals of CISD were to lower the potential psychological impact of CI responses, prevent the development of PTSD, return the participant to pre-incident functioning, and identify individuals who needed further professional follow-up (Mitchell et al., 1999). Studies conducted to determine the impact of CISD on the prevention of PTSD were initially performed on civilian populations who had been involved in a CI (Bledsoe & Barnes, 2003; Campfield & Hills, 2001; Dyregrov, 1997). Efficacy has been determined mostly by the impact on PTSD symptoms. Examples of worsening symptoms have occurred in populations other than police officers, such as burn victims, victims of road traffic accidents, military veterans, and mothers who have suffered the loss of an unborn child.

Other Postincident Intervention Models. Psychological debriefing is another crisis intervention model discussed in the literature and is similar to CISM. Dyregrov (1997) defined psychological debriefings "as a planned structured group activity, organized to review in detail the facts, thoughts, impressions and reactions following a critical incident as well as providing information on typical reactions to critical events"

(p. 589). Some European countries have used a similar structure to Mitchell's CISD called "process debriefing," which has emphasized group processes allowing participants to feel more comfortable and talk amongst peers (Dyregrov, 1997). The Federal Bureau of Investigation (FBI) has used another variation of the CISD called Post-Critical Incident Seminars (PCIS). These seminars have been made available to both agents and support personnel who had been involved in CIs, along with their spouses. PCIS has taken place over a 4-day period. Peer support is provided, along with trauma education and coping strategies, which has allowed the participants to access professional services in a safe environment among their peers (Horn, 2002; McNally & Solomon, 1999). No studies have been located to evaluate the effectiveness of PCIS or the other post-incident intervention models summarized here.

Summary and Conclusions

This literature review has explored research about the effects of CI stress on police officers such as poor relationships with others, problems in the work place, and mental disorders, and strategies to manage this stress such as various forms of CISM and SIT. As seen throughout this literature review, there has been much research performed in these areas, primarily in the 90's, but less so more recently. Currently, research is lacking about psychological outcomes experienced by police officers who were responders to CIs and who have received SIT. Available research has suggested that police officers who have been exposed to one or more CIs in their careers have been at risk for symptoms related to PTSD or other mental health issues at a higher rate compared to officers not exposed to these incidents and the general public (van der

Velden et al., 2010; Violanti, 2006). Stress-related negative consequences have extended beyond the police officers themselves and have affected individuals close to the officers through the officers' relationships with them (Ramos, 2010; Vetter, 2008). Others affected have been law enforcement agencies employing the officers due to stress-related workplace problems and potentially the public due to poor decision-making during police calls caused by unmanaged stress (Galatzer-Levy et al., 2011).

In sum, research has contributed more to knowledge about the problems developed by police officers related to CI stress than definitively how to reduce or manage this stress. Similarly, there has been a paucity of research focused on police officers who have responded to a CI who had received SIT prior to the CI. The goal of this study is to address this gap, and its design has been tailored to not only evaluate the effects of SIT but to also better understand long term consequences of CIs for police officers. Chapter 3 discusses the methodology, participants, instruments, and procedures that will be used to conduct the study.

Chapter 3: Research Method

Introduction

Purpose

This study sought to compare the impact of CIs on police officers' reported symptoms of stress among those who have and have not received SIT. A CI is defined as a distressing, traumatic event overwhelming an individual's ability to cope (Clement, 2012). It may consist of a hostage-taking situation, a lost child, an officer-involved shooting, officers killed in the line of duty, or a homicide (Clement, 2012). The research methods of this study targeted data relating to post-traumatic stress symptoms and exposure to a CI during the line of duty as a police officer. Although some previous studies had collected and analyzed data associated with psychological trauma after exposure to CIs, prior research did not provide a large amount of exploration to the relation between SIT and posttrauma psychological outcomes for police officers.

Research Design and Rationale

Variables

The independent variable in this study was completion of SIT and whether a police officer did or did not receive such training prior to an involvement in one or more CIs . The dependent variables were anxiety and depression, which are symptoms of stress, measured by scores on the PCL-C (Lang & Stein, 2005; Appendix G). The PCL-C is used to measure recurring disturbing dreams, thoughts, memories, and images (Lang & Stein, 2005). It further measures areas of loss of interest, feeling distant from others, loss of sleep, irritable and difficulty concentrating (Lang & Stein, 2005).

Research Design

This quantitative ex post facto study examined whether completion of SIT can lower the effects of psychological trauma on police officers who have responded to one or more CIs. SIT is directed at placing police officers into real-life scenarios to provide them the realities of what they could potentially face allowing the police officers to understand the traumas they could potentially face (Miller, 2009). The research questions for the study were as follows:

Research Question 1 – Will police officers who received SIT prior to responding to a critical incident show lower anxiety in PCL-C scores than police officers who have not received SIT?

$H_1$1 – Police officers who received SIT prior to responding to a critical incident will show lower scores for anxiety on PCL-C scores compared to police officers who have not received SIT.

$H_0$1 – Police officers who received SIT prior to responding to a critical incident will show no difference in PCL-C scores for anxiety compared to police officers who have not received SIT.

Research Question 2 – Will police officers who received SIT prior to responding to a critical incident show fewer symptoms for depression in PCL-C scores than police officers who have not received SIT.

$H_1$2– Police officers who received SIT prior to responding to a critical incident will show lower scores for depression on PCL-C scores compared to police officers who have not received SIT.

$H_0$2– Police officers who received SIT prior to responding to a critical incident will show no difference in PCL-C scores for depression compared to police officers who have not received SIT.

This quantitative research design was consistent with similar research (Lang & Stein, 2005; Wilkins et al., 2011) performed on this same topic. This research design was appropriate because it measured levels of anxiety and depression that might be affected by the independent variable, SIT. By using questionnaires for participants to respond, the data collected was used to determine if the hypothesis was confirmed or denied. A MANOVA was used to evaluate any differences in levels of anxiety and depression self-reported by police officers who have experienced CIs who have received SIT prior to the CIs compared to police officers who have not received SIT. A MANOVA provided between-group comparisons of levels of anxiety and depression to address each of the research questions.

Potential constraints to this study included the timing of when police officers received SIT, responded to a CI, and when they completed the PCL-C. If there is a large time span between when the officers received SIT and the time they responded to their first CI, the training learned could be forgotten and their response may not be the same as when they were first trained. If there is a large time span between their CI and when they completed the PCL-C, the officer could potentially forget how they truly reacted immediately following the CI, which may vary for each participant. These are aspects that were not controlled for this study. A resource constraint may possibly be those officers not remembering their experience, due to the amount of time passed from their

last response to a CI and completing the PCL-C; therefore, not completing the questionnaires.

Methodology

Participants

The target population for this study consisted exclusively of full-time police officers who had been first responders in a CI during the line of duty and currently employed by either the Aurora, CO Police Department or El Paso County, CO Sheriff's Departments. The target population further consisted of police officers who received SIT prior to a CI and those who had not. Officers who received counseling or therapy, beyond debriefing, following a CI will be excluded from this study. The therapy and not SIT could possibly affect levels of anxiety or depression being measured in this study. Tenure and gender did not exclude willing participants; however, due to one needing to be at least 21 years old to work in law enforcement, data collection was limited to those 21 years of age and above. Participants were employed as sworn police officers during a CI and assigned to a patrol division. Participants from the El Paso County Sheriff's Department, Colorado Springs, CO, employing 525 sworn officers, and the Aurora Police Department, Aurora, CO, employing 657 sworn officers, were chosen through convenience sampling. Both agencies are home to officers who have been involved in several CIs, including officer-involved shootings and high-profile CIs. The participating agencies are very similar in size, job functions, job qualifications, police agency structure, and demographics, which could be helpful with acquiring a sufficient number of participants necessary for this study. Although many police departments are involved

in CIs of the same manner, out of approximately 75 police departments contacted, these two were the only departments who agreed to cooperate.

Sampling and Sampling Procedures

Power analysis was conducted to determine the number of participants needed in this study. This analysis was conducted using G Power 3.1 software. The power analysis showed that 74 participants (total *N*) was necessary to detect a small sized effect when employing the traditional .05 criterion of statistical significance and power = .95 (Hager, 2010).

Participants were sent a recruitment flyer that described the study and listed inclusion and exclusion criteria. The flyer was sent to their work emails. access for which the author had gained with the assistance of the administration office and the department psychologist, such as with the El Paso County, Colorado Sheriff's department (Appendix B). The administrator distributed the flyer to the police officers, the author did not have access to the personal emails. This method insured participant anonymity by clarifying that no identifying information was collected and responses were voluntary.

Responding officers were provided an informed consent form to advise them of the study's purpose. The informed consent form included a definition to assist the participants with an understanding of whether they had experienced a duty related CI and a definition of SIT. Those who agreed and signed the informed consent form were provided a web link that redirected them to additional questionnaires listed below that are Internet based, hosted on Survey Monkey.

Materials distributed to all potential participants will include an informed consent and confidentiality document a screening questionnaire (Appendix D), a demographic survey (Appendix E), and PCL-C survey instrument with instructions (Appendix F) through Survey Monkey, a website designed to provide secured questionnaires. All participants completed a demographic survey, providing information regarding gender, years of experience, CI response, and SIT experience. These survey questions could potentially provide some explanatory information in past research and may provide direction for future research. Participants completed the PCL-C as a measure of subjective stress relating CIs. The instrumentation section outlines the specific scales and subscales of the variables being measured by the instrument.

Procedure

After the participants agreed to partake in the study via the informed consent, they were redirected to Survey Monkey where they were asked to answer a screening questionnaire to determine eligibility by completing a basic survey asking the following questions: Have you completed SIT? Have you responded to a critical incident while employed as a police officer? Have you not received ongoing counseling or therapy, beyond debriefing, following your critical incident response? (Appendix D). If the possible participants responded "yes" to each of these items, they were directed to Survey Monkey to complete the demographic questionnaire and the PCL-C. If the possible participants answer any item on the screening questionnaire with "no," they received an onscreen message thanking them for their participation, and they were exited out of the

survey. Data collection took place through Survey Monkey and was scored immediately upon completion by the survey software.

Instrumentation

The PCL-C (Lang & Stein, 2005) is a self-report measure of posttraumatic stress symptomatology that consists of 17 items (Appendix F). The PCL-C focuses on symptoms related to experiences that are stressful. A 5-point Likert-type scale, with anchors ranging from not at all to extremely, is used in which respondents indicate the degree to which they have been bothered by various symptoms such as "suddenly acting or feeling as if a stressful experience were happening again" (Lang & Stein, 2005), loss of interest in things once enjoyed, "feeling distant or cut off from other people, feeling emotionally numb or being unable to have loving feelings, and avoid thinking about or talking about a stressful experience from the past" (Lang & Stein, 2005). The measure will take approximately 5 - 10 minutes to complete and yield subscores, one measuring anxiety and one measuring depression.

Wilkins et al. (2011) conducted a meta-analysis on the psychometric properties of the three versions of the PCL and found internal consistency values for the PCL-C to be above .75 for 14 studies that evaluated topics involving military samples, adults in the community, and peacekeepers. Keen et al. (2008) found internal consistency for the PCL-C to be $\alpha = 0.96$ for the full-scale symptoms. Convergent validity was reported to be strong as demonstrated by high correlations between the PCL-C and additional measures of PTSD symptoms severity. PCL-C is a self-reported screening instrument correlating strongly with the Clinician-Administered PTSD Scale (CAPS; $r = 0.79$, $p <$

0.001) and the Mississippi Scale ($r = 0.90$, $p < 0.001$). This is an assessment instrument used and created by government employees and is not copyrighted making it free for use by professionals (see Appendix C).

Operationalization of Variables

The independent variable, SIT, is defined as role-playing scenarios provided to police officers teaching them how to cope with high stress situations (Saunders, Driskell, Johnston, & Salas, 1996). This training may include reactions to active shooter situations, officer involved shootings, line of duty deaths, terrorist attacks, and CIs involving multiple deaths (Meichenbaum, 2007). SIT was measured by asking each participant whether they have obtained SIT or not. The dependent variables, anxiety and depression, were measured using the PCL-C questionnaire (Appendix F). The anxiety subscale score will be created by summation of items 1, 2, 3, 5, 7, 13, 14, 16, and17. The depression subscale score will be created by summation of items 4, 6, 8, 9, 10, 11, 12, and 15.

The results of the scores will indicate that lower scores correspond with lower anxiety and similarly for depression. The higher the scores, the more the feelings of anxiety or depression are present. These scores were compared between police officer who have attended SIT and those who have not received SIT. MANOVA calculations were used to explore the differences between anxiety and depression among police officers who received SIT and those who have not.

Validity

The instruments used in this study were constructed and validated prior to this study (Lang & Stein, 2005; Wilkins, Lang, & Norman, 2011). A general demographic survey will be used to determine age, sex, length of time as a police officer, last CI exposure and whether the police officer responded alone or with another officer and the capacity in which they responded (see Appendix F). The purpose for the demographic survey is because a police officer who responds to a CI alone could potentially suffer more severe psychological trauma than an officer who responds with a partner or without the necessity of a special unit, such as SWAT.

Data Analysis

Data was collected through Survey Monkey which scored the questionnaires and transfered data into the Statistical Package for the Social Sciences (SPSS) software to further analyze the data for comparison for each research question. The demographic survey was used to describe the population being used for this survey using descriptive statistics to sum the totals for the responses. A Multivariate Analysis of Variance (MANOVA) procedure was used within the SPSS program to compare depression and anxiety scores through the PCL-C questionnaire for police officers with reported signs of anxiety who received SIT and those who did not receive SIT. The analyses involving the PCL-C data explored the differences between officers who reported to have been exposed to CIs and having self-reported symptoms of anxiety or depression. The first research question explored police officers who responded to CIs in the line of duty, and if there were measurable differences on PCL-C scores of anxiety between those who received

SIT and those who did not. The second research question explored police officers who responded to CIs in the line of duty, and if there were measurable differences on PCL-C scores of depression between those who received SIT and those who did not. Using SPSS, MANOVA explored the differences in means for scores for each of the two groups and examined the scores for the PCL-C among officers who reported to have been exposed to CIs and having self-reported symptoms of anxiety or depression, controlling for SIT.

Threats to Validity

Possible threats to the external validity of this study included the generalization of the conclusions to law enforcement populations, such as large agencies (e.g. New York or Los Angeles) or to a police population that employs few officers who may not have the funding capability, or the sight to see the need, for SIT training. Therefore, the generalizability of this study might not extend beyond patrol officers belonging to agencies who have not responded to CIs of the caliber that could cause psychological trauma.

Participants were from the El Paso County Sheriff's Department and the Aurora Police Department, both having had endured several types of trauma and varying responsibilities during incidents responded to, such as large-scale vehicle accidents, officer involved shooting, or weather caused CIs. If data were collected from participants who experienced more of a natural based CI, the study would have been making assumptions regarding CIs when the generalizability would be related to all and any type of incident considered to be critical by individual officers.

Although the design calls for a comparison of anxiety and depression scores for police officers who did or did not receive SIT prior to a CI, the timeframe in which the CI occurred and the time frame when the SIT was taken were not controlled in this study. If participants did not answer the screening questionnaire honestly, not all police officers would have had access to SIT or have responded to a CI. There is also the possibility SIT could have been received several years prior and an officer may have forgotten what they had learned. Therefore, resource constraints could potentially be the inability to obtain accurate information from police officers or those who benefited from SIT.

Internal validity focused on ensuring the independent variable was the cause of the dependent variable to change (Frankfort-Nachmias & Nachmias, 2008). Potential threats to the internal validity of this study were the instrumentation and reliance on self-reporting and data that required recall. The PCL-C is a self-report measure of posttraumatic stress symptomatology that consists of 17 items (Appendix G), focusing on symptoms related to experiences that are stressful to the participant. The instrument used 5-point Likert-type scale, with anchors ranging from not at all to extremely, was used in which respondents indicated the degree to which they have experienced various symptoms such as suddenly acting or feeling as if a stressful experience were happening again, loss of interest in things once enjoyed, feeling distant or cut off from other people, feeling emotionally numb or being unable to have loving feelings, and avoid thinking about or talking about a stressful experience from the past. As is frequently true when using self-report measures, participants might draw conclusions about themselves, or may not see their distress within themselves, that an objective observer might have recorded

differently. Another potential threat was the possibility that participants may not be honest for fear of appearing weak or personal information being released within their department and further action being taken by the department (Ménard & Arter, 2013). The questions of whether or not the severity of the CI makes more severe changes to psychological distress are possible questions for future study.

Another potential threat to internal validity involved the selection of participants. If the participants were all recruited through internal means, such as through personal work mailboxes or supervisory coercion, participants may not have provided honest responses if they believe their personal information could be viewed by others, such as supervisors.

Ethical Procedures

Agreements to gain access to participants were arranged with the department heads of the Aurora, Colorado Police Department and the El Paso County, Colorado Sheriff Department through designated agents of the departments (Appendix A). Access through these departments were gained through email communication to each department agent by a representative of the department. A brief description of this study and prospectus was provided for review by departmental representatives, and after their review, permission was granted by the department heads to further contact the author with approval for the officers to be used as participants (Appendix A).

Upon approval from the institutional review board to conduct this study, the recruitment flyer and informed consent form was sent to the police officers. The informed consent form (Appendix E) reflected the importance of the study, the goals of

the study, the potential benefits of the findings of the study and the possible risks of participating in the study. The informed consent emphasized the voluntariness of each individual's participation and the ability to not participate or withdraw from the study at any time by not completing the instruments. Participants were informed that withdrawal from the study had no risks or consequences if a decision not to continue with the study was made. This document included information pertinent to participating in this study, the potential benefits and the psychological risks, and information regarding the anonymity of participants, accomplished by not asking for personal information such as name, position and rank held within their perspective departments. If an individual experienced reoccurring or past trauma symptoms by completing the instruments or by participating in this study, the Informed Consent form offered a reference for participants to contact their individual Employee Assistance Program office. A police psychologist who specialized in work with emergency services personnel, within or outside their perspective departments or peer support team in the case that any of the participants wanted to seek information or support. This risk of experiencing reoccurring psychological trauma could have included feelings of stress or becoming upset due to remembering a certain traumatic incident which initially caused the feelings of stress. Both departments employed their own Employee Assistance Program which is obtained from the Chief of each agency who secured the services and already in place prior to the study. The information provided with the informed consent constitutes the totality of the recruitment documents.

The informed consent also described how the testing instruments and demographic survey was collected and would be anonymous without any identifying information. Data from the completed instruments and surveys were kept by the researcher on a separate personal USB external hard drive within a document file that is password protected, after seven years of storage the data will be destroyed. The instruments and raw data will not be provided to any employer and no identifiable information for any individual participant is collected.

The researcher had agreed to provide the published dissertation to each participating department, which will at their discretion make available for dissemination to the officers and agents.

Summary

This quantitative study was to determine whether SIT can lower the effects of psychological trauma on police officers who have responded to one or more CIs, or whether SIT had no effect on the trauma outcome. This study focused on two research questions focusing respectively on anxiety and depression, which could be the cause for police officers to use extensive sick time, be involved in use of force issues, alcoholism, or possibly even suicide (Ménard & Arter, 2013).

The instrument used to measure the outcome of this study was the PCL-C which is a self-measuring instrument officers can provide the answers to themselves (Conybeare et al., 2012). The PCL-C was used to determine levels of anxiety and depression self-reported by the individual officers after responding to CIs, comparing these levels of those who had received SIT to those who had not received SIT. The use of Survey

Monkey was used to collect these data and MANOVA through SPSS was used to analyze respective levels of anxiety and depression for those who had received SIT compared to those who had not received SIT. If SIT was found to reduce levels of anxiety and depression, the results from this study can be used to inform police departments about the benefits of SIT for those officers who face CIs. If the results showed that SIT does not seem to affect anxiety or depression, future studies could be designed to find what may be more effective for management of trauma of police officers who face CIs. Chapter 4 will present and discuss the results of the study.

Chapter 4: Results

Introduction

The purpose of this study was to compare the differences between police officers stress reactions for those who have and have not received SIT prior to a CI measuring for symptoms of anxiety and depression using the PCL-C. The research questions were to determine whether PCL-C scores will show lower anxiety and depression for police officers who had received SIT over police officers who had not received SIT.

Data Collection

A combined total of 1,182 potential participants were asked to take part in the research study. Using G*Power 3.1 Software, a total of 74 participants were recommended for this study. After recruitment, 202 participants agreed to participate; however, only 85 fully completed the survey, 11 more respondents over the recommended number. Participants were obtained from the participating departments, El Paso County, Colorado Sheriff Department and Aurora, Colorado Police Department. All potential participants were introduced to the research study by a recruitment letter received through their employee emails directing them to click on a link taking them directly to the survey hosting website Survey Monkey. Survey Monkey presented the informed consent, explain anonymity, confidentiality, minimal risk, right to decline participation, and how to proceed forward into the website. After consent was executed, the participants were directed to a screening questionnaire, a demographic questionnaire and the measurement tool (i.e., PCL-C). Data collection began on May 13, 2018 and continued to July 17, 2018. There were 1,182 recruitment emails distributed between the

two agencies between May 13, 2018 and June 3, 2018. On July 9, 2018 the recruitment process was repeated until July 20, 2018 due to not having enough responses on the PCL-C. A total of 201 participants consented to the study combining both recruitment processes, from the 201 participants, 93 completed the demographic survey (n = 93), from which 85 completed the PCL-C as well (n = 85). The data from Survey Monkey was transferred to a Microsoft Excel spreadsheet and saved into a password protected external hard drive. The data was then transferred into SPSS for further analysis.

Chae and Boyle (2013) suggested the use of police officers from urban and rural departments as participants in future studies obtaining larger samples. The target population consisted of full-time police officers who had been first responders in a CI during the line of duty and currently employed by either the Aurora, CO Police Department or El Paso County, CO Sheriff's Departments. The target population further consisted of police officers who received SIT prior to a CI and those who had not received SIT.

Descriptive Statistics

An analysis of collected demographic data was conducted to define the characteristics that were associated with the sample population. A total of n = 93 participants responded to questions asking about gender, age, years of professional experience as a sworn police officer, number of CI responses directly involved with, type of deployment, time since most recent incident, attendance of stress inoculation training, and time of last SIT. The analysis of the demographic data is shown in Tables 1 – 8, not all the percentages add up to 100% due to rounding.

Table 1

Frequency Distribution: Gender

Gender	*N*	Percent
Female	10	11%
Male	83	89%

Table 2

Frequency Distribution: Age

Age	*N*	Percent
21 – 29	1	1%
30 – 39	23	25%
40 – 49	41	44%
50 – 59	20	22%
60 – Older	8	9%

Table 3

Frequency Distribution: Length of Employment

Length	*N*	Percent
Less Than 1 Year	1	1%
1 – 5 Years	9	10%
6 – 10 Years	6	6%
11 – 15 Years	27	29%
16 – 20 Years	18	19%
21 – 25 Years	12	13%
26 – 30 Years	10	11%
More Than 30 Years	10	11%

Table 4

Frequency Distribution: Number of Critical Incidents Involvement

Number	*N*	Percent
0	6	6%
1	3	3%
2	7	8%
3 or More	77	83%

Table 5

Frequency Distribution: Type of Deployment

Type	*N*	Percent
Single Officer	28	30%
Single Officer with an Assist	47	51%
Tow-Officer Unit	4	4%
Member of Specialized Unit	14	15%

Table 6

Frequency Distribution: Time of Most Recent Incident

Time	*N*	Percent
Less than 1 year	25	27%
1 year up to 5 years	48	52%
5 years up to 10 years	13	14%
10 years or longer	7	8%

Table 7

Frequency Distribution: Stress Inoculation Training Received

SIT	*N*	Percent
Yes	53	57%
No	40	43%

Table 8

Frequency Distribution: Last Training Attended

Last Training Attended	*N*	Percent
Less than 1 year	15	16%
1 year up to 5 years	31	34%
5 years up to 10 years	16	18%
10 years or longer	29	32%

Examination of Assumptions for Statistical Analyses

The survey instrument used to evaluate for anxiety and depression was the PCL-C. Overall scores from questions 1, 2, 3, 5, 7, 13, 14, 16, and 17, measuring for anxiety, and overall scores from questions 4, 6, 8, 9, 10, 11, 12, and 15, measuring for depression, were added using a 5-point Likert-type scale with responses that ranged from 1 representing Not At All to 5 representing Extremely. I calculated Cronbach's alpha for each of the questions pertaining to anxiety and questions pertaining to depression. The PCL-C consisted of 17 items ($\alpha = 17$). The Cronbach's alpha values appear in Table 9.

Table 9

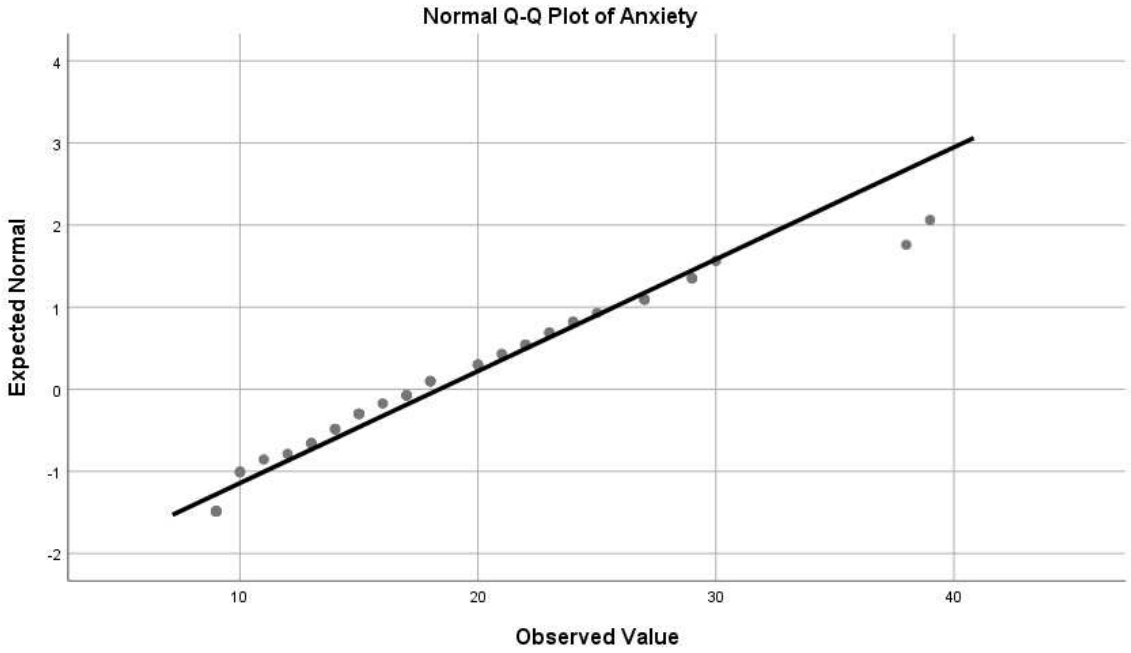
Cronbach's Alpha of PCL-C

Category	Cronbach's Alpha	Cronbach's Alpha based on standardized items	*N* of items
Anxiety	.881	.890	9
Depression	.884	.884	8
Overall PCL-C	.937	.939	17

Note. PCL-C = Post-Traumatic Stress Checklist – Civilian version

A one-way multivariate analysis of variance was run to determine the effects of police officer who have received SIT and police officer who have not received SIT prior to a critical incident. Two measures of psychological outcomes were assessed: anxiety

and depression. Data are expressed as mean ± standard deviation. Preliminary assumption checking revealed that data was normally distributed, as assessed using Normal Q-Q plots (see Figure 1); there were no univariate or multivariate outliers, as assessed by boxplot (see Figures 2) and Mahalanobis distance ($p > .001$), respectively; there were linear relationships, as assessed by scatterplot (see Figure 3), no multicollinearity ($r = .875$, $p = .000$) (see Table 10); and there was homogeneity of variance-covariance matrices, as assessed by Box's M test ($p = .175$) (see Table 11).



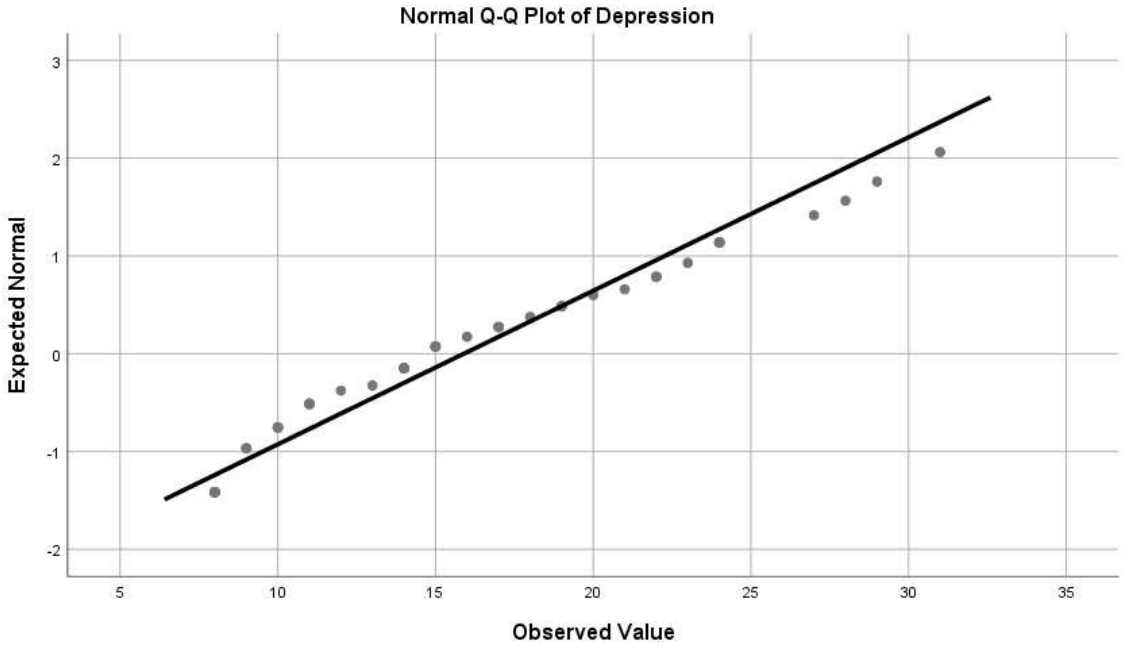


Figure 1. Normal Q-Q Plot

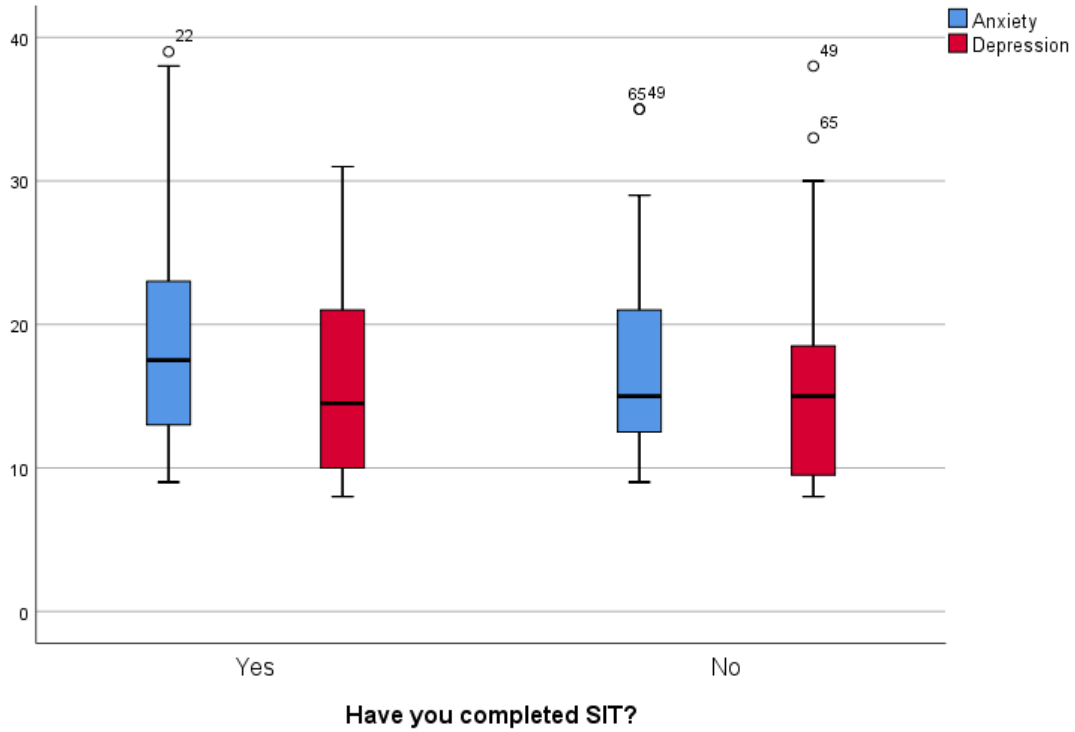
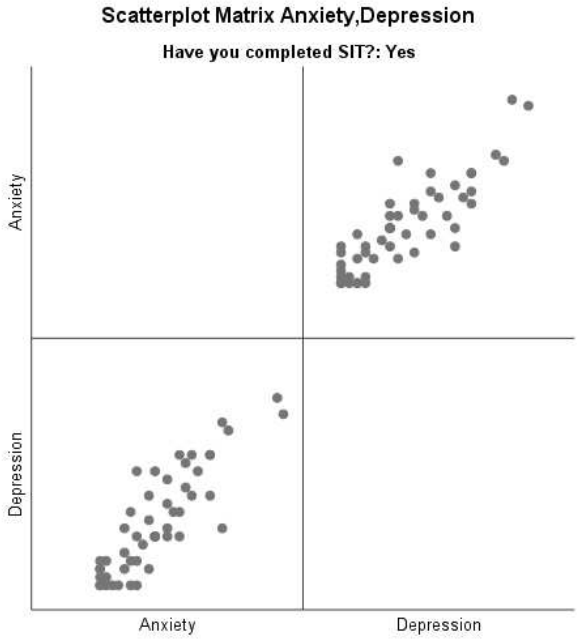


Figure 2. Boxplot



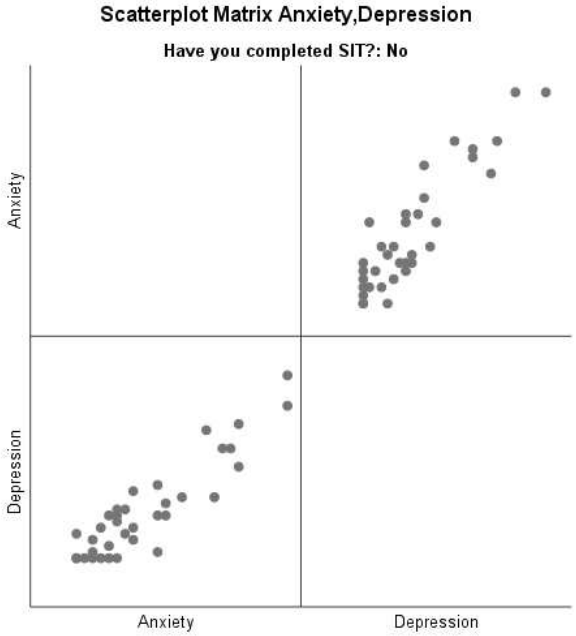


Figure 3. Scatterplot Matrix

Table 10

Correlations

		Anxiety	Depression
Anxiety	Pearson Correlation	1	.875**
	Sig. (2-tailed)		.000
	N	85	85
Depression	Pearson Correlation	.875**	1
	Sig. (2-tailed)	.000	
	N	85	85

**Correlation is significant at the 0.01 level (2-tailed)

Table 11

Box's Test of Equality of Covariance Matrices[a]

Box's M	5.095
F	1.652
df1	3
df2	372720.446
Sig.	.175

To test the assumptions of homogeneity of variances, the Levene's test of equality of error variance was completed, as shown in Table 12. This test shows there was homogeneity of variances as assessed by the Levene's test ($p > .05$).

Table 12

Levene's Test of Equality of Error Variance

		Levene Statistic	df1	df2	Sig.
Anxiety	Based on Mean	.029	1	83	.866
	Based on Median	.020	1	83	.889
	Based on Median and with adjusted df	.020	1	80.601	.889
	Based on Trimmed Mean	.017	1	83	.898
Depression	Based on Mean	.585	1	83	.447
	Based on Median	.377	1	83	.541
		.377	1	75.134	.541

	Based on Median and with adjusted df	.410	1	83	.524
	Based on Trimmed Mean				

Police officers who had received SIT showed statistically different, measuring higher, than police officer who had not received SIT when measuring for lower scores of anxiety (M = 18.38, SD = 7.334; M = 17.71, SD = 7.343). Police officers who had received SIT showed little statistical difference than police officer who had not received SIT when measuring for lower scores of depression (M = 15.90, SD = 6.370; M = 15.97, SD = 7.880) (see Table 16).

Table 13

Descriptive Statistics

	Have you completed SIT?	Mean	Std. Deviation	N
Anxiety	Yes	18.38	7.334	50
	No	17.71	7.343	35
	Total	18.11	7.301	85
Depression	Yes	15.90	6.370	50
	No	15.97	7.880	35
	Total	15.93	6.986	85

The differences between police officers who received SIT and police officers who did not receive SIT on the combined dependent variables was not statistically significant, F (2, 82) = .435, p = .649; Wilk's Λ = .989, partial η^2 = .011.

Hypothesis 1

It was hypothesized that police officers who received SIT prior to responding to a critical incident will show lower scores of anxiety as demonstrated by a lower score on the PCL-C compared to police officers who have not received SIT. In order to test this

hypothesis a MANOVA was conducted to determine the effects of a CI in regards to symptoms of anxiety as measured by the PCL-C, which showed no statistical significance.

Hypothesis 2

It was hypothesized that police officers who received SIT prior to responding to a critical incident will show lower scores of depression as demonstrated by a lower score on the PCL-C compared to police officers who have not received SIT. In order to test this hypothesis a MANOVA was conducted to determine the effects of a CI in regards to symptoms of depression as measured by the PCL-C, which showed no statistical significance.

Summary

Police officers who received SIT, n=50, prior to a CI showed no statistical significance for symptoms of anxiety and depression than police officers who did not receive SIT, n=35. Therefore, SIT shows no influence on the psychological outcome of police officers after a CI response when SIT is provided to the officers as part of their training. SIT is focused on providing coping skills to police officers by placing them into stressful situations so when an actual CI were to occur, they already know what to expect and how to react prior to any real-life response. This type of training may or may not be effective in preparation prior to any psychological trauma.

Chapter 5 will include an introduction, a discussion involving the interpretation of the research findings, a delineation of the limitations of the study, recommendations for further research, implications for social change, and a conclusion.

Chapter 5: Discussion

Introduction

With the increase of CI exposure by police officers, the exposure has increased having significant and negative impacts on police officers (Augustin & Fagan, 2011). When police officers experience psychological trauma, consequences such as health and emotional problems can potentially affect their career and personal life (Augustin & Fagan, 2011).

The focus of this study was the differences between police officers in stress reactions who have or have not received SIT prior to critical incident response in the line of duty. A quantitative survey approach was used to compares two groups, those who have and have not received SIT prior to responding to a CI. This study examined whether SIT delivered prior to a CI produced a decrease in symptoms of anxiety and depression in police officers who responded to those incidents. CIs can play an important role in the development of psychological problems such as drug and alcohol abuse, depression, and anxiety, being symptoms of PTSD in police officers affecting their career, particularly when a CI results in multiple casualties (Chae & Boyle, 2013).

The purpose of this study was to compare police officers stress reactions for those who have and have not received SIT prior to a CI. The hypothesis was the police officers who received SIT, the independent variable, prior to the CI will show a reduction in symptoms of posttraumatic stress such as anxiety and depression, when compared to police officers who did not receive SIT. Symptoms of posttraumatic stress were measured by the PCL-C (see Lang & Stein, 2005). Previous researchers have shown SIT

to be effective in reducing symptoms of PTSD following a CI (Heath, 2015; Patterson, Chung & Swan, 2012; Vonk, 2008). This type of training can provide police officers with coping skills enough to fully understand expected actions to be taken along with the stress they will face, both during and following a CI. This study was completed to investigate the gaps in previous research involving the use of SIT in relation to a CI response. The use of police officers as participants have been difficult due the police officers not cooperating with the study or police departments not allowing their officers to be used as part of a study (Chae & Boyle, 2013).

I found there to be no statistical significance between police officers who had received SIT and those not receiving SIT to show lower signs of anxiety and depression following three or more CI's. The scores measuring anxiety and depression did not predict the differences of ages or genders specifically to understand whether there was a difference in scores measuring for anxiety and depression.

Interpretation of Findings

Hypothesis 1

The first hypothesis stated police officers who received SIT prior to responding to a critical incident would show lower scores of anxiety as demonstrated by a lower score on the PCL-C compared to police officers who have not received SIT. The result of the MANOVA indicated there was no significant correlation between SIT and the signs and symptoms of anxiety on police officers who received SIT and those who did not receive SIT. Specifically, the results could not suggest police officers who receive SIT have lower signs of anxiety over police officers who have not received SIT. Therefore, the

results did not demonstrate the effectiveness of SIT as it relates to the ability of police officers to cope with anxiety following the response to a critical incident.

Hypothesis 2

The second hypothesis stated police officers who received SIT prior to responding to a critical incident would show lower scores of depression as demonstrated by a lower score on the PCL-C compared to police officers who have not received SIT. The result of the MANOVA indicated there was not a significant correlation between SIT and the signs and symptoms of depression on police officers who received SIT and those who did not receive SIT. Specifically, the results did not suggest police officers who received SIT have lower signs of depression over police officers who have not received SIT. Therefore, the results did not demonstrate the effectiveness of SIT as it relates to the ability of police officers to cope with depression following the response to a critical incident.

Limitations of the Study

This research study was limited to examining the variables of anxiety and depression among two law enforcement agencies in Colorado, the Aurora Police Department, and the El Paso County Sheriff Department. Police officers in other geographic regions of the United States may not provide the same responses provided by the participants in this study. Also, the number of participants N=85 who completed all questions to the survey could be considered small since G*Power analysis recommended a sample size of 74. External validity could be comprised due to the size of the sample. Due to relying on self-reporting methods and police officers expecting to be honest while

filling out the questionnaire, underreporting or overreporting, response rates may limit the ability to generalize results. Unfortunately, police officers may feel the need to satisfy participation requirements in the research causing data to be skewed; response bias may also be involved. Response bias involves the participant to deny behavior because they may not recognize the symptoms or the questions may seem to be threatening (Keen et al., 2011); however, it is difficult to know if this was the case. Due to these limitations, it can be difficult to generalize the findings to the larger population.

The instrument used in this study, being the PCL-C, was constructed and validated prior to this study (Lang & Stein, 2005; Wilkins et al., 2011). Wilkins et al. (2011) conducted a meta-analysis on the psychometric properties of the PCL-C and found internal consistency values for the PCL-C to be above .75. Keen et al. (2008) found internal consistency for the PCL-C to be $\alpha = 0.96$ for the full-scale symptoms. Convergent validity was reported to be strong as demonstrated by high correlations between the PCL-C and additional measures of PTSD symptoms severity.

Recommendations

There has been little research on the effectiveness of SIT and the effects on police officers involved in CI's, yet there has been significant research on CI's alone (Augustin & Fagan, 2011; Clair, 2006; Galatzer-Levy et al., 2013; Heglund, 2009; Lamphear, 2011; Menard & Arter, 2013; Sheehan, 2004). Also, there is a lack of police officers used as participants in studies about CI stress response either due to lack of cooperation from police officers, or police departments not allowing police officers to be used as participants (Menard & Arter, 2013). Therefore, to examine these gaps, this research

study examined the relationship between SIT and PTSD symptoms (anxiety and depression). Also, this research needed the use of police officers to be used as participants, which two departments agreed to allow their officers as participants out of approximately 75 police departments contacted. The results of the research are used to provide recommendations for future research presented in the following section.

Recommendations for Future Research

Future research into the present study is recommended to expand the understanding of the effects of SIT and the potential psychological outcome of police officer response to CIs regarding symptoms of PTSD, specifically anxiety and depression. The current study may have issues with under reporting due to the fear of stigma, which may be a preconceived notion felt by the participants. A second recommendation involves the use of more police officers to examine if the correlation extends into other regions and departments within the United States.

Third, it is recommended to conduct a phenomenological research study. Phenomenological research can provide direct and lived experiences from police officers in direct correlation with SIT, which may provide a better understanding of coping skills and stress management with the population being used. With an unknown of under-reporting from the current population, this type of study could also provide the researcher with coping skills being used such as alcohol or substance abuse.

Implications

Positive Social Change Implications

Police officers responding to multiple critical incidents throughout their career can be an issue of significant importance. In recent decades, police officers have experienced an increase in critical incident exposure as violence increases having significant and negative impacts on police officers (Augustin & Fagan, 2011). When police officers experience psychological trauma, this can lead to consequences such as health and emotional problems that can affect their career and personal life. Career life can be affected through the excessive use of leave or use of force issues; personal life can include divorce, alcoholism, or drug abuse (Papazoglou and Andersen, 2014).

By providing the outcome of this study to supervisors within police departments not currently providing SIT to their police officers, this could change the outlook of this type of training on whether a police department continues using SIT or not. Manpower and budgetary restraints could play a role as to why some departments don't provide SIT to their department; however, in the long run, the psychological trauma could be lessened with those police officers by attempting to prepare them with the effects of real-life situations they may potentially face during their career. Police officers who are prepared for CI responses could learn to cope with anxiety and depression without the use of drugs or alcohol and will be better prepared to acknowledge such factors receiving the proper assistance sooner. As long as police officers recognize the potential outcome, along with signs and symptoms, there could also be a lower chance of sick leave, excessive use of force complaint, and police officer suicide.

Methodological Implications

The research study used a quantitative ex-post facto study design. It was the primary purpose of the study to determine the relationship between SIT and anxiety and depression suffered from police officers who received SIT and police officers who did not receive SIT. The sample population was $N = 85$, which can be considered small. However, the design allowed me to explore the research questions, statistically, by endorsing the statistical analysis examined comparing the mean score and statistical significance between variables. The results of this research suggest a MANOVA analysis was a suitable statistical test for measuring the relationships between the variables in this study.

Theoretical Implications

Selye's (1956) general adaptation system, the three stages of physical response to a stressor, was used as a guide for this research study's design and analysis. Police officers responding to CI's may experience an adrenaline rush which could be a cause of their defense processes to heighten. Police officers may have to defend themselves or others causing an alarm reaction. After being on a scene for a period, their adrenaline begins to drop due to other duties being assigned, and the investigation of the crime begins to take place, they may enter the resistance stage. Keeping themselves busy with the call could keep them from reliving the experience and focusing on something other than the trauma suffered. Once the CI is over, and the police officers have left the scene, the exhaustion stage sets in where signs and symptoms of stress may appear (Janka, 2012; Selye, 1956). Miller (2009) suggested SIT could potentially lower the signs of

stress, being anxiety and depression, among police officers who had received the training over police officers who had not. However, the results from this research study did not imply that police officers who received SIT have shown fewer signs of anxiety and depression helping police officers to better cope with the situation in the aftermath than affecting them in the long-term placing their career and personal lives into jeopardy.

Conclusion

Police officers continue to experience an increase in critical incident exposure from vehicle accidents to mass casualty shootings. With the access to more powerful weapons and other means of violence by the criminals, the exposure will continue to increase having significant and negative impacts on police officers (Augustin & Fagan, 2011). Experiencing continued psychological trauma can further lead to emotional problems affecting their career and personal lives. Clement (2012) suggested through readiness and preparation; police officers could remain resilient during, and following, a CI when they had been through intense training that included physical and mental preparation for a CI.

Existing literature has focused on critical incident response management following a CI (Augustin & Fagan, 2011; Clair, 2006; Galatzer-Levy et al., 2013; Heglund, 2009; Lamphear, 2011; Menard & Arter,2013; Sheehan, 2004), but has failed to specifically research SIT and CI response which police officers have been participants in the study. Further studies have suggested there is a need to use police officers as participants, although military and emergency service personnel have many similarities to police officers (Elliot & Eisdorfer, 1982; Meichenbaum, 1977; Remsberg, 1986; Sanow,

2010). Therefore, the purpose of this study was to determine the effects on police officers by locating department, close in size, who were willing to allow this study to be performed on their personnel. Both research questions and their associated hypothesis provided an understanding that SIT may be helpful to the response to CI's by using police officers as participants. Data were collected using measurement tools shown to be valid and reliable yielding a scaled response useful in providing statistical inferences.

The results of this study could suggest police departments use discretion in providing the use of SIT for their officers to assist with CI's police officers will respond to during their career. This training could assist the wellbeing of police officers in providing them with a lasting career without the psychological trauma that could potentially cost them professionally and personally. Findings indicate no statistical significance in police officers who have received SIT before a CI response over police officers who have not received SIT measuring for anxiety and depression. Therefore, it can be concluded that SIT may or may not be useful in assisting police officers with adaptive coping skills following a CI. Moreover, the results of this study have not really provided an increase in knowledge about the importance and value of SIT. It is hoped this study will lead to future research that could potentially help police departments decide whether or not to offer SIT or receive outside funding for those not having the ability to afford such training for police officers employed in each department.

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Appendix A: El Paso County, Colorado Sheriff Department Approval Letter

Hello Russell,
I did receive the information that you sent to me. I did the review and forwarded it on to the Sherriff for his direction and approval. He has just contacted me and has instructed me to reach out to you on your proposal. I am of the opinion that participation of your study will not cause any undue harm to any officer that may be interested in participating nor is there an undue amount of time commitment required to participate in your project. I am comfortable with the office participating in your program.
To proceed forward, please send an electronic copy of the description of the study, the purpose and your contact information. This will be sent out to the office electronically with additional information from the office I.E. compensation, cannot be done during work hours etc, Any interested parties can then contact you directly. Please direct any future contact for facilitation or information gathering to me. I wish you the very best in gathering your participants and information. Studies to serve the law enforcement community are sorely needed and can only benefit the psychological community.
Sharon Trivette, PsyD, LPC

Aurora, Colorado Police Department Approval Letter

Russell, I believe we are good to move forward with your questionnaire. How would you like to proceed? Staffing being what it is, I don't really have anyone to assist you.

Paul F. O'Keefe
Deputy Chief of Police
Aurora Police Department

Appendix B: Recruitment E-mail

My name is Russell Ford and I've been studying at Walden University pursuing a doctoral degree in forensic psychology. The topic that I'm currently researching involves the impact of stress inoculating active shooter training on police in aftermath of critical incidents. The study is being conducted at Walden University School of Psychology, and I'm hoping that you will consider completing a questionnaire as part of this study. This study has also been approved by the university IRB.

As most of you do not know me, I was a full-time law enforcement officer with twenty years of service, and that has affected the way that I've chosen to find officers that might be willing to complete my survey.

Most studies involving officers are conducted with the cooperation of law enforcement agencies and police departments. It's easy for me to understand how officers and agents would feel uncomfortable answering questions about their experiences if the research is coordinated through the agencies in which they serve; however, I am not affiliated with your employer and will not share raw data with your employer. With that in mind, this study is being conducted through a separate website where data and information will be collected keeping the identity of those involved confidential.

With you being a current law enforcement officer, I need your help, and your participation would be greatly appreciated. My hope is that by as many officers as possible completing this survey I might be able to add to the understanding of how stress inoculation training can affects the psychological outcome of officers involved in one or more critical incidents, and work towards identifying ways in which officers who have been negatively affected might be able to be helped.

In order to participate in this study, you must be able to answer "yes" to each of these questions:

1)Have you completed SIT? Yes No

2)Have you responded to a critical incident while employed as a police officer? Yes No

3) Have you <u>NOT</u> had any counseling or therapy beyond debriefing since your critical incident?

Yes No

If you're willing to participate and can answer "yes" to these questions, please click the link below and read the Informed Consent form. If you are willing to agree to the form,

click agree and the link will take you to the questionnaires you need to complete for the study.

Thanks,
Russell Ford

Appendix C: PCL-C Checklist Approval Letter

Greetings, and thank you for your assessment instrument request. You may access these instruments by Ctrl+Click on: https://downloads.va.gov

Step 1: Click "multiple files" link. If that does not work, go to "single files"
Step 2: Once file browser window opens, double click to open "PTSDinfo" folder.
Step 3: Double click to open "PTSD Assessments".
Step 4: Measures are grouped within folders by type. Select the trauma measure or measures you are looking for within each folder. Refer to the folder listing in the left panel of the screen to access particular folders. You may need to right click on the document you want to download. Select 'Download'. Select 'Save'.

You may have to click to get past a security page. If it asks for a Username and Password, the Username is "PTSD" and Password is "Assessments" – these are case sensitive.

These assessment tools were created by government employees and therefore are not copyrighted and are free for use by qualified health professionals. Please let us know if you have any trouble downloading these instruments. Also, no thank you email is necessary.

Sincerely, National Center for PTSD Staff

Appendix D: Screening Questionnaire

1)Have you completed SIT? Yes No

2)Have you responded to a critical incident while employed as a police officer? Yes No

3) Have you NOT had any counseling or therapy beyond debriefing since your critical incident?

Yes No

Appendix E: Demographic Survey

1) What is your gender?

[ ] Female
[ ] Male

2) What is your age?

[ ] 21 - 29
[ ] 30 - 39
[ ] 40 - 49
[ ] 50 - 59
[ ] 60 – Older

3) How many years of professional experience do you have as a sworn full-time police officer or agent?

[ ] Less than one year
[ ] 1 - 5 years
[ ] 6 - 10 years
[ ] 11 - 15 years
[ ] 16 - 20 years
[ ] 21 - 25 years
[ ] 26 - 30 years
[ ] more than 30 years

4) A critical incident is defined as a distressing, traumatic event overwhelming an officer's ability to cope and impacts the officer's functioning during or after the event. Some examples might include, but are not limited to the use of deadly force, assault on an officer through the use of a dangerous/deadly weapon, complex death investigation, such as the death of a child, or a particularly graphic crime scene or fatal car crash. Based on this definition, in how many critical incidents related to your profession have you been directly involved?

[ ] 0
[ ] 1
[ ] 2
[ ] 3 or more

5) If you have experienced a critical incident, in what type of deployment were you working at the time?

[ ] Single Officer (alone)
[ ] Single Officer with an assist/cover officer
[ ] Part of a two-officer unit in a single car
[ ] One member of a larger specialized team (i.e. SWAT, Narcotics, ERT)

6) How long has it been since your most recent incident that you consider to be a duty-related critical incident?

[ ] Less than one year
[ ] 1 year up to 5 years
[ ] 5 years up to 10 years
[ ] 10 years or longer

7) Have you ever attended a stress inoculating training during your career?

[ ] Yes
[ ] No

8) If yes, when was the last training you attended?

[ ] Less than one year
[ ] 1 year up to 5 years
[ ] 5 years up to 10 years
[ ] 10 years or longer

Appendix F: PCL-C

INSTRUCTIONS: 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

1. Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?

1 2 3 4 5

2. Repeated, disturbing dreams of a stressful experience from the past?

1 2 3 4 5

3. Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?

1 2 3 4 5

4. Feeling very upset when something reminded you of a stressful experience from the past?

1 2 3 4 5

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

6. Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it?

1 2 3 4 5

7. Avoiding activities or situations because they reminded you of a stressful experience from the past?

1 2 3 4 5

8. Trouble remembering important parts of a stressful experience from the past?

1 2 3 4 5

9. Loss of interest in activities that you used to enjoy?

1 2 3 4 5

10. Feeling distant or cut off from other people?

1 2 3 4 5

11. Feeling emotionally numb or being unable to have loving feelings for those close to you?

1 2 3 4 5

12. Feeling as if your future will somehow be cut short?

1 2 3 4 5

13. Trouble falling or staying asleep?

1 2 3 4 5

14. Feeling irritable or having angry outbursts?

1 2 3 4 5

15. Having difficulty concentrating?

1 2 3 4 5

16. Being "super-alert" or watchful or on guard?

1 2 3 4 5

17. Feeling jumpy or easily startled?

1 2 3 4 5

PCL-C for DSM-IV (11/1/94)

Weathers, Litz, Huska, & Keane National Center for PTSD - Behavioral Science Division