

Police/Citizen Critical Incident: What is the Effect of the Incident on the Police Officer?

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Abstract

This study focused on the prevalence of PTSD and PTSD-like symptoms in law enforcement professionals who experience critical incidents. First responders in general are being constantly exposed to critical incidents that lead to some type of trauma, mainly emotional and psychological trauma. Officers are constantly being scrutinized by the media and the public for their use-of-force incidents that occur while being under the scope of a camera or cell phone. This research examined the relationship between the years of experience officers had on the job and how they would be psychologically affected by a critical incident they had been involved in depending on the years of experience, as well as how an officer would be affected depending on the recentness of the critical incident. The research design employed written instruments including the Impact of Events Scale to measure the impact of a traumatic event and the Posttraumatic Stress Disorder Checklist to assess and determine the present symptoms of PTSD. Participants were also asked to complete a brief demographic survey asking the type of critical incident, how long ago the incident occurred, and how many years of experience the participant had. Participants consisted of 22 sworn police officers from three agencies in California's Central Valley. Data were analyzed using the Statistical Package for Social Sciences and there were unexpected findings in the relationship of years of experience officers had on the job and how they were impacted by a critical incident. There was also an unexpected finding on how the recentness of the incident impacted officers, which shows the need for future studies. The implications of this study include an increased awareness on recognizing symptoms of PTSD and how to treat PTSD among officers displaying symptoms. Also, a platform should be created among agencies providing officer training on how to seek treatment and recover from PTSD or PTSD-like symptoms as officers are often exposed to traumatic events that may lead to PTSD.

Introduction

Media coverage pertaining to officer involved shootings and deaths as a result of use of force seems to be increasing. High profile deaths such as that of Eric Garner, Michael Brown, and Tamir Rice have been highly publicized, and members of law enforcement have been the target of public criticism and scrutiny because of the use of force. "These incidents, along with subsequent Department of Justice investigations unveiling evidence of misconduct and racially biased policing in several agencies, have received a wealth of media coverage" (Nix & Pickett, 2017, p. 24). As a result of the focus on police, proactive policing has been minimized.

Nix and Pickett (2017) believe that because there has been so much scrutiny regarding police, they fear that police officers are backing off from being proactive and are de-policing. This is also referred to as the Ferguson Effect. As a result of this, crime may ultimately rise as officers hesitate to do their jobs stemming from a fear of how they may be perceived or treated by the public.

When Michael Brown was shot on August 9, 2014, civil unrest occurred in the city of Ferguson, Missouri. The media's main focus was that the police shot an unarmed black teenager. His involvement in violently robbing a convenience store was largely ignored by media outlets. This incident created a separation between the police and the black community of Ferguson and an "us versus them" perception arose. In December 2014, two NYPD officers were fatally shot after being ambushed while sitting in their patrol car. Many attribute this incident to the rising tensions between the public and law enforcement. Nix and Pickett (2017) stated that the shooter posted on social media prior to the incident stating, "I'm putting wings on pigs today. They take one of ours... let's take two of theirs" (Mueller & Baker, 2014). This incident in New York was the first in a series of ambushes against police officers, which continues to this day. Nix and Pickett (2017) state that "looking back, the death of Michael Brown in Ferguson undoubtedly was an environmental jolt to policing in the United States. An environmental jolt refers to a sudden and unprecedented event with an impact that is disruptive and potentially inimical" (Meyer, 1982, p. 515; Campbell, Nix, & Maguire, 2017).

After the media attention these incidents received, the morale of police officers across the United States decreased, along with their willingness to use force in situations that may require it. In October 2016, a Chicago police officer was badly beaten by a suspect at a traffic accident scene. "The Superintendent later told reporters that even though the officer feared for her life, she did not draw her firearm because she didn't want her family or the department to go through the scrutiny the next day on national news" (Nix & Pickett, 2017, p. 25). Media outlets are more likely to cover stories that they believe will receive higher ratings and according to Crandon (1990), bad news is actually better for business than good news.

Because the public is the consumer of media coverage and stories, it is important to consider how public perception is affected by everything. Researchers have found that in the post-Ferguson era, citizens are less likely to view officer involved shootings as justified and are less favorable of officers. According to Nix and Wolfe (2016), the evidence suggests that "Ferguson-related-incidents have also negatively impacted citizens' orientations toward law enforcement" (p. 18). A study by Kochel (2015) showed that, after Ferguson, there was a reduced perception of police legitimacy, procedural justice, and effectiveness, and an increased perception of police misconduct among St. Louis residents. Chermak, McGarrell, and Gruenewald (2006) found that civilians who were exposed to more media coverage of a police misconduct trial were more likely to believe the officers were guilty (p. 26). Similarly, Nix and Pickett (2017) found a decline in public approval of the police in New York and Los Angeles following highly publicized incidents of misconduct (as cited in Weitzer, 2002). Very few citizens may take it upon themselves to go ask questions at a police department or go on a ride-along to see what actually takes place during an officer's work shift. According to Mullis (2009) if the public is given a false view of police use of force, their relationship and opinion of the police becomes tainted. Research conducted by Mullis (2009) has also shown that there is a positive correlation between watching the news and believing that police misconduct is a frequent event (as cited in Dowler & Zawilski, 2007; Weitzer, 2002; Weitzer & Tuch, 2004), which creates an overall dissatisfaction with police. Thus, media outlets may portray police officers as ineffective at performing their job duties and this, ultimately, influences the public's perception.

Studies show that officer involved shootings don't happen frequently, but they are heavily covered by the news outlets when they do occur. A study conducted by Morin, Parker, Stepler, and Mercer (2017) found that

A total of 67% of police officers, but only 39% of the public, said that highly publicized fatal encounters between police and blacks in recent years are isolated incidents rather than signs of a broader problem. According to the Bureau of Justice Statistics, police make contact with over 40 million people per year in the United States and use force in less than 2% of these interactions (Eith & Durose, 2011). Fatal force, particularly against an unarmed black civilian, is even less frequent. A recent analysis indicated that out of 990 fatal shootings by police in 2015, 38 (3.8%) were of an unarmed black civilian. (Nix & Pickett, 2017, p. 26).

Additionally, Weitzer and Tuch (2004) stated that negative police perception can be more impactful in minority communities and neighborhoods and "with regards to race, blacks are more likely than whites to express dissatisfaction with policing" (Mullis, 2009, p. 33).

With respect to different types of neighborhoods, those residing in disadvantaged neighborhoods tend to have more negative opinions of law enforcement officers (Mullis, 2009, p. 33-34). Research has shown that individuals from predominantly black communities or neighborhoods are more likely to believe that police give preferential treatment to whites and unfairly treat blacks. According to Lawrence (2000), the effect of media exposure is greatest for African Americans because the majority of media reports on police misconduct involve mistreatment of blacks rather than whites or Hispanics (Mullis, 2009, p. 34). According to Weitzer and Tuch (2005) and later supported by Graziano, Schuck, & Martin (2010), as exposure to such reports increases, citizens are more likely to view officers as discriminatory, engaging in racial profiling, and discriminating against minorities and minority neighborhoods.

There is little media coverage pertaining to the effects on a police officer as a result of a critical incident, such as the fatal shooting of a suspect. The effects are extremely impactful after a high-profile shooting, but often ignored. Komarovskaya et al., (2011) stated that the psychology of inflicting harm to others or taking a life in the line of duty is complex and impacts several aspects of the officer's life. Along with the adverse side effects of having to injure or kill someone, officers have to worry about citizen complaints, media attention, and internal and criminal investigations as a result of the incident. According to the Komarovskaya et al. (2011) study, killing or seriously injuring someone in the line of duty was a significant predictor of Posttraumatic Stress Disorder (PTSD) symptoms even after controlling for age, gender, minority status, relationship status, and exposure to direct personal life threat. Although critical incidents that lead to deadly force or other types of force are not as frequent as nonforce incidents, when they do occur, they have a high probability of incurring PTSD symptoms and or depression symptoms.

Definition of Critical Incident

Before PTSD and depression is discussed any further, the term *critical incident* must be defined as it pertains to law enforcement officers. Dr. Roger Solomon (2011) defines a critical incident as "any situation beyond the realm of a person's usual experience that overwhelms his or her sense of vulnerability and/or lack of control over the situation". The list of critical incidents an officer may encounter is infinite, and some officers may perceive some incidents as critical, whereas other officers may not.

Examples of critical incidents are: officer involved shooting, officer being a victim of an assault, officer being targeted in an ambush, death or injury to someone in custody, near shoot situations, vehicle accident resulting in death, death of a child, sexual assault of child, or vehicle accident while on the way to a call. This is a small list composed of a very small number of incidents, which may be referred to as critical that an officer may encounter over his or her career, and is not intended to be all-inclusive. An officer can never predict that one of the above-mentioned incidents will occur; therefore it is hard to prepare for these incidents as most police work is reactive rather than proactive. "Research has shown that critical incident stress affects up to 87% of all emergency service workers at least once in their careers" (Panjali, 2017). Critical incidents also affect paramedics and firefighters in similar ways. Sometimes one critical incident can be so serious that it can affect all three types of first responders.

Every officer will handle critical incidents differently and PTSD may not always be the end result of every critical incident, but each incident may impact the officer slightly. According to Panjali (2017) some individuals may experience a longer reaction to a critical incident that has the possibility of leading into an adjustment disorder, acute stress disorder, and in some cases PTSD. Not all side effects are immediate after a critical incident; some may occur a day after or even weeks after. Officers experience the hyperarousal state during a critical incident, which is the "flight or fight" response, but officers do not have the option to flee, thus, critical incidents become more critical and the trauma is heightened. It is important for officers to seek help when experiencing side effects as they can be detrimental to their health. Critical incidents can be life-and-death, but how does the public perceive such incidents?

The Public and Critical Incidents

Rarely does the public see or witness a critical incident from start to finish; therefore, the perception of what is occurring can be based on of a small part of an entire incident. Because of this, there has been a lot of recent public mistrust of law enforcement. This can be potentially dangerous as police-civilian interactions are unavoidable and could result in more physical and fatal altercations.

Desmond, Papachristos, and Kirk (2016) found that residents of neighborhoods that are predominantly composed of black individuals in Milwaukee were less likely to contact the police and report a crime for over a year, following a highly publicized use of force incident involving an unarmed black man (Nix & Pickett, 2017, p. 24).

Although the news media serves an important function, it also affects the way the public views law enforcement, and recently has mainly portrayed law enforcement as the bad guys. Shows such as *Cops* and *Live PD* can also create a conflicting image of police officers because citizens expect the officers that serve their community to act as they do in the shows and to solve crimes as easily as they do. According to Pelmutter (2000) recent research suggests that images of policing created unrealistic public expectations about real policing and disappointment when police did not perform like their media portrayals (Dowler & Zawilski, 2007, p. 194). Also, according to Dowler and Zawilski (2007) network news was most impactful on people's attitudes toward police misconduct and discrimination. They also found that heavy news network viewers were more likely to believe that police misconduct was a frequent occurrence. As stated previously, the use of force is not as common as the public perceives it to be, but one incident has the ability to sizably change the public's perception of critical incidents and stressful situations alike.

Research Questions

This research uses two measures, the Posttraumatic Stress Disorder Checklist (PCL-5) and the Impact of Event Scale Revised (IES-R), to examine three pertinent questions:

1. Do years of experience impact the effect that a critical incident has on a police officer?
2. Do officers who have recently (within 1 year) experienced a critical incident show higher PTSD symptoms compared to those who experienced a critical incident more than a year ago?
3. What is the relationship between an officer's total score on the Impact of Event Scale Revised (IES-R) and the Posttraumatic Stress Disorder Checklist (PCL-5)?

The purpose of this study is to determine the prevalence of PTSD with officers involved in critical incidents. This research can be useful to gain knowledge in recognizing signs of PTSD and related symptoms with working professionals in law enforcement.

Literature Review

In the profession of law enforcement, officers encounter critical incidents on a daily basis. Due to the unpredictable nature of the profession, critical incidents in law enforcement can vary, whether it be the death of an infant, getting hurt as a result of a physical altercation, or even taking a life as a result of an officer involved shooting. The stress that is induced as a result of these incidents can further lead to suffering from conditions such as Posttraumatic Stress Disorder or (PTSD) (Komarovskaya et al., 2000). In this study, the researcher examined 400 police officers who were assessed for PTSD while in the police academy and again 3 years later. The study revealed that at least 10% of the officers reported having to kill or injure someone while in the performance of their duty within their first 3 years. Similarly, Gersons (1989) conducted a study focusing on the treatment implications as well as the PTSD symptomology following officer involved shootings. In a sample of officers who were involved in shootings, almost half met the criteria for PTSD in the Diagnostic and Statistical Manual (DSM-III). Three of 37 officers did not show any symptoms. According to Gersons (1989), psychotherapy along with psychopharmacological interventions were proved to help improve PTSD symptoms in police officers.

Addis and Stephens (2007) conducted a study evaluating a police debriefing program for police officers involved in shootings 5 years after the incident occurred. According to Addis and Stephens (2007),

Officers involved in a shooting were surveyed by a questionnaire, 5 years after the event. The results showed that 79% of 57 officers (46 officers) had not received debriefing. Those who had received debriefing had higher posttraumatic stress disorder scores ... However, regression of PTSD and health scores, on stress perceptions, social support, other trauma, and debriefing, showed that debriefing had no significant effect," (Addis & Stephens, 2007, p. 361).

Thornton (2014) examined the difference in officers who had experienced at least one duty related critical incident and those who had not. The study focused on the critical incidents and the emotion regulation. One of the findings was that police officers have a higher incidence of PTSD symptoms in comparison to the general population (as cited in Menard & Arter, 2013).

Mental Health

An officer's psychological and emotional well-being is vastly affected throughout his career, even from the beginning of the police training academy. Events occur from time to time that alter an officer's mental health. One's mental health determines how one reacts to certain situations, how he handles stress, and how he makes decisions. These are all crucial aspects to an officer's ability to perform his job. Van Der Velden, Kleber, Grievink, and Yzermans (2010) examined how police officers suffer from mental health problems as a result of dealing with aggressive subjects. This study also examined how life events and previous mental health issues add to mental health problems (MHPs) in police officers. According to Van Der Velden et al. (2010) "chronic mental health problems should be considered a contraindication for single session interventions after such events. In addition, [the] findings suggest that we ought to be very careful, when officers report MHPs after a single aggression incident" and we should not attribute MHPs to just one isolated incident (Van Der Velden et al., 2010, p. 142). The average person may think that PTSD is caused by an isolated incident, which can occur, but most PTSD cases stem from multiple instances that occur over a span of time.

Symptoms

Maguen et al. (2009) state that being in law enforcement is an inherently stressful occupation, which may result in both psychological and physical symptoms, such as depression, PTSD, anxiety, acute stress, and other conditions.

Chopko, Palmieri, and Adams (2017) emphasized the need to better assist officers who experience symptoms of posttraumatic stress. According to the researchers,

The purpose of this study was to test a proposed model involving a pathway from type of trauma exposure to Posttraumatic growth (PTG) that is mediated by PTSD symptoms among law enforcement officers... Findings indicate that events involving threat to self are more closely related to posttraumatic growth, via an indirect pathway through PTSD symptoms. Additionally, personal relationship stress was directly associated with PTSD symptoms and behavioral Posttraumatic growth, but not cognitive (Chopko, Palmieri, & Adams, 2007, p. 1).

Asmundson & Stapleton (2008) conducted a study to evaluate measurements of anxiety sensitivity and PTSD symptom clusters in police officers. The study revealed that officers who scored higher with probable PTSD, also scored higher on anxiety sensitivity, in comparison to those officers who did not have probable PTSD.

Ellrich and Baier (2015) analyzed police officers following violent assaults and referred to the "pre-, peri-, and posttraumatic risk factors of posttraumatic stress symptoms, police-specific factors, and differences in the impact of these factors comparing male and female officers" (Ellrich & Baier, 2015, p. 331). The findings revealed that having support groups could reduce the posttraumatic stress, while facing legal consequences could heighten the stress symptoms.

Yuan et al. (2010) surveyed officers prior to entering the academy, as well as 2 years after the academy. Participants were asked to list the number of critical incidents prior to entering the academy as well as post. Most participants averaged only one critical incident prior to entering the police force, but saw an increase after. Findings indicated that within 2 years, social support did not predict fewer PTSD symptoms. The study also found that the "greater belief in benevolence of the world and higher levels of social adjustment, assessed during training and prior to critical incident exposure, may protect police officers from duty related PTSD symptoms," (Yuan et al., 2010, p. 49-50).

Maguen et al. worked on examining the connection between work related stress and PTSD symptoms in police officers. The officers were assessed while they were in the academy, and again 1 year later. The authors of the study used negative life events as well as a critical incident history questionnaire (CIHQ). The study revealed that, "work environment had the strongest association with PTSD symptoms, above and beyond the effects of exposure to duty-related critical incidents and negative life events outside police service," (Maguen et al., 2009, p. 757).

Witteveen et al. (2009) found that police officers and firefighters generally reported greater levels of probable PTSD and other symptoms of depression and fatigue after an exposure of a negative life event than those that had no exposure. The study also revealed that, "a relationship between probable PTSD and cortisol could not be established in this large sample of police officers and firefighters" (Witteveen et al., 2009, p. 1117).

Stress and Depression

Common symptoms of mental health disorders, such as PTSD, are stress, depression, and anxiety (Ellrich & Baier, 2015). Wang et al. (2008) examined depression symptoms of 119 police officers before and after 12 months of police service. The study also examined childhood trauma, neuroticism, and self-worth. The study found that after the 12-month follow up, approximately 77% of participants reported depression symptoms. According to Wang et al. (2008), “under stressful police work conditions, police officers with lower self-worth prior to entering active police service may have a greater tendency to develop depression symptoms, which may further perpetuate a cycle of depression symptomatology and low self-worth (p. 214).

Green’s 2016 study emphasized that the more critical incidents officers were involved in, the more likely they were to display PTSD symptoms. The study found that only “a total of 9.8% of active officers reported experiencing symptoms to the extent that they could be diagnosed with PTSD, and another 9.7% of officers reported sufficient psychological distress to be classified as expressing subthreshold PTSD” (Green, 2016, p. 66). According to Tull (2018), subthreshold PTSD refers to the experiencing of some PTSD symptoms after a traumatic event, but not quite enough to meet the criteria for a PTSD diagnosis. Wills and Schuldberg (2016) examined how chronic trauma may lead to PTSD in police officers. Several measures were used such as the Critical Incident History Questionnaire and the PTSD Checklist-Civilian. According to Wills and Schuldberg (2016), “the study revealed that work environment stress was significantly related to gender, with female officers reporting higher levels of operational and organizational stress” (p. 185).

Suicide

In the most extreme cases, PTSD in police officers can lead to suicide. It is important to discuss suicide, due to its prevalence in law enforcement. Because of the symptoms of PTSD, it becomes difficult for some officers to function as they normally would. Martin and Martin (2017) attempted to describe the causes of police suicide and how PTSD from trauma suffered in the line of duty may play a role. Martin & Martin (2017) speculate on what may be some factors that lead to suicide, but cannot pinpoint one exact cause. Common factors can be depression, anxiety, and flashbacks. Sometimes it is difficult to cope with certain calls for service as they can remind you of your personal life. It is common for first responders to turn to alcohol to help with coping, which can lead to further depression.

Stanley, Horn, and Joiner (2015) studied the job-related stressors and exposures that police officers and other first responders suffer, which can lead to an increase in PTSD, suicide, and mental health problems. According to Stanley, Horn, & Joiner (2015), “findings from this systematic review revealed that police officers, firefighters, EMTs, and paramedics may be at elevated risk for suicidal thoughts and behaviors,” (p. 41).

In 1995, Violanti examined the different factors that may lead to police suicide. For a variety of reasons, one of the biggest issues that arose with the study was the misclassification of suicides. One of the most common factors that led to suicide was alcoholism as well as marital problems. Another issue in Violanti’s study is that the factors that led to alcoholism or marital problems were not looked at. According to Violanti (1995), officers are at a high risk for committing suicide; therefore, the need for agencies to provide suicide prevention resources is crucial (p. 7).

Coping

When suffering from PTSD symptoms, coping methods become very crucial. There are both positive and negative coping methods. Having an adequate support system is important to police officers who suffer from symptoms. When an officer doesn’t have an adequate support system, he or she may turn to substance abuse. Alcoholism becomes very prevalent in officers who suffer from PTSD symptoms and do not have any positive coping methods. Cross and Ashley (2004) discussed traumatic incidents and how officers choose to cope with trauma. According to Cross and Ashley (2004), officers suffer from numerous traumatic symptoms after critical incidents and adding negative coping methods such as abusing substances only worsens those symptoms.

Menard, Arter, and Khan (2016) focused on critical incidents, alcohol, trauma problems, and service utilization among officers from five different countries. An Alcohol Use Disorders Identification Test (AUDIT) and the PTSD Checklist were utilized. The results indicated that officers experience numerous stressors, for which they do not seek services. The study also found that officers are likely to suffer mental health problems that go untreated.

In Van Valkenburgh's (2007) research, 96 sworn police officers were examined. The study focused on critical incidents and dissociation. The Diagnostic and Statistical Manual (DSM IV) defined dissociation as a "disruption in the usually integrated functions of consciousness, memory, identity, or perception" (Van Valkenburgh, 2007). The study found out that the more critical incidents the officers were involved in, the higher the dissociation. The study also found that coping strategies did not have a significant effect on the levels of dissociation.

Menard and Arter (2013) examined PTSD and social stressors, as well as alcohol being used as a way of coping with critical incidents. According to Menard & Arter (2013) the results of the study suggest that an "officer's well-being is not solely related to critical incidents experienced, but also to the coping methods and social support available to deal with them" (p. 49).

Scott (2007) examined how three different control groups used humor as a coping method for sudden death. The three control groups were nurses, paramedics, and officers assigned to the traffic division. The study found that humor was a mechanism used to cope with the line of work for emergency personnel.

Another way of coping with PTSD is through religion or spirituality. In his 2011 study, Tovar emphasized the importance of spirituality in law enforcement as a result of vicarious traumatization. Spirituality is viewed as a positive way to address mental health issues that can arise in officers because of the direct and indirect traumatization. Tovar (2011) found that "organizations have begun to recognize that occupational stress and vicarious traumatization pose serious hazards for their workers' mental health; as such, they need to consider facilitating wellness and spirituality programs in the workplace" (p. 21).

Personality Profile

An officer's personality and character have much to do with how he or she deals with PTSD symptoms. Salters-Pedneault, Reuf, and Orr (2009) examined the self-reported personality traits and profiles of police officer and firefighter recruits. The study also examined psychophysiological responses during loud tone procedures. "In the loud tone procedure, a series of brief, loud, pure-tone stimuli are presented in a task-free situation. It is an established paradigm for measuring autonomic sensitization in [PTSD]" (Koch et al., 2016). In sum, the study revealed that "both police and firefighters showed relatively higher pretone heart rate (HR) and left orbicularis oculi (O-EMG) levels than the nonrescuer group, with the firefighters also showing an elevated HR level compared to police" (Salters-Pedneault, Reuf, & Orr, 2009, p. 214). First responders are more likely to show higher heart rates and O-EMG levels than non-first responders.

Burke and Paton (2006) surveyed 117 police officers. They examined organizational characteristics as well as operational experiences. The study revealed that the negative incidents officers faced also resulted in positive experiences because officers stated that they learned from those experiences.

Resiliency

An officer's resilience may determine how he or she is affected by traumatic events and critical incidents. Galatzer-Levy et al. (2013) examined police officers from academy training to 4 years of active service. Levels of distress were examined every 12 months. According to Galatzer-Levy et al. (2013), resilience is predicted by low levels of negative emotion and high levels of positive emotion.

Retirement and Transition

When joining the profession, an officer becomes part of a subculture and gains another family. When retiring, it becomes difficult for retired officers to move on with their lives because it is more than just a job for them. Caudill and Peak (2009) reveal the need for training on how to retire due to the nature of the job. Furthermore, they explain that retirement for law enforcement officers is more of a process and a slow transition.

Seay (2009) focused on 69 retired police officers. Seay's study found that only eight of the 69 officers screened positive for PTSD. Most officers stated that they were satisfied with life. The purpose of the study was to understand how officers could transition from work roles to social roles.

Methodology

Since the research focused on understanding the relationship between critical incidents and PTSD-like symptoms in law enforcement officers, a quantitative design was deemed appropriate for this study.

Participants

Sworn police officers, both men and women, were asked to participate in this study. Years of experience varied from less than 1 year to more than 16 years. Also, only police officers working in the Central Valley of California were asked to participate. In order to maintain confidentiality, the exact location of the agencies was not presented. Three agencies agreed to participate. All three agencies agreed by sending a signed letter of participation via email. The only criterion for participants was that they needed to be active duty police officers or deputies within the department. Those excluded were dispatchers, front desk employees, and administrative non-police department personnel.

Upon securing the approval of the chiefs and sheriffs, University IRB approval was sought. After IRB approval was granted, an anonymous link was emailed to the chiefs and sheriffs to be distributed within their agencies. The link contained a consent form, two questionnaires, and a brief demographic survey.

A total of 26 sworn police officers (both men and women) from several different agencies within the Central Valley of California volunteered to participate in this study. Confidentiality of the questionnaire scores was maintained by instructing the officers to omit their names or any other identifying information on any of the paperwork provided. There was a total of 26 participants with 12 indicating that the incident they focused on occurred more than a year ago, 10 indicated that the incident they focused on occurred less than a year ago, and four participants failed to indicate when the incident they were focusing on occurred. Because of this, these surveys were deemed incomplete and were not used in the statistical analysis or sample of this study. Of the 22 participants two responded that they had less than 1 year of experience, one answered that he had 1 to 5 years of experience, three answered that they had 6 to 10 years of experience, seven answered that they had 11 to 15 years of experience, and nine participants answered that they had 16 years or more of experience.

Instrumentation

Two previously constructed and validated instruments were used to collect data regarding factors related to impacts of events and symptoms as a result of critical incidents: the Posttraumatic Stress Disorder Checklist (PCL-5) and the Impact of Events Scale Revised (IES-R). Because first responders have a documented tendency to avoid self-disclosure (Violanti, 1997); reassurance of the anonymity of the survey was used to overcome this tendency.

Posttraumatic Stress Disorder Checklist (PCL-5)

The PCL-5 is a Posttraumatic Stress Disorder Checklist which contains a 20-item self-report measure, which assesses the presence and severity of PTSD symptoms. The items on the PCL-5 conform with the Diagnostic and Statistical Manual of Mental Disorders (DSM-5). The PCL-5 may be used to monitor symptoms for a period of time, screen individuals for PTSD, and assist in making a preliminary diagnosis of PTSD. The PCL-5 uses a 5-point Likert scale, which rates items from 0, which means “not at all” to 4 which is “extremely.” The PCL-5 provides a total score that ranges from 0 to 80 and can be obtained by summing the scores of the 20 items. A lower score on the PCL-5 can infer the possibility of PTSD and a higher score can infer a provisional diagnosis of PTSD.

Impact of Event Scale-Revised (IES-R)

The Impact of Event Scale-Revised (IES-R) is a 22-item self-report measure revised by Weiss et al. in 1996 to measure and assess subjective distress caused by traumatic events. The original version was a 15-item self-report measure created by Horowitz, Wilner, and Alvarez in 1979. According to Weiss and Marmar (1996), the revised version of the IES contains seven additional items related to the hyperarousal symptoms of PTSD, which were not included in the original IES. The items correspond directly to 14 of the 17 DSM-IV symptoms of PTSD. Respondents are asked to identify a specific stressful life event and then indicate how much they were distressed or bothered during the past 7 days by each difficulty listed. Items were rated on a 5-point scale that ranged from 0, which meant “not at all” to 4 which is “extremely.” The IES-R provides a total score that ranges from 0 to 88 and subscale scores to allow comparison with scores from the Symptom Checklist 90-Revised (SCL-90-R); (Derogatis, 1994). In general, the IES-R (and IES) is not used to diagnose PTSD; however, cutoff scores for a preliminary diagnosis of PTSD have been cited in the literature.

Data Collection Method

A brief survey was administered asking the participant when the last critical incident occurred, which type of incident occurred, and how long the participant has been employed as a law enforcement officer.

Procedure

Chiefs of Police and Sheriffs in the Central Valley were contacted via email asking them for permission to have their agency participate in this study. Once permission was granted, the chiefs of police and sheriffs were asked to distribute an anonymous online link via email which contained access to the informed consent form, Posttraumatic Stress Disorder Checklist (PCL-5), Impact of Event Scale Revised (IES-R), and the brief demographic survey. Participants were also advised of the anonymity of the questionnaires and reinforced it to those who wished to be participants through the informed consent.

Also, as part of the questionnaires, demographic questions were asked to acquire information about when the identified critical incident took place, what category of incident happened, and how long the participant has been a police officer. Participants were provided with a brief description of the questionnaires, as well as an informed consent form.

Data Analysis Plan

Using the Statistical Package for the Social Science (SPSS) software, a series of Pearson Correlational tests were used to answer this study's research questions. Descriptive statistics, specifically frequencies, were analyzed for each question on the survey. The purpose of this was to look for trends in responses among participants. The goal was to determine if there might be some PTSD-like symptoms that were exhibited among the sample more than others. When the participants were asked if a *reminder brought back feelings*, the majority (7) of the participants stated that this occurred *moderately*. When participants were asked if *things made me think about it*, the most common response (7) was "a little bit." The highest answered response rate for the option *quite a bit* (5) and *extremely* (4) was when participants were asked if *pictures popped into my head*. The majority (8) of the participants indicated that their critical incident was being involved in an *officer involved shooting* with the second most indicated response to be *other* (5).

Methods

Officers were contacted through email and asked to participate in this research. The officers were given a brief description of the study and received an informed consent form. Participants were asked to complete the two questionnaires previously described (PCL-5 and IES-R) along with a short demographic survey. Officers took approximately 10-20 minutes to complete the entire two-questionnaire packet and the brief demographic survey.

RESULTS

The purpose of this study was to examine the prevalence of Posttraumatic Stress Disorder in law enforcement professionals who experience critical incidents. Through quantitative data collection and analysis, this study analyzed possible relationships between law enforcement officials who suffered critical incidents and Posttraumatic Stress Disorder Symptoms.

Surveys were distributed over the course of several weeks. A link containing a demographic survey, the instruments, and a consent form were distributed to the email addresses of police officers within the three participating agencies in the Central Valley. Twenty-two of 26 surveys were fully completed with no missing responses. Years of experience was reported along with type of critical incident that the participant was focusing on.

Below are Pearson correlations that were used to test the hypothesis. The variables consisted of years of experience, time of incident, and type of incident. The PCL-5 Checklist and the IES-R were used to compute scores using Likert scales in determining the possibility of PTSD or PTSD-like symptoms. Due to the limited sample size, the results were also limited. On the other hand, due to the size of the sample, it is a cause for concern that there were multiple participants that were at risk for PTSD or PTSD-like symptoms.

Do years of experience impact the effect that a critical incident has on a police officer as measured by the Posttraumatic Stress Disorder Checklist (PCL-5)?

As mentioned previously, the data were then analyzed using the Statistical Package for the Social Sciences (SPSS). Table 1 below illustrates a Pearson correlation which revealed a low or weak positive correlation $0 < |.05| < .3$ ($r = .05$) between years of experience and the scores on the Posttraumatic Stress Disorder Checklist. The results of the analysis showed that there wasn't a statistically significant relationship between the two variables with a p-value greater than .05.

Table 1: *Years of Experience and Scores of Posttraumatic Stress Disorder Checklist*

Descriptive Statistics			
	<i>Mean</i>	<i>Std. Deviation</i>	<i>n</i>
<i>Years of Experience Now</i>	3.9091	01.26901	22
<i>Scores PCL-5</i>	7.5455	10.79121	22
Correlations			
		<i>Years of Experience Now</i>	<i>Scores IES-R</i>
<i>Years of Experience Now</i>	Pearson Correlation	1	.052
	Sig. (2-tailed)		.817
	<i>n</i>	22	22
<i>Scores PCL-5</i>	Pearson Correlation	.052	1
	Sig. (2-tailed)	.817	
	<i>n</i>	22	22

Do years of experience impact the effect that a critical incident has on a police officer as measured by the Impact of Event Scale Revised (IES-R)?

Similar to the analysis above, years of experience and scores on the IES-R were analyzed using SPSS. According to the tests that were run, a Pearson's r data analysis revealed a negative correlation $-1 < |-.03| < 0$ ($r = -.03$) between years of experience and the scores on the Impact of Event Scales Revised. In Table 2, the results of the analysis show that there wasn't a statistically significant relationship between the two variables with a p-value greater than -.03.

Table 2: *Years of Experience and Scores on the Impact of Events Scale Revised*

Descriptive Statistics			
	<i>Mean</i>	<i>Std. Deviation</i>	<i>n</i>
<i>Years of Experience Now</i>	3.9091	1.26901	22
<i>Scores IES-R</i>	19.4091	16.49433	22
Correlations			
		<i>Years of Experience Now</i>	<i>Scores IES-R</i>
<i>Years of Experience Now</i>	Pearson Correlation	1	-.030
	Sig. (2-tailed)		.895
	<i>n</i>	22	22
<i>Scores IES-R</i>	Pearson Correlation	-.030	1
	Sig. (2-tailed)	.895	
	<i>n</i>	22	22

Do officers who have recently (within 1 year) experienced a critical incident show higher PTSD symptoms as measured by the PCL-5 compared to those who experienced a critical incident more than a year ago?

Another set of variables that were tested were officers who suffered a critical incident within a year and the effect the recentness of the incident would have on the results of the PCL-5, in comparison to the officers who experienced a critical incident more than a year ago. In Table 3, a Pearson’s *r* data analysis revealed a low or weak

Table 3: *Timeframe of Critical Incident and Scores on the Posttraumatic Stress Disorder Checklist***Descriptive Statistics**

	<i>Mean</i>	<i>Std. Deviation</i>	<i>n</i>
<i>Timeframe of Incident</i>	1.5455	.50965	22
<i>Scores PCL-5</i>	7.5455	10.79121	22

Correlations

		<i>Years of Experience Now</i>	<i>Scores IES-R</i>
<i>Timeframe of Incident</i>	Pearson Correlation	1	.116
	Sig. (2-tailed)		.606
	<i>n</i>	22	22
<i>Scores PCL-5</i>	Pearson Correlation	.116	1
	Sig. (2-tailed)	.606	
	<i>n</i>	22	22

positive correlation $0 < |.12| < .3$ ($r = .12$) between the scores of the Posttraumatic Stress Disorder Checklist and the timeframe of the incident, whether it occurred recently (within 1 year) or more than a year ago. The results of the analysis showed that there wasn't a statistically significant relationship between the two variables with a p-value greater than .12.

Do officers who have recently (within 1 year) experienced a critical incident show higher PTSD symptoms as measured by the IES-R compared to those who experienced a critical incident more than a year ago?

Similar to Table 3, recentness of the critical incident was also tested (see below); the only difference was that instead of using the PCL-5 to compare, the IES-R was used in its place. Table 4 illustrates a Pearson's r data analysis revealed a low or weak positive correlation $0 < |.18| < .3$ ($r = .18$) between the scores of the Impact of Event Scale Revised and the timeframe of the incident, whether it occurred recently (within 1 year) or more than a year ago.

Table 4: Timeframe of Critical Incident and Scores on the Impact of Events Scale Revised

Descriptive Statistics			
	<i>Mean</i>	<i>Std. Deviation</i>	<i>n</i>
<i>Timeframe of Incident</i>	1.5455	.50965	22
<i>Scores IES-R</i>	19.4091	16.49433	22

Correlations

		<i>Years of Experience Now</i>	<i>Scores IES-R</i>
<i>Timeframe of Incident</i>	Pearson Correlation	1	.176
	Sig. (2-tailed)		.433
	<i>n</i>	22	22
<i>Scores IES-R</i>	Pearson Correlation	.176	1
	Sig. (2-tailed)	.433	
	<i>n</i>	22	22

What is the relationship between an officer’s total score on the Impact of Event Scale Revised (IES-R) and the Posttraumatic Stress Disorder Checklist (PCL-5)?

Finally, the last two variables that were tested were the scores of the IES-R and the PCL-5 to determine if there was a relationship. The Pearson’s *r* data analysis revealed a moderate positive correlation $.3 < |.45| < .5$ ($r = .45$) between the scores of the Impact of Events Scale Revised and the Posttraumatic Stress Disorder Checklist. A scatterplot summarizes the results (Figure 5). Overall, the results of the analysis showed that there was a statistically significant moderate positive relationship between the two variables, meaning that increased scores on the IES-R were correlated with increased scores on the PCL-5. Also, if the scores decreased on the IES-R, then the scores would decrease on the PCL-5.

Table 5: Score Comparison of Impact of Events Scale Revised and Posttraumatic Stress Disorder Checklist

Descriptive Statistics			
	<i>Mean</i>	<i>Std. Deviation</i>	<i>n</i>
<i>Scores IES-R</i>	19.4091	16.49433	22
<i>Scores PCL-5</i>	7.5455	10.79121	22

Correlations

		<i>Years of Experience Now</i>	<i>Scores IES-R</i>
<i>Scores IES-R</i>	Pearson Correlation	1	.451
	Sig. (2-tailed)		.035
	<i>n</i>	22	22
<i>Scores PCL-5</i>	Pearson Correlation	.451	1
	Sig. (2-tailed)	.035	
	<i>n</i>	22	22

Several interesting frequencies were noted among the responses. Among the 22 participants, 36.4% ($n = 8$) reported that they had been involved in an officer involved shooting, 13.6% ($n = 3$) reported that they had responded to a vehicle accident resulting in death(s), 18.2% ($n = 4$) reported that they responded to a death of a child, 4.5% ($n = 1$) reported that they were targeted in an ambush, 4.5% ($n = 1$) reported that they responded to the sexual assault of a child, and 22.7% ($n = 5$) reported that they responded to a critical incident that was not listed (see Table 6). Among the most frequent difficulties that participants stated was occurring in their life was *any reminder brought back feelings about it*. Only six of the 22 participants stated that this difficulty did not affect them. This was also the first difficulty listed in the IES-R. Another difficulty that had a high response rate was *other things kept making me think about it*. Only five of the 22 participants stated that this did not affect them. Another difficulty that had high response rates was *pictures about it popped into my mind*. Again, only five participants stated that this did not affect them, while the other 17 were affected anywhere from “a little bit” to “extremely.”

Table 6: *Types of Critical Incidents*

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
<i>Officer Involved Shooting</i>	8	36.4	36.4	36.4
<i>Responding to a Vehicle Accident Resulting in Death(s)</i>	3	13.6	13.6	50.0
<i>Death of a Child</i>	4	18.2	18.2	68.2
<i>Officer being targeted in an ambush</i>	1	4.5	4.5	72.7
<i>Sexual Assault of Child</i>	1	4.5	4.5	77.3
<i>Other</i>	5	22.7	22.7	100.0
<i>Total</i>	22	100.0	100.0	

Summary

The research questions in the current study explored the prevalence of PTSD and PTSD symptoms as a result of critical incidents. The first research question explored years of experience and the impact that a critical incident would have on the officer. The results indicated that there was no significant relationship between years of experience and the impact of critical incident. The second research question examined PTSD symptoms in officers who experienced a critical incident within 1 year and symptoms in officers who experienced a critical incident more than a year ago. The results demonstrated no difference in symptoms of officers who were exposed to a critical incident within 1 year and officers who had been exposed to a critical incident more than a year ago. The third research question examined the relationship between the scores on the Posttraumatic Stress Disorder Checklist (PCL-5) and the scores on the Impact of Events Scale Revised (IES-R). The data analysis revealed that there was a statistically significant moderate positive relationship. Although only one of the three hypotheses was supported, the data highlighted useful information for future research. Even though the correlational tests did not yield strong results, it should be noted that several questions revealed a high frequency of responses in the *moderately* range, indicating that officers are experiencing PTSD-like symptoms in high frequencies. Even with a small sample of 22 participants, the results indicate the need for further research on the topic. With the large amount of number of events police officers encounter while on duty, PTSD and PTSD-like symptoms may be more prevalent than many believe.

DISCUSSION, IMPLICATIONS, AND LIMITATIONS

The purpose of this research was to understand the relationship between critical incidents and PTSD-like symptoms. In particular, the study attempted to determine the prevalence of PTSD in law enforcement officers who suffer critical incidents. The purpose of this research was also to raise awareness of PTSD and to provide useful information on how to recognize PTSD-like symptoms. This study included data from a demographic survey, a checklist, and a scale used to evaluate the symptoms of Posttraumatic Stress Disorder.

A key finding was that an estimated 41% of the participants who took the IES-R showed clinical concerns for PTSD, if they didn't already have partial or full PTSD. On the other hand, of those who completed the PCL-5, only 9.1% needed further assessment to confirm a diagnosis of PTSD. A low score on the PCL-5 didn't necessarily mean that there were no PTSD symptoms, but instead meant that the participant may have minor symptoms.

The results determined that there was no statistical relationship on how impactful a critical incident would be depending on years of experience as measured by the PCL-5 and IES-R. The results also indicated that there was no statistically significant difference on PTSD symptoms in relation to the date of the incident, whether it occurred within a year or more than a year ago. However, there was a statistically significant moderate positive relationship when comparing the scores of the PCL-5 and the IES-R, which meant that if a participant scored high on one, he or she would score high on the other or vice versa. Since both the IES-R and the PCL-5 both measure PTSD or PTSD-like symptoms, a relationship was expected between the two.

The goal of the current study was to further provide knowledge to law enforcement agencies regarding recognizing PTSD-like symptoms after being exposed to critical incidents and traumatizing events while on duty.

Interpretation of Results

While only one of the three research questions resulted on a statistically significant finding, there is much room for discussion and interpretation. Because of the sample size, the researchers feel that results may be skewed, meaning that PTSD or PTSD-like symptoms are more prevalent than what the current study revealed. In the IES-R, two (9%) of the participants stated that they were not suffering from any of the difficulties listed. In the PCL-5, seven (32%) of the participants stated that they were not suffering from any of the difficulties listed. This may indicate that the majority of the participants were suffering from one or more other difficulties, which can be as a result of PTSD or PTSD-like symptoms. This is cause for concern because even though the sample size wasn't large, the majority of participants still stated that they suffered some of the difficulties listed on the survey.

The most prevalent difficulties were *pictures popped into my head, things made me think about it, and any reminders brought back feelings about it*. These difficulties are among the most common when suffering from PTSD or PTSD-like symptoms.

These symptoms or difficulties are common for police officers as they are often placed in situations that cause flashbacks or bring back reminders of critical incidents that they have encountered in the past. Two of the researchers have policing experience and can confirm from personal experience that officers often replay scenarios of incidents that have occurred in the past to see what could have been done differently or how the outcome could have changed. The researchers believes it is practically impossible to go through a whole law enforcement career and say that one has never gone through a critical incident, let alone a difficulty listed in the IES-r or PCL-5. In today's society, officers are often scrutinized by the media and public for decisions they are forced to make in a split second and forced to live with for the rest of their lives, resulting in some type of trauma whether mental or physical. Oftentimes, officers try not to speak about the incident or avoid talking to someone about it if it is bothering them, causing further trauma and mental health issues. This is why it is important to study the prevalence of PTSD in law enforcement officers because it is more prevalent than many may think.

Limitations

This study was limited to three Central Valley agencies which varied in size. This could have been a limiting factor as the agencies may not be as large as other agencies outside of the Central Valley, therefore limiting the participants who responded. Another limiting aspect of this study was the use of another party to distribute the survey link. As stated before, first responders have a tendency to avoid self-disclosure, therefore the participant sample was very limited as there was physical follow up with those that received the survey link. The reluctance to participate in the collection of data regarding one's mental health can minimize successful collection and limit the results, as it is not a popular topic to discuss. Law enforcement officers who have suffered or will suffer critical incidents tend to avoid speaking about the subject and do not discuss the difficulties they suffer as a result of the critical incident. In turn, officers tend adapt to the incidents they experience and use different coping methods than those recommended.

This study was limited to participants focusing on only one critical incident, causing officers to solely think about one incident. This may have resulted in officers picking a critical incident that hasn't affected them as much as another, minimizing the results of the data collected because scores will be lower.

Finally, as stated previously, the lack of a significant finding between the comparisons of the variables might indicate the need to further research other variables or individual factors. Listing more critical incidents may be beneficial and asking participants to select the incident that they were more affected by may also be helpful. Also, expanding the research to more agencies, allowing more time, and sending more reminders may have assisted in receiving more responses, as this study was extremely limited in time and agencies involved.

Conclusion

The prevalence of PTSD or PTSD-like symptoms in law enforcement is so great that it is important for readers to understand the significance of reaching out to those who display symptoms or seek help if they are suffering through the difficulties listed above. There are many possible consequences to ignoring the symptoms and refusing to seek help, with suicide being the most serious. One must remember that it is not shameful to reach out for help, but instead see it as a prideful thing to do, as you are trying to better yourself. Police officers fill a crucial role in our society as well as in the communities they serve. Officers are often placed in potentially traumatic situations which affect their mental health on a daily basis. One must remember that illness is not always visible and even the most minute thing can trigger PTSD or PTSD-like symptoms. This study examined the prevalence of PTSD in law enforcement professionals. Although several variables did not correlate with others, one relationship that was present was that of the IES-R and PCL-5, meaning that officers displaying difficulties or symptoms in one test were more likely to show symptoms or difficulties in the other. The scores on the IES-R and PCL-5 also serve as a preliminary diagnosis of PTSD or PTSD-like symptoms, which require further testing. The need for more research on the prevalence of PTSD in law enforcement officials is crucial as critical incidents are happening more frequently. Furthermore, the researcher hopes that administrative staff is able to read this study and explore ways to provide additional support and intervention for their officers who experience any of the above-mentioned symptoms or critical incidents and are in need of treatment. It is also important for administrative staff to open their doors to officers who may be suffering from PTSD or PTSD-like symptoms in order to seek assistance with dealing with the trauma.

References

- Addis, N., & Stephens, C. (2008). An evaluation of a police debriefing programme: outcomes for police officers five years after a police shooting. *International Journal of Police Science & Management*, 10(4), 361-373.
- Asmundson, J. G., & Stapleton, J. A. (2008). Associations between dimensions of anxiety sensitivity and PTSD symptom clusters in active-duty police officers. *Cognitive Behaviour Therapy*, 37(2), 66-75.
- Aumiller, G., & Goldfarb, D. (2011). Critical incident stress reactions; what is it, how to recognize it, and what to do about it. Retrieved from <http://www.heavybadge.com/cisd.htm>
- Burke, K. J., & Paton, D. (2006). Predicting police officer job satisfaction: Traditional versus contemporary models of trauma in occupational experience. *Traumatology*, 12(3), 189-197.
- Campbell, B. A., Nix, J., & Maguire, E. R. (2017). Is the number of citizens fatally shot by police increasing in the post-Ferguson era? *Crime and Delinquency*, 64(3), 398-420.
- Caudill, C. B., & Peak, K. J. (2009). Retiring from the "thin blue line": A need for formal preretirement training. *FBI Law Enforcement Bulletin*, 78(11), 12-18.
- Chermark, S., McGarrell, E., & Gruenwald, J. (2006). Media coverage of police misconduct and attitudes toward police. *Policing: An International Journal of Police Strategies & Management*, 29(2), 261-281.
- Chopko, B. A., Palmieri, P. A., & Adams, R. E. (2017). Relationships among traumatic experiences, PTSD, and posttraumatic growth for police officers: A path analysis. *Psychological Trauma: Theory, Research, Practice, and Policy*, 1-7.
- Crandon, G. (1990). Media view of the police. *Policing*, 6, 573-581.
- Cross, C. L., & Ashley, L. (2004). Police trauma and addiction: Coping with the dangers of the job. *FBI Law Enforcement Bulletin*, 73(10), 24-32.
- Derogatis, L. R. (1994). SCL-90-R: Symptom checklist 90-R: Administration, scoring & procedures manual. Minneapolis, Minnesota: National Computer Systems, Inc.
- Desmond, M., Papachristos, A. V., & Kirk, D. S. (2016). Police violence and citizen crime reporting in the black community. *American Sociological Review* 81(5), 857-876.
- Dowler, K., & Zawilski, V. (2007). Public perceptions of police misconduct and discrimination: Examining the impact of media consumption. *Journal of Criminal Justice: An International Journal*, 35(2), 193-203.
- Ellrich, K., & Baier, D. (2015). Posttraumatic stress symptoms in police officers following violent assaults: A study on general and police-specific risk and protective factors. *Journal of Interpersonal Violence*, 32(3), 331-356.
- Galatzer-Levy, I. R., Brown, A. D., Henn-Haase, C., Marmar, C. R., Metzler, T. J., & Neylan, T. C. (2013). Positive and negative emotion prospectively predict trajectories of resilience and distress among high-exposure police officers. *Emotion*, 13(3), 545-553.
- Gersons, B. P. R. (1989). Patterns of PTSD among police officers following shooting incidents: A two-dimensional model and treatment implications. *Journal of Traumatic Stress*, 2(3), 247-257.
- Graziano, L., Schuck, A., & Martin, C. (2009). Police misconduct, media coverage, and public perceptions of racial profiling: An experiment. *Justice Quarterly* 27(1), 52-76.
- Green, D. (2016). Traumatic stress, world assumptions, and law enforcement officers. Retrieved from ProQuest Digital Dissertations. (ProQuest 10123816).
- Koch, J., Flemming, J., Zeffiro, T., Rufer M., Orr, S. P., & Mueller-Pfeiffer, C. (2016). Effects of posture and stimulus spectral composition on peripheral physiological responses to loud sounds. *PLoS ONE*, 11(9), e0161237.
- Kochel, T. R. (2015). Assessing the initial impact of the Michael Brown shooting and police and public responses to it on St. Louis County residents' views about police. Retrieved from http://opensiuc.lib.siu.edu/cgi/viewcontent.cgi?article=1001&context=ccj_reports.
- Komarovskaya, I., Maguen, S., McCaslin, S. E., Metzler, T. J., Madan, A., Brown, A. D., & Marmar, C. R. (2011). The impact of killing and injuring others on mental health symptoms among police officers. *Journal of Psychiatric Research*, 45, 1332-1336.
- Lawrence, R. G. (2000). The politics of force: Media and the construction of police brutality. *American Political Science Review*, 92(2), 426-427.

- Maguen, S., Metzler, T. J., McCaslin, S. E., Inslicht, S. S., Henn-Haase, C., Neylan, T. C., & Marmar, C. R. (2009). Routine work environment stress and PTSD symptoms in police officers. *The Journal of Nervous and Mental Disease*, 197(10), 754-760.
- Martin, T. K., & Martin, R. H. (2017). Police suicide and PTSD: Connection, prevention, and trends. *Law Enforcement Executive Forum*, 17(2), 27-42.
- Ménard, K. S., & Arter, M. L. (2013). Police officer alcohol use and trauma symptoms: Associations with critical incidents, coping, and social stressors. *International Journal of Stress Management*, 20(1), 37-56.
- Ménard, K. S., Arter, M. L., & Khan, C. (2016). Critical incidents, alcohol and trauma problems, and service utilization among police officers from five countries. *International Journal of Comparative and Applied Criminal Justice*, 40(1), 25-42.
- Meyer, A. D., (1982). Adapting to the environmental jobs. *Administrative Science Quarterly*, 27, 515-537.
- Morin, R., Parker, K., Stepler, R., & Mercer, A. (2017). Behind the badge: Amid protests and calls for reform, how police view their jobs, key issues and recent fatal encounters between blacks and police. Retrieved from <http://www.pewsocialtrends.org/2017/01/11/police-views-public-views/#>
- Mueller, B., & Baker, A. (2014). 2 N.Y.P.D. officers killed in Brooklyn ambush; Suspect commits suicide. *The New York Times*. Retrieved from https://www.nytimes.com/2014/12/21/nyregion/two-police-officers-shot-in-their-patrol-car-in-brooklyn.html?mcubz=2&_r=0i
- Mullis, J. (2009). *The impact of the media on public opinion of the police*. (Unpublished master's thesis). California State University, Long Beach.
- Nix, J., & Pickett, J. T. (2017). Third-person perceptions, hostile media effects, and policing: Developing a theoretical framework for assessing the Ferguson effect. *Journal of Criminal Justice* 51, 24-33.
- Nix, J., & Wolfe, S. E. (2016). Sensitivity to the Ferguson effect: The role of managerial organizational justice. *Journal of Criminal Justice* 47, 12-20.
- Panjali, B., (2017). A study of critical incident stress from a traumatic event and its management. International Journal Series in Multidisciplinary Research (IJSMR), *Archives of Humanities and Social Sciences*, 3, 1-9.
- Pelmutter, D. (2000). Policing the media. Street cops and public perceptions of law enforcement. *The British Journal of Criminology* 41(2), 405-407.
- Salters-Pedneault, K., Ruef, A. M., & Orr, S. P. (2009). Personality and psychophysiological profiles of police officer and firefighter recruits. *Personality and Individual Differences*, 49, 210-215.
- Scott, T. (2007). Expression of humour by emergency personnel involved in sudden deathwork. *Mortality*, 12(4), 350-364.
- Seay, S. D. (2009). Job related stress and the ability to transition among life roles for police officers. Retrieved from ProQuest. (UMI 1470987).
- Solomon, R. (2011). Critical incident trauma for law enforcement officers. Retrieved from <https://thecounselingteam.com/wp-content/uploads/2015/04/Critical-Incident-Trauma-R.-Solomon.pdf>.
- Stanley, I. H., Horn, M. A., & Joiner, T. E. (2015). A systematic review of suicidal thoughts and behaviors among police officers, firefighters, EMTs, and paramedics. *Clinical Psychology Review*, 44, 25-44.
- Thornton, M. A. (2014). Critical incidents and emotion regulation in police officers. Retrieved from ProQuest Digital Dissertation. (UMI 3613393).
- Tovar, L. A. (2011). Vicarious traumatization and spirituality in law enforcement. *FBI Law Enforcement Bulletin*, 80(7), 16-21.
- Tull, M. (2018). Subthreshold PTSD: Not quite meeting a PTSD diagnosis. Retrieved from <https://www.verywellmind.com/subthreshold-ptsd-2797395>.
- Van Der Velden, P. G., Kleber, R. J., Grievink, L., & Yzermans, J. C. (2010). Confrontations with aggression and mental health problems in police officers: The role of organizational stressors, life-events and previous mental health problems. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2(2), 135-144.
- Van Valkenburgh, S. E. G. (2007). Dissociation and coping in law enforcement officers. Retrieved from ProQuest Digital Dissertation. (UMI 3313091).
- Violanti, J. M. (1995). Mystery within: Understanding police suicide. *FBI Law Enforcement Bulletin*, 64(2), 19-23.

- Violanti, J. M. (1997). Residuals of police occupational trauma. *The Australian Journal of Disaster and Trauma Studies*, 1(3), 1-10.
- Wang, Z., Inslicht S. S., Metzler, T. J., Henn-Haase, C., McCaslin, S. E., Tong, H., ... Marmar, C. R. (2008). A prospective study of predictors of depression symptoms in police. *Psychiatry Research*, 175, 211-216.
- Weiss, D. S., & Marmar, C. R. (1996). The impact of event scale- revised. In: Wilson, J. P., Keane, T. M. Assessing psychological trauma and PTSD. New York: Guilford Press; 1997, 399-411.
- Weitzer, R. (2002). Incidents of police misconduct and public opinion. *Journal of Criminal Justice*, 30, 397-340.
- Weitzer, R., & Tuch, S. A. (2004). Race and perceptions of police misconduct. *Social Problems*, 51(3), 305-325.
- Weitzer, R., Tuch, S. A. (2005). Racially biased policing: Determinants of citizen perceptions. *Social Forces*, 83(3), 1009-1030.
- Wills J. L., & Schuldberg, D. (2016). Chronic trauma effects on personality traits in police officers. *Journal of Traumatic Stress*, 29, 185-189.
- Witteveen, A. B., Huizink, A. C., Slottje, P., Bramsen, I., Smid, T., & van der Ploeg, H. M. (2009). Associations of cortisol with posttraumatic stress symptoms and negative life events: A study of police officers and firefighters. *Psychoneuroendocrinology*, 35, 1113-1118.
- Woody, R. H. (2006). Family intervention with law enforcement officers. *The American Journal of Family Therapy*, 34, 95-103.
- Yuan, C., Wang, Z., Inslicht, S. S., McCaslin, S. E., Metzler, T. J., Henn-Haase, C., ... Neylan, T. C. (2010). Protective factors for posttraumatic stress disorder symptoms in a prospective study of police officers. *Psychiatry Research*, 188, 45-50.