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10 Neuropsychological Correlates of Misconduct in Law Enforcement Officers With Subclinical Post-Traumatic Stress Disorder

Amir Hamidi and Patrick M. Koga

On September 14, 2004, at 7:12 a.m., Louis Hernandez, a 34-year-old former New York City Police Department (NYPD) officer committed suicide by jumping off of a 12-story building in New York City. Two years later, his widow, Elvira, a devout Catholic overwhelmed by the double grief of her husband's death and the capital sin of his suicide, lost the custody of her two small sons to her mother, due to a severe depression worsened by poor coping with binge drinking. Officer Hernandez, a former martial arts instructor with an impeccable service record between 1994 and 2002, was never diagnosed with post-traumatic stress disorder (PTSD) or with any mental disorder.

In 2003, however, two years after the grueling work in the aftermath of the September 11, 2001 attacks as an officer of NYPD's Emergency Service Unit, Hernandez's good behavior and life began a downward spiral. In March 2003, he received a duty suspension for misconduct. Shortly thereafter, a second incident of police brutality resulted in his being fired from the job in September 2003.

After a winter spent at his grandparents' in Stockton, Hernandez returned home to New York with hopes for a new life. He landed a job as a security guard for an upscale apartment complex, but lost the position after two Middle Eastern residents complained of being frightened by his explosive temper. The summer of 2004 went equally bad for Hernandez, as he had innumerable quarrels with Elvira, including two instances of spousal battery, which were never reported. By the end of August, Hernandez had lost considerable weight and became increasingly withdrawn, morose, and silent. He would sit for hours on the balcony of his home and chain smoke in complete silence. He would slowly exhale the smoke from his cigarettes, as if in a sort of trance. On September 14, he plunged from a balcony to his death, a late casualty of 9/11 and, perhaps, of insufficient policies to prevent a silent epidemic of subclinical PTSD.

The tragic death of Officer Hernandez demonstrates the need for greater awareness of the causes, symptoms, and treatment of PTSD among member of the law enforcement community, including officers, supervisors, senior leadership, and mental health professionals. This chapter discusses the organizational and occupational stressors associated with law enforcement, including the relationship between traumatic events and PTSD. The authors further examine the symptoms and onset of PTSD, including the neurophysiological correlates of PTSD, biological responses to fear, and subclinical PTSD. Next, the authors explore the racial, ethnic, cultural, and gender determinants of PTSD. The chapter concludes with an investigation of current treatments available for PTSD patients, including cognitive processing therapy and mindfulness-based stress reduction.

Epidemiological Considerations of PTSD in Law Enforcement

In her research with men who had committed violent crimes, forensic psychologist Deirdre MacManus discovered a pattern that involved men recently returned from combat in Afghanistan and Iraq (McCleanghan, 2012). Her study, recently published and widely featured in the media, shows that one in eight Operation Iraqi Freedom/Operation Enduring Freedom soldiers has attacked someone after returning from war, with 30% of attacks involving family members. The association between serving in a combat role and being exposed to combat, and subsequent violence on return from deployment, is about two-fold. In terms of occupational and organizational stress and trauma, law enforcement work is perhaps second only to soldiering in war zones (Kop & Euwema, 2001; Violanti & Aron, 1995). If civil unrest, riots, bomb threats, shooting, and hostage crises are rare, the most trivial daily tasks—such as responding to domestic violence calls, shoplifting, and automobile accidents—involve a daily exposure to dangerous situations with potentially fatal consequences both for the perpetrator and the officer.

Some of these tragic scenarios have made headline news, like two West Memphis officers who were killed in 2010 during a traffic stop when a 16-year-old passenger exited the vehicle and opened fire with a semiautomatic rifle. In another, a Chicago Police Department officer at the end of his shift was removing gear near his car in the department's parking lot when a man ambushed the 43-year-old officer and shot him with his own weapon. The 2010 annual FBI report called *Law Enforcement Officers Killed and Assaulted* relates the story of a 62-year-old deputy sheriff in Mississippi who was shot and killed by an uncooperative suspect while responding to a "simple" domestic disturbance call. With an average of 165 line-of-duty deaths each year, or one death every 53 hours, the risk one takes simply by being a law enforcement officer is a palpable reality. In 2010 alone, 56 of the 145 officers who died in the line-of-duty were feloniously slain. According to the National Law Enforcement Officers Memorial Fund, over the last decade, there have been 53,469 assaults against law enforcement each year, resulting in 15,833 injuries (U.S. Department of Justice, 2007). In 2009, by the estimates provided by the FBI's Uniform Crime Reporting Program, 1,318,398 violent crimes occurred nationwide, which equates to 429.4 violent crimes per 100,000 inhabitants. Aggravated assaults accounted for the highest number of violent crimes, reported at 61.2%. Robbery composed 31.0%, forcible rape accounted for 6.7%, and murder accounted for 1.2% of estimated violent crimes in 2009.

The cumulative math of facing such daily hazards makes police work an occupation extremely vulnerable to PTSD with all its accompanying comorbid ills. In 2008, the RAND Corporation, Center for Military Health Policy Research, conducted a population-based study investigating the prevalence of PTSD among previously deployed Operation Enduring Freedom and Operation Iraqi Freedom (Afghanistan and Iraq) service members (Tanielian & Jaycox, 2008). Among the 1,938 participants, the prevalence of current PTSD was 13.8%. Police work is not scoring much better than active military service: 3% to 17% of police officers, too, exhibit the full spectrum of this condition (Robinson, Sigman, & Wilson, 1997). Equally worrisome, 7% to 35% of all police officers are demonstrating at any given time some PTSD symptoms, or what it is called *subclinical*, or *subclinical PTSD*.

Since both PTSD and subclinical PTSD have adverse impacts on police officers' abilities to carry out their duties, these occupational disorders may play a substantial part in officer misconduct, poor job performance, ethical violations of fiduciary duties, and personal family problems. In the United States, there are over 17,000 separate law enforcement agencies with 900,000 sworn officers serving in varying roles (Bureau of Justice Statistics, 2002). This provides a conservative estimate rate of 50,000 cases of PTSD and another 100,000 cases of subclinical PTSD. This epidemic, while perhaps exceeded in magnitude only by that experienced by the U.S. Armed Forces, is not well researched, recognized, treated, or even admitted.

Unlike the honored and dignified Odysseus of the Afghan and Iraq wars, disaster relief workers, Special Weapons and Tactics (SWAT) teams,

or other emergency responders, police officers are often poorly recognized, let alone supported, by the communities which they are sworn to protect. Having to deal with hostile, angry, or aggressive residents, and constantly feeling watched and scrutinized by everybody, from alleged perpetrators' families to bypassers' iPhones, media, reviews by citizen boards, or even one's own internal affairs unit, places substantial stress on officers. In the extremes, sometimes bordering on the absurd, officers face lawsuits alleging police misconduct brought against them by criminals for wounds produced while committing a crime (Violanti & Aron, 1996).

According to Davis (2011), the following incidents are most likely to traumatize police officers:

- Witnessing the death of a law enforcement officer or viewing the body at the scene, especially when the victim was a friend or partner; trauma is often increased if the officer believed he or she should have protected the person who died, or if the dead officer was temporarily serving in place of the officer
- An officer accidentally kills or wounds a bystander, especially if the victim is a child
- An officer fails to stop a perpetrator from injuring or killing someone after the initial encounter
- Killing or wounding a child or teenager, even if the life of the officer was threatened by the person injured or killed
- Viewing the body of a child victim, particularly if the officer has children and even more so if the officer's child is the same age and sex as the victim or if the child victim is similar in some other way to the officer's child, such as appearance, clothing, toys, or school
- When a dead victim becomes personalized, rather than just an unknown body, through interaction with grieving family members or friends, or from information gained from the scene, news reports, or search warrants; continued association with the pain of survivors through an investigation and trial (and often long after) also can personalize the dead victims
- The terror of being caught in a violent riot; trauma may be increased when children are present in the crowd and the officer cannot use deadly force to defend him or herself for fear of hurting the children
- Particularly bloody or gruesome scenes; horror of the crime and the suffering of the victims
- Observing an event involving violence or murder, but not being able to intervene (i.e., "I watched him kill her. She was screaming for my help but there was nothing I could do")
- An undercover assignment in which the officer is constantly "on guard" because of the likelihood of being hurt, killed, or discovered
- When suspects who have been indicted, are being tried, or are incarcerated threaten the officer or the officer's family with violence and are deemed capable of carrying out these threats

In July 2012, a report by investigators at Florida State University and University of Windsor, Ontario, Canada, explored how alcohol abuse and PTSD influence rates of self-reported domestic violence committed by law enforcement officers. The researchers used a cross-sectional design with multiple measures and instruments. A strong correlation was found: Officers diagnosed with PTSD were four times more likely to report using physical violence; officers who reported hazardous drinking were four times more likely to report violence; and dependent drinkers were eight times more likely to report being physically violent with an intimate partner (Oehme, Donnelly, & Martin, 2012). The findings have resulted in new recommendations for training and policies to help police agencies and to reduce suffering and attrition in this population. This is the first study investigating the link between PTSD, alcohol use, and domestic violence involving law enforcement officers.

Organizational Stressors in Law Enforcement in the U.S. and Abroad

How much support had Hernandez received from his superiors and coworkers? Did his work environment contribute in any measure to his reduced resilience to traumatic stress? Although these questions have not translated into policy changes, such queries have been posed by researchers for decades. One of the early studies on police stress in Cincinnati (Kroes, Margotis, & Hurrell, 1974) asked 100 male police officers to identify major stressors in their job. They reported the courts, administration, inadequate equipment, community relations, and changing shift routines as the most bothersome aspects of their job. Surprisingly, crisis situations were the second most commonly reported stressor, only after administration.

Brown and Campbell (1990) conducted a research study that looked at organizational stressors and police operational stressors, excluding critical incidents from the study. Nine hundred fifty-four English constables participated and reported organizational stressors four times more often than police operational stressors. Staff shortages, shift work, time pressures and deadlines, lack of consultation, and communication comprised more than half of the organizational and management stressors reported by the subjects.

The findings of an investigation of organizational and management stressors and operational stressors in a Scottish police force of 700 participants reported the primary sources of perceived stress as staff shortages, inadequate resources, time pressures, work overloads, and lack of communication (Biggam, Power, & Macdonald, 1997). Just like the Scots, the Dutch police officers investigated by Kop and Euwema (2001) reported organizational aspects of the police environment more often as stressors than the nature of their police work. The results of numerous studies suggest that

routine occupation stress may be a greater risk factor for traumatic stress symptoms in law enforcement officers than the risks of the job itself.

Clinical and Subclinical PTSD

What actually is PTSD? During the course of any given year, about 5.2 million Americans, aged 18 to 54, develop PTSD. This does not include the 60.7% of men and 51.2% of women who experience at least one traumatic event in which their symptoms did not meet the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR) (American Psychiatric Association, 2000) criteria for a full clinical diagnosis of PTSD. The trauma symptoms of this anxiety disorder are often very similar regardless of the great variety of traumatic events people may experience.

PTSD is the outcome of an intensely traumatic event, involving an actual experience or threat to self or others, accompanied by a feeling of helplessness. Symptoms of PTSD include fear, helplessness, and horror. The fundamental diagnostic criterion is significant impairment in functioning or significant clinical distress. In addition to this distress or impairment, a variety of symptoms and comorbid conditions may develop. According to the DSM-IV-TR, these symptoms are divided into three coordinates: re-experiencing the event, avoidance, and hyperarousal. The first coordinate, re-experiencing the traumatic event, includes one or more of the following symptoms: intrusive recollections of the event or events, distressing dreams, experiencing the event in the present, distress at exposure, to triggers and the body reacting to triggers. Flashbacks, nightmares, and night tremors are also common symptoms. Research indicates individuals suffering from PTSD often report intrusive recollections and nightmares. The second coordinate, avoidance, is characterized by three or more of the following symptoms: avoiding thoughts, feelings, or conversations related to the traumatic event; lack of memory about the event; decreased interest or avoidance of activities; detachment from others; limited expression of emotions; and lack of future orientation. Avoidance may occur in the form of dissociation. Feelings of isolation and alienation are common among traumatized individuals further impairing their social functioning. The third coordinate, hyperarousal, comprises two or more of the following symptoms: sleep disturbance, lack of concentration, irritability, outbursts of anger, hypervigilance, and increased startle response (American Psychiatric Association, 2000).

Individuals with PTSD may appear to be constantly on the lookout, yet at times seem unaware of their surroundings. The vacillation between re-experiencing traumatizing events and avoidance of reminders of the trauma are the defining characteristics of PTSD. In addition to common reactions for hyperarousal, such as anger, irritability, and peer and marital discord, the sometimes-extreme anger hampers one's ability to recover.

Studies indicate that trauma survivors usually develop symptoms that may lead to PTSD within hours or days of the trauma. Those experiencing delayed symptoms have postponed receiving help. Symptoms are often intensified by exposure to additional trauma. The time between the trauma and the intervention, and the severity of the symptoms are two factors that greatly impact recovery rates (Kessler, Sonnega, Bromet, & Nelson, 1995). Acute stress disorder can be diagnosed when symptoms last less than one month. Symptoms occurring immediately after the stressor and lasting less than one month may be transient and self-limited. Severe symptoms during this time increase the risk of developing PTSD (American Psychiatric Association, 2000). Active treatment for symptoms lasting one to three months may help reduce the otherwise high risk of chronic PTSD.

Anger and Hostility

A meta-analysis conducted by Orth and Wieland (2006) demonstrated a strong correlation among traumatized individuals between PTSD and anger as well as between PTSD and hostility. While anger is a diagnostic criterion for PTSD, the consistent correlation between anger and PTSD is not an artifact of measurement overlap and may play a role in the formation and maintenance of PTSD because anger functions to facilitate emotional disengagement (Foa, Riggs, Massie, & Yarczower, 1995). The research findings of a study of more than 1,000 World Trade Center rescue and recovery workers suggests that disaster workers with high levels of anger may benefit from early intervention to prevent chronic PTSD (Jayasinghe, Giosan, Evans, Spielman, & Difede, 2008). When compared over a one-year period, the participants with low levels of anger experienced fewer PTSD symptoms than those with higher levels of anger. Moreover, the individuals with higher levels of anger also had more severe symptoms of depression as well as other comorbid conditions.

Neurophysiological Correlates of PTSD

Sometimes, like menacing dark waters rising above one's head, but more often like a thunderbolt, fear arises in the amygdala, an almond-shaped brain structure lodged in a region beneath the cortex, called the *limbic system* (Yaniv, Desmedt, Jaffard, & Richter-Levin, 2004). The limbic system is the repository of our emotions, positive and negative alike, and acts like a bridge linking the mind with the body. Things that are seen, heard, smelled, touched, or tasted, become in the "mind," or cortex, cognitive constructs and representations of reality. Then various, appropriate emotions—joy, pleasure, fear, intense anxiety, hostility, anticipation, nostalgia, and so forth—are attached to that cognitive experience. This process is

called *emotional encoding* (Kandel, 2004). We know things not only with our minds but with our feelings as well. Lastly, emotions become physical (body) manifestations, or corollaries of our cognitive and emotional experiences. We laugh, run or fight, freeze, hug, smile, cry, explode or relax, or pull the trigger. It is the amygdala that processes the strange noise, shadowy figure, or the hostile face, and not only triggers palpitations, nausea, involuntary urination, flight or fight, but can also suspend the works of the cortex, especially the prefrontal cortex, know to be responsible for critical thinking and executive functioning (Yaniv et al., 2004).

This process, known to psychiatrists and psychologists as *dissociation*, is largely responsible for what was termed by Veterans Administration doctors *battle mind*. Neurobiologists at the Friedrich Miescher Institute for Biomedical Research (part of the Novartis Research Foundation) in collaboration with California Institute of Technology and, later, the MIND Institute at University of California Davis School of Medicine, have been among the first to identify neural pathways and types of neurons in the amygdala which play a key role in the behavioral expression of fear and the development of subclinical and clinical PTSD (Amaral, Price, Pitkanen, & Carmichael, 1992). The authors of this chapter propose that the sequence of developing PTSD is possibly affected by the body's failure to properly reset homeostasis as a result of severe trauma.

Biological Responses to Fear

Classical conditioning, also known as *Pavlovian conditioning*, is a form of learning in which one stimulus, known as the conditioned stimulus, comes to signal the occurrence of a second stimulus, the unconditioned stimulus. After several repetitions (conditioning), the conditioned stimulus is able to elicit a conditioned response. Through classical conditioning, the traumatic event (unconditional stimulus), when paired with neutral stimuli (both external and internal), may result in the production of triggers (conditioned stimuli) of trauma-related distress (conditioned response). These lead to cognitive distortions, maladaptive beliefs, and avoidant behaviors. Our traumatic reactions and symptoms are grounded in physiological and anatomical changes in the brain. A sagital section of the brain can identify the three key components of the neuronetwork of fear (Kalat, 2012):

1. The prefrontal cortex, the place of higher cognitive functioning and for integrating our perception of reality
2. The sensory thalamus, switchboard of all incoming sensory information for a first analysis and then further processing
3. The amygdala, the ancient, reptilian part of our brain whose main function is a superfast danger appraisal and command for defensive behaviors.

In the processing of a possibly dangerous stimulus, the brain possesses a "high," cortical road, leading from the sensory thalamus up into the cortex, where the sensory stimulus we are evaluating can be thoroughly analyzed (Kalat, 2012). This pathway is slow: It can take a few seconds to analyze a new sensory stimulus. Another, alternative "low" road is a pathway that leads from the sensory thalamus directly to the amygdala. This pathway does not analyze the stimulus, but it is very fast. Within milliseconds, it fires off neurons in the amygdala, which, in turn, trigger our body's emergency response systems. In the case of a potential danger, say a hiker hearing the rattling sound of a rattlesnake while hiking in the Sierra Nevada Mountains, the cortex of the hiker confirms that the stimulus is indeed a threat. It sends signals to the amygdala that amplify the alert and triggers a fight-or-flight response. After freezing for a moment, a person will either run for his life or remain to fight. Whenever appropriate, there is an activation of both pathways in which the thalamo-amygdalic-hypothalamic tract, the "low road," will act first and get a belated validation from its slower twin, the "high road." Only three to six months later, a sagital look at this hiker's brain shows some substantial changes. The neural network that recognized the snake stimuli has been imprinted into the sensory thalamus and amygdala by the experience.

As a result, only weak signals are now sent to the cortex, while powerful signals are sent to amygdala. In fact, the cortex is now bypassed, and every time this hiker sees a vine, a coiled garden hose, or anything resembling a snake, his amygdala is triggered immediately into action so he experiences a full-fledged fight-or-flight response.

If we were to translate this into the world of a 9/11 victim, like NYPD officer Louis Hernandez, we will see that prior to 9/11, a Middle Eastern looking man was only an ordinary, neutral stimulus that would not trigger a fear response. That is because the nontraumatized brain would process the stimulus almost exclusively through a thoughtful, discriminating cortex (i.e., the high road).

After 9/11, however, an ordinary Middle Eastern face stimulus is now recognized by the brain as a fear stimulus because of Mohamed Atta, the Egyptian hijacker and one of the ringleaders of the September 11 attacks who served as the hijacker-pilot of American Airlines Flight 11, crashing the plane into the North Tower of the World Trade Center as part of the coordinated attacks. A Middle Eastern face is now no longer a neutral stimulus, but a fear stimulus due to a bypassing of the cortex. The reaction may be strictly amygdalic using the thalamo-amygdalic-hypothalamic tract (the low road). Additionally, the cortex may amplify the fear stimulus by erroneously agreeing with the amygdalic misinterpretation of an innocuous situation as a threat (Kalat, 2012). This is how Hernandez's brain operated in 2003 when he brutalized a Lebanese New Yorker after pulling him over for speeding.

Hernandez's several months of work with the NYPD Emergency Unit has created a permanent network in the amygdala, increasing its size, a finding

that can be evident on an MRI. This network is hypersensitive to any incoming stimuli that resemble the stimuli that were present during this period. When any similar stimuli are perceived, it reacts with hyperspeed, immediately triggering a fight-or-flight response.

The PFC of the mind is now bypassed; the victim reacts only in a visceral, amygdalic way to any perceived threat without any inhibiting action from the anterior cingulate cortex (Amaral et al., 1992). What is worse, virtually everything is misperceived as a threat. This brain change is also responsible for the so-called *battle mind* described in traumatized soldiers and police officers.

In addition to the physical and psychological symptoms associated with PTSD, the incidence of psychiatric disorders increases with chronic PTSD (American Psychiatric Association, 2000). There is a high rate of comorbidity with PTSD. It is important to assess the onset of symptoms as they relate to traumatic experiences. This can help the clinician differentiate between PTSD and other conditions. Some conditions often confused with PTSD include traumatic head injury, concussion, delirium, and seizure disorders. Alcohol and substance abuse, along with acute intoxication or withdrawal, must also be considered in assessment. In addition, other disorders, such as factitious disorders, personality disorders, and malingering, need to be ruled out before a person is diagnosed with PTSD. In some cases, psychiatric consultation may be required because of the blurred distinction between comorbid psychiatric conditions. Comorbid disorders associated with PTSD include substance abuse or dependence, major depressive disorder, panic disorder or agoraphobia, generalized anxiety disorder, obsessive-compulsive disorder, social phobia, and bipolar disorder. Numerous studies show that PTSD consistently co-occurs with other disorders. The National Comorbidity Survey (Kessler et al., 1995) indicates approximately 84% of people with PTSD have an additional diagnosis.

Subclinical PTSD

Subclinical, or subthreshold, PTSD describes a condition in which a traumatized patient has some PTSD symptoms, but they are not severe enough to meet the DSM-IV criteria for a full PTSD diagnosis. The distress and the impairment are consistent with what is seen among individuals with a PTSD diagnosis but does not have the required number of re-experiencing, avoidance, and hyperarousal symptoms. Several studies on the psychological problems associated with active military duties have attempted to identify and measure factors that have an adverse impact on the mental health of veterans and the long-term consequences on military health care delivery systems (Asmundson, Wright, McCreary, & Pedlar, 2003; Martinez, Huffman, Castro, & Adler, 2002). Such work has assisted military planners and health care providers in mapping the thresholds of traumatic experiences from deployment to postdeployment. The problem when it comes to law enforcement is the paucity of empirical research looking at the taxonomic

challenges of subclinical PTSD. When professionals rely strictly on a categorical model of psychiatric disorders, then very little attention is given to disability and impairment in individuals with insufficient PTSD symptom presentations. Subclinical PTSD may result from partial recovery from the full syndrome or from the onset of symptoms after a traumatic experience. Clinical trials and epidemiological studies rarely examine subclinical PTSD, and data is often abandoned when it fails to meet diagnostic thresholds (Pincus, Davis, & McQueen, 1999).

Research is needed to determine whether these traumatic reactions and subclinical PTSD are true precursors to the full symptomatic levels required to make a positive diagnosis of PTSD. Several studies suggest that subclinical populations warrant closer examination given the multiple stressors and potentially threatening situations to which deployed military personnel or law enforcement officers are exposed (Asmundson et al., 2003). A report by the Department of Psychiatry and Human Behavior, Rhode Island Hospital, Brown University, examined the extent to which subclinical PTSD and full PTSD are associated with impairment or distress (Zlotnick, Franklin, & Zimmerman, 2002). The findings suggest that subclinical PTSD is associated with levels of social and work impairment comparable to full PTSD. A 2010 study at Weill Cornell Medical College, Department of Psychiatry, investigated rates of subclinical PTSD and associated impairment in comparison to no PTSD and full PTSD, and prospectively followed the course of subclinical symptoms over three years. Three-thousand three-hundred and sixty workers dispatched to the World Trade Center site following 9/11 completed clinician interviews and self-report measures at three points, each one year apart. At Time 1, 9.7% of individuals met criteria for subclinical PTSD. The no PTSD, subclinical PTSD, and full PTSD groups exhibited significantly different levels of impairment, rates of current Major Depressive Disorder diagnosis, and self-reported symptoms of depression. At Time 2, 29% of the initial sample with subclinical PTSD continued to meet criteria for subclinical or full PTSD; at Time 3, this was true for 24.5% of the initial sample. The study lends credence to the clinical significance of subclinical PTSD and emphasizes that associated impairment may be significant and longstanding. It also confirms clinical differences between subclinical and full PTSD (Cukor, Wyka, Jayasinghe, & Difede, 2010).

Another recent World Trade Center (WTC) study (Pietrzak et al., 2012) examined the prevalence, correlates, and perceived mental healthcare needs associated with subclinical PTSD in police officers who participated in the rescue and recovery operation. The study, carried out by researchers at the New York/New Jersey WTC Clinical Consortium, assessed nearly 8,466 police responders who sought services from 2002 through 2008 and who completed an interview/survey as part of the WTC Medical Monitoring and Treatment Program. The findings show that past month prevalence of full and subclinical WTC-related PTSD was 5.4% and 15.4%, respectively—results comparable to those found in other studies of

police responders. They also found a much higher rate of subclinical PTSD—not enough symptoms to meet the criteria for full PTSD, but that nevertheless was associated with a five times greater expressed need for mental health services, including individual counseling, stress management, or psychotropic medication, compared to those who did not meet the criteria for full or subclinical PTSD.

Police with full and subclinical PTSD were significantly more likely than controls to report needing mental healthcare (41.1% and 19.8%, respectively, versus 6.8% in trauma controls). These results underscore the importance of a more inclusive and dimensional conceptualization of PTSD, particularly in professions such as law enforcement, as operational definitions and conventional screening cut-points may underestimate the psychological burden for this population. Accordingly, psychiatric clinicians should assess for disaster-related subclinical PTSD symptoms in disaster response personnel.

More worrisome is the fact that the higher the numbers of subclinical PTSD symptoms, the greater the impairment, comorbidity, and suicidal ideation. In several research studies, the presence of subclinical PTSD symptoms increased substantially the risk for suicidal ideation even after the investigators controlled for major depressive disorder (Pietrzak et al., 2012). Given the public health implications of these findings for law enforcement officers, more efforts are needed for a timely identification of symptoms of subclinical PTSD in police officers to allow for proper early preventions and interventions.

Racial, Ethnic, Cultural, and Gender Determinants of PTSD

Bound by a number of characteristics—such as resilience, religious orientation, reliance on extended family networks, and maintenance of tight kinship bonds, and the experience of discrimination—African Americans are very sensitive to traumatic events affecting African American communities (e.g., Rodney King beating or Hurricane Katrina). African Americans compose 13.1% of the U.S. population, making them America's second largest ethnoracial minority group after Hispanics, who make up 16.7% (U.S. Census Bureau, 2011).

Most epidemiological studies have found that African Americans have lower rates of mood and substance use disorders than Caucasians (Kessler et al., 2005), but some have reported higher rates of a few anxiety disorders (e.g., simple phobia and agoraphobia) among African Americans (Zhang & Snowden, 1999). With regard to PTSD, which is also classified as an anxiety disorder, both clinical studies and epidemiological studies have reported that African Americans and Caucasians have similar rates of PTSD (Adams & Boscarino, 2005). However, a few studies have found higher rates of PTSD or PTSD symptoms among African Americans than their Caucasian counterparts.

Most prominently, the National Vietnam Veterans Readjustment Study, a nationally representative study of 1,173 Vietnam combat veterans, found that 20.6% of African American combat veterans had current PTSD as compared to 13.7% of Caucasian combat veterans (Kulka et al., 1990). Green, Grace, Lindy, and Leonard (1990) compared 145 Caucasians and 36 African American male Vietnam veterans and found higher rates of lifetime (72% versus 42%) and current PTSD (47% versus 30%) in the African American group. African Americans may differ from others in their style of coping with trauma. For example, spirituality and social support offered by churches appear to be the preferred coping strategies in some African American groups (Taylor & Chatters, 1991).

Following the September 11 attacks on the United States, a nationally representative sample of African Americans were found to be more likely than Caucasians to cope with prayer, religion, or spirituality (Torabi & Seo, 2004). However, this coping style is not necessarily protective when it comes to PTSD. For example, in one study, spirituality did not moderate the effect of exposure on PTSD symptoms in African American women who had been victims of domestic abuse (Fowler & Hill, 2004). Under some circumstances, religion and spirituality may lead people to stay in dangerous situations longer than they might otherwise (e.g., maladaptive forgiveness of perpetrators) or to avoid directly confronting the problem (e.g., waiting for God to intervene). Yet, other evidence shows that African Americans favor directly confronting problems (Broman, 1996). Thus, it would be particularly interesting to clarify the roles of spirituality, social support, and coping style in future studies of African Americans with PTSD.

Are Hispanic officers who have grown up in tough neighborhoods more resilient than their sometimes more privileged Caucasian counterparts? A study of 655 urban police officers (21% female, 48% Caucasian, 24% African-American, and 28% Hispanic) looked at ethnic and gender differences in duty-related symptoms of PTSD. The investigators used self-report measures of PTSD symptoms, peritraumatic dissociation, exposure to duty-related critical incidents, general psychiatric symptoms, response bias due to social desirability, and demographic variables, such as education, total household income, marital status, age, and years of police service. The investigators found that self-identified Hispanic officers demonstrated more PTSD symptoms than both the self-identified Caucasian and African American officers. Some of the putative factors were greater peritraumatic dissociation, lower social support, greater perceived racism, and greater wishful thinking and self-blaming, perhaps related to a religion based sense of guilt (Marmar, McCaslin, & Metzler, 2006).

Gender Variables

Contrary to expectation and, in many ways, counterintuitive, researchers found no substantial gender differences in PTSD symptoms. Such findings are of note because they replicated a previous finding of greater PTSD

among Hispanic American military personnel and failed to replicate the well-established finding of greater PTSD symptoms among civilian women. Among police responders enrolled in the WTC Health Registry, PTSD was almost twice as prevalent among women as men two to three years after the 9/11 attacks. A longitudinal study of 2,940 police responders enrolled in the WTC Health Registry found that prevalence of probable PTSD doubled from 7.8% in 2003–2004 to 16.5% in 2006–2007. Female police officers were significantly more likely than male police officers to report PTSD symptoms in the first survey, but this gender difference was no longer significant in the second survey, two years later; prevalence of PTSD symptoms increased, and there was a substantial amount of co-morbidity with other mental health problems (Bowler et al., 2012). The failure to find gender differences in PTSD symptoms was consistent with similar findings in military samples (Sutker, Davis, Uddo, & Ditta, 1995). The reason may reside in the selection bias and the training common to both military and police work, which may have protected these women against the greater vulnerability to trauma found in civilian females.

Organizational Stress and Police Culture

Several studies examining the impact of organizational stressors on police performance suggest that such factors may be a great source of stress due to various structural arrangements, policies, and practices. Data analysis from a survey of 461 police officers from two large urban police agencies working patrol operations in two large urban departments in Michigan and New Jersey shows that as perceived stressors increase, work performance decreases—and that organizational stressors are significantly different from operational stressors (Shane, 2010). The findings imply the need for structural changes in police organizations. The study used the Police Stress Questionnaire (McCreary & Thompson, 2006), a 40-item questionnaire consisting of two subscales measuring operational stressors (20 job content questions) and organizational stressors (20 job context questions) on a seven-point Likert-type scale, ranging from "no stress at all" (1) to "moderate stress" (4) to "a lot of stress" (7).

Leadership and supervision showed a significant relationship with job stress and performance. Many officers have a hard time working with supervisors and managers who display inconsistent or autocratic styles, or working for supervisors who overemphasize the negative and play favorites (Robinson et al., 1997). This appears to be the most important predictor of performance and may reflect the competing differences between line officers and supervisory or management staff. Management also includes the members of internal affairs. The police subculture also feels pressured and not valued by internal affairs investigators because, as representatives of management, they must breech the solidarity and sometimes the code of silence that binds officers. When officers are confronted with an internal

investigation, they receive neither guidance nor emotional or moral support from their superior officers, and sometimes experience a sense of betrayal, which may widen the gap between line officers and management (Reuss-Ianni, 1984). If organizational stress continues to be a greater source of grief for officers than police operations, the usual stress reduction and employee assistance programs may actually miss the mark. With a focus placed mostly on police operations, they may not offer helpful suggestions about how to cope with the relentless pressure generated by the organization (Chapin, Brannen, Singer, & Walker, 2008).

One source of organizational challenge for an officer is leadership and supervision. Subjective as it may be, the positive or negative impressions of supervisors regarding their subordinates reflect the organization's level of support. Rather than being treated as valuable and productive members of a supportive organization, officers may perceive a lack of leadership and supervisory support, particularly when the agency's management philosophy is autocratic and negative, increasing feelings of suspicion toward supervisors and administrators (Talarico & Swanson, 1983). Urban and larger police departments may be more likely to create impersonal environments that rely on negative discipline to elicit conformity and maximum efficiency and productivity than their smaller counterparts. When compared with the more democratic or participative management styles of smaller agencies, such bureaucracies may place a greater social distance between ranking officers and first-line officers. This may include autocratic management styles that are stressful in day-to-day operations, let alone when dealing with critical or traumatic incidents. When the organizational stress increases dramatically, the vulnerability of police officers to critical incidents increases as well (Leino, Selin, Summala, & Virtanen, 2011).

PTSD as a Cognitive Failure and Cognitive Processing Therapy (CPT)

As previously discussed, changes in the brain may cause trauma survivors to experience a combination of dissociation, hyperarousal, and re-experiencing, often resulting in a diagnosis of battle mind. The result is "psychological failure" with affective dysregulation (Kalat, 2012), a persistent emotional-cognitive incongruence, which produces cognitive distortions leading to a warped perception of reality, filled with hostility and hopelessness. Aside from psychotropic medications, such as anxiolytics, antidepressants, and antipsychotics, veterans and police officers could benefit from cognitive processing therapy (CPT), especially if preceded by training in mindfulness-based stress reduction. Whether due to dissociation, hyperarousal, or re-experiencing, the patient clearly has severe gaps between his thoughts and emotions. Based on social learning theory (Bandura, 1976), CPT was developed to help trauma survivors understand how thoughts and emotions are interconnected, as well as how their mistranslation can result in "stuck

points" and subsequent PTSD. During CPT sessions, trauma survivors are guided to accept and integrate the trauma as an event that actually occurred and cannot be ignored (Kalat, 2012). While experiencing fully the range of trauma-related emotions (no dissociation), patients are taught to analyze and confront maladaptive beliefs ("stuck points") and to explore how prior experiences and beliefs affected reactions and were affected by trauma.

Trauma survivors try to make sense of and cope with trauma in three ways (Greenberg, 1995):

1. Assimilation: changing memory or interpretation of an event to fit existing beliefs
   - "I should have prevented it"
   - "It wasn't really a beating"
   - Forgetting it
2. Accommodation: changing beliefs to accept what happened
3. Overaccommodation: changing beliefs too much
   - "No Middle Eastern man can be trusted"
   - "The world is completely dangerous"
   - "Nowhere is safe"

This therapeutic modality is a transformative process administered progressively throughout 12 sessions:

- Session 1: Introduction and Education
- Session 2: Meaning of the Event (grieving can also be added here)
- Session 3: Identification of Thoughts and Feelings
- Session 4: Remembering the Traumatic Event
- Session 5: Second Trauma Account
- Session 6: Challenging Questions
- Session 7: Patterns of Problematic Thinking
- Session 8: Safety Issues
- Session 9: Trust Issues
- Session 10: Power/Control Issues
- Session 11: Esteem Issues
- Session 12: Intimacy Issues and Meaning of the Event

In the first five sessions, the therapist describes the clinical picture of PTSD, its causes, and its mechanism, as well as the three modes of processing traumatic information: assimilation, accommodation, and overaccommodation (Greenberg, 1995). The patient is taught to distinguish between natural and manufactured emotions, such as guilt and shame, and to use challenging questions to work through their "stuck points." The therapist lays out rationale and course of treatment goals: (1) accept reality, (2) change beliefs, and (3) feel emotions. The patient writes repeatedly about the meaning of the

event. In Session 6, the patient has his or her "stuck points" reconsidered by using Socratic challenging questions:

- Clarification—"Tell me more" questions: "What do you mean when you say . . . ?"; "What exactly does that mean?"
- Probing assumptions—"Why" or "how" of beliefs: "How did you come to this conclusion?"
- Probing reasons and evidence—"How do you know this?"; "What evidence is there to support what you are saying?"
- Questioning viewpoints and perspectives—"How else might you look at this?"; "What would your friend or loved one say about this?"
- Analyzing implications and consequences—"Then what would happen?"; "What are the consequences of that assumption?"
- Questions about the questions—"What is the point of asking that question?"; "Why do you think you asked that question?"

In Session 7, the therapist also introduces the patterns of problematic thinking. Worksheets are also provided to identify the patient's faulty ways of thinking.

Seven patterns of problematic thinking:

1. Jumping to conclusions when evidence is lacking or even contradictory
2. Exaggerating or minimizing the meaning of an event
3. Disregarding important aspects of a situation
4. Oversimplifying events or beliefs as good/bad or right/wrong
5. Overgeneralizing from a single incident
6. Mind reading
7. Emotional reasoning

In Sessions 8–12, the patient progresses from safety issues to the meaning of the event and arrives, hopefully, at a successful resolution. The cognitive and behavioral reframing and alignment have been completed (Greenberg, 1995). Hopefully, by completing the remaining sessions of CPT, the patient will process successfully the traumatic event and return to a normal functioning.

Unfortunately, there are also some trauma patients who benefit neither from CPT nor from cognitive behavior therapy (CBT) because the cortical bypassing or the magnitude of the trauma exceeds the patient's ability to make sense of the event within an ego-based, personal framework (Molchanova & Koga, 2011). The ability of the patient to understand and cope with trauma collapses, and, in such cases, a transpersonal framework is necessary for successful processing and resolution. CBT and CPT are built on a framework of personal identity, as well as on the assumption of an egoistic structure in need of repair. Transpersonal psychotherapies extend the

work beyond the ego boundaries. The self is defined not only by how it works (a mechanistic, biomedical view) but also by its worldview and belief system. A first step in this direction is to employ mindfulness-based stress reduction and mindfulness training, a method rather widely used by athletes and the military.

Mindfulness-Based Mind Fitness Training (MMFT)

Mindfulness is a mental state of full attention to present-moment experience without undue judgment, effort, or emotional reactivity (Kabat-Zinn, 1990). Mindfulness-based stress reduction (MBSR) programs are offered at medical centers around the United States to patients and community members. Originally developed in the 1980s in Boston by Kabat-Zinn (1990, 2003), MBSR has also been adapted to clinical interventions for a broad range of physical and psychological disorders, and a large body of research now suggests its efficacy in stress reduction (Lush et al., 2009). An off-shoot of MBSR, the mindfulness-based mind fitness training (MMFT, pronounced M-Fit), was created and delivered by a former U.S. Army officer with many years of mindfulness practice and training in MBSR and trauma resilience. The course matches many features of the MBSR protocol developed by Kabat-Zinn (1990).

Similar to MBSR, the course involved 24 hours of class instruction over eight weeks, with weekly two-hour meetings (on average) and a full-day silent retreat. Additionally, this new model teaches the use of mindfulness skills in a group context, integrates practices into the ongoing predeployment training, and applies these skills to counterinsurgency missions. The course builds stress resilience skills drawing on concepts from sensorimotor regulation (Ogden, Minton, & Pain, 2006), Somatic Experiencing (Levine, 1997), and the Trauma Resilience Model (Leitch, Vanslyke, & Allen, 2009), which provides specific guidance for using focused attention to re-regulate physiological and psychological symptoms following an experience of extreme stress. The MMFT, with its blending of mindfulness skills training and concrete applications in managing stress, trauma, and resilience, both in the body and in environment, might be a valuable tool for law enforcement training, not only to prevent personal subclinical PTSD but also, subsequently, for successful riot control, which might otherwise get out of hand with irreparable consequences.

Summary

Although it is impossible to know whether Officer Hernandez's tragedy could have been prevented, this chapter was written in the hope that future policies, which may have saved officer Hernandez's life, and the lives of

many other officers, police, FBI, and CIA alike, will actually come to fruition. A large study conducted by the Police College of Finland, of nearly 3,000 officers, using the Police Personnel Barometer (PPB), looked at police-specific stressors to investigate the effects of these factors on police officer burnout. The four key stressors (defective leadership, role conflicts, threat of violence, and time pressure) emphasized by researchers were all statistically significant. The study introduced a new measure of stress, the Bergen Burnout Indicator, to analyze police work. The Bergen Burnout Indicator has effected national policy changes as the police administration tries to reduce the vulnerability of its officers, the incidence of officer misconduct, and subsequently, the cost of medical care and disability.

Perhaps, if similar policies would have been implemented by NYPD post-9/11, Officer Hernandez's life might not have been so tragically lost. Our intuition would need, however, to be tested in a retrospective study of police suicide that would look at the work performance evaluations and medical and mental health records over a period of at least five years preceding the suicide to find the "tipping point" when officers broke down irretrievably. It would have also been helpful for Hernandez to have had a trauma resilience screening and profiling prior to his acceptance in the police force. An Australian study (Burke & Shakespeare-Finch, 2011) on markers of resilience investigated the process of adaptation in 94 newly recruited police officers to examine the impact of a prior traumatic experience on the appraisal of potentially traumatizing incidents experienced later on the job. The researchers have noted that if the officers' personality profiles, as measured by the NEO Five-Factor Inventory, were conducive to healthy coping strategies such as positive reinterpretation of the traumatic incident, acceptance, and planning, they were more likely to cope well with traumatic incidents later, on the job. The findings appear to suggest that the successful resolution of a traumatic event prior to joining the police acts as a sort of stress inoculation, possibly facilitating positive emotional outcomes from exposure to adverse events on the job. In lay terms, the priming effect of trauma prior to joining the police force acted as a protective cushion reducing the impact of the subsequent on-duty critical stress incidents.

Such eye-opening and compelling research findings would need to translate into policy changes. No recovery from a severe burnout can take place without effecting first changes in working conditions and in police administrators' attitudes and strategies. The required actions depend on the severity of burnout. Police occupational health professionals can monitor burnout using either a Maslach Burnout Inventory-General Survey (MBI-GS) or the Bergen Burnout Indicator 15 (BBI-15). Additionally, an interview would evaluate the present situation and recent changes in work and private life, demands and resources, plus a health status examination—exclusion of physical illnesses and mental disorders, and problems in private life (Leino et al., 2011). A conference between the employee, supervisor, and occupational health service representative would help to promote concrete changes,

such as admitting the problem and the need for change; strengthening resilience; letting go of impossible goals and, if necessary, temporarily letting go of work; critically evaluating individual health promoting attitudes and strategies; and planning changes to the work situation and implementing them. When the weight of an undetected subclinical PTSD lands on the fault lines of an existing severe burnout, or vice versa, the result is a disturbing synergy leading potentially to severe mental disorders, psychotic depression, pervasive hostility, explosive anger with misconduct, and, in extremis, suicide or homicide.

The lofty tenets of professional ethics do not happen in vitro or in vacuum. The answer to what happened to Officer Hernandez lies in the complex nexus of powerful determinants, such as a successful trauma inoculation or a crippling exposure; organizational stress; police culture; social stigma; cultural, religious, and spiritual beliefs; policies or lack of policies for early prevention; detection and intervention; political winds and the vagaries of resources; and, even deeper, in the synaptic recesses of our brain's hard-wired neuronetwork of fear and survival.

Discussion Questions

1. Describe the correlations between PTSD and law enforcement.
2. What types of daily hazards make police officers susceptible to PTSD?
3. Explain the differences between clinical and subclinical PTSD.
4. What causes PTSD?
5. List five symptoms of PTSD.
6. Describe common treatments for PTSD. How does each treatment method work? Which method do you believe is most effective?

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