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PERSONALITY AND MENTAL HEALTH SUPPORT EFFECTS ON OCCUPATIONAL TRAUMA AND POSTTRAUMATIC GROWTH IN POLICE OFFICERS

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PERSONALITY AND MENTAL HEALTH SUPPORT EFFECTS ON OCCUPATIONAL TRAUMA AND POSTTRAUMATIC GROWTH IN POLICE OFFICERS

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Chairperson: David Schuldberg, PhD.

Purpose: The purpose of this study is to investigate relationships between occupational trauma exposure, work environment stress, personality traits, posttraumatic stress, and posttraumatic growth in police officers.

Scope of the study: A cross sectional mixed method research study design with longitudinal component was utilized. The sample consisted of 109 police officers in approximately 13 police agencies from multiple communities ranging from small rural departments to major city and statewide agencies.

Instruments used: The California Psychological Inventory 434 (CPI-434); the Police Stress Questionnaire-Operational; the Police Stress Questionnaire-Organizational; the Critical Incident History Questionnaire; the Posttraumatic Checklist for the DSM-5; the Centrality of Event Scale; a critical incident Mental Health Intervention Checklist (created by the researcher), and the Posttraumatic Growth Inventory-Short form were utilized. Where possible, historical CPI-434 scores from pre-employment evaluations were examined to determine the predictive power in officer mental health outcomes, although, due to limited availability, this longitudinal portion of the study was exploratory only.

Research questions: This study seeks to clarify how specific on-duty events and categories of events experienced by police officers are related to subjective experiences of Posttraumatic Growth; whether more comprehensive training before critical incidents occur and mental health interventions and support following critical incidents relate to lower work environment stress and greater posttraumatic growth; and to clarify the relationships between occupational trauma exposure, subjective perception of event centrality, posttraumatic stress symptoms, posttraumatic growth, personality traits and characteristics, work environment stressors, and mental health interventions.

Findings: There were significant correlations between event centrality and posttraumatic growth, as well as correlations between specific events and event types, the degree of event centrality, and posttraumatic stress symptoms. Pre-incident training was the most broadly significant mental health activity and was correlated with lower posttraumatic stress, higher posttraumatic growth, and lower perceptions of work environment stress. Posttraumatic stress was negatively correlated with nearly all positive personality traits measured by the CPI-434. The results of these analyses and how they relate to other research on Posttraumatic Growth are examined, as well as policy and practice implications for first responder mental health support, limitations of the study, and recommendations for future research.

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Dedication

I would like to dedicate this dissertation to the police officers of this study and all the first responders who face personal danger and the trauma of others every day they go to work. I also dedicate this study to the families, and friends, and the mental health support providers who help keep those first responders and their families whole and healthy, allowing them to provide ongoing professional, balanced, and compassionate services to the members of their communities.

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Finally, but first in every way, I want to thank my family. My children, Zachary, Lucas, and Anna are my world, and have given me unfailing love, understanding, and support. My co-parent Larry has always supported me to achieve this dream while making it work together as parents to be a positive experience for our children. My best friend, and loving partner John has kept me on the rails with my own mental health intact, through magical days on the rivers and lakes, in the woods, and on the back roads, fishing and laughing together, and comparing notes on life as older adults refining and redefining ourselves and our work.

Personality and Mental Health Support Effects on Occupational Trauma and Posttraumatic Growth in Police Officers

Introduction

In the quest to understand and predict human behavior, psychologists have attempted during the last century to identify, describe, and quantify personality and personality traits (Allport, 1937; Allport & Allport 1921; Barenbaum & Winter, 2008). Understanding what makes individuals unique and using this knowledge to understand and predict behavior is an essential part of psychology. Researchers have focused considerable effort to understand personality trait development, the course of stability or change in personality over the life span (Costa, Herbst, McCrae, & Siegler, 2000; Duncan & Agronick; 1995, Helson, Kwan, John, & Jones, 2002; McCrae, Costa, Ostendor, Angleitner, Hřebíčková, Avia, & Smith, 2000), and how specific events and experiences might lead to changes in personality (Helson et al., 2002; Löckenhoff, Terracciano, Patriciu, Eaton, and Costa, 2009; McCrae & Costa, 2000).

Research on individuals working in inherently stressful or hazardous occupations that are observed to have higher rates of potentially traumatic events (PTEs) can offer rich data and convenient sample groups to study the interrelations of stress and trauma exposure and personality traits over time. Some examples of these groups include members of active and former military, emergency medical workers, and first responders such as fire, EMTs and law enforcement officers. Many of these individuals are screened through psychological testing by employers to determine suitability for their positions, or self-select to seek out employment in high-risk occupations. Selection factors may result in similar demographic profiles, and trait profile homogeneity with respect to specific personality traits in individuals working within the same occupations (Laguna, 2009); prevalent trait configurations among police officers will be

discussed in more detail later in this review. Psychological testing and employment selection affords both advantages (historical data, fewer control variables) and disadvantages (less variability, smaller effect sizes) in research. Understanding the effects of these traits on adaptive functioning and resiliency within certain occupations has important social implications.

For example, law enforcement officers occupy a critical role in communities, the bounds of which vary according to regional and local cultures, laws, and customs. The responsibilities and authority granted to police in the United States are defined and limited by the U.S. Constitution, federal, state, and local laws, as well as case law and administrative procedures. The criminal justice system in the United States is comprised of many institutions, but police officers are often the first point of contact for those who at some point in their lives encounter that system in a variety of contexts and roles: community partner, witness, victim, bystander, or perpetrator. Consequently, recruiting the best candidates for hire, then preserving their psychological health over the life of their careers is critical in providing positive, professional services to their communities. Selection processes for law enforcement officers in the United States have consequently included testing to identify personality traits and psychological attributes that are deemed desirable in police recruits, and to screen out applicants with attributes that may result in poor performance or undesirable conduct. Past and recent highly publicized events that allege police misconduct highlight the importance of identifying psychologically healthy and resilient individuals that are able to maintain restraint, impartiality, and professionalism in spite of a complex and sometimes threatening, dangerous, or hostile environment. In addition, in times of social change, the occupational stresses on officers in the community can be compounded, and their jobs become even more nuanced and complex. This work expands prior research by the author to examine the relationships between individual

personality, exposure to potentially traumatic events (PTEs), posttraumatic stress (PTS) symptoms, posttraumatic growth (PTG), and critical incident interventions designed to improve mental health outcomes in police officers following exposure to occupational trauma.

Personality Psychology

The American Psychological Association provides a description of personality (www.apa.org) adapted from the *Encyclopedia of Personality* (Kazdin, 2000): "individual differences in characteristic patterns of thinking, feeling and behaving. The study of personality focuses on two broad areas: One is understanding individual differences in particular personality characteristics, such as sociability or irritability. The other is understanding how the various parts of a person come together as a whole." These individual differences include the set of characteristics, pattern of thoughts, feelings, behaviors, that uniquely influences thoughts, motivations, expectations, self-perceptions, values, and attitudes in an individual. It also predicts human reactions to other people, problems, and stress. (Buss, 2008; Krauskopf & Sunders, 1994; Winnie & Gittinger, 1973).

During the 1920s and 1930s, personality became a major topic of research in psychology (Barenbaum & Winter, 2008, citing Allport, 1921, 1927). Early work focused on case studies and personal accounts, but soon, psychometric studies and statistical techniques drawing on Galton, Pearson, Cattell, Thorndike, and Terman were instrumental in the development of personality trait theory. Two approaches to personality emerged from the growing field: the study of individual differences (based on traits or dimensions), and study of individual people. Universal agreement about a single definition of personality has proven elusive, in part because of the differences between these two approaches.

In tandem with statistical methods to reduce traits to discrete categories (i.e. factor analyses), pencil and paper personality measures based on survey items were developed and refined to identify personality types and profiles for research purposes, and later to select individuals for military assignments and for pre-employment screening.

By the late 1930s, personality psychology had become distinguishable as a subfield, rather than a topic within social psychology as it had been previously. In the 1930s work had begun to create a common taxonomy to describe the attributes of personality. Beginning in the 1930s with Klages, Bumgarten, and Allport and Odbert (John, Nauman, & Soto, 2008), psychologists have been guided by the *lexical approach*, using natural language as a source of descriptors for the attributes of personality. Allport and Odbert's seminal work with English language trait descriptors reduced nearly 18,000 descriptive terms down to seven content categories: traits, internal states, physical states, activities, effects, roles, and social evaluations. Cattell went on to reduce Allport and Odbert's 4,500 item list of trait terms to 35 variables, and eventually 12 personality factors, which he expanded to 16 when he developed his 16 Personality Factors (16PF) Questionnaire (Cattell, Eber, & Tatsuoka, 1970).

Other researchers questioned Cattell's conclusions concerning the number of personality variables. However, work by Fiske (1949), expounded on and replicated by Tupes and Christal (1961), Norman (1963), and Digman and Takemoto-Chock (1981), found five recurrent factors/dimensions that represent personality at a high level of abstraction, which became known as the "Big Five." From 1985 through 1997 multiple studies found that these results were consistently replicable using the English language, although the dimensions are not completely discrete and different researchers have applied their own labels for the dimensions. In cross-cultural and cross-language studies, the results were well-replicated in Germanic languages, but

less clear-cut in non-Western languages, with some studies suggesting up to seven basic personality dimensions. However, the Big Five dimensions continue to be the most consistently replicated personality descriptions found in independent studies. Although different researchers have used different labels for these five dimensions, the most commonly used terms today are: Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness.

By1946, rating scales and questionnaires were an established method of personality trait measurement. By the 1990s, so many questionnaires had been developed that Eysenck observed that the hundreds of inventories incorporating thousands of overlapping traits made for a less than unified structure in the field. Because the Big Five structure was replicated by numerous researchers, there was not a single, universally recognized Big Five nomenclature for the five dimensions.

In 1978, Paul Costa and Robert McCrae published the NEO Personality Inventory, which they had developed beginning in 1970 with cluster analyses of Cattell's 16PF. The NEO-PI-R (Costa & McCrae, 1992), which includes the Big Five factors broken down into six more specific facets per factor (the Five Factor Model, or FFM), has become a well-researched and validated instrument to specifically identify and quantify levels of the factors and facets in individuals. In 2003, Costa & McCrae published a new version, the NEO-PI-3. Several other personality questionnaires, such as the California Psychological Inventory (CPI: Gough & Bradley, 2002) and the California Adult Q-sort, have been shown to have sufficient items/data to reveal the FFM structure (Soto & John, 2008; Costa & McCrae, 1992; Costa & McCrae, 2003). The CPI, first published in 1956 and revised in 1987, was not developed as an instrument for use in clinical settings for assisting in diagnoses of psychopathology. Instead it describes interpersonal and interpersonal behavior and dispositions selected for their value in social life, as

well as 6 work-related scales, and three "vector" scales that in combination create a multi-dimensional ideographic personality profile. Vector scale One (v.1) and vector scale Two (v.2) are continuums respectively described as Internality/Externality and Norm-Doubting/Norm-favoring. They form an X/Y axis, creating quadrants for four personality "types" (Alpha, Beta, Gamma, and Delta) that are the most basic personality description in the profile. In Five Factor Model trait correlations (Gough & Bradley, 2002), v.1 correlates most closely (negatively) with Extraversion (males *r*=-.45, females *r*=-.57) and Agreeableness (males *r*=.32, females *r*=.36) and v.2 correlates most closely with Conscientiousness (males *r*=.55, females *r*=.66). Vector Three (v.3) is described as "ego integration" or "self realization" and is negatively correlated with Neuroticism (males *r*=-.45, females *r*=-.38) and Agreeableness (males *r*=.40, females *r*=.39). Vector Three is considered instrumental in the positive or negative expression of the personality "type" and forms the third dimension (see Figure 1, page 44). The CPI has been widely used in employment settings, has been well-validated for use in law enforcement hiring processes, and has published norms for that population (Gough, 1996; Weiss & Weiss, 2011).

The original Minnesota Multiphasic Personality Inventory (MMPI or MMPI-1) and the revised version published in 1989 (MMPI-2) are also commonly used measures in pre-hire psychological assessments for police officers (Laguna, Linn, Ward, & Rupslaukyte (2010). The MMPI-2 supplemental, Psy-5 and Restructured Clinical (RC) scales have been investigated for their relationship with the Big Five (Sellbom, Ben-Porath, & Bagby, 2008; McNulty, & Harkness, 2002; Han, Weed, & McNeal,1996; Butcher, 2011). However, the MMPI and MMPI-2 have some limitations with respect to precision in personality study in healthy populations using Big Five structures, since they were primarily developed to assess psychopathology.

Personality Development: Continuity and Change

As the field of personality psychology has developed, the question of how personality develops throughout the lifespan has been a topic of considerable interest. Development and change has been investigated from both a population level standpoint, and in individuals. Most often, population level differences are looked at in terms of mean-level change (populations or samples increasing, decreasing, or remaining stable on average score over time), and rank-order consistency (relative ranking of an individual in a population). Individual differences may be looked at via the examination of ipsative consistency (the relative ordering of constructs within an individual over time) and individual differences in change (person's unique pattern of increase, decrease, or stability on each trait).

For example, in an 8-year longitudinal study, Roberts et al., (2002) found that traits in participants from ages 15 to 30 years old tended to change in the direction of greater maturity (e.g., higher conscientiousness, agreeableness, and emotional stability). Once these traits reached a profile configuration of higher levels of control and prosocial orientation, and lower neuroticism, they demonstrated less change and greater profile consistency across traits. Young adults who reached higher levels of these traits earlier in life, tended to demonstrate less change over time. Donellan et al., (2007) replicated these results which suggest that once people attain high levels of traits that indicate maturity, these traits remain more stable than in people who score lower on maturity-related traits.

In 2000, McCrae and Costa reviewed the findings of several studies that examined mean levels of traits, such as Conscientiousness, at different ages across cultures. Their findings supported a general pattern of trait change that occurs with maturation. Consistency of their findings across cultures led them to conclude that this intrinsic maturation may be biologically

rather than culturally based. Although biologically based basic tendencies set the course for personality development, characteristic adaptations such as acquired habits, beliefs, roles, relationships, and societal and cultural influences help shape the way these biologically based tendencies are expressed (McCrae & Costa, 1994; McCrae & Costa, 1996; McCrae & Costa, 1999; McCrae & Costa, 2000). In addition, specific personality characteristics appear to follow a somewhat predictable path of development regardless of culture and environment. McCrae et al. (2000) found that after a period of development into adulthood traits remain somewhat stable between 30 and 80 years of age.

Despite these findings of overall stability, the same researchers have found that personality traits also continue to change and develop in a relatively predictable manner during the entire life span (McCrae et al. 2000; McCrae & Costa, 1999; McCrae & Costa, 2000). Big Five trait trajectory over the life span has been reported in several studies and some consistent patterns have been observed: Conscientiousness and Agreeableness tend to rise during early adulthood, where Neuroticism tends to decrease. Openness to Experience tends to rise in early adulthood, but overall tends to decline somewhat through later adulthood. Findings regarding changes in Extraversion have been mixed (Roberts et al., 2006).

Helson et al. (2002) found no support for amount of change in personality reaching a plateau in adulthood and traits remaining relatively stable afterward. They examined data from two different cohorts from two longitudinal studies, with personality trajectory assessed using the California Psychological Inventory (CPI; Gough, 1996). In the Helson et al. (2002) study, there was some differential effect of being in specific cohorts, but the overall patterns of change were consistent: Rather than a period of change and growth followed by stability, these authors instead found evidence of a curvilinear or inverted “u” change patterns for most traits.

Life Events and Personality

Duncan and Agronick (1995) found that societal and historical events occurring during early adulthood (such as World War II, the civil rights movement and the women's movement) were salient in identity and personality formation. They used the CPI Internality vector to test their hypotheses that participants, all of who were women, who found the women's movement personally meaningful, would show more assertive personality characteristics at midlife. People who score high on internality are described as inwardly oriented, shy, and reluctant to take action, while low scorers are externally oriented, poised, and enterprising. The results showed significant correlations (-.34 and -.23 for samples with important demographic differences) between low internality and endorsement of impact by the women's movement.

Allemand, Gomez, and Jackson (2010) studied whether psychological turning points influenced personality change in midlife. They conducted a repeated measures study with 892 participants (407 men and 485 women) between the ages of 40 and 60. Measurements of the Big Five personality traits were taken at T1 and T2, using 25 self-descriptive adjectives that the authors drew from other measures. The authors made a clear distinction between life events and a self-identified psychological turning point (SPTP).

Psychological turning points were defined as "…major changes in the ways people feel or think about an important part of their life, such as work, family, and beliefs about themselves and about the world. Turning points involve people changing their feelings about how important or meaningful some aspect of life is or how much commitment they give it." The seven categories that they used focused not on life events, but rather on the subjective experience of a shift in world outlook. At T1, participants were asked whether they had experienced an SPTP from any of the categories during the last 12 months. The authors were interested in both the

occurrence of particular SPTPs, as well as the overall number of experienced turning points. The authors found that although life events appeared to have some effect on personality change, subjective psychological turning points do not significantly impact personality.

Costa et al. (2000) examined personality changes associated with life events. This study did not focus on extremely negative events but rather events such as marriage or job change that are nevertheless considered stressful by Holmes and Rahe (1967) and others. The results showed no significant correlation between number of life events and personality change, when both positive and negative life events were considered. However, there was a slight correlation increase (effect sizes: partial $\eta^{2=}$ .01 to .03) between negative life events and personality change. In addition, specific key events, such as divorce, promotion, or job loss, had more significant effects on personality change (p<.01), although effect sizes were still modest (partial η^2=.06). Their observations were consistent with expectations that effect sizes would be small as personality in general changes very slowly over time.

Löckenhoff, Terracciano, Patriciu, Eaton, and Costa (2009) studied the effects of extremely adverse (traumatic) events on personality using data from the Baltimore Epidemiological Catchment Study. The 458 participants were assessed twice, approximately eight years apart. Twenty-five percent of this urban sample experienced some type of very adverse event within two years of the second assessment. Examples of such events included: experiencing or witnessing an accident, being a victim or witness of a crime, losing a close friend, and reacting to severe worldwide events. They found that experiencing such a traumatic event was associated with specific personality trait patterns of change. They used the NEO-PI-R (Costa & McCrae, 1992) to assess Big Five personality traits. Individuals exposed to extremely adverse events showed an increase in Neuroticism, especially the N:2 facet (angry hostility); they

were less likely to deescalate and cooperate during interpersonal conflict. Openness to values (O:6) declined, which the authors saw as representing awareness of mortality causing one to embrace dogma and a particular cultural worldview while rejecting alternative opinions. Löckenhoff et al. (2009) saw their results as consistent with the clinical presentation of Posttraumatic Stress Disorder (PTSD). Some of the changes in neuroticism scores match clinical symptoms listed in the DSM-IV-TR, including irritability, angry outbursts, and interpersonal estrangement. This observation also raises questions about how self-report measures of personality traits may be affected by temporary symptoms, or emotional states, that might appear to indicate personality change. For this reason, PTSD symptoms were captured for the current study and are an important variable of interest.

Personality Traits in Police Officers

Police officers are granted a high level of authority and public trust to behave professionally, and the potential for misuse of that authority is correspondingly high. Consequently, the study of police officer personality and use of personality inventories in hiring processes has been of interest to psychologists for decades. In the early 1920s, psychologists began to conduct research with police officers, such as Thurstone's 1922 study using the Army Alpha Intelligence test. During World War II, psychologists employed by the military, such as Henry Murray, began conducting evaluations to select personnel for specialized service. The assessment instruments that were developed throughout WWII and into the Korean War expanded into use in civilian life. In 1954, Martin Reiser became the first full-time police psychologist in the United States, when he developed a battery of psychological tests to screen all applicants to the Los Angeles Police Department. His instruments of choice included the MMPI, a group Rorschach, a tree drawing, and a clinical interview (Kitaeff, 2008, citing Janik,

1990.) In 1972, NYPD Detective Harvey Schlossberg (a police officer since 1958), earned his doctorate in psychology, and is now considered by some to be the "father of modern police psychology in the United States" (Kitaeff, 2008).

The use of psychological assessments to screen officers was accompanied by a rise in interest about police personality, including assumptions about the existence of a "modal police personality." Burbeck & Furnham, (1985) posited both predispositional and socialization models of police personality. The predispositional model supposes that certain types of individuals are attracted to police work. The socialization model supposes that personality traits change in police officers due to social influences on the job, and result in the development of a "working personality" and specifically the trait of authoritarianism in police officers (Niederhoffer, 1950; Skolnick, 1966/2010). Much of the research has been concerned with negative aspects of personality in police officers, including authoritarianism, cynicism and psychopathology (Gerber & Ward, 2008).

Authoritarianism has been described as a "rigid adherence to conventional middle-class values, a preoccupation with power and status, and a general hostility toward people unlike themselves" (Cochran, 1975) and may include elements of prejudice, depending on the measurement scale. Adorno et al., (1950) presented a theoretical framework and a measurement scale that was designed to measure authoritarianism by tapping "fascist proclivities" (Gerber & Ward, 2008), personality traits that make a person likely to adopt an extremely dogmatic rightist or conservative political agenda. Cochran (1975) found that police scored no higher than the general public on scales of Dogmatism, but scored higher on a scale measuring Hierarchical Control, which indicated a preference for a pyramid-like social structure, which mirrors the strict chain-of-command structure of most police departments. Cochran concluded that since

intolerance toward others is a component of dogmatism that is not incorporated into the construct of hierarchical control, “it is assumed that the presence or absence of prejudice is the characteristic that distinguishes the two. Therefore, the data suggest that the police are most accurately described as supporting rigid, authoritative, social control without being any more prejudiced than other members of society.”

Owen & Wagner (2008) conducted a review of previous research on the trait of authoritarianism in police officers from 1967 to 1995.The studies examined had mixed conclusions; some suggested that police officers had lower or comparable levels of authoritarianism compared with other groups; some studies concluded that authoritarianism was higher in police officers. Two of the studies (Genz & Lester, 1976, and Farmer, 1978) looked at change in levels of Authoritarianism over time. Gentz and Lester (1976) found that years of service was generally unrelated to Authoritarianism, but police officers with one or more years of service were more authoritarian than new recruits. The conclusion that education and training were associated, at least temporarily, with reduced levels of the trait of authoritarianism was consistent across several studies (Coleman & Gorman, 1982; Dalley, 1975; Wortley & Hormel, 1995). These conclusions warrant replication with more current samples, given the increased emphasis given to education in police recruitment practices.

The decline of the trait of Empathy over time in several non-law enforcement populations (Helson et al., 2008) may be related to and even account for inconsistent findings in this earlier literature that authoritarianism possibly increases over the course of a law enforcement career; empathy decreases in other, perhaps more representative populations. This is also an area potentially important for intervention and policy directed at supporting officers over the course

of their careers in preventing burnout, enhancing job performance, and maintaining overall quality of life.

After reviewing the literature, Owen and Wagner (2008) conducted their own study of the personality trait of authoritarianism in police officers using criminal justice majors as participants. The researchers sought to determine whether authoritarianism was higher in individuals seeking employment in the criminal justice system, or whether higher levels of authoritarianism might rather develop over time as a result of socialization on the job. They utilized the Right Wing Authoritarianism scale (RWA; Altemeyer, 1996) to groups of criminal justice majors and non-criminal justice majors. They concluded that male criminal justice majors exhibited significantly higher levels of authoritarianism than females or non-criminal justice majors. They also concluded that levels of authoritarianism decreased as time in college increased, consistent with earlier studies. The suggestion was that authoritarianism may already be present in people pursuing law enforcement careers. However, it has also been noted that many criminal justice majors are never hired as police officers, and police officers with criminal justice degrees are a minority in the field, which raises doubts as to the generalizability of this study to the target population.

Niederhoffer also developed a questionnaire intended to measure cynicism, which was used in cynicism studies focusing on the police in the 1970s and 1980s. Rafke (1975) attempted to replicate Niederhoffer's 1967 study and found that police officers in his sample outside of New York City were no more cynical than the average population.

Mills and Bohannan (1980) found that "In contrast to stereotypes of police officers as super macho, authoritarian, inflexible, and thrill seeking, the present findings support past research (Baehr et al., 1968; R. Hogan, 1971; R. Hogan & Kurtines, 1975; Matarazzo, Allen,

Saslow, & Wiens, 1964), characterizing police as bright, assertive, autonomous, self-assured, responsible, and level-headed individuals." Moreover, in the same study, Mills and Bohannan (1980) noted that in their sample of police officers highly-rated for police work, their 1979 sample was more tolerant, socialized, and flexible than their peers in the 1969 sample. This result also raises the question whether psychological screening practices and increasing preference for higher education over the last 35 years have resulted in other changes in prevalent personality traits in police officers, since the majority of the research in this area occurred between the 1960s and the 1990s. Paoline et al. (2000) found that police culture has undergone broadening of scope and heterogeneity of individuals with the advent of community policing in the 1990s and hiring practices that have expanded the demographics of officers with regards to socioeconomic backgrounds and more minority groups.

Balch (1972) also found no conclusive support for a police personality, although he did posit that police officers may have prevailing attitudes that are shaped by their work environment, (i.e. suspicion as a result of safety training and working in a legitimately dangerous environment). He noted that conclusions in police research tended to differ by department and region, suggesting that differences in the local physical and social environment may influence police behavior and attitudes, and may have been shown to equally apply to the non-police population if it would have been sampled in the same area. Other studies also show that personality traits in police officers do not differ significantly from the general population (Biggam & Power, 1996; Carlan & Byxbe, 2000; Waddington, 1999), and Waddington (1999) suggested that police officers are often negatively portrayed as a result of society's need to place blame on a collective group. Paoline, Myers, and Worden (2000) suggested that the idea of a police personality is dated and should be abandoned.

Detrick and Chibnall (2006) examined the personality characteristics of entry-level police officers rated by field training officers (FTOs) as the "best" officers they had supervised, using the NEO PI-R Form R (Observer form). The mean profile of this group was notable for low neuroticism, high Extraversion, and high Conscientiousness. The NEO PI-R profiles of very high-performing and very low-performing entry-level officers were then compared. Higher Neuroticism and lower Conscientiousness were observed in the low performing officers and as in the FTO sample, low Neuroticism and high Conscientiousness scores were noted in the high-performing officers. Weiss, Hitchcock, Weiss, Rostow, & Davis (2008) found that officers who participate in validity studies of personality measures used in pre-employment evaluations tend to be more psychologically healthy than the general population. Samples for research using police pre-hire psychological evaluations already have significant restrictions on predictor variables; since the evaluations can only be conducted following a conditional offer of employment, people with behavioral problems are often excluded earlier in the hiring process (Weiss & Weiss, 2008). The previously noted results of Roberts et al., (2001) and Donellan et al., (2007) suggest that individuals who are higher in maturity-related traits might be more resistant to change overall, which lends credibility to the notion that individuals carefully selected on the basis of emotional stability, such as police officers, are in fact more likely to be stable in terms of personality change in general and, and possibly resilient to the effects of negative life events on personality.

Lefkowitz (1995) points out the methodological difficulties that limit assessment of the developmental contributions of self-selection, organizational selection, selective attrition, SES determinants, role-specific behaviors, and socialization in law enforcement careers. Despite the conflicting findings in this literature, the interactions between officer personality and

psychological health throughout the career and beyond is a worthwhile area of study, and the present research specifically investigates this in relation to occupational trauma exposure.

Occupational Stress and PTE's in Law Enforcement

Police officers are among those whose occupation entails frequent exposure to violence, physical danger, severe injury and death of others, and engagement with traumatic incident victims (Crank, 1998; Crank & Caldero, 1991; Territo & Vetter, 1981; Violanti & Aron, 1995), all of which may be termed *potentially traumatic events* (PTEs). *"Potentially"* is an important distinction, as opposed to *"traumatic",* because while all of these events may be stressful to some degree, they may not be considered traumatic by everyone who experiences them. In contrast to research showing psychological health and resilience, police officers have also been reported by some researchers to endorse higher rates of substance abuse, divorce, suicide, cynicism, burnout, job dissatisfaction, and low morale compared to members of other professions (Brown & Campbell, 1990; Gilmartin, 2002; Golemiewski & Kim, 1990; Niederhoffer, 1967; Violanti, 1996). At the same time, several studies conclude that the most prevalent sources of stress reported by police officers themselves appear to be organizational in nature, rather than arising from the operational aspects of police work (Brown & Campbell, 1990; Violanti & Aron, 1995).

Repeated exposure to the details of traumatic events through interaction with trauma survivors can often result in what is termed *vicarious trauma* (VT) in individuals with the responsibility to help the survivors (Caringi, 2007). Brown, Fielding, and Grover (1999) reported evidence from the literature and their own study that police stressors could be conceptualized into three categories: organizational, traumatic (operational), and vicarious (operational). They separated operational trauma due to danger, and VT-type operational

stressors because of differences observable in the data on how these two categories impacted officers. They also found measurable gender differences on the effects of vicarious trauma from exposure to sexual crimes and crimes involving children.

In a 2008 literature review Abdollahi (2008) cited (now somewhat outdated) research (Davidson & Veno, 1980; Eisenberg, 1975; Kroes & Gould, 1974; Kroes et al., 1974b; Violanti, 1994) that the media often distorted reports and humiliated individuals and organizations while scrutinizing police agencies. Many more recent allegations of police misconduct have been covered on a nearly continuous basis in the media; some well-founded incidents have resulted in the prosecution and conviction of the officers involved, other incidents have resulted in exoneration, or administrative or judicial investigations ruling the incidents as unfounded. Considerable focus on systemic problems in specific communities or individual incidents of misconduct by officers have placed a negative spotlight that many generalize toward all policing. Scott (2004) and Kureczka (2002) found that public perception and negative portrayals by the media were positively correlated with officer stress, and misrepresentation and sensationalism of critical events by the media.

These negative impressions concerning police agencies and police officers in general may result in low morale and affect how officers relate to individuals in their communities. This effect is concerning, given social psychology research (Deegan et al., 2014) showing that negative expectations of outgroup interactions can result in negative outgroup attitudes, regardless of the actual quality of the interaction. This effect can occur when any negative stereotype about a group is in effect, and contributes to the tendency of people to seek to confirm rather than disconfirm their expectations, making disconfirmation less likely (Snyder, Tanke, & Bercheid, 1977). This effect has important implications as communities seek to foster better

relationships between minorities and police agencies in the midst of media preference toward highly publicizing negative or controversial events while often providing minimal coverage about the positive interactions and partnerships between police and neighborhoods that exist in many communities.

Several studies have examined types of stressors and incidents commonly considered to be potentially traumatic for police officers (Juniper, White & Bellamy, 2010; Brown & Campbell, 1990). A comprehensive list of potentially traumatic events encountered in police work was developed by Weiss et al. (2008), and further developed by Weiss, Brunet, Best, Metzler, Liberman, Pole, Fagan, & Marmar (2010). Forty critical incidents that could occur in the course of police service were generated from the literature and in consultation with police personnel and 54 police psychologists. Upon additional review, the item pool was reduced to a set of 34 final items (See Appendix B: Critical Incident History Questionnaire), that includes experiences such as: Encountering the body of someone recently dead; encountering a badly beaten child; or having to kill or seriously injure someone in the line of duty. This instrument was chosen for use in the present study. In Weiss et al. (2010), the authors tested the relationships between the rated severity of these stressors multiplied by frequency, and PTSD symptoms. They found no support for their hypothesis that their method of indexing events would afford better accuracy in determining high impact events. They concluded that "The lack of impact of event severity in the face of reliably different perceptions of critical incident impact suggests that a standard operating assumption about traumatic events may not hold, at least not in police or in first responders more generally… How training influences the impact of exposure is largely unexplored and may limit the generalizability of our findings."

PTSD in Police Officers

Marchand (2015) reviewed three categories from previous works of predictors for the development of PTSD in police officers: pretraumatic, peritraumatic, and posttraumatic. Pre-traumatic factors included: cumulative exposure to duty-related critical incidents; occupational stressors; and a greater exposure to traumatic events, both personal and occupational (Friedman & Higson-Smith, 2003; Liberman et al., 2002; Violanti & Gehrke, 2004). Hodgins, Creamer, & Bell (2001). Marmar et al., (2006) found that limited work experience increased the likelihood of developing PTSD for new police officers. Peritraumatic responses such as dissociation, emotional reaction during the event, threat to one's life or physical integrity or that of one's partner, severity of exposure, or exposure to death are all risk factors in the development of PTSD for police officers. Inslicht, McCaslin, Metzler, Henn-Haase, Hart, Maguen, and Marmar (2010) also found that the presence of psychiatric disorders in the officer's family (i.e., mood, anxiety and substance abuse disorders) was a vulnerability factor for experiencing greater peritraumatic distress to critical incident exposure, which was in turn predictive of PTSD. Posttraumatic factors predicting PTSD among police officers have included incident related injuries, insufficient time off work to recover from the event, dissatisfaction with organizational support, lack of social support, and subsequent negative life events (Marchand et al., 2015; Carlier et al., 1997; Asmundson & Stableton, 2008; Maguen et al., 2009). Police officers that use avoidance strategies to cope with traumatic events are also more likely to develop PTSD (Haisch & Meyers, 2004).

Carlier et al., (1997) examined risk factors for PTSD symptoms in 262 officers exposed to traumatic events at three and twelve months post-trauma. They found several predictor variables for symptoms that included introversion, difficulty in expressing feelings, emotional

exhaustion at time of trauma, insufficient time allowed by employer for coming to terms with trauma, dissatisfaction with organizational support, and insecurity about their future employment. They also found that more chronic symptoms (12 months post-trauma) were predicted by lack of hobbies, subsequent traumatic events, acute hyperarousal, job dissatisfaction, brooding over work, and lack of social support.

Yuan, Wang, Inslicht, McCaslin, Metzler, Henn-Haase, Apfel, Tong, Neylan, Fang, and Marmar, (2011) found that being Caucasian, having less exposure to PTE's before becoming a police officer, and less cumulative exposure to critical incidents predicted less PTSD symptoms in police officers after two years of service. They found that all Big Five traits except Neuroticism were unrelated to PTSD symptoms, with higher Neuroticism being positively correlated with PTSD symptoms. They found that the more significant (negative) predictors of PTSD symptoms were a more benevolent worldview and better social adjustment prior to police work.

Komarovskaya, Maguen, McCaslin, Metzler, Madan, Brown, Galatzer-Levy, Henn-Haase, and Marmar (2011) examined the mental health effects on police officers of killing or seriously injuring someone in the line of duty. In their sample of approximately 400 police officers from four urban police agencies, nearly 10% of the participants had killed or seriously injured another person in the course of their job in their first three years of service. The researchers found that killing or seriously injuring someone in the line of duty was significantly associated with PTSD symptoms (p=.009, R^2=.15). The participants in this study had a maximum of three years of service; Weiss et al. (2010) found lifetime exposure rates of approximately 25% in a larger sample of officers to killing or seriously injuring someone in the line of duty.

Violanti (2004) examined the role of several work-related PTEs on police officers. Reporting odds ratios produced from logistics models, he concluded that there were significant relationships between PTSD symptoms in police officers and the homicide of a fellow officer (Odds Ratio=2.65), seeing someone dying (OR=3.37), and "other disturbing incidents" (OR=2.84). Moreover, higher PTSD symptomatology combined with higher alcohol consumption increased suicidal ideation nearly tenfold when compared with officers with lower traumatic stress levels.

The Concept of Posttraumatic Growth

In contrast to reporting solely negative effects of exposure to PTEs, there is a growing body of research showing that many trauma survivors perceive some good coming from the traumatic events they have experienced (Chopko, 2010; Calhoun, Cann, & Tedeschi et al., 2000; Laufer & Solomon, 2006; Park, Cohen & Murch, 1996; Tedeschi & Calhoun, 1995, 1996). These perceptions of positive effects have been termed *stress-related growth* (Park et al., 1996), *adversarial growth* (Linley & Joseph, 2004), and *posttraumatic growth* (Tedeschi & Calhoun, 1996). Positive factors measured by the Posttraumatic Growth Inventory (PTGI: Tedeschi & Calhoun, 1996) include Relating to Others, New Possibilities, Personal Growth, Spiritual Change, and Appreciation of Life. These factors show some correlation with Big Five personality traits as measured by the NEO-PI-R (Costa & McCrae, 1992), and Tedeschi & Calhoun (1996) found that some NEO-PI-R facets were related to PTGI facets. For instance, the Extraversion facets of Activity and Positive emotions, and the Openness facet of Feelings were positively correlated with all PTGI scales.

The relationship between PTG and posttraumatic distress is not well understood and has been characterized by mixed results in the literature, with the direction of relationships between

PTG and PTS ranging from negative, to uncorrelated, to positive (Zoellner & Maercker, 2006, Frazier et al.,2001). Some researchers have posited that PTG and PTS are both outcomes of trauma but are different constructs, and PTG is a coping strategy without direct effects on PTS symptoms. In their review of literature related to the subject, Zoellner and Maercker (2006) questioned the clinical utility of PTG research if PTG does not make an adaptive difference or influence outcomes in other areas of mental health, and may rather be a phenomenon better studied under in the realm of social, personality, or cognitive psychology. However, in the same study, they concluded that, although PTG does not constitute a treatment modality, awareness of the possibility that clients will find positive meaning in the aftermath of trauma is important for clinicians to be prepared to explore with their clients in the context of psychotherapy.

Bayer-Topilsky, Itzhaky, Dekel, & Marmor (2013) posited that self-esteem, mastery, and social support may result in higher levels of posttraumatic growth (PTG). However, they found that the strongest predictors of PTG were the subjective experience of the event and initially higher levels of posttraumatic stress. The researchers speculated that this unexpected relationship may show that the level of PTG is in fact mediated by higher levels of distress immediately following the event. Ruminating about the event was also unexpectedly positively correlated with higher levels of PTG after some time had elapsed, a finding supported by Groleau, Calhoun, Cann, and Tedeschi (2012). (See also Pryzgoda & Schuldberg, 2004.) Groleau et al. (2012) also found that *centrality of event*, or the degree to which a person believes a negative event becomes a core part of their identity, contributes to both distress and PTG. People who were better able to find meaning in the event experienced greater PTG.

In a study of military medical personnel deployed in combat zones, McLean, Handa, Dickstein, Benson, Baker, Isler, and Litz (2013) found a curvilinear relationship between

healthcare stress exposure, PTSD, and PTG. Military medical personnel experienced the highest PTG when PTSD symptoms were mild to moderate. Unlike the linear relationship they found between combat stress and PTSD, at higher levels of healthcare stress, PTSD increased curvilinearly, and PTG declined in an inverted-U. The researchers concluded that PTG is most likely to occur at moderate levels of PTS exposure and PTSD symptomatology, but the probability of growth appears to decrease at high levels of stress.

Helgeson, Reynolds, and Tomich (2006) conducted a meta-analysis of 87 studies reported in 77 articles, and found that benefit-finding was related to less depression and more positive wellbeing, but more intrusive thoughts about the trauma. They also noted that in at least two studies, the relationship between PTG and the exposure to or severity of the stressor were not linear. They cited Fontana & Rosenheck (1998), who found a curvilinear relationship between trauma and benefit finding, with the most benefit being found at a moderate level of trauma exposure. They also note that Lechner, Zakowski, Antoni, Greenhawt, Block, and Block (2003) found a curvilinear relationship between benefit finding and stressor severity in cancer patients, with Stage II patients finding the most benefit compared to Stage I or Stage IV patients.

Chopko (2010) investigated the relationship between PTG and posttraumatic stress in 183 police officers in a Midwestern state. The officers completed questionnaires including the Impact of Events Scale-Revised (IES-R), the Posttraumatic Growth inventory (PTGI), and a questionnaire created by the researcher that indicated specific PTE's experienced during work. These included: being accidentally and severely injured, being seriously injured during an assault, witnessing scenes involving terrible death or injuries, recovering or handling dead bodies, involvement in hostage situations, experiencing events involving harm to children, and involvement in a duty-related shooting. Chopko found a significant relationship between

posttraumatic distress following these incidents and PTG. However, the total variance accounted for by all seven experiences was 8.6%, and further analysis showed that out of all the PTE's included in the questionnaire, only the number of duty-related shootings contributed to the model. Consequently, the author concluded that some other duty-related experience(s) not included in his questionnaire may have been instrumental in the officer's reported PTG, and further inquiry was recommended to include other potential occupational PTEs.

Mental Health Interventions for Occupational Stressors in Police Officers

The research discussed thus far makes it clear that there are stress factors can be influenced positively or negatively by police agencies providing mental health support for officers. Most police agencies recognize this high potential for occupational exposure to PTEs and the need to maximize health and recovery for members involved in critical incidents. However, officers may encounter stigma when they seek out mental health services, and departments may vary widely on how effective they are in providing trusted mental health professionals that can be accessed confidentially.

The International Association of Chiefs of Police/ Police Psychological Services Section (IACP/PPSS) has developed guidelines for mental health responses before, immediately following, and post-incident for officer-involved shootings, guidelines that are also considered applicable to other "potentially distressing critical incidents." The guidelines remind agencies that "involved officers" may include not only those who fired their weapon, but also officers who were at the scene and either did not, or could not, fire their weapon. This response includes several components, including:

1. Pre-incident preparation: Police officers typically receive some form of psychological education about their mental health in the police academy setting, both as new recruits as

well as ongoing in-service training. The emphasis placed on this training, as well as the content of training, may vary widely between agencies, and training receives varying levels of acceptance as a result of different agencies' organizational cultures.

2. Physical and psychological first aid: Guidelines provide advice designed to mitigate the negative impact of the event by having officers step immediately away from the scene, allow them to personally contact family members, and urges agencies to immediately replace the officer's firearm if it theirs is taken as evidence. A companion officer should be assigned to any officer who is directly involved in a shooting and is separated from others pending investigative procedures. Involved officers should be provided with written information that explains physical and psychological reactions to shooting or other critical incidents, e.g., what to expect psychologically and physically, coping strategies, resiliency strategies, and identifying whom to contact for further assistance should also be provided.
3. Administrative leave: (routine procedure, not disciplinary). Officers are typically given some days (varying by agency) of mandatory administrative leave to allow the officer to recover from the physiological and psychological arousal incurred by their experience. Past research has identified insufficient time off from work to recover is a risk factor for negative outcomes following critical events (Carlier, 1998). However, many rural agencies or small departmentsthat have as few as a single officer simply do not have additional staff to cover calls for service, so this option may not be available in those cases.
4. Post-shooting interventions: Interventions should be conducted only by licensed mental health professionals trained and experienced in working with law enforcement personnel

and familiar with officer-involved shootings and other critical incidents. The guidelines suggest that "some officers would choose not to participate in post-shooting interventions provided by qualified mental health professionals, yet when required to participate, they often find it helpful." (Honig, A., & Sultan, S., 2004).

Post-shooting interventions warrant further detail in this discussion, due to the emphasis placed on these types of events. It should be noted that the following interventions may also be applied to other extremely critical events, although the identification of other events that may be equally impactful is not straightforward and is explored in more detail later in this review when considering event centrality.

The IACP guidelines therefore recommend that officers involved in shootings or other highly stressful events be required to participate in:

1. One individual post-incident intervention with a qualified mental health professional so they can, at a minimum, be provided with basic education and coping skills to better manage their reactions. However, the IACP guidelines are clear that officers should not be required to discuss the event. Because delayed reactions may occur, all officers receiving an initial post-shooting and other critical incident intervention should receive follow-up contact via phone or email sometime in the first months and at four months post-incident. The guidelines also suggest that agencies consider including family members and significant others in the post-incident intervention process.
2. Group psychological interventions may be beneficial following incidents involving multiple personnel. Attendance for group interventions should be voluntary, and limited to persons involved in the event. Group sessions may be jointly facilitated by one or

more mental health professionals experienced in working with law enforcement personnel, as well as trained peer support personnel.

The IACP support guidelines overlap with a comprehensive, multi-component approach known as Critical Incident Stress *Management* (CISM; Everly & Mitchell, 1999), which was designed to offset the development of PTSD after a potentially traumatic event (PTE) and to recover functioning in occupational settings. The core components of the comprehensive CISM model include:

1. Pre-crisis preparation. This includes stress management education, stress resistance, and crisis mitigation training for both individuals and organizations;
2. Disaster or large-scale incident, as well as, school and community support programs including demobilizations, informational briefings, "town meetings" and staff advisement;
3. Defusing. This is a 3-phase, structured small group discussion provided within hours of a crisis for purposes of assessment, triaging, and acute symptom mitigation;
4. Critical Incident Stress Debriefing (CISD: Mitchell and Everly, 1996), the previously mentioned seven-phase, structured group discussion, usually provided 1 to 10 days post crisis, and designed to mitigate acute symptoms, assess the need for follow-up, and if possible provide a sense of post-crisis psychological closure;
5. One-on-one crisis intervention/counseling or psychological support throughout the full range of the crisis spectrum;
6. Family crisis intervention, as well as organizational consultation;
7. Follow-up and referral mechanisms for assessment and treatment, if necessary. (http://www.icisf.org/a-primer-on-critical-incident-stress-management-cism/)

The CISM model was built on previous work by Raymond B. Flannery Jr., Ph.D., who developed the Assaulted Staff Action Plan (ASAP; Flannery, 1998) for use with staff at high risk for assault in psychiatric facilities. CISM has been described as "an adaptive, short-term psychological helping process that focuses solely on an immediate and identifiable problem. The CISM model includes among its components a widely-employed group intervention developed by Mitchell, and Everly, referred to as Critical Incident Stress Debriefing (CISD; Mitchell, 1983), or the "Mitchell Model."

CISD follows a specific progression in a group session, guiding the participants through seven phases: Introduction (The facilitator explains the purpose and process of the meeting, introduces co-facilitators and explains the guidelines of conduct), facts (participants are invited to share his or her account of the event and how he or she was involved), thoughts (most prominent during the event), reaction (emotional reactions, what aspects of the situation caused the most distress), symptoms (participants are moved away from emotions to cognitively oriented descriptions of symptoms), teaching (symptoms are normalized and strategies to manage stress are explored), and re-entry (facilitators answer questions, make summaries and provide information for referrals). ICISF/CISM guidelines clearly indicate that participation is strictly voluntary, and no individual should be required to talk even if they choose to attend.

Interventions that conclusively demonstrate efficacy in preventing PTSD have proven elusive in empirical research. Although widely employed, CISD has been controversial with regards to its efficacy in preventing PTSD, and the practice has been scrutinized in the psychology literature. Considerable research has concluded that Critical Incident Stress Debriefing as a stand-alone intervention not only does not prevent PTSD in most populations, but also may be harmful to some high-risk individuals.

In a widely cited article Carlier, Lamberts,Van Uchelen, & Gersons (1998) examined the effects of psychological debriefing for the prevention of PTSD in a group of officers who responded to the scene of a 1992 crash of a cargo plane into a suburban area of Amsterdam in the Netherlands. The Mitchell model was followed by trained personnel debriefing a sample of 105 police officers who worked at the disaster scene. They began their assessment 8 months post-trauma exposure, with a final follow-up measure 18 months post-trauma. They found that, although there were no statistically significant reported differences in PTSD symptoms between the groups at 8 months, a statistically significant number of officers in the CISD group (n=7) reported hyperarousal symptoms at 18 months after the incident. Although the researchers expressed confidence that the debriefed and non-debriefed samples were randomly selected for debriefing due to operational circumstances, the debriefed sample was partially comprised of officers who were available for the debriefing because they had opted to take a day off after responding to the incident due to the "exhausting nature of the response." The non-debriefed group were comprised of officers who volunteered to continue to work the ongoing scene regardless of when their days off occurred and were consequently unavailable for the group debriefing. This possible selection factor (exhausted officers vs. overtime volunteers), combined with the relatively small number of participants (there were 7 officers out of the 46 debriefed officers) experiencing hyperarousal symptoms in the 18-month follow-up, make the conclusions of such a delayed response appear to need more conclusive support, especially given Chopko's (2010) finding that "emotional exhaustion" was a risk factor in the development of PTSD in police officers.

Carlier, Voerman, & Gersons (2000) conducted a study of 243 trauma-exposed officers, one-third of which attended successive voluntary critical incident debriefings conducted at 24

hours, 1 month, and three months following stressful incidents. One week following their first debriefing, the debriefed group exhibited significantly higher PTS symptoms than the non-debriefed group, which the researchers allow may be attributable to greater symptom awareness in the debriefed group. There were no statistically significant differences in symptom levels or in diagnosable PTSD symptomatology between debriefed and non-debriefed officers (one percent debriefed, three percent non-debriefed) in subsequent assessments following critical incident exposure in the study. Ninety-eight percent of the debriefed group reported strong satisfaction with their first two debriefings (two percent some satisfaction), and 88 percent reported strong satisfaction with their third debriefing (12 percent some satisfaction).

Leonard & Allan (1999) studied the effects of a single-session CISD intervention on Australian police officers who had been involved in shootings. They found no measurable difference between the CISD and non-CISD group in the development of PTSD symptoms. However, they did find that officers in the CISD group scored higher on using active coping strategies, reported less anger, higher levels of social support, and higher positive reinterpretation and growth than the non-CISD group. This may suggest a positive relationship between CISD and factors that encourage higher PTG. However, some methodological difficulties may have affected the study; the non-CISD group were involved in incidents that were considered by others to be less potentially traumatic, and therefore may have felt marginalized. In addition, unstructured data in the form of survey comments indicated that the officers received no follow-up care, found the psychologists who conducted the debriefing to be unknowledgeable about police work, and contrary to (ICISF) CISM guidelines, no peers attended.

Many small agencies and communities lack the resources to employ fully the core components of CISM or the full IACP/PPSS guidelines, and they often resort to CISD or other

forms of psychological debriefings as a standalone intervention. Fortunately, research specifically conducted with public safety populations has found evidence suggesting other benefits of "one-off" CISD interventions and minimal suggestion of harm, most specifically in the previously reviewed work of Carlier et al., (1998). In a larger study, Harris, Baloglu, and Stacks (2002) studied the effects of CISD on 852 firefighters. They found no evidence for harm, a weak inverse correlation between CISD and negative affectivity, and a weak positive correlation with a benevolent worldview. Giddens (2008) reviewed the research literature on the efficacy of CISD in preventing the severity of or lessening the severity of PTSD after a traumatic event. Five variables were examined, including study design, who delivered the intervention, the subjects of the intervention, the outcome measures, and the study outcomes. The author concluded that CISD is more likely to be effective if it is applied to members of a cohesive organization or unit, such as police officers, firefighters, or members of a military unit. The intervention was found to be less likely to be effective when applied to primary victims of trauma who are relative strangers. The intervention was shown to be potentially harmful to high-risk individuals who are required to attend the debriefing and who were not prepared to be re-exposed to the traumatic event.

Richards (2001) conducted a field trial of multi-component CISM versus a standalone CISD to two groups of employees who were armed robbery victims. Morbidity was measured using the Impact of Events Scale and the Clinician Administered PTSD Scale-1 (CAPS-1; Blake, Weathers, Nagy, Kaloupek, Klauminzer, Charney, & Keane, 1990). The author chose studies with a narrowly defined independent variable (multi-component comprehensive response), using CISM as well as the Assaulted Staff Action Plan. Morbidity in both groups was measured on the third day and one month following the traumatic event. The CISM group had significantly fewer

posttraumatic symptoms at follow-up (3–12 months post raid) compared to CISD alone. The author concluded that the results indicated that intervention in the comprehensive CISM format were superior to CISD alone, and opined that "calls to cease 'debriefing' are premature and integrated CISM systems should now be the subject of randomized controlled studies."

Tuckey and Scott (2014) conducted a randomized clinical trial of group CISD with 67 volunteer fire fighters following shared exposure to an occupational PTE. They assessed four outcomes: posttraumatic stress, psychological distress, quality of life, and alcohol use. Different brigades were randomly assigned to one of three treatment conditions: CISD, screening, and stress management education. They found no difference in PTS symptoms among the conditions. However, the CISD group had significantly less alcohol use post-intervention relative to the Screening group, and significantly greater post-intervention quality of life reports relative to the Education group. The authors concluded that although PTS symptoms are not significantly affected by the intervention, CISD may promote broader functioning following exposure to occupational PTE's, and recommended further research focusing on individual, group, and organizational factors and processes that can promote recovery from occupational stressors.

The research reviewed here highlights the complex and inconclusive information regarding interventions that minimize posttraumatic stress symptoms due to critical incidents in the workplace. However, due to other possible benefits, such as encouraging social and organizational support, psychological triage, psychoeducation, and referral for services, the majority of public safety agencies in the United States follow (with varying degrees of precision) the IACP/PPSS guidelines or the CISM model. CISM (or variations) is also widely practiced in public safety agencies in Europe and Australia, as well as modified versions in military units,

hospital emergency departments, other occupational settings at risk for critical events, and civilian populations in war and disaster zones. The results reported by Tuckey and Scott (2014) suggesting that CISD predicted lower alcohol consumption was of particular interest, given the correlation between alcohol consumption and suicidal ideation among police officers with PTSD (Volanti, 2004).

Personality and Occupational Stress in Police Officers

Previous work by Wills and Schuldberg (2016) examined effects of repeated occupational trauma exposure on personality traits. The CPI traits were selected for the study based on prior research and the domain expertise of a police psychologist with 35 years of experience conducting pre-hire assessments and therapeutic support for law enforcement personnel, and for correlations with traits examined by Löckenhoff et al. (2009), who found statistically significant variation in some FFM traits accounted for by recent exposure to severe events. Pre-employment CPI-434 scores were used as Time 1 measures and compared with CPI-434 scores administered for the study. Mean scores on all of the CPI scales declined over time; trait trajectories (slopes) were negative. Negative trait trajectories were unexpected (Helson et al., 2002), but may have been accounted for in part by score elevations in pre-employment CPI scores due to the impression management assumed to take place in that setting (H. Gough, personal communication, October 31, 2013). The Reliable Change Index (RCI; Christensen & Mendoza, 1986) was calculated for each selected trait; the following percentage of participant records reached a threshold for change unlikely to occur by chance. In the CPI traits examined for the study between T1 and T2: Wellbeing=39.5%, Good Impression=55.3%, Independence= 28.9%, Self-Control=63.2% , Empathy= 21.1%, and Law Enforcement Orientation=10.5.

Change in trait levels were calculated as slopes (T2-T1/length of service) for the five traits for use in correlational analyses.

Contrary to the original hypothesis of the study, greater decline in trait scores was *not* correlated with higher overall exposure to occupational trauma measured by the Critical Incident History Questionnaire: (CIHQ; Weiss, Brunet, Best, Metzler, Liberman, Pole, Fagan, & Marmar, 2010), but Posttraumatic Checklist-Civilian (PCL-C) scores were significantly correlated with several T2 CPI trait scores, and more steeply declining trait trajectories (slopes) on all of the scales except Empathy. Total CIHQ scores were not correlated with slopes on any trait, but were significantly negatively correlated with T2 Empathy (r=-.338) and positively with T1 Leo (r=.335). Four CIHQ items were individually associated with more steeply declining trait slopes of Empathy, Independence, and Wellbeing, suggesting specific incidents or incident types were more salient than overall exposure. Neither of the PSQ scores (work environment stress) was correlated with CPI trait slopes, T1, or T2 scores. There was however a strong correlation between gender and PSQ-Op and PSQ-Org scores, with female officers reporting higher levels of work environment stress (PSQ-Op; r = .447 p<.005; PSQ-Org; r =.537, p<.001). Age, and the length of time the officer had been in service were not significantly correlated with any other variables.

The presence of a direct correlation between some trait slopes and individual CIHQ items suggested that the measures used in the preliminary work may not have adequately capturing the salience of individual events. Groleau, Calhoun, Cann, and Tedeschi (2012) and other researchers have found that *centrality of event*, or the degree to which a person believes a negative event becomes a core part of their identity, contributes to posttraumatic distress (Berntsen & Rubin, 2006). The absence of correlation between overall CIHQ scores and trait

trajectory suggests that either the instruments measuring stressors are not capturing all the relevant events, or are not adequately capturing the centrality of individual events. In addition, there is a lack of sufficient empirical data on the complicated effects of context in pre-employment personality testing to develop a method to adjust for how scores may be inflated by impression management and other test-taking factors in job seekers. Consequently, the current study focuses on closely examining's event centrality and seeks to uncover event characteristics that are more closely related to officer mental health and how personality is currently expressed.

Current research

Although this extensive and growing body of literature exists with respect to potentially traumatic events (PTE's) experienced in occupational settings, the dynamic interplay between individual personality traits, chronic PTE exposure, posttraumatic symptoms, posttraumatic growth (PTG), and post-incident interventions is not yet well researched or understood. Examining how these variables are impacted by specific personality traits and configurations, and the impacts on psychological health as these experiences occur, is the focus in the current research. Understanding these relationships -- and how negative impacts may be mitigated by appropriate critical incident response, ongoing support and mental health care -- are vitally important for intervention and policy directed at supporting officers over the course of their careers in preventing burnout, maintaining positive personal interactions on and off the job, enhancing job performance, and maintaining overall quality of life. The enormous social impact of officer use of force incidents that are seen by many as implicating police officers and their agencies in ongoing institutional racial injustice highlights even more the importance of understanding officer personality, psychological health, and behavioral motivations.

The current research leverages and extends the prior research by the PI about the relationships between personality, stress, and mental health outcomes in police officers exposed to occupational trauma. Data were captured during test administration to examine the roles of event centrality, pre-incident and post-incident mental health interventions and training, and subjective experiences of posttraumatic growth. Conducting the analyses using the full range of CPI scales and profile configurations was intended to gain a more sensitive ideographic view of personality and how traits may relate to psychological resiliency in the face of chronic exposure to stressful occupational events.

Hypotheses

1. Hypothesis 1 (Replicate and expand Chopko, 2010): CIHQ items relating to threat to personal integrity (such as officer-involved shootings) will relate to greater Post-traumatic growth as measured by the PTGI.
2. Hypothesis 2: More comprehensive training before critical incidents occur and mental health support after critical incidents will be positively related to lower work environment stress (as measured by the PSQ-Org and PSQ-Op), and higher PTGI scores.
3. Hypothesis 3: Event centrality (as measured by the CES) will be positively correlated with both PCL and PTGI scores, and negatively correlated with CPI-434 vector 3, with PTGI more likely to occur with longer elapsed time between the event and the present. This hypothesis replicates findings in the preliminary work, and expands the work to examine whether event centrality measures capture the salient occupational PTE's that impact psychological health.
4. Exploratory analyses. Exploratory correlational analyses will identify specific relationships between personality traits and trait configurations, individual trait scores, occupational

trauma and stressors, posttraumatic stress symptoms, and other variables (listed in more detail in Analysis section). Analyses will also be conducted using limited historical data (*n*=21) and will be reported in spite of anticipated low effect sizes due to the small *n*.

Methods

Participants

Recruitment.

The participants were recruited from police departments in three states in the intermountain West and Pacific Northwest. Two psychological services groups with access to pre-employment police psychological evaluations in these states agreed to assist with recruitment, and to provide historical CPI-434 reports with participant approval.

Officers with any length of service were eligible. All officers that had completed their field training and had been actively deployed in the field were eligible to participate in the study. Potential participating agencies were contacted and provided with an overview of the study and asked to grant permission for the officers to participate on a voluntary basis. Information about the study, a letter from the primary researcher, and support letters from the agency heads were delivered via email to qualifying employees. The letters clearly stated that the identity of participants would not be passed on to peers or to supervisory and command personnel. Support letters also clearly stated that participation or lack of participation would in no way influence future performance assessments or evaluations.

Characteristics of the subject population.

One hundred nineteen police officers from approximately 13 agencies participated in the study. The exact number of agencies was not captured; to preserve privacy for the officers the identity of their agencies was not recorded. The sizes of agencies were captured in four broad

categories; agencies with less than 50 members, 51 and 100 officers, 101-400 officers, and agencies with greater than 400 officers. Several officers had to leave to answer calls for service during test administration and were not able to complete all the measures; three of them either returned to a subsequent session to finish or completed the measures and mailed them to the researcher. At least two of the computerized CPI-434 inventories were not successfully scored and returned by Consulting Psychologists Press for unknown reasons.

One hundred nine officers completed all five primary measures (CPI-434, PSQ-Org, PSQ-Op, PCL-5, CIHQ). Eighty-six percent were male and fourteen percent were female. Eighty-seven percent were white, five percent African American, two percent Asian American, one percent Pacific Islander, one percent Hispanic, and five percent "some other race." The lack of ethnic diversity in the sample was not surprising, given that the region in which the majority of the participating police agencies were located is primarily populated by white European Americans (approximately 89.5 percent according to the 2010 census). The proportion of female officers in most agencies in the region is also low in comparison to some other regions in the country, and is reflected in the sample (13.8% female).

Table 1

Participant demographics

Demographic variables	M	SD	Min	Max
Age	42.0	9.89	24.0	66.0
Years of service	15.2	9.76	.22	36.52

Demographic Variables		Frequency	Percent
Sex	Male	94	86.2
	Female	15	13.8
Race	African American	5	4.6
	Asian American	2	1.8
	Hispanic	1	.9
	Native Hawaiian and	1	.9
	Some other race	5	4.6
	White	95	87.2
Agency Size	<50	18	16.5
	>400	70	64.2
	101-400	4	3.7
	51-100	17	15.6
Rank	Commander	5	4.6
	Detective	9	8.3
	LPO or Corporal	12	11.0
	Officer	62	56.9
	Sergeant	21	19.3

As data collection was in progress, it was discovered that many of the California Psychological Inventory reports were unavailable for remote data. Ultimately only 25 pre-employment CPI reports were available. Therefore, the results of T1/T2 comparisons and trait slope analyses are reported, but participants with data from both time points are insufficient in

number for substantial effect sizes or for statistically significant conclusions to be made; consequently conclusions in trait slopes are reported as exploratory analyses.

Procedure

Questionnaire administration

The administrators for the measures were either the researcher or the participating pre-hire psychologist's practice manager. The administration locations were provided by the participating police agencies, or the primary consulting psychologist group, and were primarily meeting rooms in the police facilities. A CPI-434 was administered in computerized format to each of the participants, most often on laptops provided by the researcher, or on computers in a training room in a police facility. A few higher-ranking officers completed the measures at their own desks, as the CPI-434 is web-based and could be accessed from their own workstation. The CPI-434 inventories were electronically scored by Consulting Psychologists Press (CPP) and scores were returned in electronic form. Where possible, the pre-hire California Psychological Inventory (blinded to the researcher) was obtained with a signed participant consent form.

In addition, the participants completed paper and pencil versions of the Police Stress Questionnaire-Operational and the Police Stress Questionnaire-Organizational (PSQ-Op and PSQ-Org; McCreary & Thompson, 2006), which are measures of police work environment stress; the Posttraumatic Symptom Checklist 5 (PCL-5; Weathers, Litz, Keane, Palmieri, Marx, & Schnurr, 2013) to measure active posttraumatic stress symptoms; and the CIHQ (Weiss et al., 2010), to assess cumulative critical incident exposure. The officers were asked to indicate if any of the CIHQ items impacted them much more significantly than other events (see Appendix A: Administration instructions). For those events, the officer were asked to complete the Centrality of Event Scale (CES: Berntsen & Rubin, 2004) along with several additional questions relating

to why the event was impactful to them; a 22 item survey (based on the IACP Officer-Involved Shooting Guidelines and the CISM model) that was administered to determine the extent of mental health support afforded to the officers for exposure to their most significant incidents, with several additional questions assessing barriers to receiving mental health services; and the Posttraumatic Growth Inventory-Short Form (PTGI-SF: Cann, Calhoun, Tedeschi, Taku, Vishnevsky, Triplett, & Danhauer, 2010).

The average completion time for the CPI-434 was approximately 45 minutes. Completion time for the non-CPI measures varied more widely; the number of Central Events reported varied from 0 to 12 per officer, and time ranged accordingly from approximately 30 minutes to 2 hours.

Upon signing the informed consent form and the release of information form, and upon completion of the questionnaires, the participants placed the completed measures in the numbered envelope and gave them to the principal investigator, unless administered by the consulting psychologist's designee, in which case they were mailed (via Federal Express) to or personally delivered to the researcher. The HIPAA release forms were faxed to the consulting psychologists and the originals destroyed. The informed consent forms are stored in locked files.

Maintaining participant confidentiality

Participants' identities were concealed from the primary researcher by randomly generating numbers and numbering the measures. Officers were assigned a number and given the corresponding packet of measures when they reported for testing. Stored identifiable data were limited to a spreadsheet table, which was stored on an encrypted cloud drive (University of Montana Box, authorized by the UM IRB), and access given to the consulting psychologists (who conducted the pre-hire psychological evaluations). Identifiable data (with participant name

and numbers) are stored only with the primary consulting psychologist. The numbers were not placed on the informed consent forms that are stored by the principal investigator. The only place that the participant's name appeared with their number during the session is on the consent form that was given to the pre-hire assessing psychologist.

When the pre-hire assessing psychologist or designee received the release of information forms by mail or Fedex, (s)he applied the assigned numbers to the historical (pre-hire) CPI. Consulting Psychologists Press generated a data file with those CPI scores identified only by the assigned project ID number and emailed it to the principal investigator. The principal investigator matched the original assessment data with the new assessment data for each participant.

Minimization of potential adverse events

At the data gathering sessions participating officers had trained psychological support immediately available, and were reminded about available resources if they needed psychological support following the test administration, such as peer support, agency contracted psychologists, EAP counselors, or private psychological services covered by their medical insurance plans.

Measures

The measures for this research included the California Psychological Inventory 434 (CPI-434: Gough, 1996); the Police Stress Questionnaire-Operational (PSQ-Op: McCreary and Thompson, 2006) and the Police Stress Questionnaire-Organizational (PSQ-Org: McCreary and Thompson, 2006); the Critical Incident History Questionnaire (CIHQ; Weiss et al., 2010), the Posttraumatic Checklist for the DSM-5 (PCL-5; Weathers, Litz, Keane, Palmieri, Marx, and Schnurr, 2013). For on-duty events the officer identified as particularly significant or life-

changing, they also completed the 7-item version of the Centrality of Event Scale (Bertsen & Rubin, 2004), the post-critical incident Mental Health Intervention Checklist (MHIC; created by the researcher), and the Posttraumatic Growth Inventory-Short form (PTGI-SF: Tedeschi & Calhoun, 1996). All measures were used in the exploratory analyses, and as noted in hypotheses 1-3.

The California Psychological Inventory-434 (CPI; Gough, 1996). The CPI was developed to assess personality variables that predict criteria of general social importance. This version of the inventory has 434 items making up 20 scales that describe interpersonal and intrapersonal behavior and dispositions selected for their value in social life. There are also 6 work-related scales and three higher-order measures. Unlike instruments such as the Minnesota Multiphasic Personality Inventory (MMPI and MMPI-2; Hathaway & McKinley, 1943, 1987) and the various versions of the Millon Clinical Multi-Axial Inventory (MCMI; Millon, 1987), the CPI was not intended as an instrument for use in clinical settings for assisting in diagnoses of psychopathology. The CPI is instead intended to measure personality characteristics that would be relevant and valuable in personnel assessment and in other settings where the emphasis is on positive, life-enhancing attributes and dispositions.

The CPI scales were designed in part to capture cross-cultural and easily understood personality themes that are intuitive to a lay observer, the so-called "folk" scales. In this way the test developers tried to identify personality factors that are universal to some degree in all humans and which provide a picture of relatively stable characteristics and tendencies. The 29 scales are grouped into six categories. The category "Dealing with Others" includes: Dominance (Do), Capacity for Status (Cs), Sociability (Sy), Social Presence (Sp), Self-acceptance (Sa), Independence (In), Empathy (Em). The Self-Management category includes: Responsibility

(Re), Social Conformity (So) Self-control (Sc), Good Impression (Gi), Communality (Cm), Well-being (Wb), and Tolerance (To). The "Motivations and Thinking Style" category includes: Achievement via Conformance (Ac), Achievement via Independence (Ai), and Intellectual Efficiency (Ie). The "Personal Characteristics" category includes: Insightfulness (Is), Flexibility (Fx), and Sensitivity (Sn). The "Work-Related Measures" category includes Managerial Potential (Mp), Work Orientation (Wo), Creative Temperament (Ct), Leadership (Lp), Amicability (Ami), and Law Enforcement Orientation (Leo). The "Higher-Order Measures" category includes: Vector 1 (v.1; Orientation Toward Others), Vector 2 (v.2; Orientation Toward Societal Values, and Vector 3 (v.3; Orientation Toward Self or Ego-Integration).

In addition to these scales, "Type Characteristics" as noted before are represented as quadrants (Alpha, Beta, Gamma, Delta) generated by an intersection of v.1 and v.2, with v.3 an additional dimension (depth), represented as a cube-like figure.

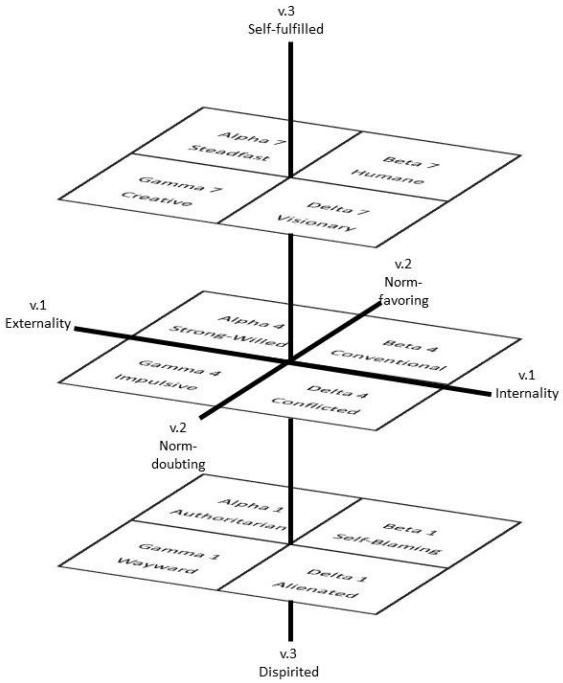

Figure 1. Schematic Representation of the three-Vector model of personality structure. Adapted from Gough, H. G., & Bradley, P. (1996). *California Psychological Inventory manual*. Palo Alto, CA: Consulting Psychologists Press. Copyright 1996 by Consulting Psychologists Press.

This complex intersection of multiple personality dimensions reduces the complexity of examining the role of ideographic trait configurations in personality research, and provides the opportunity to examine ipsative consistency in a straightforward manner.

Internal consistency (*alpha*) coefficients for the CPI scales have been calculated from 3 samples: from the U.S., the U.K., and from a sample of 6,000 randomly selected records sent in by practitioners. Some scales, such as Dominance, show coefficients from .83 to .87. The scale with the lowest internal consistency coefficient was Sensitivity, with alphas ranging from .33 to .67 across the three samples. Test-Retest correlations have been calculated for 1, 5, 10, and 25 years between tests. The lowest test-retest correlation was .18 for women at 5 years between tests on the Communality subscale. The correlation for this validity scale appeared to be an outlier, as all other test-retest correlations for all subscales ranged between .36 and .86.

The 434 CPI items are in a true/false response format. Some sample questions include:

1. I enjoy social gatherings just to be with people.

26. It's a good thing to know people in the right places so you can get traffic tags, and such things, taken care of.

51. Every family owes it to the city to keep its sidewalks cleared in the winter and its lawn mowed in the summer.

73. Maybe some minority groups do get rough treatment, but it's no business of mine.

The CPI incorporates three validity scales to identify profiles that may be invalid: Fake Good, Fake Bad, and Random. The scores are calculated based on an empirically supported formula that incorporates scores from six scales: Dominance, Wellbeing, Good Impression, Communality, Sociability, and Flexibility. Scoring outside the threshold scores results in a

dichotomous flag (0 for within normal limits, 1 for exceeding the Fake Good or Random thresholds, or being below the Fake Bad threshold), alerting the assessor that the profile may show excessive impression management, random answering, or over-reporting of distress.

There are some intercorrelations among the folk scales, as they were designed to be easily interpretable to the lay person, not necessarily to represent statistically independent constructs (Bernstein, Garbin, & McClellan, 1983; Gough & Bradley, 2002).

Police Stress Questionnaires-operational and organizational (McCreary & Thompson, 2006). McCreary and Thompson (2006) developed the Police Stress Questionnaire-Organizational (PSQ-Org, Appendix D) and the Police Stress Questionnaire-Operational (PSQ-Op, Appendix C) to provide measures of perceived work-related stress specific to police officers. The PSQ-Org measures response to stressors originating from the organizational environment, and the PSQ-Op measures response to stressors encountered during actual performance of the job. Three different studies were conducted on the questionnaire to assess reliability, construct validity, discriminant validity and concurrent validity (compared with job satisfaction measures).

A reliability analysis resulted in Cronbach's *alpha*s of .90 for the PSQ-Op and .89 for the PSQ-Org. An analysis of construct validity was designed to measure the relationship between frequency of law enforcement occupational stressors and perceived stress, and the level of overlap between the two measures to ensure they are measuring different constructs. Discriminant validity was assessed by analyzing the shared variances between the two measures and three other measures of stress unrelated to police work. The amount of shared variance was low, suggesting that the PSQ-Op and PSQ-Org possess excellent discriminant validity with regard to these general stress constructs. Two measurements of job satisfaction, the Job Satisfaction Survey (JSS; Spector, 1985), and the Job-related Affective Wellbeing Scale (JAWS;

Van Katwyk, Fox, Spector, & Kelloway, 2000) were used to assess concurrent validity. Concurrent validity for the PSQ-Op and PSQ-Org was demonstrated by the correlations between stress ratings for the PSQ items and ratings on the JSS and the JAWS. In all but one instance (negative work-related emotions), higher scores on the PSQ scales were associated with lower job satisfaction.

The instructions for the measures are as follows: "Below is a list of items that describe different aspects of being a police officer. After each item, please circle how much stress it has caused you over the past 6 months, using a 7-point scale (see below) that ranges from "No Stress At All" to "A Lot Of Stress".

Some of the PSQ-Op items include doing shift work, working alone at night, over-time demands, and risk of being injured on the job. Some PSQ-Org items include dealing with co-workers, excessive administrative duties, constant changes in policy/legislation, and staff shortages. Since the measures ask the individual to rate their response to each stressor, rather simply exposure to the stressor, lower scores may be considered to indicate a greater degree of psychological health and resilient coping. Consequently, both were used as indicators (lower scores) of psychological health and resilience in the analyses.

The Posttraumatic Check List for DSM-5 (PCL-5; Weathers et al., 2013). The PCL-5 was administered to capture symptoms of traumatic stress and was an important variable of interest as a measure of outcome. Blevins, Weathers, Davis, Witte, & Domino (2015) conducted two studies examining the psychometric properties of the PCL-5 using two samples of trauma exposed college students (n=836 for both studies). PCL-5 scores exhibited strong internal consistency ($\alpha = .94$), test-retest reliability ($r = .82$), and convergent (rs = .74 to .85) and discriminant (rs = .31 to .60) validity. As the PCL-5 was developed relatively recently,

psychometric studies with different populations are still pending. Psychometric studies to validate cutoff values have yet to be published, but the Veteran's Affairs Administration's National Center for PTSD (National Center for PTSD: www.ptsd.va.gov) currently suggests a cutoff score of 33 for the purposes of screening for PTSD. The PCL-5 was also used as an outcome measure, with lower scores indicating greater psychological resilience and higher coping ability.

The Critical Incident History Questionnaire (Weiss et al., 2010). The CIHQ provides a quantitative estimate of cumulative exposure to critical incidents. The Department of Health and Human Services, Federal Occupational Health Agency, describes critical incidents as: "…highly stressful situations. Simply put, a critical incident is a traumatic event (or perceived life-threatening event) that has sufficient power to overwhelm an individual's ability to cope" (www.foh.dhhs.gov). The CIHQ is derived from a checklist of critical incidents potentially experienced in the domain of police work. The total score incorporates the frequency of exposure, written in if the number of incidents experienced was under ten, and above that as ranges from 10 to 20, 21 to 50, and 51 plus (see Appendix A1). The score also incorporates a rating of coping difficulty or stressfulness associated with each item. The final score was the coping difficulty multiplied by the number of occurrences (average number of occurrences where an estimated range was indicated) summed across items. The 34-item questionnaire is included in Appendix A1. One additional item was added to the original CIHQ. Item 3, "Being present when a fellow officer was killed intentionally" was endorsed in higher frequencies in a previous study by this author than was likely to be accurate. On that participating agency, only two officers had been killed intentionally on duty in the preceding 25 years, yet 13 out of 40 officers endorsed this item. This led the researcher to speculate that the officers were endorsing the event

even if they were not physically present when the officer was killed due to the high psychological impact of a fellow officer's death. To clarify this more specifically, a related event that was not in the original CIHQ was developed, as it is commonly regarded as a highly stressful duty-related event by officers: "An officer on your department or an agency with whom you work or have worked closely was killed (you were not present)." In addition, an open-text field was added to allow officers to report events that they felt were very stressful but did not match existing items.

Test-retest reliability for the CIHQ was calculated by Weiss et al. (2010) for six indices, including: the actual frequency of exposure, a recoded frequency (a strategy the authors used to normalize the wide range of occurrence frequencies), variety, nomothetic severity (based on severity ratings by a sample of over 700 officers), idiographic severity, and actual x nomothetic severity. The test-retest coefficients range from .56, for Actual Frequency x Nomothetic Severity, to .66 for Variety (an index of the variety of types of incidents to which the officer had been exposed). Content validity for the items was analyzed using ratings from 52 police psychologists. To assess the level of agreement of these expert ratings, the reliability of ratings from the police psychologists was first calculated; results were .94 for consistency of ratings across judges and .90 when using a more conservative estimate that used differences in the mean rating among the judges.

In the Weiss et al. (2010) study a nomothetic severity weight for each item was calculated based on the responses from all of the officers who served as judges. Not all officers endorsed having experienced the situations described in each item, but there was strong agreement in ratings whether or not the officer experienced the situation firsthand. The following is an

example of the mean frequency and the severity ratings for the first four items: Full results from Weiss et al. (2010) are included in Appendix B2.

Table 2

Example of nomothetic severity ratings in Weiss et al. (2010)

Abbreviated Item	*n*	Frequency of exposure					Nomothetic severity Rating
		0	1-9	10-20	21-50	50+	
Mistake that injures/kills colleague	717	97.8	2.2	0.0	0.0	0.0	3.81
Colleague killed intentionally	714	79.0	20.3	0.6	0.0	0.0	3.76
Mistake that injures/kills bystander	640	97.5	2.3	.2	0.0	0.0	3.67
Colleague killed accidentally	710	87.6	12.1	0.0	0.0	0.0	3.51

In the current study, self-perception of coping difficulty was of higher interest than nomothetic scores, so scores were weighted by the individual rather than nomothetic ratings. There were two additional boxes added for each CIHQ item; the officer was instructed to use these to identify items that impacted him/her in a more significant or life-changing way than other experiences on the job. The instructions were: "By a "Central Event" we mean an on-duty event that impacted you in an especially significant or life-changing way, such as: changing the way you evaluate meaning in your life; making you feel your life is different from most people; altering the way you think about your relationships; changing the way you think about your future, being a turning point in your life, or any other very significant change…." If this was checked "yes", the officer assigned that event a number (beginning with 1; the officer was instructed that the number was to identify the event and the number was not an indicator of importance or chronological position in relationship to other events). For any item that was

checked as life-changing, the officer was asked to complete the CES, the MHIC, and the PTGI-SF.

The Centrality of Event Scale (Berntsen et al., 2004). The Centrality of Event Scale was developed to measure how central an event is to a person's identity and life story. The scale is focused on stressful events of which a memory forms a reference point for personal identity and for the attribution of meaning to other experiences in a person's life.

For the most stressful or traumatic event in a person's life, the full 20-item CES and the short 7-item scale demonstrated good reliability (αs of .94 and .88, respectively) in a sample of 707 college undergraduates. When retested in a sample of 216 Duke undergraduates, the 7-item scale showed a Cronbach's α of .92. The 20-item scale correlated .38 with PTSD symptom severity and .23 with depression, but not with whether a person reported an event that matched the DSM-IV-TR diagnostic criteria for a trauma. The 7-item scale was utilized in this study to minimize completion time. In addition to the 7 CES items, a checklist of 8 additional items and lines for free text were added to allow officers to expound on why they felt the incident had a greater impact on them. The majority of officers who reported CEs chose to use this section as a trauma narrative.

Mental health intervention checklist (MHIC). (Developed by the author based on IACP/PPSS and ICISF/CISM guidelines; see Appendix H). The checklist covers training and interventions aimed at maintaining officer mental health despite occupational stressors and critical incidents. It was administered for any CIHQ items that corresponded to events the officer considered have been life-changing or significantly more impactful than other experiences on the job. The checklist included a Y/N check box or "N/A" for each item. Interventions checked "yes" were scored positively as being applicable to the situation and

offered by the agency. Interventions checked "no" subtracted from the score as being an appropriate intervention that was not offered. Interventions checked "N/A" were considered interventions that were not offered because they were not applicable, and scored a neutral 0. Items 19-22 were scored separately to assess barriers to mental health treatment. The officers were also invited to write in any perceived barriers to obtaining mental health treatment.

Posttraumatic Growth Inventory-Short Form (PTGI-SF: Tedeschi & Calhoun, 1996). Tedeschi and Calhoun (1996) developed the original 21-item Posttraumatic Growth Inventory scale to assess positive outcomes reported by people who have experienced traumatic events. The authors generated 34 items of positive benefits following exposure to trauma, reported by participants in related literature. Three major themes were prevalent: Changes in self, changes in relationships with others, and a changed philosophy of life. Analysis of the items and ratings by over 600 study participants resulted in a final inventory of 21 items relating to five PTG factors. The PTGI factors include: New Possibilities, Relating to Others, Personal Strength, Spiritual Change, and Appreciation of Life.

The internal consistency of the 21-item PTGI is α=.90. The factors showed substantial internal consistency: New Possibilities (α=.84); Relating to Others (α=.85); Personal Strength (α=.72); Spiritual Change (α=.85); Appreciation of Life (α=.67). Test-retest reliability over two months was acceptable at *r*=.71, although weaker for Personal Strength (*r*=.37) and Appreciation of Life (*r*=.47).

The PTGI-Short Form was developed by Cann, Calhoun, Tedeschi, Taku, and Vishnevsky et al. (2010) as a briefer alternative to the full 21-item PTGI. The authors drew from data from 1341 adults who had completed the PTGI in previous studies, and selected two items that loaded most heavily on each of the five PTGI factors. Several studies were conducted on the

resulting 10-item inventory, which was found to be an accurate substitution for the full PTGI, and which was used in the present study. PTGI was explored during the study as a possible indicator of positive psychological adjustment following trauma exposure.

Results

Analyses

Of the 109 officers who completed all the primary measures, 89 identified one or more event as a "Central Event" (SD=2), with a maximum of 12 Central Events (CEs) reported by a single officer. Non-CE reporting officers often commented anecdotally that they had too many stressful incidents to choose from, or that they regarded organizational stress as a greater source of stress than any individual event. Fifteen officers' PCL-5 scores (13.8%) exceeded the cutoff score of 33 recommended by the Department of Veteran's Affairs (National Center for PTSD: www.ptsd.va.gov) to be likely to meet a diagnosis of PTSD. Two hundred and thirteen events were reported by eighty-nine officers as Central Events (CEs).

The research design allowed analyses to have two different emphases: event-specific data, and person-specific data. Five measures were completed by all officers (CPI-434, CIHQ, PCL-5, PSQ-Op, PSQ-Org; in a 1:1 participant-to-measure relationship) regardless of their perceptions about Central Events. Analyses that did not require CE measure scores utilized the data from all 109 participants. Three measures (the CES, MHIC, and PTGI-SF) were completed for each event in potentially a 1:n relationship between the participant and events.

To allow analyses on multiple CEs that also included scores from the five measures reported in a 1:1 relationship per officer, a data set based on events was created in which participant scores on the 1:1 measures, such as the PCL-5, were repeated for each of their events. There were 213 events reported on by the 89 participants who identified CEs. To avoid

overrepresentation of officers reporting higher numbers of CEs, events for each officer were sorted by CES score, and a maximum of two events per person were chosen for analysis based on the highest CES score, with a total of 144 events included in this data set. Three of the CE-reporting officers omitted either the PTGI or MHIC for one of their events, as they considered them repetitive for each event. Consequently, in analyses where those scores were reported with the CE data set, the *n* varied from 144 to 141. In the case of analyses focused on 1:1 measure scores, but also utilizing 1:*n* (CE related) information, only the 89 CE-reporting participant records (with the average and maximum scores across their CEs) were used. Maximum scores for the MHIC were considered particularly relevant throughout the analyses since mental health interventions, particularly mental health related training and education, presumably may be beneficial across and among multiple experiences of critical incidents.

The 89 officers reporting CEs were asked to report an approximate date (month and year if possible) for each Central Event. In some cases, they were only able to remember an approximate year, as some of the events were quite remote (maximum of nearly 35 years ago); events missing a month and day were entered as January 1. Descriptive statistics on elapsed time are in Table 3.

Table 3

Descriptive statistics for elapsed time on Central Events

Variable	*n*	Min	Max	M	SD
Elapsed time	144	0.04	34.7	7.7	7.7

Analyses were all run in IBM SPSS Statistics, Version 23, and consisted of correlational and linear regression analyses.

Hypothesis 1 Analyses

This Hypothesis was investigated by exploring PTGI in relationship to PTS and different CIHQ event types (expand Chopko, 2010), using the PCL-5 to measure posttraumatic distress (rather than the Impact of Events Scale as was used in Chopko, 2010). CIHQ items, were examined both individually, and in event type groupings (vicarious trauma, threats to personal safety, direct exposure to injury and death of others, and situations requiring the officer to use higher levels of force against others), to determine their role(s) in subjective ratings of PTG. The analyses consisted of computing correlations in SPSS. The PSQ-Op and PSQ-Org, the PCL-5 and the PTGI-SF were used as indicators of response to work environment stress, posttraumatic stress symptoms, and posttraumatic growth. The eighty-nine records for participants who reported Central Events (CEs) were utilized (only officers who reported CEs had PTGI-SF scores) in the analysis. Since those participants could report multiple CEs, multiple total scores for the PTGI-SF, the CES, and the MHIC could also be reported, so average and maximum scores were utilized. Table 4 includes the results from maximum and average PTGI scores for each officer reporting one or more CE, and their correlations with overall CIHQ scores.

Weighted CIHQ scores are calculated as the frequency of exposure to each incident multiplied by the officer's rating of coping difficulty, summed across items. The frequency of exposure (CIHQ Frequency) to incidents without regard to perceived severity of the event was also examined, as were correlations between the outcome measures and frequency of exposure to five different groupings of incidents.

The CIHQ item groupings were as follows:

Vicarious trauma category includes CIHQ items in which exposure to trauma occurred through primarily through contact with victim or witnesses, including: 3.a. An officer on your

department or an agency with whom you work or have worked closely was killed (you were not present); 26. Making a death notification; 27. Encountering a child who had been sexually assaulted; 28. Encountering a child who had been badly beaten; 29. Encountering an adult who had been sexually assaulted; 30. Encountering an adult who had been badly beaten; 31. Encountering a child who was severely neglected or in dire need of medical attention because of neglect; 32. Seeing animals that had been severely neglected, intentionally injured, or killed.

The **Threats to Safety** category includes: 1. Being seriously injured intentionally (by someone else); 2. Being seriously injured accidentally; 4. Being present when a fellow officer was seriously injured intentionally; 7. Being seriously beaten; 10. Being shot at; 11. Being threatened with a gun; 12. Being threatened with a knife or other weapon; 13. Being trapped in a potentially life-threatening situation; 14. Being exposed to serious risk of AIDS or other life-threatening diseases; 15. Having your life threatened by an aggressive and dangerous animal; 16. Being exposed to a life-threatening toxic substance.

The **injury and death of others** category includes: 3. Being present when a fellow officer was killed intentionally; 4. Being present when a fellow officer was seriously injured intentionally; 5. Being present when a fellow officer was seriously injured accidentally; 6. Being present when a fellow officer was killed accidentally; 22. Seeing someone dying; 23. Encountering the body of someone recently dead; 24. Encountering a decaying corpse; 25. Encountering a mutilated body or human remains. The **Personal** category include items that relate closely to the officer's personal life or personal responsibility: 9. Receiving threats towards your loved ones as retaliation for your police work; 19. Making a mistake that lead to the serious injury or death of a fellow officer; 20. Making a mistake that lead to the serious injury or death of a bystander.

Force Against Others includes: 17. Having to kill or seriously injure someone in the line of duty; 18. Having to shoot at someone in the line of duty, without injuring them; 21. Being involved in a high-speed chase where lives were in danger.

Table 4.

Correlations of CIHQ categories with the Average and Maximum PTGI scores for reported CEs

	Max PTGI-SF	Average PTGI-SF	PCL-5	PSQ-Org	PSQ-Op
Weighted CIHQ (frequency x coping difficulty)	.344**	.380**	.266*	.300**	.323**
CIHQ Exposure frequency	.181	.235*	.167	.220*	.168
Vicarious Trauma	.250*	.320**	.072	.067	.062
Threats to Safety	.113	.152	.361**	.438**	.386**
Exposure to Injuries and Death of Others	.052	.080	.046	.105	.036
Personal	.064	.079	.246*	.337**	.279**
Force against others	.210*	.278**	.127	.115	.157

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=89

Correlations between PTGI-SF scores and other outcome measures and individual CIHQ items were also examined. Items with significant correlations with the measures of PTG, PTSD symptoms, and organizational stress are displayed in Table 5.

Table 5

Significant correlations of CIHQ items with outcome measures

CIHQ Item	PTGI-SF Max of CEs	PTGI-SF (Average of CEs)	PCL-5	PSQ-Org	PSQ-Op
1. Being seriously injured intentionally.	.260*	.216*	0.181	0.142	0.068
3. Being present when a fellow officer was killed intentionally.	0.163	.380**	0.002	0.085	0.058
6. Being present when a fellow officer was killed accidentally.	0.189	0.191	0.093	.208*	.214*
7. Being seriously beaten.	.257*	0.208	0.101	0.072	0.085
15. Having your life threatened by an aggressive and dangerous animal.	-0.009	0.07	.235*	0.018	0.027
31. Encountering a child who was severely neglected or in dire need of medical attention because of neglect.	0.145	.271*	0.039	0.035	0.063

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=89

Weighted CIHQ scores (frequency of exposure x severity rating) were significantly correlated with both average PTGI-SF scores (r=.344, p<.01) and maximum PTGI scores (r=.380, p<.01, maximum PTGI-SF scores of the individual's CE's), and were significantly correlated with all other outcome measures. Specific CIHQ items that are significantly correlated with maximum and average PTGI-SF scores (See Table 5) relate to: being seriously injured intentionally (max and avg. PTGI-SF r=.260, r= .216), being present when an officer was killed intentionally (max PTGI-SF r=.380), being beaten (avg. PTGI-SF; r=.257), or Encountering a child who was severely neglected or in dire need of medical attention because of neglect (avg. PTGI-SF; r=.271). CIHQ categories that are significantly correlated with PTGI

scores include Vicarious Trauma (max and avg. PTGI-SF *r*=.250, *r*=.320) and Use of Force (max and avg. PTGI-SF *rs*=.210, .278, respectively).

To examine more fully the relationships between PTSD symptoms, PTG, and work environment stress, correlations between PTGI-SF, PSQ-Op, and PSQ-Org scores and individual PCL-5 items were also examined and are displayed in Table 6.

Table 6

PCL-5 item correlations with PTGI-SF, PSQ-Op and PSQ-Org

	PTGI-SF Maximum	PTGI-SF Average	PSQ-Org	PSQ-Op
1.Repeated, disturbing, and unwanted memories of the stressful experience?	.321**	.439**	.375**	.526**
2.Repeated, disturbing dreams of the stressful experience?	.317**	.553**	.274**	.404**
3.Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?	.218	.369**	.265*	.341**
4.Feeling very upset when something reminded you of the stressful experience?	.324**	.420**	.272**	.426**
5.Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?	.287**	.485**	.297**	.459**
6.Avoiding memories, thoughts, or feelings related to the stressful experience?	.323**	.294**	.322**	.533**
7.Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?	.182	.204	.311**	.473**
8.Trouble remembering important parts of the stressful experience?	.365**	.388**	.151	.113
9.Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?	.105	.112	.235*	.319**
10.Blaming yourself or someone else for the stressful experience or what happened after it?	.185	.120	.224*	.286**

11.Having strong negative feelings such as fear, horror, anger, guilt, or shame?	.254*	.401**	.305**	.434**
12.Loss of interest in activities that you used to enjoy?	.121	.137	.263*	.312**
13.Feeling distant or cut off from other people?	.200	.150	.388**	.486**
14.Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?	.131	.185	.366**	.486**
15.Irritable behavior, angry outbursts, or acting aggressively?	.028	.081	.314**	.433**
16.Taking too many risks or doing things that could cause you harm?	.158	.072	.154	.270*
17.Being "superalert" or watchful or on guard?	.256*	.209	.184	.416**
18.Feeling jumpy or easily startled?	.223*	.281**	.207	.397**
19.Having difficulty concentrating?	.073	.087	.325**	.473**
20.Trouble falling or staying asleep?	.114	.177	.291**	.485**
PCL-5 Total Score (corrected for missing items)	.299**	.374**	.398**	.589**

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

*. Correlation is significant at the 0.05 level (2-tailed).

Hypothesis 2 Analyses

Hypothesis 2: More comprehensive critical incident support will be positively related to lower work environment stress (as measured by the PSQ-org) and higher PTGI scores. Individual items on the mental health support checklist were included in correlational analyses, as well as category scores, and a total score for the questionnaire (summed items). The results were significant for all four outcome measures with regard to training, and other significant correlations were found between specific interventions and outcome measures.

Table 7

MHIC items with significant correlations

Item Text	PTGI-SF	PCL-5	PSQ-Org	PSQ-Op
1. Did you receive training in your basic or advanced academy to prepare you for stressful experiences on the job?	.185*	-.244**	-.218**	-.411**
3. Were you removed from the scene, as soon as was practical, to a safe or neutral place?	-.057	-.247**	-.273**	-.260**
5. Did a companion officer stay with you for support?	-.004	-.218**	-.147	-.131
6. Were you given written and/or verbal information about what to expect in terms of possible psychological reactions?	-.127	-.283**	-.264**	-.282**
7. Were you given information about mental health resources?	-.106	-.160*	-.109	-.193*
11. Did you receive support from a peer-support member?	-.127	-.214*	-.100	-.215*
12. Did you attend a group intervention (i.e. critical incident stress debriefing, NOT an operational debriefing) following the incident?	-.010	-.019	-.029	.033
13. Was your attendance voluntary?	.006	-.066	-.175*	-.057
15. Was a mental health professional part of the intervention team?	.014	-.071	-.240**	-.197*
17. Did your spouse, romantic partner, or family receive information or training about the mental health effects of police work pre-incident?	-.190*	-.242**	-.179*	-.198*

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=142

Table 8

MHIC intervention categories, correlations with outcome variables

	PTGI-SF	PCL-5	PSQ-Org	PSQ-Op
Total MHIC	-.071	-.272**	-.269**	-.292**
Psycho. Education	.003	-.315**	-.276**	-.395**
Professional Intervention	-.087	.003	.015	.010
Peer Support	-.095	-.188*	-.126	-.218**
Family Intervention	-.181*	-.163	-.150	-.114
Pre-incident Preparation	.157	-.257**	-.237**	-.371**
Psych. First Aid	-.080	-.283**	-.255**	-.278**
Post Ind. Interventions	-.118	-.090	-.032	-.086
Post Group Interventions	.012	-.052	-.146	-.074
Barriers to MH support	.142	.248**	.111	.165*

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=142

Hypothesis 3 Analyses

Hypotheses 3 stated that event centrality (as measured by the CES) would be positively correlated with PCL and PTGI-SF scores, and negatively correlated with CPI v.3 (self-realization, ego-integration), with PTGI more likely to occur with longer elapsed time between the event and the present. This hypothesis was tested by examining correlations between CPI v.3, CES, PSQ-Op, PSQ-Org, and PCL-5 scores in SPSS, which are displayed in Table 9.

Table 9

Correlations among CES-SF average, PTGI, CPI V.3 PSQ, and PCL-5

	PTGI-SF (Avg.)	CPI-434 V.3	PSQ-Org	PSQ-Op	PCL-5
Central Event Scale (Avg)	.823**	-.287**	-.035	.243*	.450**
Reported CEs	.647**	-.182	-.144	.138	.307**
PTGI-SF Average	1	-.141	.047	.221*	.366**
CPI-434 V.3	-.130	1	-.249*	-.383**	-.496**
PSQ-Org	.047	-.274**	1	.685**	.406**
PSQ-Op	.221*	-.394**	.685**	1	.595**
PCL-5	.366**	-.496**	.406**	.595**	1

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=89

An additional group of items (8-16) were added to the CES to help describe and assess why some incidents are more impactful to officers than others, and correlations between these items, PTGI-SF scores, and scores on the other outcome measures was examined and the results displayed in Table 10.

Table 10

Central Events Impact factors and correlations with outcome measure scores

CE Impact items	PTGI-SF	PCL-5	PSQ-Org	PSQ-Op
8. There was something that made this incident seem more personal to me.	.211*	0.041	0.118	0.137
9. I felt responsible for outcome of the incident.	0.077	.166*	0.082	.185*
11. Someone involved in the incident reminded me of a friend or family member.	.267**	0.057	0.093	0.061
13. At the time of the incident, I had a significant stressor(s) going on in my personal life that were similar to the incident I experienced at work.	0.134	.172*	-0.068	-0.004
16. There was something especially visually or situationally impactful at the scene that made it more disturbing to me.	.201*	.216**	0.066	0.002

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
n=89

Correlations between the individual items between the PTGI-SF and the CES were also examined; these results are in Table 11.

Table 11

Correlations between PTGI and CES individual items

	CESItem_1	CESItem_2	CESItem_3	CESItem_4	CESItem_5	CESItem_6	CESItem_7
PTGI_Item1	.349**	.469**	.437**	.442**	.546**	.489**	.460**
PTGI_Item2	.100	.143	.197*	.231**	.309**	.130	.172*
PTGI_Item3	.302**	.375**	.393**	.317**	.367**	.288**	.346**
PTGI_Item4	.188*	.286**	.257**	.197*	.272**	.139	.280**
PTGI_Item5	.243**	.249**	.355**	.202*	.342**	.292**	.189*
PTGI_Item6	.257**	.336**	.392**	.286**	.364**	.346**	.347**
PTGI_Item7	.186*	.277**	.343**	.132	.279**	.287**	.322**
PTGI_Item8	.201*	.195*	.245**	.186*	.266**	.159	.340**
PTGI_Item9	.179*	.262**	.308**	.202*	.282**	.235**	.412**
PTGI_Item10	.080	.119	.192*	.030	.159	.037	.070

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

*. Correlation is significant at the 0.05 level (2-tailed).

In addition to significant correlations, the temporal effect on both PTGI and PCL scores was examined in correlation and regression models to determine if PTGI is increasingly likely to occur as time elapses from the event.

Table 12

Correlations of PTGI-SF, PCL-5, PSQ-Op, and PSQ-Org with Elapsed time

	PTGI-SF Total	PCL-5	PSQ-Org	PSQ-Op
Elapsed Time	.240**	-.089	.058	-.028
PTGI-SF Total	1	.237**	.136	.169*

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=141

Table 13

Regression model: Dependent variable, PTGI-SF, with PCL-5 and Elapsed Time as independent variables

Model Summary

R	*R* Squared	Adjusted *R* Squared
.349[a]	.122	.109

a. Predictors: (Constant), Elapsed Time, PCL-5 Total

Coefficients

Model		Unstandardized Coefficients *B*	Unstandardized Coefficients Std. Error	Standardized Coefficients *Beta*	*t*	Sig.
1	(Constant)	11.676	1.871		6.242	.000
	PCL-5	.212	.066	.255	3.193	.002
	Elapsed Time	.417	.130	.257	3.211	.002

a. Dependent Variable: PTGI-SF Total

n=141

Exploratory Analyses

Correlations between variables, including: CPI traits at Time 2, individual vectors and quadrants (v.1/v.2/v.3 intersection), and special purpose scales; posttraumatic stress symptoms

(measured by the PCL); overall PTE exposure (measured by the CIHQ and CE measures); individual events represented by the CIHQ and CE items; work environment stress (measured by the PSQ-Op and PSQ-Org) were examined in the exploratory analysis. Time 1 CPI-434 scores were also examined to determine their predictive value on outcomes and to look at the effects of events on trait trajectories. As previously noted, time one CPI data were unexpectedly limited and insufficient for robust conclusions and effect sizes. Twenty-one complete sets of measures were available with all measures and pre-employment CPI scores. Tables 14 and 15 contain results of correlations between T1 CPI folk scale scores, vectors and special purpose scales, and outcome measures.

Table 14

CPI Folk Scale correlations with outcome measures

	PSQ-Org	PSQ-Op	PCL-5	PTGI-SF Average
Do-Dominance	-.056	-.012	.011	.573**
Cs-Capacity for Status	-.156	-.013	-.089	.189
Sy-Sociability	-.048	.057	.027	.341
Sp-Social Presence	-.035	.044	.257	.399
Sa-Self-Acceptance	-.015	.103	.126	.553**
In-Independence	.120	.241	.443*	.370
Em-Empathy	.005	.083	.347	.166
Re-Responsibility	.236	.360	.404	.149
So-Social Conformity	.222	.320	.395	.166
Sc-Self Control	.138	.182	.174	-.012
Gi-Good Impression	.035	.113	.023	.030
Cm-Communality	.212	.257	.469*	.263
Wb-Wellbeing	.223	.294	.431	.176
To-Tolerance	.042	.240	.491*	.240
Ac-Achievement via conformance	.062	.242	.187	.203
Ai-Achievement via Independence	-.026	.145	.357	.147
Ie-Intellectual Efficiency	.000	.178	.332	.361
Py-Psychological-Mindedness	.100	.273	.238	.027
Fx-Flexibiity	-.048	.100	.466*	.201
Sn-Sensitivity	.186	.179	.036	.131

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=21

Table 15

Time one CPI vector and special purpose scale: Correlations with PSQ-Org, PSQ-Op, PCL-5, and PTGI-SF averaged across each participant's items

CPI Scale	PSQ-Org	PSQ-Op	PCL-5	PTGI-SF Average
Vector 1-Orientation toward others	.099	.056	.363	-.214
Vector 2-Orientation toward societal values	.260	.334	.262	.124
Vector 3- Ego-Integration	.078	.215	.427	.162
Mp-Managerial Potential	-.020	.050	.242	.293
Wo-Work Orientation	.159	.266	.380	.151
Ct-Creative Temperament	-.069	.159	.497*	.354
Lp-Leadership	.163	.231	.403	.346
Ai-Amicability	.007	.115	.174	.076
Leo-Law Enforcement Orientation	.302	.275	.332	.252

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=21

Tables 16 and 17 contain results of correlations between T2 CPI folk scale scores, vectors and special purpose scales, and outcome measures.

Table 16

Time Two CPI folk scale correlations with CES, PCL-5, PTGI-SF, PSQ-Org and PSQ-Op

CPI-434 Scale	CES Average	CES Max	PCL-5	PTGI-SF Average	PSQ-Org	PSQ-Op
Do-Dominance	-.143	-.094	-.251*	-.034	-.106	-.163
Cs-Capacity for Status	.240*	-.366**	-.469**	-.155	-.217*	-.398**
Sy-Sociability	.243*	-.288**	-.394**	-.160	-.124	-.270*
Sp-Social Presence	.315**	-.367**	-.467**	-.231*	-.256*	-.367**
Sa-Self-Acceptance	.237*	-.188	-.309**	-.148	-.042	-.210*
In-Independence	.324**	-.275**	-.469**	-.229*	-.171	-.352**
Em-Empathy	-.208	-.227*	-.376**	-.151	-.200	-.348**
Re-Responsibility	-.181	-.129	-.410**	-.023	-.177	-.243*
So-Social Conformity	-.189	-.294**	-.407**	-.053	-.177	-.177
Sc-Self Control	-.142	-.088	-.397**	-.080	-.183	-.183
Gi-Good Impression	.285**	-.311**	-.531**	-.183	-.264*	-.322**
Cm-Communality	-.111	-.180	-.277**	.078	-.105	-.157
Wb-Wellbeing	.313**	-.314**	-.591**	-.164	-.274**	-.391**
To-Tolerance	.229*	-.237*	-.442**	-.106	-.259*	-.337**
Ac-Achievement via conformance	.245*	-.164	-.372**	-.079	-.107	-.157
Ai-Achievement via Independence	-.204	-.222*	-.410**	-.108	-.211*	-.390**
Ie-Intellectual Efficiency	.267*	-.237*	-.457**	-.151	-.218*	-.340**
Py-Psychological-Mindedness	-.175	-.146	-.361**	-.057	-.134	-.228*
Fx-Flexibiity	-.133	-.109	-.193	-.067	-.098	-.276**
Sn-Sensitivity	.162	.025	.182	.143	.271*	.210*

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

*. Correlation is significant at the 0.05 level (2-tailed).

n=89

Table 17

Time two CPI vector and special purpose scale correlations with CES, PCL-5, PTGI-SF, PSQ-Org and PSQ-Op

CPI-434 Scale	CES Average	CES Max	PCL-5	PTGI-SF Average	PSQ-Org	PSQ-Op
Vector 1-Orientation toward others	.164	.178	.218*	.089	.087	.192
Vector 2-Orientation toward societal values	-.207	-.216*	-.295**	-.095	-.144	-.100
Vector 3- Ego-Integration	.278**	-.287**	-.488**	-.130	-.249*	-.383**
Mp-Managerial Potential	.286**	-.298**	-.555**	-.156	-.259*	-.346**
Wo-Work Orientation	.385**	-.351**	-.639**	-.220*	-.302**	-.419**
Ct-Creative Temperament	-.075	-.106	-.137	-.045	-.038	-.249*
Lp-Leadership	.267*	-.258*	-.528**	-.125	-.312**	-.382**
Ai-Amicability	.303**	-.302**	-.554**	-.185	-.352**	-.380**
Leo-Law Enforcement Orientation	.251*	-.122	-.356**	-.127	-.186	-.177
Tm-Tough Mindedness	.325**	-.231*	-.495**	-.205	-.212*	-.286**

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

*. Correlation is significant at the 0.05 level (2-tailed).

Multiple regression models were also constructed to examine the proportion of the variance in PTGI-SF scores explained by elapsed time, CPI-434 v3, and PCL-5 scores.

Table 18

Regression model, PTGI-SF dependent variable, PCL-5, Elapsed time, and CPI V.3 independent variables

Model Summary

Model	*R*	*R Squared*	Adjusted *R* Squared	Std. Error
1	.376[a]	.141	.123	11.5650

a. Predictors: (Constant), T2 CPI v3, Elapsed Time, PCL-5

Coefficientsa

		Unstandardized Coefficients		Standardized Coefficients		
Model		*B*	Std. Error	*Beta*	*t*	Sig.
1	(Constant)	-.571	7.134		-.080	.936
	Elapsed Time	.406	.129	.250	3.149	.002
	PCL-5	.279	.076	.336	3.676	.000
	T2 CPI v.3	.199	.112	.163	1.778	.078

a. Dependent Variable: PTGICorrectedTotal

n=140

Correlations between outcome measures (PSQ-Org, PSQ-Op, PCL-5, PTGI-SF) and demographic variables such as age, sex, and size of police agency department were examined. There were no significant correlations found between age, sex, and outcome measures.

Discussion

Hypothesis 1

This portion of the study used an expanded set of variables to examine more fully the relationships between police occupational trauma of different types, and their correlations with posttraumatic growth to clarify the results reported in Chopko (2010). The results further clarify the ambiguous relationship between posttraumatic growth and posttraumatic distress, by

examining how posttraumatic growth and posttraumatic stress symptoms are related to each other, to specific items in the PCL-5, to CIHQ event categories, and to specific CIHQ events.

The correlation between the Use of Force category and PTGI-SF scores appears to support Chopko (2010), which found a significant relationship between PTGI and officer involved shootings. This is also consistent with Komarovskaya et al. (2011), who also found a significant relationship between PTSD symptoms and killing or seriously injuring someone in the line of duty. In the present study, the correlation with the CIHQ item "Kill or seriously injure someone in the line of duty" did not quite rise to significance at the 95% confidence level, but a slightly broader category (Use of Force) that included this item, in addition to shooting at someone and pursuing someone in a dangerous vehicle chase was significantly correlated with PTGI-SF scores.

The expansion of Chopko (2010) to the more comprehensive list of occupational PTE's in the CIHQ was hypothesized to find a relationship between other experiences relating to threats to personal safety and PTG. However, while correlations between the Threats to Safety category and organizational stress, (PSQ-Org; r=.438) operational stress (PSQ-Op; r=.386), and posttraumatic stress symptoms (PCL-5; r=.361) were significant, these variables were not significantly correlated with PTGI scores. The total weighted CIHQ score relationship with PTGI-SF maximum score across CEs had the largest correlation (r=.380), perhaps indicating that the *perception* of coping difficulty (weight) was a key factor in the relationship with PTG.

Since PTG is a cognitive process as opposed to having a large physiological component (as in PTS), cognitive evaluation and self-perception are key components. Rumination is not addressed as a specific item in the PCL-5, although the first 7 items (reexperiencing symptoms) are most closely related, and item 1 (repeated memories) is most consistent with rumination.

Consistent with the literature (Groleau et al., 2012; Helgeson et al., 2006), reexperiencing items in general were significantly positively correlated with PTG, as well as positively correlated with PCL-5 scores and PSQ-Op and PSQ-Org scores.

The finding that the Vicarious Trauma category was significantly correlated with PTGI scores is interesting, given that there were not significant correlations between Vicarious Trauma and PCL-5 scores, as was often the case. This result warrants further analysis, given the ambiguous relationship between PTG and PTS noted in the literature review. The items included Vicarious Trauma category may also be debatable, as there is some question in the field about whether direct contact with victims (such as injured or neglected children) should be considered directly versus vicariously traumatizing.

Hypothesis 2

The results of these analyses related to mental health interventions have strong clinical implications, and add some illumination to the PTS and PTG processes. Pre-incident preparation to prepare officers for the psychological impact of on-duty exposure to trauma appears to be extremely beneficial, as there was an inverse relationship between such training, PCL-5 scores, and work environment stress scores, but training was correlated positively with PTGI. This is particularly striking considering, considering the frequently positive direct correlation between PTGI and PCL-5 scores, that is fairly consistent in the literature. Psycho-education after an incident to prepare officers for possible responses to traumatic events, and to provide information about mental health resources also appears to be beneficial, and was also correlated with lower posttraumatic stress symptoms and work environment stress.

Consistent with the literature, post-incident group interventions were not associated with lower PCL-5 scores. However, when mental health professionals were part of the intervention team,

and when attendance was voluntary, there were significant correlations with lower work environment stress scores.

Another implication for police procedure is that the treatment of officers on scene of traumatic events was correlated with better outcomes. Removal of the officer from the scene of a traumatic call as early as is practical was significantly correlated with lower PCL-5, PSQ-Org, and PSQ-Op scores. Peer support, and having a companion officer assigned to the traumatized officer on the scene of the incident were also correlated with lower PCL-5 scores. Including family members in psycho-education and support activities was also correlated with lower PCL-5, PSQ-Org, and PSQ-Op scores, although this practice was also associated with lower PTGI-SF scores.

Hypothesis 3

Event centrality (as measured by the CES) were significantly positively correlated with both PTGI-SF (r=.823) and PCL (r=.450) scores, and negatively correlated with the CPI Vector 3 (r=-.287) as was hypothesized. The findings are consistent with Groleau et al. (2012) and other researchers (Berntsen & Rubin, 2006) who have found correlations between event centrality and posttraumatic distress, and with several studies that have found a positive correlation between PTG and PTS (Zoellner & Maercker, 2006, Frazier et al.,2001, Bayer-Topilsky, et al., 2013, Groleau et al., 2012).

The results in Bayer-Topilsky et al. (2013) and other work on posttraumatic growth, also indicate that PTS symptoms, most specifically rumination, will predict greater PTG. Since PTG is observed to occur after some time has elapsed following trauma exposure, it was anticipated that PTGI will be reported at higher rates for more temporally distant highly significant events. The results displayed in Tables 12 and 13 support this finding; elapsed time was significantly correlated with PTGI-SF scores.

The large effect size of the correlation between CES and PTGI-SF scores (r=.823, p<.01) prompted investigation of collinearity between these measures. Table 11 illustrates that the majority of the items on each of these measures are correlated with nearly every item on the other measure, which raises questions about the independence of the two constructs of event centrality and posttraumatic growth. Individual items on the measures do appear to be expressing very similar ideas, such as PTG Item 1 (I changed my priorities about what is important in life) and CES Item 5 (This event permanently changed my life) which were the two most highly correlated items (r=.546).

Exploratory analyses

Higher v.3 (self-realization) is associated with psychological health and correlated with low Neuroticism, which was anticipated to be predictive of psychological resilience. It was consequently expected that v.3 at Time One would be correlated with lower PCL scores and higher PTG. However, v.3 at Time One was not significantly correlated with better outcomes. Dominance and Self-Acceptance were significantly correlated with higher PTGI-SF scores (averaged across reported CEs).

The effect of time on posttraumatic growth was also of interest, given the positive relationship between some posttraumatic symptoms (specifically rumination) and posttraumatic growth after some time has elapsed. This relationship, which has been reported in the literature (Bayer-Topilsky, et al., 2013; Groleau, et al., 2012), was supported, suggesting that over time, rumination and benefit-finding occur together as interrelated cognitive processes.

The correlations between PCL-5 scores and the majority of Time 2 CPI-434 trait scores raises an important question in self-report personality inventory research, relating to the influence of mood states on scores that are intended to represent core personality traits. The

number of these correlations may also reflect the overlap between CPI folk scale constructs, which as previously noted were constructed for ease of interpretation in a variety of settings rather than with an emphasis on construct independence.

Limitations of the Present Study

Although the study involved multiple agencies in three states and reflected the regional population of those agencies, the racial diversity of the sample was limited, and not characteristic of the overall population of the United States. In addition, the participants were primarily male which may be attributable in part to the lower representation by females in police agencies in general, but reflects the regional culture of half the participants, where traditional gender roles are emphasized, and females have a lower representation in law enforcement than in many other U.S. regions.

Another limitation of the study is the unavailability of historical data. The proposed study was intended to examine more fully the relationship between pre-employment personality traits and current functioning. Although some tentative conclusions could be generated about the predictive power of pre-employment psychological evaluations on officer resilience, a larger pool of officers with available historical data would have to participate to make robust statistical conclusions with larger effect sizes.

Conclusions and Future Research

This study yielded results that contribute significantly to several areas of psychological research, as well as public policy and practice. The benefits of pre-incident training to promote posttraumatic growth (PTG) while reducing posttraumatic stress (PTS) has potential immediate benefit, and should be an area for further study. In addition, the processes behind PTG, and the relationships between PTG and PTS was further informed in this study, and further analyses on

the available data may illuminate potential coping benefits of PTG. McLean et al. (2013) found a curvilinear relationship found between PTG and PTS, and Helgeson et al. (2006) also noted this relationship in two studies in their meta-analysis, which should be further explored to see if this model better explains the inconsistent direction of correlation between PTG and PTS. Since pre-incident training is inversely related to PCL-5 scores, perhaps such training ameliorated very high levels of distress, and maximized the coping mechanism of PTG at moderate levels.

The numerous correlations between items on the Centrality of Event Scale and the Posttraumatic Growth Inventory raise questions about the discriminant validity of these two measures, which presumably are supposed to be measuring different constructs. The collinearity between these two established measures of event centrality and posttraumatic growth is a robust indication that the two constructs are either the same, or so closely related as to warrant significant revision or reinterpretation of either or both constructs. The relationship between these constructs and the instruments used to measure them is another important future area of inquiry.

The significance of the effects of traumatic stress on officer functioning cannot be overstated. In the present study, PCL-5 scores are almost universally negatively correlated with current scores in CPI-434 personality traits, which are positive, life-enhancing traits associated with better performance on the job in police officers. Posttraumatic stress symptoms relating to lower positive expressions of traits such as empathy, tolerance, self-control, and cognitive flexibility lead to poorer job functioning as officers interact with the public. These effects may lead to higher expressions of anger, cognitive rigidity, and less effective conflict resolution that may contribute to physical confrontations and unsatisfactory, or even tragic interactions with the public.

Löckenhoff et al. (2009) noted increases in Neuroticism correlated with extremely adverse events and associated posttraumatic stress symptoms. Similarly, Yuan et al. (2011) noted correlations between PCL symptoms and Neuroticism. The most common CPI type in successful police officers, Alpha, (high Conscientiousness, low internality), is associated with effective and positive officer functioning at high v.3 levels, but at low v.3 (high Neuroticism), it is associated with authoritarianism (see Figure 1). This configuration of Alpha type at low v.3 levels, is associated with use of excessive force in police officers (H. Gough, personal communication, October 31, 2013; Hargrave & Hiatt, 2010). Historical psychological research and inquiry about officer authoritarianism in the literature may have missed the mark by regarding authoritarianism as a value or stable trait linked to prejudice, versus behavioral and cognitive patterns that might in some cases be influenced by traumatic event exposure. Further research is warranted on the relationships between exposure to occupational trauma and temporary negative expression of personality traits that may be mitigated by better training and mental health support for police officers.

The emphasis that persists in some police agencies on critical incident stress debriefings as their primary mental health intervention continues to lack strong empirical support, although some benefits in lowering work environment stress were supported. Training for officers in basic academy training, and psycho-education following traumatic incidents appear to be more critical components in lowering posttraumatic distress and maximizing satisfaction with the officer's work environment. Future training curriculum and ongoing research into training benefits should include resiliency and other preparatory training informed by best practices in trauma treatment, with treatment concepts carried over from pre-incident training into post-incident interventions.

The benefits of fostering peer support units within police departments were demonstrated, with lower posttraumatic distress and lower work environment stress associated with peer support. Ongoing barriers to mental health support within law enforcement agencies must be identified and addressed to preserve officer health and wellbeing, as those barriers are associated with higher posttraumatic stress and organizational environment stress.

These conclusions provide several areas for further research, and practical guidance for mental health professionals and police administrators seeking to preserve and improve officer job performance, health, and wellbeing in spite of inevitable exposure to occupational trauma in the law enforcement profession.

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Appendices

Appendix A: Instructions for questionnaire completion

Review and sign the Informed Consent form (you may have already read this when your agency invited you to participate).

If you completed a psychological evaluation (usually your pre-employment evaluation) when you were hired as a police officer, please sign the Release of Information (HIPAA) form for the California Psychological Inventory.

Please complete the California Psychological Inventory-434 per the computer administration instructions.

Open your packet, ensuring the number you were assigned is on each measure as you fill it out.

Please complete the following measures in the order they were in when you opened the packet, and make sure your Participant ID number is written at the top:

1. Police Stress Questionnaire-Operational
2. Police Stress Questionnaire-Organizational
3. Posttraumatic Check list
4. Critical Incident History Questionnaire (CIHQ). As the instructions on the CIHQ state, while you are filling out this one, please identify any on-duty incident that you feel has been particularly significant in your life. We will call these "**Central Events.**"

If you have experienced any "**Central Events"** mark the check box in the right column of the CIHQ. By a "Central Event" we mean an ***on-duty*** event that impacted you in an especially significant or life-changing way, such as: changing the way you evaluate meaning in your life; making you feel your life is different from most people; altering the way you think about your relationships; changing the way you think about your future, being a turning point in your life, or any other very significant change, please insert a checkmark in the final column, and number the central event (event #1, event #2, or event #3, if applicable). Under the checkbox in the right hand column is a space for "Event #".

Please start with the number 1 to identify which incident you are referring to.

Note that there might be multiple incidents in the CIHQ that describe your "central" event. One incident may correspond with 2 or more CIHQ items. For example, if you had a shooting that you regard as your "central" event, you might put a checkmark and Event #1 for Item #11, being threatened with a gun; #17, having to kill or seriously injure someone in the line of duty, and #22: seeing someone dying.

In this case you would check the checkbox and write a "1" (Event #1) for all CIHQ items that apply to this single incident. It is possible that more than one of your "central" events will be about the same CIHQ items (such as two particularly impactful child abuse cases). In that case you would write (Event #1, 2).

We will ask you to fill out three additional short questionnaires that pertain to each "central" event. To keep track of which incident you are referring to when completing the three extra questionnaires, write the number of your "Central Event" in the space provided at the top of the page (Event #__).

Appendix B. Critical Incident History Questionnaire

Critical Incident History Questionnaire (CIHQ: Weiss et al., 2001); modified as noted in "measures" section.

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

If you have experienced any "**Central Events"** mark the check box in the right column. By a "Central Event" we mean an ***on-duty*** event that impacted you in an especially significant or life-changing way, such as: changing the way you evaluate meaning in your life; making you feel your life is different from most people; altering the way you think about your relationships; changing the way you think about your future, being a turning point in your life, or any other very significant life change, please insert a checkmark in the final column, and note the item number. We will ask you to fill out three additional short questionnaires that pertain to each life-altering experience(s). If you have experienced more than one such very significant event, please number each one. Use that number each time you refer to that single event.

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
1. Being seriously injured intentionally. circle the appropriate numeric range Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
2. Being seriously injured accidentally. circle the appropriate numeric range Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
3. Being <u>present</u> when a fellow officer was killed intentionally. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
3.a. An officer on your department or an agency with whom you work or have worked closely was killed (you were not present).						☐
Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	Event #____
4. Being present when a fellow officer was seriously injured intentionally. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
5. Being present when a fellow officer was seriously injured accidentally. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
6. Being present when a fellow officer was killed accidentally. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
7. Being seriously beaten. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
8. Being taken hostage. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
9. Receiving threats towards your loved ones as retaliation for your police work.						☐ Event #____

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	
10. Being shot at. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
11. Being threatened with a gun. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
12. Being threatened with a knife or other weapon. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
13. Being trapped in a potentially life-threatening situation. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
14. Being exposed to serious risk of AIDS or other life-threatening diseases. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
15. Having your life threatened by an aggressive and dangerous animal. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
16. Being exposed to a life-threatening toxic substance.						☐ Event #____

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	
17. Having to kill or seriously injure someone in the line of duty. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
18. Having to shoot at someone in the line of duty, without injuring them. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
19. Making a mistake that lead to the serious injury or death of a fellow officer. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
20. Making a mistake that lead to the serious injury or death of a bystander. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
21. Being involved in a high-speed chase where lives were in danger. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
22. Seeing someone dying. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
23. Encountering the body of someone recently dead.						☐

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	Event #____
24. Encountering a decaying corpse. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
25. Encountering a mutilated body or human remains. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
26. Making a death notification. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
27. Encountering a child who had been sexually assaulted. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
28. Encountering a child who had been badly beaten. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
29. Encountering an adult who had been sexually assaulted. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
30. Encountering an adult who had been badly beaten.						☐

Please indicate how many times you have experienced each incident in the line of duty by WRITING IN the number in the box (example 2), if it is between 0 and 9, OR if it is more than 10, by circling the appropriate numeric range.	**In your opinion, how difficult would it be for police officers to cope with this type of incident? (circle number):**					**Is this a "Central" Event ? check☑ if yes enter event#**
	Not at all	**A little bit**	**Mod-erately**	**Quite a bit**	**Extre-mely**	
Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	Event #____
31. Encountering a child who was severely neglected or in dire need of medical attention because of neglect. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
32. Seeing animals that had been severely neglected, intentionally injured, or killed. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
33. Having your life endangered in a large-scale man-made disaster. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
34. Having your life endangered in a large-scale natural disaster. Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____
35. Other incident not listed (describe below) _____ _____ Write in if from 0 - 9 ☐ 10 – 20 21 – 50 51+	0	1	2	3	4	☐ Event #____

Appendix B2. Results and severity rating of CIHQ. (Weiss et al., 2010). Copyright by the American Psychological Association.

		Item response category					
Abbreviated Item	*n*	0	1–9	10–20	21–50	51+	Severity rating
Mistake that injures/kills colleague	717	97.8	2.2	0.0	0.0	0.0	3.81
Colleague killed intentionally	714	79.0	20.3	0.6	0.0	0.0	3.76
Mistake that injures/kills bystander	640	97.5	2.3	0.2	0.0	0.0	3.67
Colleague killed accidentally	710	87.6	12.1	0.0	0.0	0.0	3.51
Being taken hostage	718	97.3	2.6	0.0	0.0	0.0	3.49
Colleague injured intentionally	714	52.7	42.6	4.3	0.4	0.0	3.39
Your loved ones threatened	716	65.8	28.2	4.6	0.8	0.6	3.29
Being shot at	719	60.1	38.1	1.8	0.0	0.0	3.23
Badly beaten child	708	33.1	35.9	20.9	7.9	2.3	3.23
Being seriously beaten	716	84.1	15.1	0.4	0.4	0.0	3.18
Kill or injure in the line of duty	716	74.9	23.0	1.8	0.0	0.0	3.16
Sexually assaulted child	714	21.0	40.6	24.5	8.1	5.7	3.11
Exposed to AIDS or other diseases	707	23.9	52.0	17.4	6.6	0.0	3.09
Severely neglected child	712	24.6	40.2	26.4	6.7	2.1	3.07
Trapped in life-threatening situation	716	52.2	39.4	7.5	0.8	0.0	3.02
Threatened with a gun	715	42.5	50.8	6.3	0.4	0.0	2.96
Seriously injured intentionally	713	64.9	29.2	3.4	1.4	1.1	2.92
Colleague injured accidentally	714	47.5	45.4	6.4	0.6	0.0	2.83
Threatened with knife/other weapon	703	34.1	55.2	9.4	1.3	0.0	2.70
Life-threatening man-made disaster	707	82.7	15.7	1.4	0.0	0.0	2.70
Life threatened by toxic substance	713	68.6	25.8	3.9	0.8	0.8	2.62
Shoot but not injure in line of duty	714	84.7	15.0	0.3	0.0	0.0	2.62
Life-threatening natural disaster	714	82.1	17.7	0.3	0.0	0.0	2.60
Seeing someone dying	704	12.4	87.2	0.1	0.3	0.0	2.49
Seriously injured accidentally	714	57.3	38.5	2.4	1.3	0.6	2.46
Making a death notification	700	25.6	42.1	20.6	6.7	4.7	2.42
Life-threatening high speed chase	667	16.7	82.2	0.4	0.0	0.0	2.30
Mutilated body or human remains	709	29.2	41.6	21.0	5.4	2.8	2.29
Sexually assaulted adult	704	11.4	36.2	29.6	14.2	8.7	2.29
Badly beaten adult	705	5.0	18.9	33.1	19.9	23.3	2.03
Life threatened by dangerous animal	718	48.1	44.1	6.3	0.8	0.1	2.02
Decaying corpse	714	8.8	40.1	31.1	12.0	8.0	1.98
Animal neglected, tormented, killed	706	25.9	37.2	28.0	5.4	3.4	1.94
Body of someone recently dead	710	1.6	21.7	32.5	20.4	23.8	1.87

Note. AIDS = Acquired immunodeficiency syndrome.

Appendix C. Police Stress Questionnaire-Operational (PSQ-Op: McCreary & Thompson, 2006).

Operational Police Stress Questionnaire

Below is a list of items that describe different aspects of being a police officer. After each item, please circle how much stress it has caused you over the past 6 months, using a 7-point scale (see below) that ranges from "No Stress At All" to "A Lot Of Stress":

No Stress At All			Moderate Stress			A Lot Of Stress
1	2	3	4	5	6	7

1. Shift work	1	2	3	4	5	6	7
2. Working alone at night	1	2	3	4	5	6	7
3. Over-time demands	1	2	3	4	5	6	7
4. Risk of being injured on the job	1	2	3	4	5	6	7
5. Work related activities on days off (e.g. court, community events)	1	2	3	4	5	6	7
6. Traumatic events (e.g. MVA, domestics, death, injury)	1	2	3	4	5	6	7
7. Managing your social life outside of work	1	2	3	4	5	6	7
8. Not enough time available to spend with friends and family	1	2	3	4	5	6	7
9. Paperwork	1	2	3	4	5	6	7
10. Eating healthy at work	1	2	3	4	5	6	7
11. Finding time to stay in good physical condition	1	2	3	4	5	6	7
12. Fatigue (e.g. shift work, over-time)	1	2	3	4	5	6	7
13. Occupation-related health issues (e.g. back pain)	1	2	3	4	5	6	7
14. Lack of understanding from family and friends about your work	1	2	3	4	5	6	7
15. Making friends outside the job	1	2	3	4	5	6	7
16. Upholding a "higher image" in public	1	2	3	4	5	6	7
17. Negative comments from the public	1	2	3	4	5	6	7
18. Limitations to your social life (e.g. who your friends are, where you socialize)	1	2	3	4	5	6	7
19. Feeling like you are always on the job	1	2	3	4	5	6	7
20. Friends / family feel the effects of the stigma associated with your job	1	2	3	4	5	6	7

Appendix D. Police Stress Questionnaire-Organizational (PSQ-Org: McCreary & Thompson, 2006).

Organizational Police Stress Questionnaire

Below is a list of items that describe different aspects of being a police officer. After each item, please circle how much stress it has caused you over the past 6 months, using a 7-point scale (see below) that ranges from "No Stress At All" to "A Lot Of Stress":

No Stress At All			Moderate Stress			A Lot Of Stress
1	2	3	4	5	6	7

1. Dealing with co-workers	1	2	3	4	5	6	7
2. The feeling that different rules apply to different people (e.g. favouritism)	1	2	3	4	5	6	7
3. Feeling like you always have to prove yourself to the organization	1	2	3	4	5	6	7
4. Excessive administrative duties	1	2	3	4	5	6	7
5. Constant changes in policy / legislation	1	2	3	4	5	6	7
6. Staff shortages	1	2	3	4	5	6	7
7. Bureaucratic red tape	1	2	3	4	5	6	7
8. Too much computer work	1	2	3	4	5	6	7
9. Lack of training on new equipment	1	2	3	4	5	6	7
10. Perceived pressure to volunteer free time	1	2	3	4	5	6	7
11. Dealing with supervisors	1	2	3	4	5	6	7
12. Inconsistent leadership style	1	2	3	4	5	6	7
13. Lack of resources	1	2	3	4	5	6	7
14. Unequal sharing of work responsibilities	1	2	3	4	5	6	7
15. If you are sick or injured your co-workers seem to look down on you	1	2	3	4	5	6	7
16. Leaders over-emphasise the negatives (e.g. supervisor evaluations, public complaints)	1	2	3	4	5	6	7
17. Internal investigations	1	2	3	4	5	6	7
18. Dealing the court system	1	2	3	4	5	6	7
19. The need to be accountable for doing your job	1	2	3	4	5	6	7
20. Inadequate equipment	1	2	3	4	5	6	7

Appendix E. Post-Traumatic Checklist for DSM-5 (PCL-5; Weathers et al., 2013).

Participant ID#_____

PCL-5

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

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

PCL-5 (8/14/2013) Weathers, Litz, Keane, Palmieri, Marx, & Schnurr -- National Center for PTSD

Appendix F. Centrality of Event Scale (CES;) with additional items

"Central" Event

Enter the approximate date the especially life-changing, stressful or traumatic event that you experienced on-duty occurred (Month/Year).

_____ _____
Month Year

Please think back upon the especially life-changing, stressful or traumatic event or events that you experienced on-duty and answer the following questions in an honest and sincere way, by circling a number from 1 to 5.

1) I feel that this event has become part of my identity.	1=totally disagree 1 2 3 4 5 5=totally agree
2) This event has become a reference point for the way I understand myself and the world.	1=totally disagree 1 2 3 4 5 5=totally agree
3) I feel that this event has become a central part of my life story.	1=totally disagree 1 2 3 4 5 5=totally agree
4) This event has colored the way I think and feel about other experiences.	1=totally disagree 1 2 3 4 5 5=totally agree
5) This event permanently changed my life.	1=totally disagree 1 2 3 4 5 5=totally agree
6) I often think about the effects this event will have on my future.	1=totally disagree 1 2 3 4 5 5=totally agree
7) This event was a turning point in my life.	1=totally disagree 1 2 3 4 5 5=totally agree

“Central” Event/Incident

Please think about factors that may have made this event/incident more impactful to you and place checkmarks in front of any of these descriptions that apply.

	8. There was something that made this incident seem more personal to me.
	9. I felt responsible for outcome of the incident.
	10. The incident involved a child.
	11. Someone involved in the incident reminded me of a friend or family member.
	12. The incident was similar to something I have experienced in my personal life.
	13. At the time of the incident, I had a significant stressor(s) going on in my personal life that were similar to the incident I experienced at work.
	14. At the time of the incident I had a significant stressor(s) going on in my personal life that were unrelated to the incident I experienced at work.
	15. At the time of the incident I had significant stressor(s) going on in my work life that impacted how I responded to the incident.
	16. There was something especially visually or situationally impactful at the scene that made it more disturbing to me. (OPTIONAL: briefly summarize below).

_____

_____

_____

OPTIONAL: Please write in any other factors that you think made this incident have a greater impact on you:

_____

_____

_____

_____

Appendix G. Posttraumatic Growth Inventory-Short Form (PTGI-SF: Cann et al., 2010)

Some people have found that they feel a sense of growth at some point following a traumatic event. For one of the events you have identified as a possible "Central" event, please answer the following questions; you will have an additional form for each of your "Central events." Please answer these questions by writing in the right hand column a number from 0 to 5, corresponding to your agreement with the following scale:

0=I did not experience this change as a result of my crisis.

1=I experienced this change to a very small degree as a result of my crisis or central event.

2=I experienced this change to a small degree as a result of my crisis or central event.

3=I experienced this change to a moderate degree as a result of my crisis or central event.

4=I experienced this change to a great degree as a result of my crisis or central event.

5=I experienced this change to a very great degree as a result of my crisis or central event.

	N/A	Write in 0-5 in accordance with the scale above
1. I changed my priorities about what is important in life.		
2. I have a greater appreciation for the value of my own life.		
3. I am able to do better things with my life.		
4. I have a better understanding of spiritual matters.		
5. I have a greater sense of closeness with others.		
6. I established a new path for my life.		
7. I know better that I can handle difficulties.		
8. I have a stronger religious faith.		
9. I discovered that I'm stronger than I thought I was.		
10. I learned a great deal about how wonderful people are.		

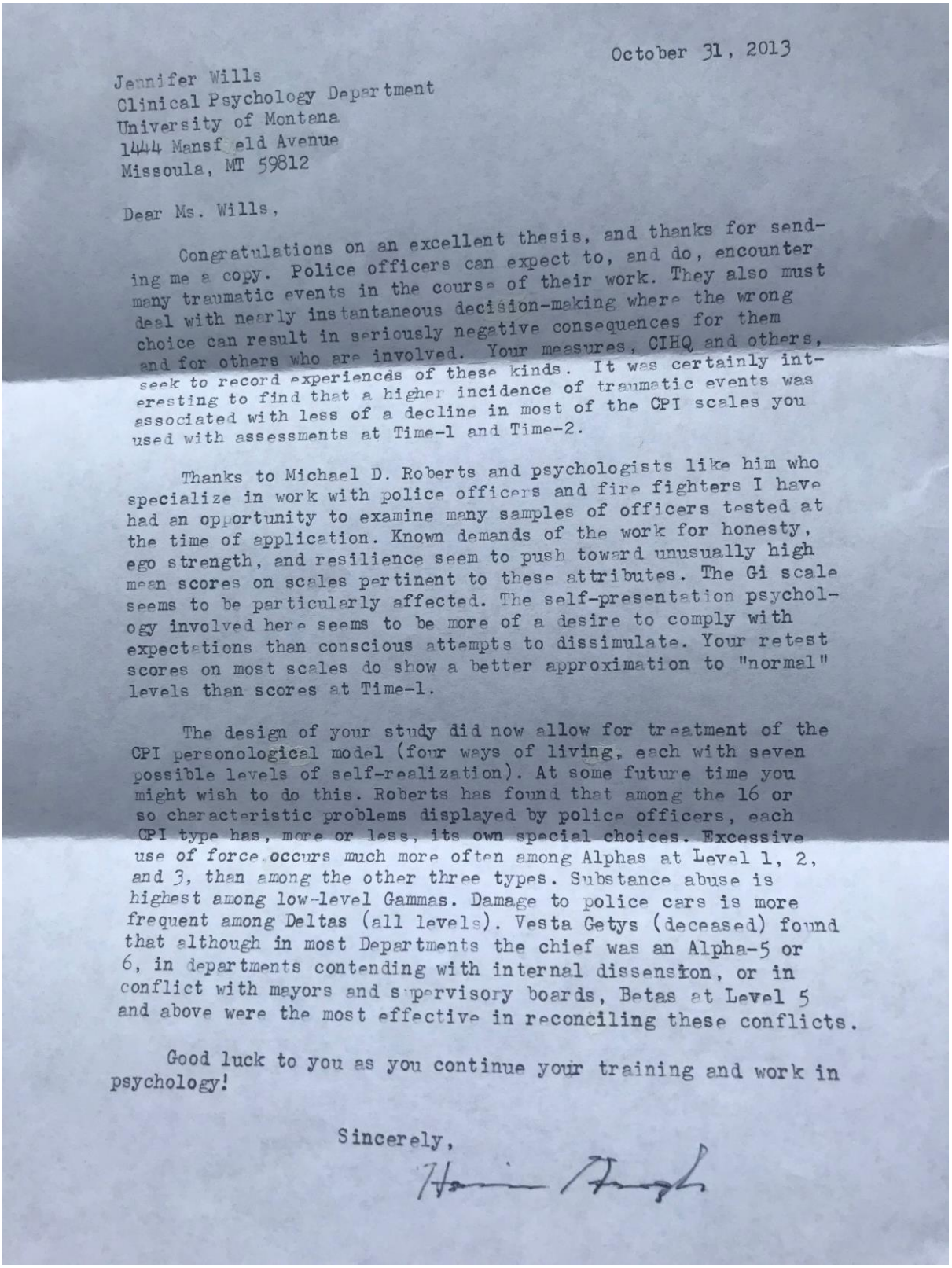
Attachment H: Mental Health intervention checklist

For a "Central" event that impacted your life most significantly, indicate support, training, or interventions you received that were focused on maintaining your mental health through the incident and its aftermath.

Pre-incident preparation:	Circle one		
1. Did you receive training in your basic or advanced academy to prepare you for stressful experiences on the job?	Y	N	N/A
2. Have you had in-service updates on maintaining your psychological health within the last two years?	Y	N	N/A
Physical and psychological first aid (at the scene). Following the incident:			
3. Were you removed from the scene, as soon as was practical, to a safe or neutral place?	Y	N	N/A
4. If your weapon was removed for evidence, were you given a replacement?	Y	N	N/A
5. Did a companion officer stay with you for support?	Y	N	N/A
6. Were you given written and/or verbal information about what to expect in terms of possible psychological reactions?	Y	N	N/A
7. Were you given information about mental health resources?	Y	N	N/A
Post-shooting (or other incident) individual interventions:			
8. Did you meet individually with a mental health professional (such as a licensed counselor or psychologist) within the first week following the incident?	Y	N	N/A
9. Did you receive follow-up contact from a mental health professional in the first month?	Y	N	N/A
10. Did you receive additional follow-up contact from a mental health professional in four to six months post-incident?	Y	N	N/A
11. Did you receive support from a peer-support member?	Y	N	N/A
Post-shooting (or other incident) group interventions:			
12. Did you attend a group intervention (i.e. critical incident stress debriefing, NOT an operational debriefing) following the incident?	Y	N	N/A
13. Was your attendance voluntary?	Y	N	N/A

14. Was your participation in the discussion voluntary?	Y	N	N/A
15. Was a mental health professional part of the intervention team?	Y	N	N/A
16. Were peer-support members part of the intervention team?	Y	N	N/A
Family interventions:			
17. Did your spouse, romantic partner, or family receive information or training about the mental health effects of police work pre-incident?	Y	N	N/A
18. Was your family included in any post-incident intervention (such as individual counseling or a family group debriefing)?	Y	N	N/A
What barrier(s), if any, made it harder for you to receive support? Check any that apply or describe any barriers that are not specifically listed in "Other".			
19. Lack of providers near my residence or place of work.	Y	N	N/A
20. Lack of competent providers with public safety experience or understanding of police culture.	Y	N	N/A
21. Lack of privacy (for example, due to being in a small community, or having to notify your agency to arrange services).	Y	N	N/A
22. Nobody knew that the incident had an impact on me so I was not offered services.	Y	N	N/A
Other barrier(s) to obtaining support or mental health services:			

Attachment I: Harrison Gough Letter



October 31, 2013

Jennifer Wills
Clinical Psychology Department
University of Montana
1444 Mansfield Avenue
Missoula, MT 59812

Dear Ms. Wills,

Congratulations on an excellent thesis, and thanks for sending me a copy. Police officers can expect to, and do, encounter many traumatic events in the course of their work. They also must deal with nearly instantaneous decision-making where the wrong choice can result in seriously negative consequences for them and for others who are involved. Your measures, CIHQ and others, seek to record experiences of these kinds. It was certainly interesting to find that a higher incidence of traumatic events was associated with less of a decline in most of the CPI scales you used with assessments at Time-1 and Time-2.

Thanks to Michael D. Roberts and psychologists like him who specialize in work with police officers and fire fighters I have had an opportunity to examine many samples of officers tested at the time of application. Known demands of the work for honesty, ego strength, and resilience seem to push toward unusually high mean scores on scales pertinent to these attributes. The Gi scale seems to be particularly affected. The self-presentation psychology involved here seems to be more of a desire to comply with expectations than conscious attempts to dissimulate. Your retest scores on most scales do show a better approximation to "normal" levels than scores at Time-1.

The design of your study did now allow for treatment of the CPI personological model (four ways of living, each with seven possible levels of self-realization). At some future time you might wish to do this. Roberts has found that among the 16 or so characteristic problems displayed by police officers, each CPI type has, more or less, its own special choices. Excessive use of force occurs much more often among Alphas at Level 1, 2, and 3, than among the other three types. Substance abuse is highest among low-level Gammas. Damage to police cars is more frequent among Deltas (all levels). Vesta Getys (deceased) found that although in most Departments the chief was an Alpha-5 or 6, in departments contending with internal dissension, or in conflict with mayors and supervisory boards, Betas at Level 5 and above were the most effective in reconciling these conflicts.

Good luck to you as you continue your training and work in psychology!

Sincerely,

Harrison Gough