BUILDING RESILIENCE: EXAMINING PTSD, PERSONALITY, AND COPING

by

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Abstract

There has been a recent focus on post-traumatic stress disorder (PTSD) among Canadian public safety personnel, yet few studies have examined PTSD specifically among correctional officers. The demands of correctional work involve managing violence and dealing with a population experiencing multiple criminogenic risks and needs factors. These job stressors can affect a person's ability to cope and increase the risk of PTSD. This study examined PTSD, personality, and coping strategies in a sample of BC corrections officers and sheriffs (n = 53). PTSD was screened according to the PTSD Checklist for DSM-5 (Weathers et al., 2013), the five-factor model of personality was assessed by administering items from the International Personality Item Pool (Goldberg et al. 2006), and coping strategies were assessed by the Brief COPE (Carver, 1997). Results indicated that a large proportion of participants (42%) met the criteria for PTSD. Furthermore, there was a significant negative association between neuroticism and PTSD. Finally, there was a significant positive association between avoidance coping and PTSD severity, whereas there was a significant negative association between positive thinking and PTSD. These findings indicate a need for more research to be conducted with correctional officers to determine how their institutional environment influences the development of PTSD. Furthermore, there is a strong need for an evaluation to assess which employee supports and services are working and to identify which supports and services are perceived to be insufficient to address correctional officers' needs.

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Dedication

This research is dedicated to all BC corrections officers, past and current, who have worked to keep the public safe and faced the difficult challenges of working within the prison environment. The work we do is often thankless and forgotten by the general public and yet the rewards we experience when we are successful at integrating an offender back into a contributing member of society is worth every stressor we have dealt with. For those officers who have been deeply wounded by post-traumatic stress disorder, know that you are not alone or forgotten. Researchers are working to find solutions that will lead to prevention programs and ways to mitigate or reduce the harmful effects of PTSD on the next generation of officers coming into work. Thank you to all corrections officers for the work you do each and every day.

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Glossary, or acronyms and symbols

BCGEU – BC Government and Service Employees Union

COPE – Coping Orientation to Problems Experienced

DSM – Diagnostic and Statistical Manual of Mental Disorders

FFM – Five-Factor Model

PTSD – Post-Traumatic Stress Disorder

PTSS – Post-Traumatic Stress Symptomology

Introduction

There has been a recent focus on post-traumatic stress disorder (PTSD) among Canadian public safety personnel as a result of an increased awareness of the impact of this mental disorder. Public safety personnel can include, but are not limited to, correctional officers, dispatchers, firefighters, police officers, and paramedics. In 2019, the federal government committed $20 million over five years to support a national consortium between the Canadian Institutes of Health Research and the Canadian Institute of Public Safety Research and Treatment to address post-traumatic stress injuries among public safety personnel (Government of Canada, 2019). Like other public safety personnel, corrections officers work in a high stress environment with significant workplace stressors, which include the potential to be exposed daily to violence, death or threatened death, actual or threatened serious injury, and actual or threatened sexual violence (Boyd, 2011; Ricciardelli & Gazso, 2012). In addition, the prison environment has become more hostile and unpredictable with an increase in the incarceration of mentally disordered offenders (Michalski, 2017; Ormston, 2010).

The focus of this study is on BC Corrections as there is sparse research on mental health in provincial corrections. The purpose of this research was to examine the relationship between PTSD, personality traits, and coping styles with the goals of increasing the scope of knowledge for provincial corrections and opening the door to future research on PTSD within the correctional environment. This research will also contribute to the growing body of research on public safety personnel within Canada. The very few Canadian studies that have examined this issue have found that public safety personnel have had a 90% exposure rate to a traumatic incident within the last year (Carleton et al., 2019) and 23% screened positive for PTSD (Carleton et al., 2018). The first part of the paper will provide a literature review of PTSD, the

five-factor model of personality by McCrae and Costa (2003), and coping styles. The next section will provide an analysis of the relationships between these constructs and the influence of the correctional environment on these variables. After describing the study methodology and results, this paper will conclude with an analysis of the findings to provide some recommendations for addressing PTSD in correctional settings.

Post-Traumatic Stress Disorder

Post-traumatic stress disorder (PTSD) is not a new phenomenon, but in the past decade, has become an area of focus for research. In the 1980s, research focused primarily on Vietnam War veterans and victims of specific types of trauma, such as rape or natural disaster (Breslau, 2009). As psychiatric epidemiology research expanded, researchers focused studies on the prevalence rates within the general population (Breslau, 2009; Van Ameringen, Mancini, Patterson, & Boyle, 2008). As trauma research has expanded, so has the criteria for a PTSD diagnosis.

PTSD was recognized as an official diagnosis in the third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III; American Psychiatric Association, 1980) and was classified as an anxiety disorder. The criteria for PTSD did not change in DSM-III-R (American Psychiatric Association, 1987), but one change in this edition was to define the eligible stressor as outside the range of human experience and to clarify that the stressor was experienced with intense fear, terror, and helplessness. In DSM-IV (American Psychiatric Association, 1994), the significant change was that the symptoms must cause significant distress or impairment in some realm of functioning, such as interpersonal relationships. In DSM-5 (American Psychiatric Association, 2013), the definition of PTSD was clarified, and the intense emotional responses criterion was removed (Monson, Friedman, & La Bash, 2007).

The DSM-5 defines PTSD as exposure to one or more events that involve death or threatened death, actual or threatened serious injury, or actual or threatened sexual violence (American Psychiatric Association, 2013). One or more of these events need to be experienced in one of the following ways: the individual experienced the event firsthand; the individual witnessed the event occur to someone else; the individual learned that the traumatic event occurred to a close relative or friend; or the individual experienced repeated exposure to distressing details of the event. In addition, individuals must demonstrate all of the following: intrusion symptoms that start after the traumatic event occurred; persistent avoidance of stimuli associated with the traumatic event that start after the traumatic event occurred; negative cognitions and mood that start or get worse after the traumatic event; and marked alterations in arousal and reactivity that start or get worse after the traumatic event. Finally, the symptoms must persist for more than one month with clinically significant distress or impairment in social, occupational, or other important areas of functioning (American Psychiatric Association, 2013).

PTSD can be a chronic and debilitating condition that is developed through exposure to a traumatic event (Jaksic, Brajkovic, Ivezic, Topic, & Jakovljevic, 2012; Van Ameringen et al., 2008). A traumatic event is not just an objective occurrence, but a subjective experience defined as traumatic by the individual (Gil, 2015; Jaksic et al., 2012). It is processed through an individual's cognitive and emotional characteristics as they interpret the event. The individual's proximity to the traumatic incident and the greater the experience with the traumatic event as a threat to their safety, the higher the risk for the development of PTSD (Gil, 2015). Each person exposed to a traumatic event will process it differently, with some individuals developing PTSD and others experiencing minimal impact on their daily lives (Jaksic et al., 2012; Monson et al., 2007).

Evidence indicates that a small proportion of those exposed to trauma develop PTSD. A meta-analysis conducted by Ozer, Best, Lipsey, and Weiss (2003) found that only 5% to 10% of the general population in the United States developed PTSD, even though 50% to 60% were exposed to a traumatic stressor. Similarly, Canadian research conducted by Van Ameringen et al. (2008) found that 75.9% of the total population reported a lifetime exposure to one or more traumatic incidents and research by Carleton et al. (2019) found that 50% to 90% of the general population has been exposed to a traumatic stressor within their lifetime. In terms of Canadian rates of PTSD, Statistics Canada (2012) reported that 1.7% of the general population had been diagnosed with PTSD. There is a reasonable presumption that public safety personnel will experience higher frequency exposure to traumatic incidents, due to the nature of their work environments and job expectations (Carleton et al., 2019). Correctional institutions are mandated with the responsibility to provide care, custody, and control for individuals charged with or convicted of a criminal offence (BC Government, 2017). Correctional officers' responsibilities include responding to calls for help (e.g., life-saving assistance, fires within the centre), confronting riots, inmate on inmate violence, and other potentially traumatic events (e.g., staff assaults). Correctional officers may be redeployed daily to the same work areas where they have experienced or witnessed potentially traumatic incidents (Ricciardelli, 2019). These experiences can result in negative outcomes. An investigation in Ontario provincial prisons found that just over half of correctional officers who responded to the Independent Review of Ontario Corrections Institutional Violence Survey reported that they did not feel safe working at their institution and 66% of frontline officers indicated that they worried about being assaulted by an inmate at least once a week (Ontario Government, 2018).

Regarding gender, there is some evidence of differences in PTSD prevalence rates. Statistics Canada (2012) reported PSTD rates of 1% in males and 2.4% in females in the general population. In Breslau's US research (2009) on individuals who experienced a traumatic incident (50.2%), 5.2% developed PTSD and females (6.7%) were more likely to develop PTSD than males (2.9%). Although men were more likely to experience trauma, women were more likely to develop PTSD after exposure to a traumatic incident (Breslau, 2009). Similarly, other empirical research has consistently found that women are twice as likely as men to develop PTSD, although men are more likely than women to experience a traumatic event (Breslau, 2009; Carleton et al. 2019; Van Ameringen et al., 2008).

In recognition of PTSD as a chronic and debilitating condition that may be experienced by correctional officers and other public safety personnel due to their more frequent exposure to potentially traumatizing events and conditions, NDP MLA Shane Simpson brought forward private member's Bill M 203-2016 and Bill M 233-2017 to amend the provincial Workers Compensation Act to include a presumptive clause for mental disorders for all public safety personnel (Weaver, 2018). Under Bill 9, *The Workers Compensation Act*, 2018, was amended under section 5.1. This revised section states that if a worker is employed in an eligible occupation, is exposed to one or more traumatic events within the worker's place of employment, and has a mental disorder recognized in the DSM at the time of diagnosis, the mental disorder must be presumed to be a reaction to one or more traumatic events that happened at work (*Workers Compensation Act*, 2018). Eligible occupations include corrections officers, emergency medical assistants, firefighters, police officers, and sheriffs. Regulatory changes took place in 2019 to extend the presumptive clause to include nurses, emergency dispatch workers, and publicly funded health-care assistants. The factors taken into consideration for the

development of the presumptive clause were the nature of the work and the potential for exposure to traumatic events. A presumptive clause means that workers in the specified occupations no longer need to prove that the disease or disorder is work-related once a formal diagnosis has been made (BC Government, 2019). A presumptive clause for PTSD now exists in the following provinces and territories: BC, Alberta, Saskatchewan, Manitoba, Ontario, Nova Scotia, New Brunswick, Prince Edward Island, and the Yukon (Keefe, Bornstein, & Neis, 2018).

Five-Factor Model of Personality

Understanding personality traits can assist in identifying potential risk factors in the development of PTSD symptoms among traumatized individuals (Gil, 2015; Jaksic et al., 2012). Personality traits refer to patterns of thoughts, feelings, and actions that are consistent across developmental periods and experiences; thus, personality traits form an explicit part of our concept of self (Gil, 2015; McCrae & Costa, 2003). The way personality traits are expressed are affected by culture, developmental influences, situational factors, and trauma. An individual's personality can produce several different responses depending on the situation or environment (Hambrick & McCord, 2010). One widely recognized and established personality model is the five-factor model (FFM), also known as the "Big Five" (McCrae & Costa, 2003). This model identifies five distinct personality traits: neuroticism, extraversion, openness, agreeableness, and conscientiousness. In the FFM, McCrae and Costa (2003) use the term tendencies to explain that traits are only dispositions and not absolute determinants. The basic tendencies within personality traits are considered the raw material of personality capacity and disposition, which is inferred, not observed. Basic tendencies include an individual's cognitive capacities (e.g., general intelligence), physiological drives (e.g., sexual orientation), and vulnerabilities (e.g., manic-depressive tendencies). These tendencies can be inherited (genetics), formed by early

childhood experiences, or altered by disease or psychological trauma at any period within an individual's life (McCrae & Costa, 2003). These aspects define the individual's potential identity (McCrae & Costa, 1986). The FFM proposes that basic tendencies, characteristic adaptations (learned behaviour), self-concept (life story), objective biography (life course), and external influences (e.g., trauma exposure) all contribute to form an individual's personality (McCrae & Costa, 1986). There is an expectation that individual differences in personality traits may influence vulnerability or resiliency to traumatic exposure.

Neuroticism refers to a proneness towards anxiety and nervousness, a high strung and tense disposition, and a strong tendency to worry and dwell on what might have gone wrong (McCrae & Costa, 2003). Some of the traits that define neuroticism are ill tempered, irritable, hard to get along with, and a tendency to react with strong emotion to adverse events; neurotic individuals are often described as unstable. The first two facets of neuroticism are angry hostility and anxiety, which are dispositional forms of two fundamental emotional states: anger and fear (McCrae & Costa, 2003). The second two facets of neuroticism are impulsivity and vulnerability. Impulsiveness is the propensity to give into temptations and be overwhelmed by desire, due to a lack of self-control or because the individual experiences strong emotions. Impulsive people tend to overeat, overspend, gamble, and experience substance dependency issues (McCrae & Costa, 2003). Vulnerability is the inability to deal adequately with stress. Vulnerable people tend to panic in emergencies, have emotional break downs, and be dependent on others to help them or rescue them (McCrae & Costa, 2003). Individuals rated high in neuroticism are prone to have intense negative emotions that interfere with their ability to deal with problems and get along with other people, and they tend to complain.

Conversely, the traits associated with extraversion are warmth, gregariousness, and assertiveness (McCrae & Costa, 2003). Warmth refers to a friendly, amiable, and intimately involved style of personal interaction. Gregariousness refers to the desire to be with other people and the ability to thrive on social stimulation. Assertiveness refers to easily taking charge of situations, making decisions, and being comfortable with expressing feelings, wants, and needs (McCrae & Costa, 2003). The three facets of extraversion are activity, excitement seeking, and positive emotions. Extraverts like to keep busy and are animated, are fast and constant talkers, are energetic and forceful, and prefer environments that are stimulating. Their life stories reflect positive emotions with joy, delight, enthusiasm, cheerfulness, and humor. Extraverts tend to be happy individuals that are easy to get along with and their congeniality leads them into leadership roles with contented and supportive followers (McCrae & Costa, 2003).

Openness to experience is measured through six facets: fantasy, aesthetics, actions, feelings, ideas, and values (McCrae & Costa, 2003). Fantasy refers to a vivid imagination with intricate daydreams (McCrae & Costa, 2003). Aesthetics is a sensitivity towards art and beauty with a preference for artistic activities. Actions is the opposite of rigidity and refers to a willingness to try new things, such as eating a new dish or traveling to foreign countries. Feelings refer to the ability to embrace one's own emotions and value them as the source of meaning in life. Ideas refers to curiosity, whereby a complex, yet unexpected or uncertain, event results in a sense of wonder and a desire to explore it (McCrae & Costa, 2003). Values refer to appreciating knowledge for its own sake. People who are high in openness to experience are willing to think of different possibilities, have a more liberal perspective, have empathy, and are able to admit that what is right and wrong for one person might not be applicable to others (McCrae & Costa, 2003).

Agreeableness encompasses six facets: trust, straightforwardness, altruism, compliance, modesty, and tendermindedness (McCrae & Costa, 2003). Agreeable people trust in others, believe the best of others, and can trust oneself. Straightforwardness is marked by candor or being open and honest. Altruism refers to selflessness and a desire to help others. Compliance refers to being meek and deferring to others rather than aggressively seeking their own needs first. Modesty refers to being humble in one's assessment of their own abilities and importance. Attitudinally, agreeable people exhibit tendermindedness, which is primarily defined as sympathy; one way this is exhibited is through giving to charities and good causes (McCrae & Costa, 2003).

Conscientious includes six facets: competence, order, dutifulness, achievement-oriented, self-discipline, and deliberation (McCrae & Costa, 2003). Competence refers to viewing oneself as highly capable, which is based on a rational and informed assessment. Order refers to being organized and efficient in work. Dutifulness is an adherence to scrupulous moral principles. An orientation towards achievement refers to pursuing excellence in everything one does. Self-discipline refers to being able to accomplish one's goals. Deliberation refers to the careful making of plans to advance and thinking carefully before acting (McCrae & Costa, 2003).

McCrae and Costa (2003) argued that personality is stable in adulthood; in other words, the traits one show at age 30 remain essentially the same into older age (McCrae & Costa, 2003). A study on 40-year-old adults within the general population examined personality traits and life events (Costa, Herbst, McCrae, & Siegler, 2000). Respondents with stability in their family, social, work, and health domains showed no significant personality changes. Those who reported negative outcomes in the same four domains were found to have small increases in neuroticism and small declines in extraversion and conscientiousness; agreeableness and openness to

experience were unchanged. The life events that were assessed included divorce, death of a family member or friend, job loss, and diagnoses of serious illness among a spouse, child, friend, or self (Costa, Herbst, McCrae, & Siegler, 2000). Although the life events did not include exposure to trauma, some could be viewed as traumatic (e.g., diagnosis of a serious illness).

In some areas of the criminal justice system, personality traits play a role in screening applicants. In policing, personality screening is used to exclude applicants that are unfit for police work (Detrick & Chibnall, 2006). Specifically, within the RCMP, the entrance exam is comprised of two parts: a police aptitude test and a personality questionnaire (RCMP, n.d.). In a US study, Detrick and Chibnall (2006) looked for profiles within policing that were associated with high quality performance, which was defined as success at managing career-related stress. The personality dimensions of emotional stability and decisiveness were related to emergency command abilities. In this study of police recruits, the best officers were described as intelligent, sociable, and self-assured, and as individuals who exhibited heightened awareness, discernment, wariness, and guardedness. This translated into low neuroticism, high extraversion, and high conscientiousness, and average levels of agreeableness and openness to experience. Interestingly, low levels of agreeableness indicated extreme cynicism regarding the motives of others and a lack of empathy (Detrick & Chibnall, 2006). In BC Corrections, personality assessments are not used in the screening process for determining if an applicant is the right fit for the job, which may be an important consideration since correctional work involves high levels of work stress and potential exposure to violence and trauma. Importantly, there is limited research examining personality traits among public safety personnel. As such, further research on personality styles in high-stress work environments, such as corrections, is recommended before implementing a psychometric personality screening process for new applicants.

It is also important to understand the impact of work stress on personality as this may influence how individuals cope with stressors, which may then increase or decrease the risk of developing PTSD. Over time, stressful work experiences have the potential to influence how an individual thinks, feels, and behaves, which gradually become enduring attributes of their personality (Wu, 2016). Job stress is the uncomfortable feeling that an individual experiences when forced to deviate from normal or accepted work routines within their workplace (Wu, 2016). One factor that contributes to job stress is job demands, which refer to the physical, social, or organizational requirements of the job that require sustained physical and psychological effort (Wu, 2016). Increased job demands can lead to increased stress if employees do not have enough capacity or energy to meet new or changing job expectations. Job stress can also be increased when there are time constraints or pressure to meet or exceed existing deadlines and there is limited control over one's job demands (Wu, 2016).

Wu (2016) conducted a study on the general work force population that focused on job demands, job stress, and time pressures. The results indicated that there was an increase in neuroticism and a decrease in extraversion over a five-year period, which resulted from high levels of work stress due to an increase in job demands and time pressures (Wu, 2016). These findings differ slightly from a study conducted on police officers within the US on length of service and career related stress. Challacombe, Ackerman, and Stones (2019) found significant differences in personality over a five-year period whereby increases in neuroticism and conscientiousness were associated with self-reported career-related stressors, such as operating in potentially dangerous situations and exposure to death or injury. They also found that as the years of service increased within the police agency, there was a rise in neuroticism scores and a decline in openness to experience scores. There were no significant changes in extraversion or

agreeableness scores (Challacombe et al., 2019). Similarly, Wills and Schuldberg (2016) reported that police officers exposed to chronic occupational trauma showed increases in neuroticism and declines in openness over a period of five to ten years and that these individuals were less likely to de-escalate and cooperate during interpersonal conflicts. To summarize, there is evidence that negative work experiences lead to changes in personality**.**

Correctional institutions are paramilitary organizations that generally have negative work environments, high levels of work stress, and the potential for rapidly changing job demands with low autonomy. In other words, prisons are unique and challenging workplaces, characterized by strong and intense pressures that require correctional officers to comply with extreme demands (Suliman & Einat, 2018). A study of Israeli correctional officers provides evidence that workplace stressors can lead to personality changes (Suliman & Einat, 2018). Israeli correctional officers were given a behavioural tendencies scale when they were hired and again three to four years later. There was a significant increase in neuroticism over this time, whereas there was a decline in neuroticism among a comparison group within the general population.

Empirical research has also identified a linkage between personality traits and psychopathology, including PTSD. Individual differences in personality traits could be an indicator of vulnerability or resiliency towards exposure to trauma and responsiveness to a traumatic stressor. Studies have demonstrated that personality traits can predict trauma exposure and subsequent development of PTSD (Breslau & Schultz, 2013; Gil, 2015; Jaksic et al. 2012; Paris, 2000). There are three components that lead to the development of a trauma response: possible deficits in personality structure and functioning, exposure to a traumatic incident, and an atypical reaction to the stressor (Jaksic et al., 2012). Personality traits have the potential for

signaling which individuals have an increased risk to trauma exposure, vulnerability to the development of chronic PTSD, or resiliency against adverse reactions to trauma. A personality trait that demonstrates a positive association with PTSD within people who have experienced a traumatic incident may be considered a vulnerability factor (Jaksic et al., 2012; Paris, 2000). In contrast, a personality trait that has a negative association with PTSD can be considered a resiliency factor. A resilient individual is not necessarily unaffected by a traumatic stressor, but rather will adapt more easily to adverse events and be less vulnerable to the development of PTSD or another psychiatric disorder (Jaksic et al., 2012; Paris 2000).

Individuals with high levels of neuroticism tend to experience a relatively wide range of negative emotions and powerful emotional reactions compared to individuals with low levels of neuroticism (Hambrick & McCord, 2010; Paris 2000; Suliman & Einat, 2018). Individuals with high levels of neuroticism tend to sense threats in routine situations that have a minor impact, if any, on other people. They are easily frustrated, and these intense reactions are upsetting for them, which has an adverse effect on their rational thinking (Suliman & Einat, 2018). Over time, this diminishes an individual's ability to cope with stress and they develop difficulties that often cause them to experience anxiety, anger, depression, social embarrassment, and poor control of urges, and makes them vulnerable to the development of PTSD (Paris, 2000; Suliman & Einat, 2018). In general, the trait of neuroticism has consistently been identified as a predictor of PTSD and is associated with poor coping in response to trauma and stress (Breslau & Schultz, 2013; Gil, 2015; Jaksic et al., 2012; Paris, 2000).

In contrast, individuals with the trait of extraversion have to experience significantly high levels of stress or trauma before developing PTSD or another psychiatric disorder (Jaksic et al., 2012). The traits of extraversion and conscientiousness are potentially protective factors against

the development of PTSD (Gil, 2015; Jaksic et al., 2012). Although individuals that score high in extraversion and openness are conceivably more likely to be involved in events with traumatic potential due to their tendency to explore risky situations and challenges, they may not interpret them as traumatic, but as a life experience (Gil, 2015). Conversely, individuals high in neuroticism are more apt to interpret and experience events as traumatic due to sense of threat in routine situations (Suliman & Einat, 2018) and have less capacity to cope with traumatic stressors, which can result in PTSD or other psychiatric disorders (Breslau & Schultz, 2013; Gil, 2015; Jaksic et al. 2012; Paris, 2000).

Coping

Another concept that may be important in understanding the development of PTSD is coping**.** Multiple definitions of coping have been proposed. For example, Monzani, Steca, Greco, D'Addario, and Pancani (2015) refer to coping as the process of implementing a psychological, behavioural, and/or physiological response to remove or reduce a stressor when the stressor is viewed as a challenge in achieving one's goals. Carver and Connor-Smith (2010) state that coping is a psychological, behavioural, or physiological response to prevent or diminish a threat, harm, or loss, or to reduce distress. Coping research is fundamental to understanding how stress affects people. How people deal with stress can reduce or amplify the effects of life stressors. Essentially, coping looks at the way people respond to stress. How individuals respond to stress in the short-term and in the long-term may have physiological (body) and psychological (mind) consequences. An individual's response to stressors can range from mild to severe emotional distress and physiological reactivity, such as trembling, shaking, tachycardia (racing heart rate), or high blood pressure (Hengartner, van der Linden, Bohleber, & von Wyl, 2016). High psychological reactivity, which are churning thoughts (worry, anxiety) and intense emotional

reactions to stress, is a strong predictor of mortality from heart disease, stroke, and cancer (Alizadeh et al., 2018). High levels of emotional and psychological reactions can also lead to mental disorders such as anxiety, major depression, and substance misusage (Alizadeh et al., 2018; Carver & Connor-Smith, 2010).

Individuals may use different coping strategies based on the type of stressor and the situation or they may have a preferred coping style, which leads to habitual ways of dealing with stressors. As a result, one's method of coping may influence their reactions to new situations (Cerea, Bottesi, Grisham, Vieno, & Ghisi, 2017). One method for assessing coping strategies is the Coping Orientation to Problems Experienced (COPE) Inventory (Carver, Scheier, & Weintraub, 1989). The theoretical framework for this tool was Lazarus and Folkman's (1987) transactional theory.

Transactional theory makes a distinction between problem-focused coping and emotion-focused coping (Carver & Connor-Smith, 2010; Lazarus & Folkman, 1987). Problem-focused coping is directed at the stressor and attempts to take steps to remove it, evade it, or diminish the impact on the self (Carver & Connor, 2010; Carver & Scheier, 1994; Carver et al., 1989). A problem-focused approach attempts to solve the stressor by formulating a plan or taking action to reduce the stressful workload (Carver & Connor, 2010; Carver & Scheier, 1994; Carver et al., 1989). For example, if the stressor is environmental, problem-focused coping involves formulating a plan and taking action to reduce or remove the stressor. When a stressor is viewed as controllable and a problem-focused approach is taken, this style of coping is associated with positive physical and mental health outcomes and therefore, is considered a form of adaptive coping (Alizadeh et al., 2018; Britt, Adler, Sawhney, & Bliese, 2017).

Emotion-focused coping is intended to minimize the distress triggered by stressors and incorporates a wide range of responses, such as self-soothing, expressing negative emotions, ruminating on negative thoughts, denial, and avoidance of stressful stimuli (Carver & Connor-Smith, 2010; Carver & Scheier, 1994; Carver et al., 1989). Emotion-focused coping also includes seeking out social supports, such as pursuing advice, information, or assistance (instrumental social support). Lastly, it involves attempting to manage emotions experienced as a result of the stressor by reappraising the situation (secondary appraisal) or accepting the stressor as part of the present reality. When a stressor is outside the purview of control, emotion focused coping is viewed as an adaptive coping strategy that is helpful in reducing emotional reactivity (Alizadeh et al., 2018; Britt et al. 2017).

The COPE inventory is a 53-item self-report scale that assesses 14 coping factors (Carver et al., 1989). The COPE was revised by Carver (1997) into the Brief COPE assessment tool. The Brief COPE is a 28-item self-report scale that measures 14 coping factors with two items per factor: active coping, planning, positive reframing, acceptance, humor, religion, emotional support, instrumental support, self-distraction, denial, venting, substance use, behavioral disengagement, and self-blame. As reported by Carver (1997), all scale reliabilities met or exceeded .50, which is regarded as minimally acceptable; reliabilities ranged from .50 to .82. However, Nunnally and Bernstein (1994) suggest that internal consistency values should be .70 or higher to be considered acceptable. Using this guideline, only six factors demonstrate acceptable reliability: planning, humor, religion, emotional support, self-distraction, and substance use.

Active coping is the process of taking steps to remove or avoid a stressor or its effects (Carver et al., 1989). Active coping includes a direct-action plan, increasing one's efforts, or

waiting for the appropriate opportunity to act and not acting prematurely. The individual's behaviour is focused on dealing with the stressor effectively. *Planning* refers to thinking about how to manage a stressor and involves coming up with an action plan or strategies for handling the problem. This activity is problem-focused, but conceptually different from executing a problem-focused action plan. Planning occurs during secondary appraisal of the stressor, which is when an individual evaluates their resources and options for coping (Lazarus & Folkman, 1987), whereas active coping occurs during the primary appraisal (first evaluation) of the stressor (Carver et al. 1989). *Instrumental support* refers to seeking advice, assistance, or information whereas *emotional support* involves getting moral support, sympathy, or understanding. *Venting* is a method for processing emotions whereby the individual focuses on the distressing experience and verbally releases volatile emotions. Venting can be a functional response during a short period of time in the processing of a stressor but moves to maladaptive when the individual is impeded from moving forward by their intense focus on those emotions when used as a distraction from actively coping (Carver et al., 1989).

Behavioural disengagement refers to dealing with the stressor by giving up on the attainment of one's goals or expectations and is associated with the term helplessness, which is the inability to move forward with a plan (Carver et al., 1989). This strategy is likely to occur when an individual expects a poor outcome or has previously experienced a negative outcome from a similar situation. *Substance use* is the consumption of drugs or alcohol, often to excess, to deal with the stressor. Substance use is an attempt to disengage from the stressor, which results in a temporary mental escape from dealing with the stressor (Carver et al., 1989). *Self-distraction* refers to a wide variety of activities that act as a distraction for the individual to prevent thinking about the stressor or goal that has been blocked by the stressor. For example, distraction

techniques include daydreaming, escaping through sleep, or escape by immersion in TV (Carver et al., 1989). As a short-term response to a stressor, self-distraction could be viewed as functional in the process of acceptance but can become maladaptive when it hinders the individual from planning and acceptance.

Positive reframing is the technique of changing the perspective of the stressor from a negatively defined experience and reshaping thoughts and emotions toward a more positive viewpoint (Carver et al., 1989). Positive reframing focuses on identifying the strong emotions and thoughts associated with the stressor, rather than managing the outside stressor. The focus is on reconstructing a stressful event into positive terms. *Religion* is about turning to spiritual beliefs and is not defined as religious institutions or organizations. Religion might serve as a source of emotional support and promote a positive reinterpretation of the stressor. *Humor* refers to making light of the stressor through jokes or self-deprecating stories related to the stressor to decrease tension. *Self-blame* is a cognitive process whereby an individual attributes the occurrence of a stressful event to oneself (Carver et al., 1989).

Carver and colleagues (1989) defined *denial* as refusing to acknowledge the existence of the stressor or acting as though it is not real. Denial may be useful in minimizing distress, which can facilitate coping but may also create problems, which can hinder coping. A third perspective is that denial in the early stages of engagement with a stressor can be useful in the process of gaining information, but moves to an impediment when there is a refusal to believe that the stressor exists or acting as if the stressor is not real. The opposite of denial is *acceptance*. Acceptance refers to admitting the reality of the stressful situation and actively attempting to manage the stressor. Acceptance is important in circumstances in which the stressor is something

to be accommodated as opposed to circumstances in which the stressor can be easily changed (Carver et al., 1989).

Coping strategies are how an individual processes life stressors and personality may influence the types of coping strategies utilized in a situation. Among the five factors, neuroticism was found to be the best predictor of maladaptive coping strategies (Skomorovsky, 2013). Individuals who scored high in neuroticism were more likely to use wishful thinking, self-blame, and avoidant coping (McCrae & Costa, 1986; Skomorovsky, 2013). Those who are high in neuroticism are also predisposed to engage in emotion-focused coping, with strong tendencies towards self-blame and expressing their emotions towards others (Brebner, 2001). Neuroticism is consistently associated with passive and maladaptive coping responses, such as giving up attempts to reach one's goals (Brebner, 2001; Carver & Connor-Smith, 2010; Vollrath & Torgersen, 1999; Watson & Hubbard, 1996). A study by Bolger and Zuckerman (1995) found that neuroticism predicted less problem-solving behaviours and more avoidance coping and was associated with greater anger and depression. Similarly, research by Riolli, Savicki, and Cepani (2002) demonstrated a negative association between neuroticism and resilience, and neuroticism predicted a persistent tendency to experience negative emotional states such as anxiety, anger, guilt, and depression.

In contrast, individuals high in the trait of extraversion are more likely to use social support resources and engage in emotion-focused and problem-focused approaches to deal with stressors (Carver & Connor-Smith, 2010; McCrae & Costa, 2003). Furthermore, there is evidence that extraverts tend to engage in talking it out, joking, humour, and positive reframing as methods of dealing with stress (Brebner, 2001; Carver & Connor-Smith, 2010; Vollrath & Torgersen, 1999; Watson & Hubbard, 1996). Research suggests that extraversion may act as a

buffer against the negative impact of stressful events on one's psychological health, resulting in resiliency (Skomorovsky, 2013). Similarly, evidence indicates that conscientiousness is strongly related to the use of problem-focused coping, as individuals high in this trait are not impulsive and are more likely to use active or planning coping strategies to manage the stressor (Brebner, 2001; Carver & Connor-Smith, 2010; McCrae & Costa, 2003; Vollrath & Torgersen, 1999; Watson & Hubbard, 1996).

Evidence indicates that the trait of openness to experience predicts the use of problem-focused strategies and is associated with engaging in cognitive restructuring and utilization of a positive thinking coping strategy (Carver & Connor-Smith, 2010). There is also evidence that individuals high in openness are more likely to turn to religious faith as a source of comfort and to try to learn something of value from the experience as a way to handle stressors. It is suggested that open individuals do so because they value the source of meaning in life, are willing to try new ideas, and seek out possibilities (McCrae & Costa, 2003; Watson & Hubbard, 1996). Lastly, some research indicates that agreeableness predicts the use of social support and cognitive restructuring (Craver & Connor-Smith, 2010). Those high in the agreeableness trait try to view stressors as a positive experience due to their inherent nature to see the best in others (McCrae & Costa, 2003). This trait is also associated with the use of problem-solving and emotion focused strategies, such as active coping, acceptance, and emotional and instrumental support (Carver & Connor-Smith, 2010; Watson & Hubbard, 1996). Finally, those who are high in the trait of agreeableness are less likely to engage in denial and substance use coping strategies than individuals high in neuroticism or conscientiousness (Carver & Connor-Smith, 2010).

In a study conducted on the Norwegian Police Service, Lau, Hem, Berg, Ekeberg, and Torgersen (2006) looked at the combination of three personality traits (neuroticism, extraversion,

and conscientiousness), as well as coping strategies. This research found individuals that scored high in all three traits tended to try to control stressors. In attempting to control the stressor, it activated negative emotions, leading to a pessimistic assessment of the stressor. Those who exhibited high extraversion, low neuroticism, and high conscientiousness had lower levels of perceived stress, were prone to use active coping strategies, and were considered well-functioning. Those who demonstrated a combination of high neuroticism, high extraversion, and low conscientiousness were more impulsive and less likely to take control of a perceived stressor. Finally, the combination of low extraversion, low neuroticism, and low conscientiousness was associated with an increased likelihood of being diagnosed with borderline personality disorder (Lau et al., 2006). Borderline personality disorder is defined by a pattern of intense mood swings, high impulsivity, problems in relationships with other people, and thinking in extremes of all good or all bad (American Psychiatric Association, 2013).

Similarly, the research conducted by Vollrath and Torgersen (1999) found that individuals that scored high in all three traits of neuroticism, extraversion, and conscientiousness were emotionally intense, conscientious, and orderly, prone to emotional outbursts and feelings of guilt, and tended to be sensitive and dependent on others. Individuals with this combination tended to use adaptive and active coping strategies. In contrast, individuals that scored high on extraversion, low on neuroticism, and low on conscientiousness were socially skilled, pleasure oriented, emotional, physically active, and prone to use positive thinking coping and adaptive coping strategies. The combination of low extraversion, high neuroticism, and high conscientiousness was associated with the following characteristics: shy, withdrawn, ambivalent, insecure, very trustworthy, contemplative in decision making, tend to give up easily when faced with a challenge, and prone to predominately use active coping strategies. The mix of low

extraversion, low neuroticism, and high conscientiousness was linked to the following features: relatively closed off to others, self-secure, emotionally stable, managed their lives well, tended to be rigid thinkers, and used active and planning coping strategies. The blend of low extraversion, low neuroticism, and low conscientiousness was associated with little responsivity to other people, a poor grasp of situational cues, emotional flatness, no interest in social norms, and low ambition. These individuals were prone to low stress reactivity, use of adaptive coping strategies, and abstaining from the use of emotional or social coping supports. Finally, the combination of low extraversion, high neuroticism, and low conscientiousness was associated with the following features: self-conscious, dependent on other people's opinion for self-worth, overly sensitive to their own mental and physical experiences, and poor organizational skills. These individuals were inclined to experience high levels of stress and used passive and maladaptive coping strategies. This mixture of personality traits was more likely to be diagnosed with a personality disorder (Vollrath & Torgersen, 1999).

To summarize, there is evidence that certain personality traits are related to specific coping styles. Personality may also have an indirect effect on coping by influencing stress exposure, stress reactivity, or perceptions of coping resources (Connor-Smith & Flachsbart, 2007). For example, personality may influence coping responses because an individual's expectations of future outcomes affect the type of coping strategy used (Carver & Connor-Smith, 2010; Vollrath & Torgersen, 1999). However, the relationship between coping and personality is complex as coping is not simply a direct manifestation of personality under adverse circumstances. Coping refers to the resources that individuals use to manage and process stress, which can involve a range of positive, adaptive strategies and/or negative, maladaptive strategies (Carver & Connor-Smith, 2010).

Coping and PTSD

As previously stated, coping may be important to understanding the development of PTSD. Research on coping and PTSD is found in the literature on military combat experiences, natural disasters, sexual assaults, and medical professionals. In research conducted by Schnider, Elhai, and Gray (2007) among college students that experienced a traumatic loss of a loved one, avoidant emotional coping (self-distraction, denial, behavioural disengagement, self-blame, and substance use) was a strong predictor of severe post-traumatic stress symptomology (PTSS). Post-traumatic stress symptomology refers to the symptom criteria listed in the DSM-5 for PTSD (i.e., not a full diagnosis of PTSD). Similarly, Cofini, Carbonelli, Cecilia, Binkin, and di Orio (2015) studied adults in Italy following an earthquake and found that those with PTSD scored higher on avoidance coping strategies, such as denial, venting, behavioural disengagement, substance use, and self-blame. Interestingly, adults with PTSD also scored high in the adaptive coping strategies of religion, emotional and instrumental support, humour, and acceptance. Adults without PTSD scored highest on adaptive coping strategies, such as planning, acceptance, and humour. The study did not examine whether PTSD was a consequence of individuals' coping strategies or whether the development of PTSD resulted from the type of coping strategies used following exposure to this traumatic event. There was also evidence of gender differences. Women utilized more venting, and emotional and instrumental support, whereas men tended to rely on themselves to cope and engaged in drugs and alcohol as coping mechanisms (Cofini et al., 2015).

One specific form of coping that has been found to be a protective buffer against the development of PTSD is social support (Ceobanu & Mairean, 2015). Social support is a multifaceted construct that stems from a variety of sources (family, friends, and peers) and refers to providing emotional support (venting, moral support, sympathy, or understanding) and

instrumental support (providing advice or information) to individuals within one's sphere of influence (Ceobanu & Mairean, 2015). In the context of occupational stressors, Ceobanu and Mairean (2015) found that the existence of a supportive social network had a strong preventative effect on the development of PTSS. Furthermore, there is evidence that a lack of social support is related to difficulties in managing work-related stressors and the development of post-traumatic responses (Duffy, Avalos, & Dowling, 2015). However, there are studies that did not find any protective effects from social support. Laffaye, Cavella, Drescher, and Rosen (2008) studied social support in veterans. The veterans reported that peer to peer support was a valued component of treatment and support, whereas talking to family members was not beneficial to recovery. Laffaye et al. (2008) also found that PTSS significantly predicted the erosion of interpersonal communication with nonveterans (i.e., family members and spouses). The findings in Laffaye et al. (2008) are consistent with the notion that corrections officers and other public safety personnel tend to not share their trauma experiences with their families and instead, seek support from peers who have been involved in the traumatic incident or had similar experiences. Another study showed that seeking social support was associated with an increased chance of developing post-traumatic stress due to emotional fatigue and burnout, whereas active coping protected against it (Buurman, Mank, Beijer, & Olff, 2011). Seeking social support from another person who is experiencing compassion fatigue or emotional fatigue is not likely to be beneficial and the lack of social support is a post trauma risk factor for the development of PTSD (Laffaye et al., 2008). In seeking social support to reduce the risk of PTSD within the correctional environment, it would be appropriate to utilize employer services for mental health through benefits program or on-site trained peers supports.

In a study conducted by Britt, Adler, Sawhney, and Bliese (2017) on military personnel who participated in combat operations in Iraq and Afghanistan, positive emotion-focused coping buffered soldiers from the adverse effects of combat. In contrast, coping by engaging in self-blame (avoidance coping) was associated with higher levels of PTSS. This study concluded that emotion-focused coping was an adaptive form of coping for individuals who encounter situations or demands that are outside their perceived control (Britt et al., 2017). These findings may be useful for public safety personnel, such as correctional officers, given that they commonly encounter circumstances that are beyond their control given their work environments. For example, the unpredictability of offenders within correctional centres requires correctional officers to quickly adapt and respond to situations. Thus, the benefits of emotion-focused coping in the short-term could be to buffer against the adverse effects of dealing with violence within their workplace.

The Influence of Correctional Institutions

Correctional officers are responsible for the safe care and custody of individuals that come into conflict with the law, whether they are remanded or sentenced to a correctional facility (BC Government, 2017). Correctional officers in BC provincial centres are required to model socially acceptable behaviours (e.g., no swearing, no excessive use of force, respectful interactions, no name calling, no intimidation tactics) and respond to situations that develop within an institution, such as inmate on inmate violence, medical emergencies, riots, and other potentially traumatic events, such as staff assaults. Therefore, it can be stated that correctional officers experience multiple work-related stressors. The environment within prisons can be unpredictable and correctional officers are exposed to unique and powerful stressors within their daily routines (Keinan & Malach-Pines, 2007; Ricciardelli & Sit, 2016). BC Corrections has

similar work stressors as jails in the United States, such as high staff turnover, understaffing, and low salaries compared to other similarly skilled positions within the criminal justice system (Lambert & Poaline, 2010).

A handful of studies have examined violence experienced by correctional officers: Keinan and Malach-Pines' (2007) study focused on correctional officers in Israel, Boyd (2011) focused on correctional officers in BC, and the research by Ricciardelli and Gazso (2013) was on Canadian provincial correctional systems. All three studies focused on workplace and organizational stressors and the perception of violence experienced by corrections officers. Task-related stressors included physical danger, workload, role problems, and problematic inmate behaviour (Boyd, 2011; Keinan & Malach-Pines, 2007; Ricciardelli & Gazso 2013). Physical danger was reported as the fear of inmate violence, which included the risk of being physically assaulted, spit on, or having bodily fluids thrown at them. Workload pressures included high inmate to staff ratios and feeling obligated to work over-time shifts. Role problems included role conflict and role ambiguity, such as the conflict between guarding versus rehabilitating offenders. Problematic inmate behaviour included unceasing demands from inmates, ongoing manipulative behaviour, and gang involvement (Ricciardelli & Gazso, 2013). The nature of the work in correctional environments requires officers to be on high alert. Officers are held to a high standard of conduct and are often disciplined for minor infractions (Boyd, 2011; Keinan & Malach-Pines, 2007; Ricciardelli & Gazso, 2013). In addition, officers are responsible for preventing escapes, inmate on inmate violence, staff assaults, self-harm, and suicide. These responsibilities place correctional officers in a continuous state of high stress (Boyd, 2011; Keinan & Malach-Pines, 2007; Ricciardelli & Gazso, 2013).

In prison, violence, and the threat of it, is a feature in the everyday lives of prisoners and correctional officers. Inmates' pre-incarceration history and socialization experiences contribute to the attitudes and values held by offenders prior to entering prison and are key determinants of aggressive acts during incarceration (Ricciardelli & Sit, 2016). The "offender code" of not ratting on fellow offenders and a distrust of officers adds to this volatile environment (Ricciardelli & Gazso, 2013). Similarly, the "officer code" to protect each other, refrain from becoming too friendly with inmates, and not to talk to management about peer misconduct also heightens officer stress (Ricciardelli & Gazso, 2013).

As noted above, some of the traumatic events experienced by correctional officers include a sudden and violent death of an inmate at the hands of another inmate, physical assault, physical assault with a weapon, and exposure to toxic substances (Boyd, 2011; Carleton et al., 2019; Ricciardelli & Sit, 2016). Trauma may also be experienced vicariously or as secondary trauma through indirect exposure by reading criminal records, pre-sentencing reports, and investigation reports on critical incidents, hearing about violence or trauma through briefings, viewing photographs or digital video recordings of injuries to co-workers or offenders that were sustained through an act of violence while in custody, writing and documenting injuries or death involving staff or offenders, participating or reviewing critical incident debriefings, investigating critical incidents, listening to the traumatic stories and experiences of offenders, listening to offenders describe what they did to their victims, and listening to staff members share their traumatic experiences while on the job (Spinaris, Denhof, & Morton, 2013).

Post-traumatic stress disorder can develop through secondary, vicarious trauma, which is the emotional duress that results when an individual hears, reads, or views the firsthand traumatic experiences of another person (Spinaris et al., 2013). The essential act of listening to story after

story of human suffering can manifest as intrusive thoughts and images, as well as other emotional and behavioural responses, that are comparable to the responses of individuals with PTSD. Listening, viewing, or reading about traumatic incidents may take an emotional toll that compromises an individual's ability to function professionally and diminishes their quality of life (Quitangon, 2019; Spinaris et al., 2013; Zimering & Gulliver, 2003). Individuals and their supervisors must be stringently aware of the effects of indirect trauma exposure for those working in the criminal justice system.

The more frequently correctional officers are exposed to violence and critical incidents, the more likely they are to experience negative consequences, such as hypervigilance and reoccurring intrusive thoughts and memories from previous incidents. For those who utilize poor coping strategies, the more difficult it becomes to prevent the development of PTSD. The reality of the correctional environment (e.g., frequent exposure to violence and traumatic incidents) makes it difficult for staff to use healthy coping strategies, which increases the risk of developing PTSD or other serious mental health conditions. For example, a Canadian study conducted by Carleton et al. (2018) found that the prevalence of PTSD among correctional officers was 24%, which is similar to the rates found among the Royal Canadian Mounted Police (25%) and paramedics (22%) and slightly higher than the rates found among municipal police (19%) and firefighters (17%). Carleton et al. (2018) also found that their public safety participants evidenced higher levels of other mental disorders, such as depression, anxiety, social anxiety, panic disorders, and alcohol use disorder. Suliman and Einat (2018) suggested that the impact of continuous exposure to traumatic experiences alters correctional officer's personality. In other words, the prison work environment has multiple pressures, tension, and hostility that wear an officer down. This can lead an officer to feelings of anger, anxiety, depression, social

embarrassment, poor impulse control, and vulnerability (Suliman & Einat, 2018). Correctional officers that begin to experience increased levels of anxiety and poor impulse control may be using maladaptive coping strategies, which is a predictor, as previously mentioned, for the development of PTSD.

New officers must adjust to an environment that is unfamiliar, frightening, and threatening; this requires them to rapidly appraise their approach to each situation in a professional manner. For many correctional officers, this entails distancing their immediate emotions and presenting a relaxed but tough persona. Suliman and Einat (2018) believe that this emotional distancing takes a toll on correctional officers' mental health and can effect changes to their personality. Correctional officers experience burnout due to a dwindling of their emotional resources, stemming from the emotionally exhausting work with offenders, which can lead to the paradoxical situation in which officers have powerful internal negative emotions alongside a confident and distant appearance (Keinan & Malach-Pines, 2007; Suliman & Einat, 2018). The negative emotions do not necessarily find an external expression but build up within the officer, thus creating an effect that resembles a post-traumatic reaction, which can spill out into their personal lives and have detrimental effects on their physical and mental well-being (Suliman & Einat, 2018). Correctional officers are noted to experience a gradual onset of mental health issues that may not be related to trauma, but instead, is the result of the unpredictable nature of the work, dealing with challenging and difficult offenders, unsupportive co-workers, an adversarial relationship with management, long hours of work (12 to 16 hour days), and shift work (Ricciardelli et al., 2019). The morale within institutions is impacted because officers feel and believe that their work is unrecognized by society or by management. In response to organizational stressors, workplace violence, and job demands, correctional officers may take

sick days or mental health days at the expense of the employer (Ricciardelli et al., 2019). In an effort to reduce the detrimental effects on police and correctional officers' mental health, peer to peer support programs have been developed and implemented. Furthermore, in the event of a traumatic incident, formal debriefs are arranged. However, research on the effectiveness of peer to peer supports or debriefs is sparse.

A study conducted in the Netherlands on critical incident debriefing of police officers following exposure to a traumatic event provides some evidence for the positive effects of debriefing (Carlier, Voerman, & Gersons, 2000). The officers completed a PTSD symptomology test before commencing debriefing and the same test was administered at the completion of the full debriefing process. The current practice in the Netherlands is that every officer is debriefed following every incident, regardless of their emotional response to the incident. The model used for debriefing consists of three sessions with a trauma trained psychologist; the first session occurs 24 hours post traumatic event, the second session takes place one week after the traumatic event, and the third session takes place six months post traumatic event. Debriefing is founded on the belief that talking through the traumatic event will assist individuals in recovering from any psychological damage that may have occurred due to exposure to the traumatic incident. The results indicated high rates of satisfaction with debriefing; however, this did not translate into fewer stress symptoms, lower sick rates, or a rapid return to work (Carlier et al., 2000).

In BC Corrections, a debriefing is generally held within three days of a serious critical incident (e.g., sudden or violent death of an inmate) or at the earliest convenient date for all staff involved, where possible (BC Government, n.d.). There is only one debriefing session and it is conducted off-site from where the incident occurred. Carlier et al. (2000) reported that having only one debriefing session may not have a positive effect on the staff as involvement in the

debriefing may intensify the worker's stress response or their perception of stress. For example, one or more members attending the debriefing may have had a minimal response to the traumatic event, but by listening to the impact the incident had on other members, this may change their perspective and lead to an increased stress response (Carlier et al., 2000). In BC Corrections, no evaluation has been completed to determine if more debriefing sessions are required or if the debriefing is achieving its goal of reducing PTSD symptomatology following a critical incident. More research is required to understand the value, benefit, or effectiveness of any debriefing. The limited research on correctional staff indicate that debriefing programs are not being utilized. The rationale could be, as research has indicated, that accepting or acknowledging a need for mental health debriefing is perceived as a sign of weakness or incompetence (Ricciardelli et al., 2019).

The Current Study

Given that there are few studies examining PTSD and none examining coping strategies among correctional officers, this study attempted to address the gap in the literature by examining the prevalence of PTSD, the link between personality and PTSD, and the link between coping strategies and PTSD. The goal was to determine whether there are identifiable risk and resiliency factors associated with PTSD. By identifying resiliency factors and healthy coping strategies, this information can be used to develop a prevention program that can be delivered during new recruit training. This will prepare correctional officers for managing stressors on the job and educate them about healthy ways to process their thoughts and emotions after a critical incident. The second goal is to develop a program for corrections officers that can provide social emotional support and education on healthy coping techniques following a critical incident to assist them in processing acute stressors.

Methodology

Participants

The 53 participants were male (50%), female (48%), and transgender (2%) correctional officers (72%) and sheriffs (28%). Most participants were correctional officers (46%) and the remainder were sheriffs (28%), correctional supervisors (14%), and correctional security officers (12%). Correctional officers are frontline workers responsible for managing offenders in their living units, escorting offenders within the centre or community, and acting as primary responders to medical emergencies and staff calls for assistance; specially trained correctional officers also facilitate offender programming. Correctional security officers are officers in training who are working the frontline to gain experience; they are required to complete a mandatory number of courses and hours of experience before being promoted to correctional officer status. Correctional supervisors are responsible for managing the supervision of the correctional officers on duty during their shift within their department. They also make decisions regarding inmate risk and offender placement within the centre, as well as maintaining the safety and security of the centre. Sheriffs provide safety and security for criminal, civil, family, and appellate courts in the province and assist in the transportation of offenders between correctional centres and courts.

Participants ranged in age from 22 to 58 years, with a mean age of 41.20 years (SD=10.83). In terms of race/ethnicity, participants were Caucasian (75%), Asian (6%), South Asian (6%), Latino/Hispanic (6%), Indigenous (2%), and other (4%). The years of service ranged from one year to 33 years, with a mean of 12.97 years (SD=10.00) and all participants were full-time employees. Regarding education, most participants had some college or university education, such as a certificate or diploma (44%), or some post-secondary education (26%), and

the remainder had a bachelor's degrees (20%), high school diploma (8%), or a Master's degree (2%).

Measures

Post-Traumatic Stress Disorder. To assess for symptoms of PTSD, the PTSD Checklist for DSM-5 was administered. This 20-item self-report measure was developed by the National Center for PTSD and is intended to be a screener for PTSD (Weathers et al., 2013). Each item is rated on a 5-point scale (0=not at all, 1=a little bit, 2=moderately, 3=quite a bit, 4=extremely) and summed to yield a total score whereby higher scores indicate greater PTSD symptom severity. In addition to measuring PTSD symptoms, participants were asked about the nature of their traumatic event, and the supports and services provided by their institution in response to critical incidents.

Big Five Personality Factors. The five-factor model of personality was assessed by administering items from the International Personality Item Pool (IPIP) (Goldberg et al., 2006). The IPIP items were developed to measure personality constructs consistent with the Neuroticism, Extraversion, Openness-Personality Inventory-Revised (NEO-PI-R) by McCrae and Costa (1992). Goldberg et al. (2006) reported that the mean correlation between the IPIP scales and the NEO-PI-R scales was .73. In this study, the personality scale that was administered was a 50-item self-report measure that assessed the five-factor model of personality: conscientiousness (e.g., I am always prepared), neuroticism (e.g., I get stressed out easily), openness (e.g., I have a vivid imagination), extraversion (e.g., I am the life of the party), and agreeableness (e.g., I sympathize with others' feelings). Items were rated on a 5-point Likert scale (1=strongly agree, 5=strongly disagree) and summed to yield factor scores.

Brief COPE. To assess the types of coping strategies participants engaged in to address their traumatic event, the Brief COPE (Carver, 1997) was administered. The Brief COPE is a 28-

item self-report measure that assesses 14 different coping scales. Each item is rated on a 4-point scale (1=I haven't been doing this at all; 2=I've been doing this a little; 3=I've been doing this a medium amount; 4=I've been doing this a lot) and summed to yield scale scores. In the current study, four factors were examined, based on the work of Baumstarck et al. (2017). These factors incorporate the 14 strategies identified by Carver (1997): (1) social support, which includes emotional support, instrumental support, venting, and religion (e.g., I've been getting comfort and understanding from someone); (2) problem solving, which includes active coping and planning (e.g., I've been taking action to try to make the situation better); (3) avoidance, which includes substance use, self-blame, denial, self-distraction, and behavioral disengagement (e.g., I've been using alcohol or other drugs to help me get through it); and (4) positive thinking, which includes humor, acceptance, and positive reframing (e.g., I've been making jokes about it).

Procedure

Data was collected by using a web-based platform (Survey Monkey). All participants were contacted via an e-mail invitation from the BC Government and Service Employees Union (BCGEU), which contained a link to the survey. The consent document was provided to participants before the start of the survey and completion of the survey constituted consent. Ethics approval was obtained from the University of the Fraser Valley's Human Research Ethics Board prior to the start of the study (Appendix A). The email invitation was sent out November 11, 2019 to 2,490 Component 1 members (corrections and sheriffs), with a closing date of December 30, 2019. The BCGEU was unable to restrict contact to only corrections officers as corrections officers and sheriffs are part of the same bargaining unit. A follow-up email was not permitted, but some individuals sent out a reminder email to their colleagues and others forwarded the email to staff who were on leave. The response rate was low (2.5%); 63

individuals responded to the survey and 10 surveys were omitted because participants did not complete the survey, resulting in a final sample size of 53.

Results

The descriptive data for each of the measures are reported below. Table 1 provides the means, standard deviations, and ranges across the various measures and subscales for the entire sample size and broken down by gender (males vs. females) and job classification (corrections vs. sheriffs). For most subscales, there were no significant differences by gender, with the exception of agreeableness and social support whereby females scored higher than males. There were no significant differences by job classification on any of the subscales. As indicated in Table 1, the mean PTSD score was 32.19 (SD = 21.17). Franklin et al. (2018) stated that scores between 31 and 33 suggest a probable diagnosis of PTSD, but that a score of 33 or more is recommended. Using a cut-score of 33, 22 participants (42%) met criteria for a probable diagnosis of PTSD. There was no significant gender difference in a probable diagnosis of PTSD; 10 males (40%) and 10 females (44%) received a PTSD score of 33 or above. Similarly, there was no significant job classification difference in a probable diagnosis of PTSD; 15 correctional officers (43%) and 6 sheriffs (43%) received a PTSD score of 33 or above.

Table 1: Descriptive Data

	Total (n = 49-53)		Males (n = 24-25)		Females (n = 23-24)		Corrections (n = 35-36)		Sheriffs (n = 14)	
	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range	Mean (SD)	Range
IPIP										
EXT	20.58 (8.43)	4-36	19.04 (8.01)	4-35	22.25 (8.40)	8-36	20.14 (7.76)	8-36	21.79 (9.43)	4-36
AGR*	25.89 (7.61)	4-40	22.44 (7.54)$_a$	4-32	29.92 (5.91)$_a$	17-40	25.47 (8.03)	4-40	27.43 (6.64)	11-37
CON	27.43 (5.54)	13-38	27.40 (4.45)	17-33	27.92 (5.93)	13-37	27.81 (5.24)	13-37	26.36 (5.96)	15-35
NEUR	18.77 (7.79)	1-33	17.80 (7.38)	3-33	19.92 (8.49)	1-31	18.17 (8.06)	1-31	20.57 (7.27)	10-33
OPEN	27.23 (6.01)	12-40	26.68 (5.77)	12-33	27.83 (6.62)	13-40	26.42 (6.10)	12-40	29.00 (6.10)	17-36
PTSD	32.19 (21.17)	0-76	31.96 (19.26)	0-69	31.57 (21.50)	0-76	32.71 (21.56)	0-76	31.93 (18.57)	7-67
COPE										
SS*	16.29 (5.02)	8-27	14.63 (3.76)$_b$	8-23	18.25 (5.60)$_b$	8-27	16.40 (5.26)	8-27	16.36 (4.55)	8-26
PS	8.90 (3.07)	4-16	8.20 (3.00)	4-13	9.75 (3.01)	4-16	9.06 (3.10)	4-16	8.50 (3.08)	4-13
AV	18.14 (5.25)	10-34	18.12 (4.67)	12-26	17.92 (5.87)	10-34	18.50 (5.59)	10-34	17.21 (4.32)	12-24
PT	14.73 (3.72)	8-23	14.92 (2.95)	11-20	14.58 (4.49)	8-23	14.57 (3.91)	8-23	15.14 (3.32)	11-21

Note. SD=Standard deviation; IPIP=International Personality Item Pool (Goldberg et al., 2006); EXT=Extraversion; AGR=Agreeableness; CON=Conscientiousness; NEUR=Neuroticism; OPEN=Openness; PTSD Checklist=Posttraumatic Stress Disorder Checklist for DSM-5 (Weathers et al., 2013); COPE=Brief Coping Orientation to Problems Experienced (Carver, 1997); SS=Social Support; PS=Problem Solving; AV=Avoidance; PT=Positive Thinking; * = Indicates a statistically significant difference, whereby means with the same subscript indicate a significant difference at the $p < .05$ level.

Given that there were very few significant gender differences and no significant job classification differences across the various subscales and the response rate was low, the remaining analyses were conducted for the entire sample as a single group. Tables 2 and 3 provide the bivariate correlation coefficients within the personality and coping subscales. Across the five-factor model of personality, there were statistically significant positive associations across the various personality factors (see Table 2). The only exception was conscientiousness, which demonstrated no associations with the other personality factors.

Table 2: Bivariate Correlations for the Five Factor Model of Personality

	NEUR	EXT	AGR	OPEN
CON	.23	-.05	.02	.27
NEUR	-----	.40**	.52**	.40**
EXT		-----	.57**	.46**
AGR			-----	.42**
OPEN				-----

Note. ** $p < .01$. CON = Conscientiousness; NEUR = Neuroticism; EXT = Extraversion; AGR = Agreeableness; OPEN = Openness.

As shown in Table 3, with respect to the Brief COPE, avoidance was not associated with any of the other three factors whereas the other three factors demonstrated strong, positive associations among each other.

Table 3: Bivariate Correlations for the Brief COPE

	Problem Solving	Avoidance	Positive Thinking
Social Support	.73**	.23	.42**
Problem Solving	-----	.25	.46**
Avoidance		-----	.19
Positive Thinking			-----

Note. ** $p < .01$.

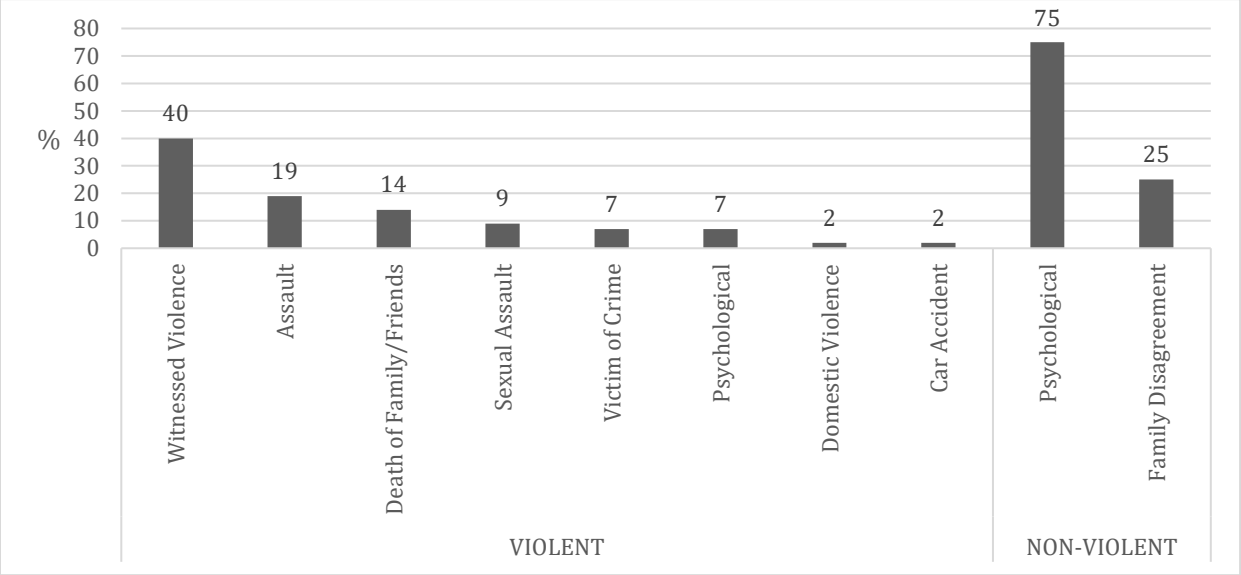
Participants were asked about the types of traumatic incidents they experienced on the job. When asked how participants experienced their worst traumatic event, their responses were categorized as follows: direct experience (37%), responding to an incident within their role as a first responder (28%), witnessed the event (24%), and learned about the event from a close family member or close friend (12%). In terms of the time frame, most participants (81%) reported that they experienced their worst traumatic event between 1 year and 40 years ago (M=11.13, SD=10.51) and the remainder indicated that they experienced the trauma less than a year ago (14%) or they did not provide a time frame because the trauma was an ongoing experience (5%).

Participants were also asked to briefly describe their worst traumatic event. These descriptions were coded as work-related versus not work-related and violent versus non-violent. With respect to the first distinction, there was an approximately equal split between work-related trauma (49%) and non-work-related trauma (51%). However, when asked a broader question about whether they have been exposed to "very stressful experiences involving actual or threatened death, serious injury, or sexual violence routinely in my job" the majority of participants (85%) indicated that they had been. Of those that experienced a stressful event in their job, the number of very stressful experiences on the job ranged from 1 to 25 (M = 10.78, SD = 8.08), although a number of participants did not provide a number; rather, they reported several (n = 4), hundreds (n = 6), or too many to count (n = 16).

Regarding the nature of trauma, 91.5% were coded as violent and 8.5% were coded as non-violent. As illustrated in Figure 1, there was a range of events that participants reported as violent, such as witnessing violence (e.g., attempted murder, an inmate struck another in the head with a weapon) and being assaulted (e.g., "I had urine and feces thrown at myself and my

partner. I was then attacked physically."). In contrast, the non-violent events generally fell into two categories and were not related to work experiences: psychological (e.g., concerned that my spouse would commit suicide) and family disagreements (e.g., fights or disagreements within my family). For a complete description of traumatic events reported, please see Appendix B.

Figure 1: Nature of Traumatic Event



To examine the relationship between PTSD and personality, and between PTSD and coping styles, partial correlation coefficients were produced. This allows for an examination of how each personality factor and coping style is uniquely associated with PTSD. As illustrated in Table 4, only one personality factor was significantly associated with PTSD and two coping styles were significantly associated with PTSD. Neuroticism and a positive thinking coping style demonstrated strong, negative associations with PTSD whereas an avoidant coping style demonstrated a strong, positive association with PTSD.

Table 4: Partial Correlations Between PTSD, Personality, and Coping

	Posttraumatic Stress Disorder
IPIP	
Conscientiousness	-.04
Neuroticism	-.52**
Extraversion	-.15
Agreeableness	.13
Openness	-.06
Brief COPE	
Social Support	.17
Problem Solving	.01
Avoidance	.70**
Positive Thinking	-.32*

Note. * $p < .05$, ** $p < .01$. IPIP = International Personality Item Pool (Goldberg et al., 2006); Brief COPE = Brief Coping Orientation to Problems Experienced (Carver, 1997).

Participants were asked several questions concerning their perception of supports and services provided by their institutions and whether they accessed supports and services in the past year. Figure 2 illustrates participants' responses to the statement "my institution provides me with appropriate supports or services after I directly experience a critical incident (e.g., assaulted by an inmate)." Almost half of participants (48%) strongly agreed or agreed with this statement and approximately one-third (34%) strongly disagreed or disagreed with this statement.

Figure 2: Institutional Supports After Directly Experiencing a Critical Incident

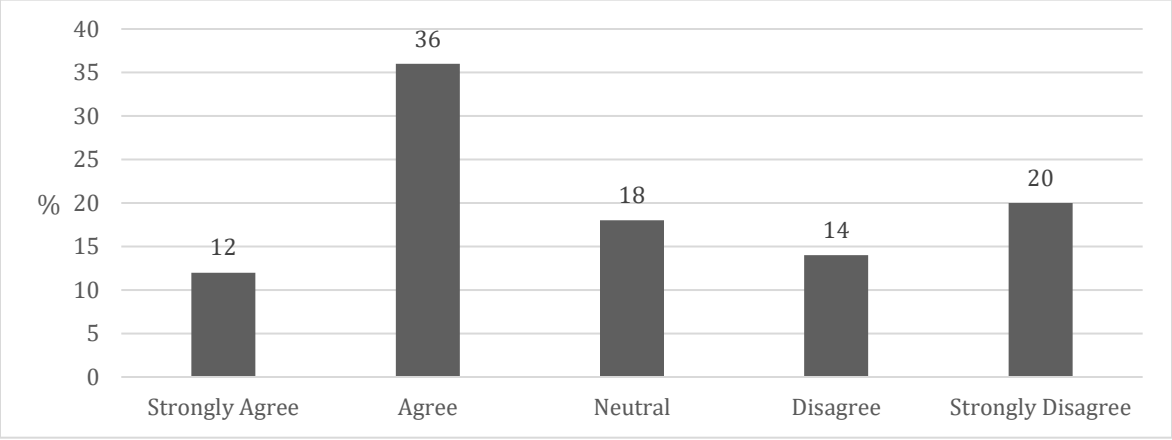


Figure 3 illustrates participants' responses to the statement "my institution provides me with appropriate supports and services after I witness a critical incident (e.g., arriving on the scene of a medical emergency)." The proportion of participants who strongly agreed or agreed with this statement (42%) was similar to the proportion of participants who strongly disagreed or disagreed with this statement (44%).

Figure 3: Institutional Supports After Witnessing a Critical Incident

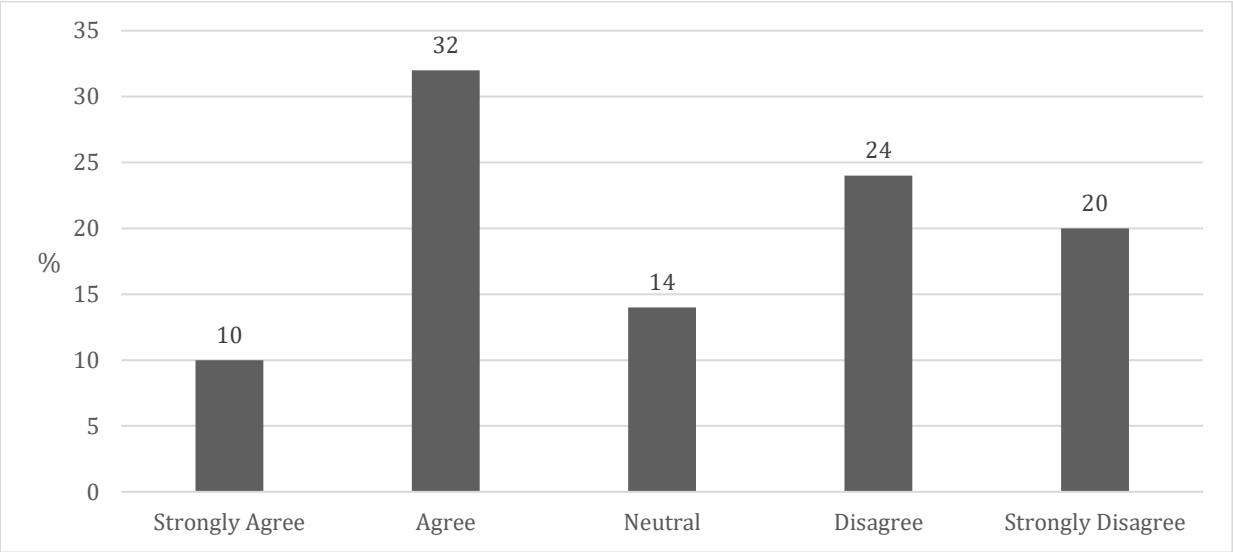


Figure 4 illustrates participants' responses to the statement "my institution provides me with appropriate supports and services after I am repeatedly exposed to details about a critical incident as part of my job (e.g., hearing about an assault from the previous day)." Most participants strongly disagreed or disagreed with this statement (52%), although a substantial proportion also strongly agreed or agreed with this statement (33%).

Figure 4: Institutional Supports After Repeated Exposure to a Critical Incident

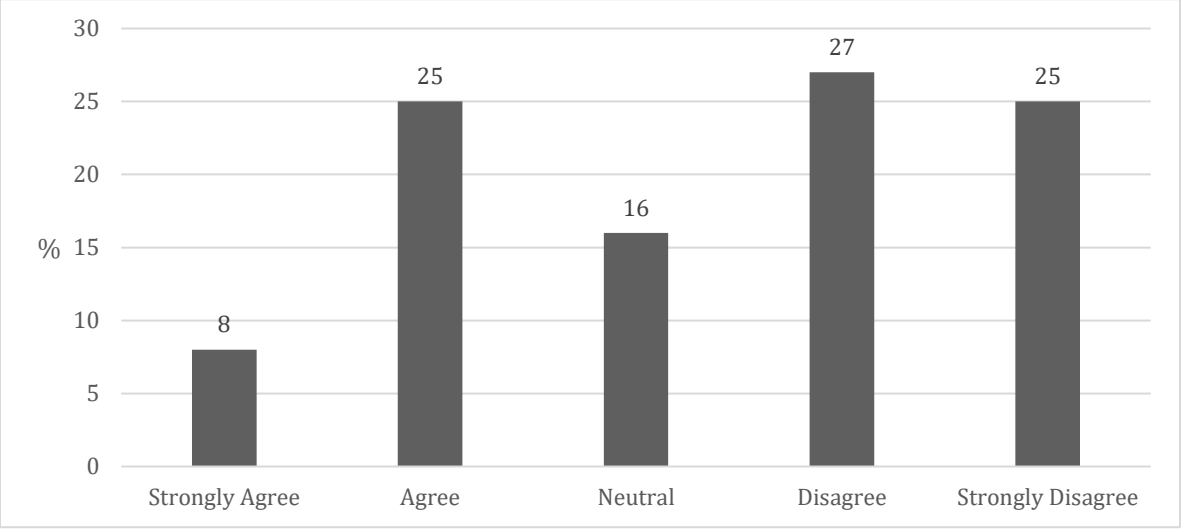


Figure 5 illustrates participants' responses to the statement "in the past year, how often have you accessed supports and services provided by your employer (e.g., employee and family assistance services, critical incident response team member debrief)." The results indicate that the majority of participants (92%) are not fully utilizing supports and services provided by the employer (i.e., only 8% accessed their employer benefits often or always in the past year).

Figure 5: Frequency of Accessing Employer Supports

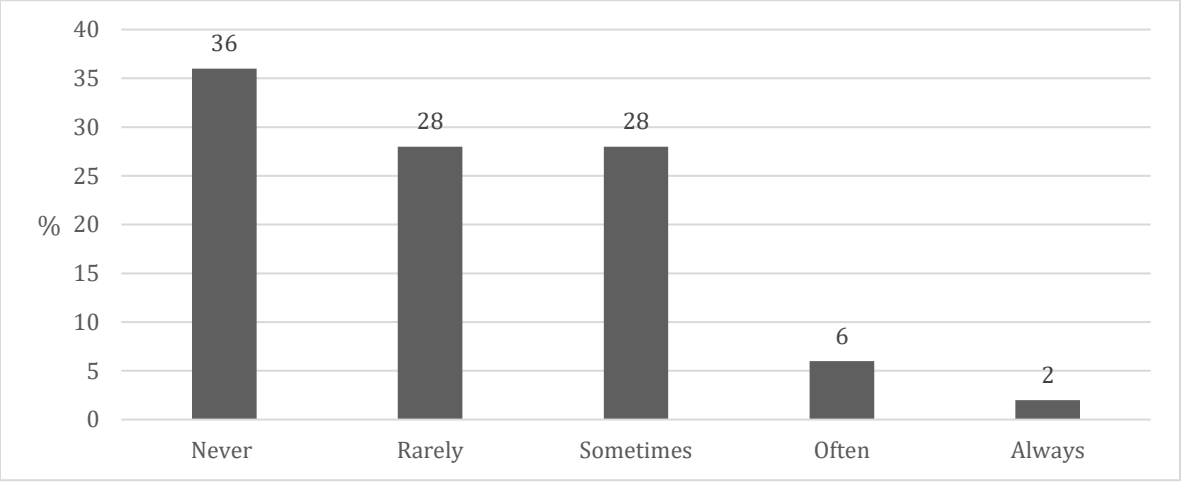
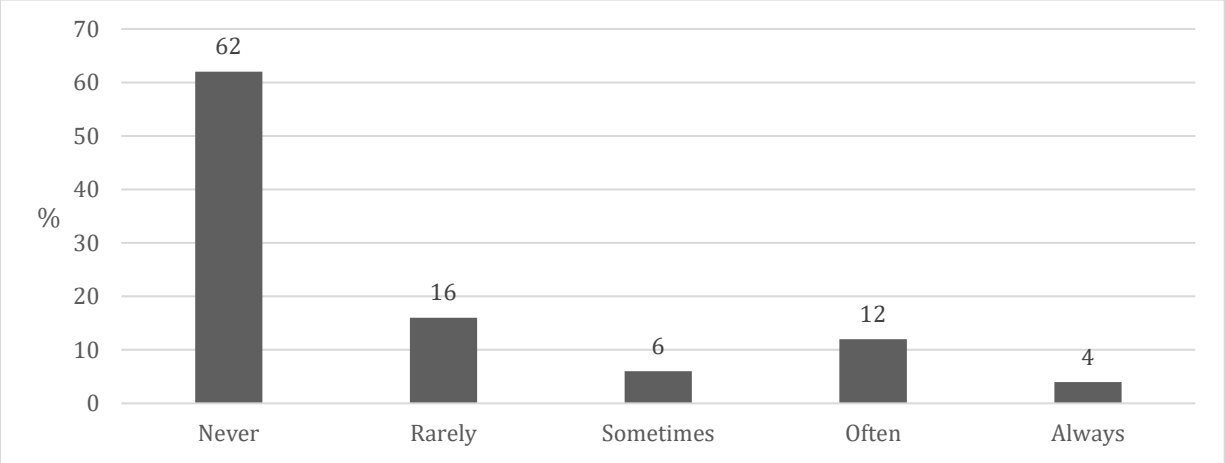


Figure 6 illustrates participants' responses to the statement "in the past year, how often have you accessed private supports and services (e.g., private counselling services not covered by your employee benefits)." Consistent with the underutilization of employer provided services, the majority of participants (84%) are not utilizing private supports and services (i.e., only 16% accessed private benefits often or always in the past year).

Figure 6: Frequency of Accessing Private Supports



Discussion

This is the first research study conducted with employees of BC Corrections to attempt to examine the nature of PTSD within the correctional environment with the goal of making recommendations to mitigate the devasting toll PTSD has in the personal lives of correctional officers. The intent of this study was to provide an initial step towards identifying possible resiliency factors that can be utilized in developing programming to reduce or minimize the harmful effects of trauma. Correctional centres are unpredictable environments with exceedingly high levels of workplace stressors, such as high inmate to staff ratios, increasing numbers of

mentally disordered offenders (Michalski, 2017; Ormston, 2010), and violence within the workplace (Boyd, 2011; Ricciardelli & Sit, 2016). Given these conditions, it is not surprising that a substantial proportion of provincial correctional officers and sheriffs met criteria for PTSD. Notably, this rate is much higher than the rate reported by Carleton et al. (2018), who identified that 24% of correctional officers in their study met the criteria for PTSD, although their research did not include sheriffs.

One factor that may contribute to this difference in prevalence rates is that this study had a much smaller response rate and focused on provincial corrections, whereas the study by Carleton et al. (2018) examined PTSD across Canada with a higher response rate from provincial and federal corrections. Although there is no evidence to indicate that provincial and federal institutions differ in how they manage their offender populations, the types of offenders differ. Federal institutions house long-term offenders (i.e., those sentenced to terms of two years or more); this represents approximately 3% of all offenders within Canada (Government of Canada, 2018). In contrast, provincial institutions house short-term offenders (i.e., those sentenced to terms of less than two years), whereby the majority (52.6%) are sentenced to less than a month (Government of Canada, 2018). Another difference between federal and provincial institutions is the correctional staff to offender ratio. At the federal level, the ratio is approximately 1 to 2.8 (Correctional Service of Canada, 2005), whereas at the provincial level in BC, the ratios are 1 to 40 in the women's centre and 1 to 60 in the male centres (Boyd, 2011). Taken together, the high turnover of offenders and the larger staff to offender ratio in provincial corrections may contribute to greater stressors and more chaotic environments, resulting in higher reported rates of PTSD.

The primary goal of this study was to examine whether specific personality factors and coping strategies were associated with PTSD. The study found a significant negative association between neuroticism and PTSD; this is not consistent with previous research on personality and traumatic stress which has found a positive correlation between neuroticism and PTSD (Breslau & Schultz, 2013; Gil, 2015; Jaksic et al., 2012; Paris, 2000). Also inconsistent with past research, this study did not find any significant associations between PTSD and extraversion or conscientiousness. Previous studies indicated that extraversion and conscientiousness are protective factors against the development of PTSS and PTSD (Gil, 2015; Jaksic et al., 2012). The contradictory findings in this study may be the result of having a very low number of participants. As such, it is important that future research examine associations between personality and PTSD among a larger, more representative group of correctional officers. This would also assist in obtaining information about a baseline personality profile of correctional officers to understand whether certain personality profiles emerge among those who work in correctional environments.

A second explanation for the inconsistent findings may be the types of participants. Previous studies have examined personality and PTSD among students, nurses, military personnel, and the general population (e.g., Gil, 2015; Jaksic et al., 2012). This is the first study to examine the relationship between personality and PTSD in a sample of correctional officers in Canada. The work in corrections involves dealing with dysfunctional people and managing behaviours while facing multiple stressors. It may be that individuals with certain personality profiles are drawn into this occupation and this interacts with correctional workplace stressors, resulting in different associations between personality and PTSD than has been found in previous research. More research is needed to determine if personality or environment is a factor in the

development of PTSD among corrections officer and which, if any, personality traits are protective factors against PTSD.

In terms of the relationship between coping styles and PTSD, this study found a significant positive association between avoidance coping and PTSD severity. This finding is consistent with other research that has found a linkage between these two constructs (e.g., Cofini et al., 2015). Furthermore, the current results found that positive thinking coping strategies were negatively associated with PTSD severity (i.e., higher scores in positive thinking were associated with lower PTSD scores), which is consistent with previous research (e.g., Cofini et al., 2015) and suggests that this coping strategy aids in managing stress and trauma. Given the consistent findings about positive thinking and lower PTSD scores versus avoidant strategies and higher PTSD scores, it may be helpful to educate correctional officers about the importance of refraining from the use of avoidance coping and encouraging the use of positive thinking as a coping strategy. As noted earlier, the pressures and demands of the prison environment can lead officers to feelings of anger and anxiety and a dwindling of emotional resources, all of which can result in a negative outlook (Suliman & Einat, 2018).

This study did not find a significant relationship between PTSD and social support as a coping strategy. On the one hand, this is to be expected given that the correctional officer code of conduct mandates that officers protect the privacy of offenders they supervise. As such, this may lead correctional officers to withhold traumatic information from those outside corrections (e.g., family and friends). This is supported by Laffaye et al.'s (2008) finding that veterans found peer to peer support the most important to their recovery. On the other hand, the lack of statistical significance seems inconsistent with the notion of the "officer code" whereby correctional officers protect each other and trust that their fellow officers have their back (Ricciardelli &

Gazso, 2013). The officer code is also about building camaraderie and developing work and social connections with each other due to their inability to share or vent their emotions regarding work stressors with outsiders. It would be worthwhile for BC Corrections to further examine whether and how correctional officers engage in social support given previous research showing that it is a buffer against the development of PTSD (Ceobanu & Mairean, 2015). Further research is also needed to examine whether the prison environment erodes social support between officers and their families, which was suggested by Laffaye et al.'s (2008) study showing that PTSD symptoms significantly predicted the erosion of perceived interpersonal resources and the breakdown of family support. This information can then be used to develop appropriate supports and services.

Importantly, further research needs to be conducted with a larger, more representative sample of correctional officers in order to understand how coping strategies are associated with the development of PTSD. A larger sample of participants would allow for an analysis of the relationship between coping styles and PTSD at a more detailed level to identify which specific coping strategies are risk factors for the development of PTSD and which strategies buffer against the development of PTSD. This would also allow for an examination of specific coping strategies and how they interact with personality traits in increasing or decreasing the risk for the development of PTSD.

When asked whether their institution provides appropriate supports and services after directly experiencing, witnessing, or being repeatedly exposed to a critical incident, between one-third (34%) to one-half (52%) of correctional officers indicated that their institution does not provide adequate supports and services. This is concerning because failing to provide adequate support and mental health intervention could lead to their mental health being compromised,

leading to extended periods of sick time, and possibly negatively impacting the quality of their personal lives away from work. Future research, perhaps in the form of a program evaluation, is required to assess the quality of supports and services that are provided following a critical incident to determine why a high percentage of staff believe such services are inadequate.

It is important to note that the proportion of participants who indicated that they were dissatisfied with the supports and services steadily increased across the different ways of experiencing trauma, whereby the highest level of dissatisfaction was with the supports and services in place for repeated exposure to a critical incident (52%). This could be the result of cynicism in that correctional employees do not believe that the employer will provide the necessary funding and resources for ongoing support following repeated exposure to the details of critical incidents. After a critical incident within an institution, the main elements of the event are relayed to staff in the morning briefing and through email. The staff involved may choose to share their experience with peers. Every critical incident is also investigated by members of the Occupational Health and Safety Committee and a report is prepared, which is a mandatory requirement from WorksafeBC (Works Compensation Act, 2019). This report is redacted for privacy reasons and is posted for all members to read so that they can be informed of any risks. If these reports contribute to correctional officers' repeated exposure to trauma, perhaps BC Corrections needs to consider alternative methods of communicating risks that do not expose its employees to unnecessary trauma. This recommendation is supported by research on vicarious trauma which indicates that reading, listening to, or viewing traumatic information can result in PTSD related responses (Spinaris et al., 2013). However, further research is necessary to determine the nature of trauma that correctional officers are repeatedly exposed to and in what format (i.e., verbal accounts from peers or written reports). This would assist in determining

whether different services are needed after directly experiencing a critical incident versus after indirectly experiencing a critical incident.

The finding that correctional officers are not regularly accessing employer or private services and supports may indicate that correctional officers had a real or perceived barrier to accessing mental health benefits. Ricciardelli et al. (2019) found that correctional officers are reluctant to seek help due to the perception that this would be a sign of weakness, cowardice, or incompetence. It was reported that correctional officers fear discriminatory responses from their employer, such as having their career development threatened, limitations with respect to promotion opportunities, or being moved into a work rotation that is perceived to be more stressful (Ricciardelli et al., 2019). BC Corrections have programs and resources, such as employee and family assistance through Morneau Shepell (24/7), a Critical Incident Response Team (a trained team of colleagues that provide peer to peer support following a critical incident), and a centre-driven wellness program. Centre wellness programs are designed to boost morale and support community initiatives, such as food banks or other local charities. These onsite and offsite services are readily available to help staff. Yet the stigma of seeking help may be a real or perceived barrier that undermines the success of these initiatives. A recognized component missing from initiatives within BC Corrections may be mental health training and awareness. An example of such an initiative is the Roads to Mental Readiness program, which is a one-day course focused on mental health issues. In one study where first responders (police, paramedics, and firefighters) took the training onsite, analysis of the data suggested that the program had a small effect on reducing stigma associated with mental health concerns and the program increased individuals' awareness and knowledge about mental health (Kelloway, 2018). However, the study did not examine whether the program increased first responders' willingness

to seek supports or reduced any symptoms of mental illness. It was suggested that reducing stigma may lead to increased help-seeking behaviours (Kelloway, 2018), but the study did not examine help-seeking behaviours.

Another example of a mental health training and awareness program is the Mental Health First Aid (MHFA) training offered by the Mental Health Commission of Canada, which was first provided in Nova Scotia and is currently available in BC (Mental Health Commission, n.d.). The reviews of the program suggest that MHFA training is associated with a reduction in participants' stigma associated with mental health concerns, an increased confidence in providing supportive help to others, decreases in social distancing from people with mental health problems, and a possible improvement in participants' mental health (Mental Health Commission, n.d.). However, there is no data suggesting that the implementation of the program in organizations affects actual behaviours or wellbeing, as no research has been conducted to determine if the program is achieving the goal of reducing sick time and decreasing mental health symptoms of employees taking the program (Kelloway, 2018). The Mental Health Commission of Canada claims this program is evidence-based but there is no empirical research to support this claim. The BCGEU offers this course several times a year, but to date, no correctional centres have sent staff to take this training. Correctional centres have incredibly high levels of workplace stress and to date nothing has been developed to provide staff with training in healthy coping strategies or to address the high rates of mental health issues that can be considered a workplace injury under the *Workers Compensation Act* (2019).

The above analyses and general conclusions should be viewed with some caution given the limitations of this study. The primary issue is the low response rate and the inclusion of sheriffs, which raises concerns about the reliability and validity of the findings. Because there is

no previous research examining sheriffs, it is unclear how their inclusion may have influenced the statistics and findings. As noted earlier, a larger sample would also allow for more sophisticated analyses to examine how personality and coping strategies together are associated with PTSD. Second, this study did not examine other factors that may be important to consider in understanding the nature of PTSD and coping strategies in correctional environments. Further research is needed to better understand the impact of workplace stressors and the prison environment on correctional officers' mental health and coping strategies. Similarly, more research is needed to identify the resiliency factors that buffer against the development of PTSD or mitigate long-term, chronic mental health issues. This will assist in designing a program that builds skills in managing stress with healthy coping strategies, which can then enable correctional officers to combat the adverse effects of traumatic exposure.

Conclusion

To summarize, this study found that more than one-third of correctional officers and sheriffs met the criteria for PTSD. These findings are not consistent with previous research as this rate was considerably higher than the 24% reported in the study by Carleton et al. (2018). In addition, the finding that neuroticism was negatively associated with PTSD was not consistent with previous research, which raises questions about the reliability of the results. However, the coping strategy of positive thinking may reduce the likelihood of developing PTSD and was consistent with past research. Engaging in an avoidant coping style was associated with higher levels of PTSD symptoms. Finally, more work needs to be done to provide targeted supports and services to correctional officers after they experience or witness critical incidents and to break down the stigma associated with seeking help. Correctional officers have access to employer services that could be beneficial, and it would be wise to encourage them to access all available

supports. Further research needs to be conducted with a larger, more representative sample of correctional officers to understand risk and resiliency factors in the development of PTSD in correctional settings. BC Corrections should consider a review of all employer provided mental health services to determine which services could be enhanced and identify and remove all real or perceived barriers to accessing supports. In addition, the organization should consider developing a skills-based program or adapting the current program to focus on healthy coping strategies to mitigate the consequences of trauma and PTSD. BC Corrections has partnered with the Justice Institute of BC to provide skills training and leadership development for officers (BC Government, n.d.). As such, this partnership could be extended to include a skills-based program on coping strategies that could be offered to all new recruits in their first six weeks of training. There appears to be a strong need to provide appropriate supports and services following a critical incident, therefore, each centre should have an onsite psychologist available to work with staff and to assist in educating officers in healthy ways to manage stress. All corrections officers should be required to have mandatory counselling appointments with an onsite trained professional in mental health services following a critical incident. This approach will hopefully reduce the stigma around mental health so that correctional officers start to talk about it and learn that seeking supports is not a weakness. The recognition of PTSD as a workplace injury is a step in the right direction, but more is needed to change the culture within the organization to be a healthier environment.

Appendix A: Research Ethics Approval

Research, Engagement, & Graduate Studies
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Abbotsford BC V2S 7M8

Tel: (604) 557-4011
Research.Ethics@ufv.ca
Website: www.ufv.ca/research-ethics

Human Research Ethics Board - Certificate of Ethical Approval - Amendment

HREB Protocol No: 100226
Principal Investigator: Monica Brainard-Adam
Title: Building Resilience Against Post-Traumatic Stress Disorder
Department: Criminology and Criminal Justice

Effective: December 9, 2019
Expiry: September 15, 2020

The Human Research Ethics Board (HREB) has reviewed and approved the ethics of the of the above research. The HREB is constituted and operated in accordance with the requirements of the UFV Policy on Human Research Ethics and the current Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.
* Please make the update about Survey Monkey and Canadian servers on your online consent form as well.

The approval is subject to the following conditions:
1. Approval is granted only for the research and purposes described in the application.
2. Approval is for one year. A Request for Renewal must be submitted 2-3 weeks before the above expiry date.
3. Modifications to the approved research must be submitted as an Amendment to be reviewed and approved by the HREB before the changes can be implemented. If the changes are substantial, a new request for approval must be sought.
4. If an adverse incident occurs, an Adverse Incident Event form must be completed and submitted.
5. During the project period, the HREB must be notified of any issues that may have ethical implications.
***NEW** 6. A Final Report Event Form must be submitted to the HREB through ROMEO when the research is complete or terminated.

Thank you, and all the best with your research.
UFV Human Research Ethics Board

Appendix B: Coding of Traumatic Events

Worst Traumatic Event Experienced: Work-Related (Violent)[1]

"Attempted murder, an inmate struck another in the head with a weapon".

"I saw my co-worker get assaulted."

"I was assaulted by another officer and sent to hospital. Management turned their backs on me."

"Doing CPR on a dead inmate waiting what seemed like forever for healthcare to arrive."

"staff assault"

"I had urine and feces thrown at myself and my partner. I was then attacked physically. I broke both my hands and my left wrist."

"An inmate jumping to his death."

"There's been a few. I have seen I/M's [inmates] almost beaten to death a few times. I've been involved personally in hangings, slashings and overdoses resulting in death a few times. Personally lifting a hanging body. Personally cutting neck ligatures off just prior to death. Been involved in many hands situations in which injuries occurred. Have had my life and my families lives threatened on many occasions. I have been physically attacked numerous times."

"Had to deal with an inmate that committed suicide by hanging himself inside a cell."

"Friend and co-worker getting viciously assaulted."

"I was knocked unconscious and kicked in the head at work".

"First responder – single engine airplane crash in [area]. Multi fatality with triage situation. One survivor in critical condition. Working with paramedics during the triage portion there was a person who was black (triage terms for imminent death) that was pushed aside and to access someone who was a red (triage term for critical condition that needs intervention immediately). This bothered me as the person still had a faint heartbeat and they were just pushed aside and during incident I did not know why. I had a heated discussion with the paramedic about the situation and it was then explained to me in terms of viability of life and that person had lost enough blood that we were going to lose two patients if we would have tried to work on them. It still bothered me that we didn't try at that very moment. I do understand now but the visual of flopping a lifeless body forward into a dead body in front of them in the cockpit of the destroyed plane will always stay with me."

[1] There were no descriptions that were classified as work-related and non-violent.

“Someone getting their face kicked in at work.”

“[An] inmate slashed himself from head to toe. Neck, chest, arms, torso and all the way down. Blood was everywhere. I discovered him during a medication run with a LPN nurse. She told me not to call a code since she was a nurse. I told her that I had to as she didn’t ten to the inmates injures anyways. He needed help. Afterwards I had to finish the medication run because we were short staffed. Regardless of how it effected me I had to continue on.”

“Too many. I’ve seen inmates die, I have been assaulted but the worst has been the behind the scenes plotting by the management team.”

“It’s difficult to pinpoint a single event. I would like to say it was either an overdose, I was directly involved in as a CS or the shit bombing of another staff. In the case of the shit bombing I had to witnessed others firsthand however what stood out most about this one is the amount of feces used and the smell, I can still smell the feces sometimes.”

“Witnessed attempted murder, suicide."

“As a CO an inmate assaulted another inmate with an industrial mop handle in a garbage bag. The offending inmate swung the bag with all his might hitting the other inmate from behind and impacted him in the side of the dead. One end of the mop handle penetrated the skull about 2 inches, leaving a hole in the right side of his skull. Brain matter and fluid along with a severe amount of bleeding occurred along with the injured inmate experiencing violent seizures and vomiting directly after the assault. I witnessed this and was the first responder to the inmate immediately afterwards. There is so much more.”

“Being threatened by an inmate that wants to take it to the next level, my family’s lives and safety.”

“After XX years as a CO there are many that combine all together. Watching someone get kill, being attacked by inmates, being threatened by inmates (kill you and your family), watching CCTV many acts of violence throughout my time as a CO.”

“Seeing three inmates shanked and laying on top of the inmate who had the shank, he was doing a push with me on his back.”

“An inmate on my unit almost overdosed. Nurses used naloxone to revive her.”

“A bad take down”

Worst Traumatic Event Experienced: Not Work-Related (Violent)

"Having a close family member die."

"In [month] of [year] I had a high-level incident with a freeman on the land person who I ended up fighting with twice and he was injured in the arrest."

"Being forced to perform sexual acts for the enjoyment of my now ex-husband."

"A guy I dated briefly when I was XX years old, slashed his wrists after I broke up with him. I found him and called the ambulance. He later came to my home then stalked me for 3 years. I quit my job, moved, changed my car and he still managed to contact me."

"I was sexually assaulted when I was around XX years old."

"I was home invaded. Tied up at gun point."

"Being assaulted by a member of my family."

"Watching my grandmother pass away on her deathbed."

"Accident where a friend died."

"Getting hurt in a fight."

"Car accident"

"Dealt with suicide, served in military, victim of sexual abuse."

"Domestic violence between my mother and father, abuse from my father until I was 13, then domestic violence between my husband and myself."

"Family and friends dying."

"Was raped at age XX."

"My husband was sexually abused as a child. He never told anyone about it until after I met him and encouraged him to report it to police. He did, and the abuser served time in prison."

"The death of my father."

"My mother died of an overdose."

"One of my sons almost died while I was out of town on work."

Worst Traumatic Event Experienced: Not Work-Related (Non-Violent)

"Fights or disagreements within my family."

"Being concerned that my spouse would commit suicide."

"Probably the extreme early birth of my son and the intense length of time where he may not have survived his birth. This was XX years ago."

"Being left alone when I was a child."

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