The Effects of having a Partner in a First Responder Occupation on Social Support and Wellbeing in Police Officers

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Abstract

There has been a surge in research examining the protective effects of social support against the adverse effects of trauma exposure on wellbeing, particularly among first responder roles. Partners are often a fundamental source of support. This study aimed to investigate whether having a partner who is a first responder affects the wellbeing of police officers. The quantitative analysis found a relationship between trauma exposure and Post-traumatic Stress Symptoms; however, neither social support nor perceived social support moderated this relationship. A significant correlation was found between social support and psychological distress. No significant differences were observed between officers with first responder partners and those with civilian partners. Both groups had wide ranges of scores alluding to the complexity of these relationships. Exploratory analysis of the qualitative questions uncovered potential advantages and disadvantages for both partner types. Individuals without partners appeared more vulnerable. These findings underscore the importance for organisations to support not only their employees but also their partners and families. Future research could delve deeper into these findings using qualitative methods to gain a richer understanding of the notions at play.

Acknowledgments

When I began my thesis, I knew I wanted my findings to make a positive contribution to those working in first responder occupations. After completing my research, I have gained a profound respect for the work carried out by our police officers and the difficulties they face. I would first like to acknowledge our frontline officers; I hope that this thesis is able to help inform how best to support you in the work you do. A special thank you to the officers who also gave up their time to participate in this piece of research.

The journey of completing this thesis has reflected my findings- I have keenly felt the impact of social support and encouragement from my loved ones. An enormous thank you to my primary support network: my parents, Toni and Lance Wickman, my sister Taylor Wickman, and my brother-in-law Mitch Holden. Every one of them have shown up for me in so many ways to help me cross the finish line. Thank you to my Piney friends and my Manly Fire friends for having my back and being my second family.

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Personal Disclosure

As the principal researcher, I acknowledge the potential biases stemming from my personal experience as a first responder. I have been a medical first responder and volunteer firefighter for Fire and Emergency New Zealand for approximately three years. My own exposure to potentially traumatic events through this work, and my own experiences seeking social support following these, sparked an interest in this topic and motivated me to carry out this piece of work.

Also, this research discusses multiple variables from a clinical or health psychology perspective as this was necessary for discussing wellbeing outcomes in the workplace. However, this piece of research was carried out with the intention of being endorsed in industrial and organisational psychology.

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Chapter One: Introduction

While many may fear the appearance of accidents, injuries, death, and disasters, some people actively choose occupations in which these are daily occurrences (Crockford, 2019). As the first people to attend to victims of traumatic incidents, first responders often find themselves in unpredictable and emotionally challenging circumstances (Greinacher et al., 2019). These incidents may involve significant injuries, violence, and civilian fatalities; however, they can also pose life-threatening risks to the first responders themselves (e.g., police officers being held at gun-point or firefighters getting trapped in a collapsing building; Lewis-Schroeder et al., 2018). Occupations including police officers, firefighters, search and rescue personnel, military personnel, and ambulance personnel have all been categorised as first responder occupations. These occupations regularly expose employees to high levels of work demands and stressors, both physical and psychological (Haugen et al., 2012). This exposure places first responders at heightened risk of developing physical and mental health issues (Jones, 2017; Reichard & Jackson, 2010). This includes post-traumatic stress symptoms (PTSS), depression, anxiety, chronic fatigue, somatic or psychosomatic complaints, difficulties with alcohol, and an elevated risk of suicide (Haugen et al., 2012; Kleim & Westphal, 2011; Lewis-Schroeder et al., 2018; Ringer et al., 2021; Smith et al., 2021; Walker et al., 2016). Heyman et al. (2018) found in a sample of American firefighters and police officers that they were more likely to die from suicide than in the line of duty. Moreover, evidence suggests that first responders often exhibit reluctance to engage with mental health services (Harvey et al., 2015). Barriers such as stigma, shame, fear of negative consequences, and doubts about treatment efficacy can hinder help-seeking behaviours (Kessler et al., 2013). Failure to seek prompt treatment for pathological stress responses can result in the exacerbation of untreated disorders and the development of chronic conditions (Kessler et al., 2013). First responders who are struggling with mental health issues could

also be more likely to physically hurt themselves or others as they can be more prone to decision-making errors (Bayouth et al., 2013; Sallis et al., 2013) and engaging in hazardous behaviours while working (Ângelo & Chambel, 2015; Levy-Gigi & Richter-Levin, 2014). The consequences of making mistakes may be higher for first responders compared to other occupations as they have to make decisions in high-risk situations that can endanger both themselves and the public (Scarborough, 2017). Unlike many other occupations, careers as first responders entail a heightened risk of physical and psychological harm.

Amidst the challenges faced by first responders, high-quality social support has been found to play a crucial role in maintaining mental health; this has been highlighted by extensive research across varying situations, occupations, and populations (Button, 2008; Johnson & Hall, 1988; Ogińska-Bulik, 2005; Ozbay et al., 2007; Schug et al., 2021; Scott & Havercamp, 2014; Travers et al., 2020; Yasin, 2010). Robust levels of social support and access to functional and rich social networks have demonstrated a protective effect on physical and psychological health while poor social support can have deleterious effects (Kaplan et al., 1977; Ozbay et al., 2007; Tham et al., 2020; Triana et al., 2019). There has been considerable growth in research on the negative effects of occupational stressors and trauma exposure on the mental health of first responders, with many studies identifying social support as an important moderator of this relationship (de Terte, 2012; Greinacher et al., 2019; Kshtriya et al., 2020; Prati & Pietrantoni, 2010; Stephens et al., 1997). Intimate partners have been recognised as an important source of social support for first responders (Waddell et al., 2020). Social support from intimate partners can help to mitigate the development of PTSS (Charuvastra & Cloitre, 2008; Regehr et al., 2005) and encourage help-seeking behaviours (Meis et al., 2010). However, it remains unclear whether the occupation of intimate partners influences the quality or quantity of social support provided. Wallace and Jovanovic (2011) suggested that partners sharing the same occupation may be able to provide

better support due to their inherent understanding of the profession. Qualitative analyses of firefighters and police officers revealed that the ability to process work-related trauma was influenced by whether their partners had an understanding of the job (Netterville, 2022). It could therefore be hypothesised that those with partners who comprehend the challenges of attending highly stressful events, such as suicides or cardiac arrests, may be more inclined to seek out the social support they need. This could be especially important in a population that is unlikely to seek professional help as they may be more reliant on social support from those around them to buffer the negative effects of trauma exposure. This is an area of research that needs to be explored as it could potentially identify populations that are more vulnerable to the negative effects of trauma exposure in their line of work. Working as a police officer has been identified for many years now as an immensely stressful occupation that can negatively impact quality of life (Beehr et al., 1995; Kroes, 1976; Liberman et al., 2002; Territo & Vetter, 1981). Police officers may often encounter death or injuries, including those who are victims of physical or sexual violence (Liberman et al., 2002). They may also experience the threat of injury or death or may have to use violence in their line of work (Liberman et al., 2002). Working with New Zealand Police, this study aims to examine these relationships with the intention of identifying potentially vulnerable populations within the first responder community and informing targeted interventions to support their wellbeing.

Chapter 2 of this thesis will explore trauma exposure in first responder populations and the specific occupational traumas faced by police officers. Chapter 3 will explore the potential adverse effects of trauma exposure on personal well-being as well as the effects on work. Chapter 4 examines the use of social support to cope with exposure to trauma, including the role of intimate partners. This chapter will lay the foundation for the present study, which investigates whether police officers with first responder partners experience enhanced social support compared to those with a civilian partner or no partner. It should be

noted that little of the research reviewed will be directly applicable to New Zealand Police, aside from the few cited studies that have carried out research with them (e.g., de Terte, 2012; den Heyer, 2021; Johnston, 2015; Stephens & Long, 1999; Stephens et al., 1997; Stephens & Miller, 1998). Much of the reviewed literature will either be based on police officers in other countries (e.g., Chan et al., 2023; Edwards & Kotera, 2021; van der Meer et al., 2017) or New Zealand populations that are not police (e.g., Reti et al., 2022a, 2022b; Richardson et al., 2020) and will consequently not pertain directly to New Zealand Police personnel. However, this research has been included to highlight potential variables, relationships, and circumstances that may be influencing the findings of this study. Additionally, this study will refer to post-traumatic stress disorder as post-traumatic stress symptoms (PTSS); this is to support the reduction of stigma associated with a normal response to trauma exposure instead of referring to it as a disorder.

Chapter Two: Trauma Exposure

Over the past several decades, there has been a notable growth in research and acknowledgement of the detrimental effects of trauma exposure. This chapter will explore the concept of potentially traumatic events (PTEs), the various types and frequencies of PTEs encountered by first responders, and the specific PTEs that often occur within the realm of police work.

Potentially Traumatic Events

The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* is widely used by clinicians and researchers to classify mental health issues (DSM-5; American Psychiatric Association [APA], 2013). While historically the definition of trauma has been heavily debated, the newest edition of the DSM has attempted to eliminate the subjectiveness of the definition (Pai et al., 2017). The DSM-5 includes a new chapter called "Trauma- and Stressor-Related Disorders" which has attempted to standardise the definition (APA, 2013). Psychological distress from trauma exposure can produce highly variable symptoms; while some are understood in an anxiety- or fear-based context, many symptoms are also anhedonic, dysphoric, aggressive, or dissociative (APA, 2013). Reasonably high rates of trauma exposure in the general population suggest that PTEs, including interpersonal violence (e.g., rape, crime, and child abuse) as well as hazards and disasters (e.g., car crashes, plane crashes, floods, earthquakes, terrorist attacks, and explosions), are not uncommon (Neria et al., 2008; Yehuda et al., 1998). Previous studies suggest that a substantial portion of the population (ranging from 28 to 90%) experience at least one traumatic event in their lifetime; common PTEs include the sudden death of a loved one, motor vehicle accidents, being mugged, and disasters (Benjet et al., 2016; Breslau et al., 1998; Hepp et al., 2006; Norris, 1992; Ogle et al., 2014; Roberts et al., 2011; Storr et al., 2009).

According to the DSM-5, a traumatic event is exposure to actual or threatened death, serious injury, or sexual violence, either by directly experiencing it, witnessing in person as it occurs to others, learning that it occurred to a family member or close friend, or indirect exposure in the course of occupational duties and/or being exposed to grotesque details of an event (APA, 2013). Men and women differ in the types of traumatic events they are likely to experience, with women more likely to be sexually assaulted or suddenly lose a loved one, and men more likely to be injured, physically assaulted, mugged, or in an accident (Benjet et al., 2016; Hatch & Dohrenwend, 2007). Low socio-economic status, racial/ethnic minority status, and being a young adult were also found to be associated with higher traumatic event exposure (Hatch & Dohrenwend, 2007). Moreover, different types of trauma exposure carry varying risks; for example, sexual assault has been found to have greater PTSS severity than the sudden death of a loved one (Benfer et al., 2018; Kelley et al., 2009). Interpersonal traumas (those caused by other people) can have more severe effects and are more likely to result in PTSS (Charuvastra & Cloitre, 2008). Goodman et al. (1998) argued that it is common for people to experience multiple traumatic events in their lifetime and the effects of exposure to multiple events can be cumulative. Compared to a singular, discrete trauma, exposure to more than one traumatic event has been found to have a greater negative impact on the severity of PTSS (Green et al., 2000; Schnurr et al., 2002; Turner & Lloyd, 1995). This relationship between experiencing multiple traumatic events and the likelihood of developing PTSS has been explained by the 'sensitization' hypothesis (Cougle et al., 2009, p. 2). This theory suggested that prior trauma exposure sensitises people to respond severely when they encounter stressors (e.g. Resnick et al., 1995; Yehuda et al., 1995). There is strong evidence of this occurring in military veterans, with their frequency of combat exposure predicting levels of PTSS (Dohrenwend et al., 2006; Solomon & Flum, 1988; Stein et al., 2005); however, there is also evidence that this occurs in non-military populations as well (Cougle et

al., 2009; Kilpatrick & Saunders, 1999). An 'inflation effect' could occur where trauma exposure increases the conditioned response associated with moderately stressful events (Cougle et al., 2009, p. 2). For example, someone who is mildly afraid of cars may develop a more extreme driving phobia after being physically assaulted even though there was no automobile present during the assault (Mineka & Zinbarg, 2006). Martin et al. (2013) suggested that cumulative trauma refers to the number of different trauma types that one experiences, not the total amount of traumatic incidents. Layne et al. (2014) found that each additional exposure to a different type of trauma significantly increased the likeliness of high-risk behaviour and functional impairment in adolescents. Briere et al. (2016) found that exposure to six or more types of trauma significantly increased the likelihood of experiencing PTSS compared to exposure to one type of trauma; specifically, cumulative interpersonal trauma was found to predict PTSS while cumulative non-interpersonal trauma did not. This concept is important to note as first responders can be repeatedly exposed to numerous different types of traumatic events.

Trauma Exposure in First Responder Occupations

The DSM-5 states that indirect exposure to trauma in a professional capacity occurs through witnessing the effects of war, rape, genocide, or abusive violence inflicted on others which happen in the context of one's work duties (APA, 2013). First responders are listed as likely to experience this as they often attend to serious injuries and deaths, both naturally occurring and intentional, in their line of work (APA, 2013). These occupations can also have indirect exposure through photos, videos, verbal accounts, or written accounts of traumatic events (APA, 2013). First-responder occupations regularly expose employees to high levels of work demands as well as physical and psychological stressors (Bergen-Cico et al., 2020). Work demands can include working shifts and overtime (Allison et al., 2022), while examples of physical stressors are foot pursuits for police officers (Orr et al., 2020) and

heavy personal protective gear and heat exposure for firefighters (Morris & Chander, 2018). Different first responder job profiles elicit different roles when attending critical incidents; for example, paramedics would look after the needs of injured victims while military personnel would deal with issues of safety (Kleim & Westphal, 2011). Despite these varying roles, all first responders are likely to be the first present at traumatic events (Kleim & Westphal, 2011). Like many civilian occupations, there is also exposure to psychological stressors such as labour and management conflicts, bullying and harassment, or having to use poor, outdated equipment (Haugen et al., 2012; Walker, 2017, 2018). However, first responders are also exposed to psychological stressors that are considered to be traumatic, which distinguishes their occupation from virtually all others (Haugen et al., 2012).

First responders also play an important role in protecting public health and safety after the occurrence of large-scale disasters (Benedek et al., 2007). These can differ considerably from everyday emergencies in terms of demand for resources and manpower; each disaster can manifest differently and pose unique challenges (Harris et al., 2018). This makes responding to disasters a complicated process; however, most will involve basic life-saving interventions, search and rescue, and resource allocation (Harris et al., 2018). Working with disrupted communities, being separated from homes and loved ones, high levels of work demands, and exposure to traumatic events during disaster management can have negative consequences on first responders (Benedek et al., 2007). Compared to disasters such as flooding or earthquakes, terrorist attacks that involve intentional acts of violence can have worse effects on first responders' mental health, including a loss of sense of safety and increased feelings of uncontrollability (Fullerton et al., 2006; Grieger et al., 2004; Kleim & Westphal, 2011; North, 1995). In everyday routine jobs, major investigations, and large-scale disasters, there are many opportunities for first responders to be exposed to PTEs.

First responders also must manage the effects of working the unconventional shift times that are usually employed in this industry. Since these roles are based in emergency response, many first responders work rotating schedules with both day and night shifts that can be 12 hours or longer (Cramm et al., 2021). Most of New Zealand's first response organisations employ a roster system which means the majority of police officers, firefighters, and ambulance crew work in shifts (Auckland University of Technology, 2022; Fire and Emergency New Zealand, 2024; New Zealand Police, n.d.-b). Shift work puts workers 'out of sync' and reduces their ability to get restorative sleep, engage in regular eating habits, and socialise with friends and family (Brown et al., 2020; Finn, 1981). Consequently, has been linked with significant physical, mental, and safety issues including depression, anxiety, PTSS, cognition impairments, substance abuse, reduced quality of life, and suicide intention (Brown et al., 2020; Feldman et al., 2021). The combination of trauma exposure and poor sleep seems to create a significant risk of poor mental health in first responders compared to the general population (Khan et al., 2020).

Occupational Trauma in Police

Working as a police officer has been identified, by some, as one of the most stressful occupations (e.g., Johnson et al., 2005). Miller (1995, p. 592) described it as a "difficult, dangerous, often thankless job" where officers "regularly deal with the most violent, impulsive, and predatory members of society, put their lives on the line, and confront miseries and horrors that the rest of us view from the sanitized distance of our newspapers and TV screens". Police officers are exposed to a multitude of PTEs, exceeding the experiences of the general public; they can see more harsh social realities, violence, and death in the space of several months than the majority of people face in their lifetime (Soomro & Yanos, 2019; Violanti & Aron, 1995). They often must deal with critical incidents and human conflicts that pose a physical and psychological threat to all who are involved, including

themselves. This can involve injuries, loss of life, destruction of property, and social disruption (Regehr et al., 2021). Working as a police officer is suggested to be a psychologically high-risk occupation because of the frequent exposure to highly distressing traumatic events (Stephens & Miller, 1998). Police officers are also often indirectly exposed to trauma (APA, 2013). Secondary trauma exposure occurs when PTEs are experienced via another individual (Figley, 1995). In police officers, this can occur through activities such as reviewing crime reports, conducting interviews with crime victims, witnesses, and offenders, or even just speaking with their colleagues (APA, 2013; Figley, 1995). However, it should also be noted that trauma exposure does not need to occur in the workplace to affect officers; a longitudinal study by Wang et al. (2010) found that childhood trauma exposure predicted greater depressive symptoms after 12 months of police service. This could be linked back to the 'sensitization' theory discussed earlier that suggests trauma has a cumulative effect.

Regehr et al. (2021) found that a lot of literature looking at the effects of trauma exposure in policing focused on repeated exposure to common challenging situations. However, much of the public attention and policy development still focuses on the impacts of large-scale disasters and extreme events, despite their being less common (Regehr et al., 2021). A survey of 719 American police officers by Weiss et al. (2010) found that 87.2% had witnessed someone die, 82.2% had been in a life-threatening high-speed chase, 55.2% had been threatened with a knife, 50.8% had been threatened with a gun, 40.2% had worked with a sexually abused child, 20.3% had a colleague killed in the line of duty, 17.7% had been exposed to a natural disaster, and 15.7% had been exposed to a man-made disaster. It is important to note the vast difference between exposure to more common PTEs and exposure to disasters. While research is heavily focused on repeated trauma exposure from common critical incidents, such as witnessing death and injury, there may be less knowledge and understanding of trauma exposure in routine police work within the general public. Apart

from directly interacting with violent or upset people, police officers can also encounter other distressing factors linked to their operational activities. Officers may witness the loss of cases in court linked to their work or have to engage with recidivist offenders (Hart et al., 1995). Another common occurrence is being unable to help people to a satisfactory degree due to a lack of resources, legislative constraints, or the person being unwilling to help themselves or accept help from others (Hart et al., 1995). While these additional factors may not be considered traumatic in themselves, they could contribute to the distress of trauma exposure. Examples of this within the context of police officers could be watching a rapist go unconvicted at court after attending to the victim of rape or witnessing a repeated suicide attempt of someone the officer had already been called to in the past. There may also be less awareness and understanding of these police-specific stressors in the general public.

Another important consideration when comparing the results of New Zealand-based studies to other countries is that New Zealand has a relatively low gun violence rate compared to other countries, such as the United States (Leach-Kemon et al., 2023). New Zealand police officers normally do not carry guns (New Zealand Police, n.d.-d). This means that the PTEs for New Zealand police officers may be different from other countries. Another potential source of stress to consider is that some unarmed police officers report feeling unsafe and believe they should be armed for the safety of themselves and others (Egan, 2023). den Heyer (2021) identified various potential PTSS risk factors New Zealand Police personnel including being sworn, being assaulted, being shot at or having a firearm presented, working in a one-, two-, or three-person station, and trauma exposure. de Terte (2012) conducted a study on New Zealand police officers and found that the most common PTEs were assault (22%), ‘messy’ deaths (20%), the death of a friend (10%), and homicides (9%). Police officers who have been repeatedly assaulted in the line of duty experience worse physical and mental wellbeing, with an increase in psychological distress being linked to fear

of being assaulted again in the future (Davidson et al., 2023; Leino, 2013). In regards to 'messy' deaths, police officers can attend jobs that are overwhelmingly messy, chaotic, and dirty which can cause an imprint of smells and images of dead bodies that remain with officers long after an investigation has ended (Carpenter et al., 2014; Henry, 2004). The anxiety and fear that can occur with exposure to dead bodies can be worsened by shock, disgust, and horror (Carpenter et al., 2014). Another source of potential trauma for police officers is Taser-proximate deaths. Frontline New Zealand Police officers can carry Tasers at all times when on duty to prevent and respond to violent and high-risk situations (New Zealand Police, 2015). While deaths after Taser deployment are uncommon, they do occur, usually due to circumstances outside of the officer's control such as underlying health conditions or the presence of drugs and alcohol (White, 2009). The use of Tasers by police has also been linked to other negative health outcomes, for example, a woman suffered a miscarriage after being tasered in the abdomen (Ciavaglia et al., 2021). Waters (2017) found that Taser-related deaths have the potential to cause extreme trauma and stress in the police officers involved, forever changing their lives and as well as their families' lives. Organisational aspects of policing, such as heavy workloads, long working hours, lack of support from superiors and the organisation, lack of resources, and poor organisational culture, have also been linked to poor wellbeing outcomes (Purba & Demou, 2019). These stressors have also been linked with decreased job satisfaction; however, after accounting for organisational stress, operational stress (e.g., exposure to death or physical assault) had a significant positive relationship with job satisfaction (Johnston, 2015). It is therefore important to consider the large array of factors that could contribute to trauma exposure in police officers.

Chapter Three: The Effects of Trauma Exposure

There is a variety of potential effects that trauma exposure can have on mental and physical health. This chapter will explore the general effects of trauma exposure on first responders and discuss how cumulative trauma exposure from attending many different calls when on duty may play a role in health and wellbeing. This chapter will then delve further into PTSS and depressive symptoms by looking at how they have been defined and understood. Both will then be discussed in relation to police officers and their work. Finally, different ways that exposure to trauma is managed will be explored.

Effects of Trauma Exposure on First Responders

Exposure to occupational hazards and traumatic stressors puts first responders at high risk of developing physical and mental health issues (Jones, 2017; Reichard & Jackson, 2010). This includes PTSS, depression, anxiety, chronic fatigue, somatic or psychosomatic complaints, and difficulties with alcohol (Haugen et al., 2012; Kleim & Westphal, 2011; Lewis-Schroeder et al., 2018; Walker et al., 2016). Difficulties in relationships have also been reported in first-responder populations (Cone et al., 2015). Severe levels of high-risk alcohol and drug use are prevalent in first responders, with excessive drinking and alcohol or drug abuse identified as maladaptive coping mechanisms within these populations (Bryant, 2022; Donnelly & Siebert, 2009; North et al., 2002; Schuster & Ross, 2019). Haddock et al. (2012) found high rates of heavy and binge drinking among firefighters in the United States. Their results showed that 40% of participants had engaged in hazardous drinking behaviours, with 9% of career and 10% of volunteer firefighters having engaged in driving while intoxicated in the previous thirty days. Stanley et al. (2016) conducted a systematic review of 63 studies; first responders reported a higher risk of suicidal thoughts, behaviours, and death by suicide due to the significant job-related stressors (e.g., lack of resources and poor management) and trauma exposure in their line of work. Some studies in the United States have found that first

responders have a higher risk of suicide, with both police officers and firefighters more likely to die by suicide than in the line of duty (Heyman et al., 2018; Ringer et al., 2021; Smith et al., 2021).

Studies have found approximately 5% to 8% of the general population develop PTSS within their lifetime (Frans et al., 2005; Kessler, 2000). In comparison, a review of previous research by Lewis-Schroeder et al. (2018) found that police officers develop PTSS at rates ranging from 6% to 32%, ambulance personnel at rates ranging from 9% to 22%, and firefighters at rates ranging from 17% to 32%. It should be noted that rates of PTSS rose in the general population to 15% during the recent COVID-19 pandemic (Zhang L. et al., 2021). However, the pandemic also negatively affected first responders with COVID-19-related worry having a significant impact on the severity of anxiety, depression, PTSS, and alcohol use (Vujanovic et al., 2021). Evidence also suggests that first responders have a greater risk of poor physical health (e.g., weight gain and increased rates of cardiovascular, respiratory, musculoskeletal, and neurological symptoms) if they develop PTSS or major depression (Fjeldheim et al., 2014; McFarlane et al., 1994; Wild et al., 2016). While many may know of the physical risks in first responder roles, such as firefighters running into burning buildings or police officers dealing with violent people, not as many may understand the significant psychological risks that come with the job.

Effects of Trauma Exposure on Police Officers

While much of the research on first responders and trauma exposure applies to police officers, this section will focus specifically on findings related to policing. Green (2004) found that police officers suffering from long-term PTSS due to trauma exposure experienced acute hyperarousal, increased job dissatisfaction, fewer hobbies, and reduced social interaction. Suppression of emotion has been identified as a common response to trauma exposure in police officers, especially among males (Pasciak, 2012). Howard et al. (2000)

and Pogrebin and Poole (1995) suggested that police culture perpetuates the idea that emotions and feelings undermine the rationality and control needed to complete jobs, limiting the ability of officers to express their emotions. Expressing emotions and feelings may be seen as a sign of weakness in police culture, with great importance placed on being perceived as "tough" by both other officers and the public (Koch, 2010, p. 93). This is likely linked to the stigma behind seeking help for mental health issues, which is a major barrier for police officers reaching out for the necessary help following trauma exposure (Velazquez & Hernandez, 2019). In recent years, there have still been reports of prolific mental health stigmas and traditional masculine characteristics, including strength, toughness, and self-reliance, pervading police organizational cultures in varying countries (Bikos, 2021; Chan et al., 2023; Drew & Martin, 2021; Edwards & Kotera, 2021; Yalley & Olutayo, 2020). Another significant barrier for police officers in seeking help is the fear of losing work opportunities or promotions (Burns & Buchanan, 2020). Police officers have to be deemed psychologically fit for duty in order to perform in critical, high-stress situations; if officers are considered not fit for duty, they can be placed on sick or administrative leave until their condition improves (Fischler, 2001; Stone, 2013). The fear of being stood down and the potential financial and social repercussions of this could contribute to the reluctance to seek help. Officers' sleep quality is also suggested to be affected by trauma (Neylan et al., 2002). Marmar et al. (2006) found that compared to control subjects who were not in an emergency service role, police officers reported significantly worse sleep quality and less average sleep time on both variable and stable day shifts. This could be due to sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep) being a symptom of PTSS (APA, 2013). Nightmares were linked to the life-threatening aspects of their work; however, global sleep quality was largely affected by the routine stressors of police service (Marmar et al., 2006). While not all police officers deal with stress and trauma exposure by abusing alcohol and drugs, this is indicated

to be another common issue; there is also evidence that the two factors are linked (Cross & Ashley, 2004; Gershon et al., 2002; Violanti et al., 1983). A study with Australian police officers found that 30% of the sample scored in the 'at risk of harmful consumption category'; those at risk of hazardous alcohol consumption were more likely to be males than females, in the 18- to 25-year-old age group, and be single rather than in a relationship (Davey et al., 2000). Approximately 25% of the officers also reported having drunk whilst on duty (Davey et al., 2000). There has been significant research on the link between PTSS and increased suicide risk; reviews of the literature have found mixed results on the relationship suggesting that there might be other factors influencing the relationship, such as psychiatric comorbidity (Gradus, 2018; Holliday et al., 2020). Police officers have been identified as a high-risk group for suicide due to increased likeliness of alcohol abuse, high-level PTSS, and job burnout (Stuart, 2008; Violanti, 2004). Violanti (2004) found that the combination of PTSS and high alcohol use led to a ten-fold increase in the risk of suicide ideation in officers. Despite the numerous negative effects discussed above, it is important to note that the resilience that officers may possess, and the training they receive to develop it, may help to prepare them for exposure to trauma (Andersen et al., 2015; Chitra & Karunanidhi, 2021; Janssens et al., 2021; McCanlies et al., 2017). Some also become police officers because they enjoy the 'thrill of the chase' and may perceive PTEs as interesting or exciting compared to routine police work (Sollund, 2008). Regehr et al. (2021) reviewed psychological interventions for first responders and found that following large-scale disasters, police officers had consistently lower rates of PTSS compared to other occupations and civilians affected by the same disaster suggesting that they were trained and equipped to deal with the situation. While not all officers may react to trauma exposure in the same way, there is sufficient evidence to suggest a significant increase in the risk of adverse outcomes.

Post-Traumatic Stress Symptoms

PTSS is described as the development of characteristic symptoms after exposure to one or more traumatic events (APA, 2013). It causes substantial economic burdens and costs to both the patient and society (Kessler, 2000). It is a chronic issue that results in significant impairments in functioning across multiple psychosocial factors (including occupational/academic, family, and socializing) which subsequently lowers one's quality of life (Holowka & Marx, 2012; Rodriguez et al., 2012; Smith et al., 2008; Zlotnick et al., 2002). The fifth edition of the APA's DSM has seen a significant change in the criteria of PTSS as well as an expansion of the definitions of trauma and trauma exposure (Pai et al., 2017). One of the main changes was moving PTSS from the anxiety disorders category to a new one called "Trauma and Stressor-related Disorders"; one reason for this is research has shown that PTSS includes emotions other than those related to anxiety/fear, such as shame, guilt, and anger (Friedman et al., 2011; Pai et al., 2017; Resick & Miller, 2009). The DSM-5 criteria for PTSS (see Appendix A) outlines the symptoms that can arise from it such as negative alterations in cognition and mood as well as changes in levels of reactivity and arousal (APA, 2013). The DSM-5 suggests that PTSS can arise through personally experiencing, witnessing, learning about, or being repeatedly exposed to details of one or more traumatic event(s) (APA, 2013). However, close proximity and greater experience of a traumatic event as a threat have both been identified as risk factors for developing PTSS (Gil, 2015). Hyperarousal is proposed to play an important role in many of the symptoms shown in PTSS (Stam, 2007). Symptoms that indicate alterations in arousal and reactivity associated with traumatic events included irritable behavior and angry outbursts, reckless or self-destructive behavior, hypervigilance, exaggerated startle response, problems with concentration, and sleep disturbance (APA, 2013). It is suggested that elevated levels of hyperarousal are a predictor of other symptoms of PTSS, and, in the long term, a lack of

improvement in these symptoms (Schell et al., 2004). Other research suggests that the employment of dissociate strategies and the presence of persistent dissociative symptoms (e.g., emotional numbing) predicts poorer wellbeing outcomes (Classen et al., 1998; Hagenaars et al., 2007; Werner & Griffin, 2012). Trauma exposure can also result in subclinical PTSS where individuals have aspects of the disorder, such as hyperarousal symptoms, without meeting the criteria for diagnosis of PTSS (Korte et al., 2016). One study done by Blanchard et al. (1995) on motor vehicle accident victims with a PTSS diagnosis found that after six months half of the participants no longer met the PTSS criteria; avoidance and numbing symptoms had significantly declined, however, hyperarousal symptoms had not. Impairment in interpersonal and occupational functioning has been found with both clinically diagnosed PTSS (Rodriguez et al., 2012) and subclinical PTSS (Cukor et al., 2010). This implies that it is essential to consider the effects of all present symptoms rather than just clinically diagnosed PTSS. While there is evidence that PTSS can subside without specific treatment, a meta-analysis by (Morina et al., 2014) of over 80,000 participants found that time frames vary widely with 44% of the participants remitting from PTSS after a mean of 40 months. However, early recognition and treatment are strongly suggested to successfully manage PTSS (Bobo et al., 2007; Davidson et al., 2004). It should also be noted that there is an occupational approach to PTSS; Castro and Adler (2011) suggested that reactions that could be classed as PTSS are a normal process of how an individual may respond to PTEs they are exposed to in their occupational role. This theory suggests that certain adaptive strategies employed by military personnel may be labelled as PTSS phenomenology; for example, the PTSS symptom of hypervigilance is normal for deployed service members as they are trained to monitor continuously for signs of danger (Castro & Adler, 2011). This could also be the case for police officers; however, it would require a qualitative approach to research this phenomenon. This approach highlights the importance of understanding the

impact of training, context, and social relationships (i.e., experiencing and processing PTEs at an individual and group level) for examining PTSS in a high-risk occupation.

Depressive Symptoms

Another adverse outcome of trauma exposure that has been found in both adults and children is the increased risk of developing depressive symptoms (Lai et al., 2013; Lilly et al., 2011; Vibhakar et al., 2019). The dimensional approach to affective disorders suggests that depression should be conceptualized as existing on a spectrum where the severity of symptoms can vary; this encourages the idea of a continuum that ranges from major depression to depressive symptoms that do not amount to a disorder (Angst et al., 2000; Ayuso-Mateos et al., 2010; Judd & Akiskal, 2000). Chief complaints of patients with depression often include an unpleasant emotional state, a change in attitude towards life, or physical symptoms such as fatigue or loss of appetite (Beck & Alford, 2009). DSM-5 classification of major depressive disorder (see Appendix B) requires a certain number of symptoms to be present over the same two-week period that show a change in previous social, occupational, or other areas of functioning (APA, 2013). Alongside depressed moods and loss of pleasure or interest, physical symptoms include significant weight loss or weight gain, insomnia or hypersomnia, fatigue, and reduced concentration (APA, 2013). Another important symptom listed in the DSM-5 is thoughts of death and suicidal intention (APA, 2013). Suicide attempts have been strongly associated with mental disorders; depressive disorders are the most prevalent with approximately 60% of suicide victims having suffered from a depressive disorder (Berman, 2009; Jeon, 2011; Tanney, 2006). While there is no mention of PTSS, the New Zealand Police Medical Standards manual lists a history of depressive symptoms lasting more than two years, a history of two or more episodes of correctly diagnosed depression, and current use of anti-depressants as conditions that are likely medically incompatible with the police officer role (New Zealand Police, n.d.-a). This

highlights the risk of developing depressive symptoms that can significantly reduce the ability to function following repeated exposure to PTEs.

Psychological Distress

Psychological distress is broadly defined as "a state of emotional suffering characterised by symptoms of depression (e.g., loss of interest; unhappiness; desperateness) and anxiety (e.g., restlessness; feeling tense)" (Belay et al., 2021, p. 1248). PTSS and depressive symptoms can overlap, and the two conditions have a high comorbidity (Davidson et al., 2004; O'Donnell et al., 2004; Stander et al., 2014; Williams, 2017). The concept of psychological distress has been vaguely used in scientific literature to describe varying combinations of symptoms including depressive and anxiety symptoms, personality traits, and behavioural problems (Drapeau et al., 2012). The stress-distress model described psychological distress as the threat to mental and/or physical health that follows exposure to a stressful event; suggested criteria include ineffective coping and the resulting emotional turmoil of the inability to cope with the stressor (Drapeau et al., 2012; Horwitz, 2007; Ridner, 2004). Psychological distress is suggested to dissipate when the stressor is removed or the individual learns to cope effectively with the stressor (Ridner, 2004). With the increased risk of negative effects suggested due to the comorbidity of conditions (e.g., Ramsawh et al., 2014), psychological distress is an important variable to consider in research on high-risk occupations.

Other Factors that Affect Well-Being Outcomes

There are several other factors linked to health and well-being that are pertinent to discuss. Gender is suggested to impact well-being outcomes with females being consistently identified in research as at a higher risk of developing anxiety, PTSS, and depressive symptoms (Gater et al., 1998; Holbrook et al., 2002; Nolen-Hoeksema, 1990; Nolen-

Hoeksema et al., 1999; Stein et al., 2000; Weissman et al., 1996). This is suggested to occur due to a variety of biological factors (e.g., puberty, menstrual cycles, pregnancy, and menopause) as well as sex-specific cultural demands and experiences (e.g., pressure around body image, being taught certain coping styles, or increased likelihood of experiencing sexual assault) which may result in the increased probability of developing anxious or depressive disorders (Altemus et al., 2014). In contrast, Thayer et al. (2003) proposed that the gender difference in depressive symptoms may not be due to women being more at risk but because women may pay more attention to emotions; when this was statistically controlled, they found that the gender difference was no longer statistically significant. Research on police officers has found inconsistent and conflicting results on gender differences in PTSS (Bowler et al., 2010; Pole et al., 2001; van der Meer et al., 2017). Pereira's (2002) study on military personnel also found no gender difference, with men and women being equally likely to experience PTSS when exposed to similar levels of stress; however, men were more likely than women to get diagnosed with PTSS alluding to stigmas surrounding different mental health issues. This insinuates that while gender differences may be found in research, this could be due to social and cultural factors rather than biological sex differences. Another piece of research found that in police officers, higher levels of empathy moderated the relationship between exposure and higher PTSS/depressive symptoms in female officers but not male officers (Beagley et al., 2018). This further highlights the vast array of individual and social factors that could be affecting PTSS development. It should also be noted that in New Zealand specifically, men have reported worse health outcomes than women in many domains due to the presence of stigmas around information-seeking and help-seeking behaviours relating to wellbeing (Walmsley, 2021; Wellstead & Norriss, 2014). For example, in New Zealand military personnel, males reported higher PTSS scores (Richardson et al., 2020). Ethnicity is another major factor that is suggested to play a role in well-being

outcomes. Some research frames this relationship from a deficit perspective, highlighting how being an ethnic minority increases the risk of negative health outcomes including anxiety and depression as well as reduced access to health care (e.g., Talamaivao et al., 2020). Like gender, these differences between ethnic groups are not likely to be due to biological differences, but due to the ongoing effects of colonisation, interpersonal racism, and systematic racism on the health of ethnic minorities in countries such as New Zealand (Paradies, 2016; Talamaivao et al., 2020). Other perspectives suggest that instead of viewing ethnic identity as related to compromised well-being, the focus should be on the relationship between strong ethnic identity and positive well-being (e.g., Smith & Silva, 2011). A strong, positive ethnic identity can serve as a protective factor for well-being and reduce symptoms of anxiety and depression (Manuela & Anae, 2017; Smith & Silva, 2011; Williams et al., 2012). In discussing gender and ethnicity, it is important to address the concept of intersectionality. This theory suggests that there is an increased risk of negative experiences and well-being for those who are members of multiple marginalised groups, whereas there is an increased likelihood of positive experiences for those who are members of multiple privileged groups. For example, a Māori woman who could experience gender and ethnicity discrimination may have more negative experiences than a Pākehā woman who is likely to experience just gender discrimination. Other social identity factors such as age, class, sexuality, disabilities, etc., and the power structures related to these (e.g. ageism, sexism, etc.) are also suggested to shape individuals' behaviors and experiences (Etherington et al., 2020; Mallipeddi & VanDaalen, 2022).

Apart from social factors, there are a variety of other factors that have been suggested to impact the risk of PTSS and depressive symptoms following trauma exposure. Hassija et al. (2012) found that reduced perceptions of hope and avoidant coping strategies may increase the risk of depression following traumatic events. Mindfulness levels have been

found to be significantly negatively associated with PTSS and depression symptom severity in those with previous trauma exposure (Bernstein et al., 2011; Schoorl et al., 2015; Tubbs et al., 2019). Joyce et al. (2019) also found that measures of baseline resilience (the ability to adapt effectively in adverse or stressful circumstances) in first responders predicted lower levels of PTSS and depression symptoms at a six-month follow-up. Additionally, in police officers, greater childhood trauma exposure, lower self-worth during training, and greater perceived work stress have been identified as risk factors for duty-related depression (Wang et al., 2010). This suggests that personal qualities, experiences, and behaviors can influence reactions to and outcomes of trauma exposure.

Managing the Negative Effects of Trauma Exposure

While many interventions have been developed to improve post-trauma symptomology, the relative effectiveness of different treatment approaches has not been well researched (Alden et al., 2021). Many studies in this area have been limited by a lack of active control conditions and smaller sample sizes; this has made it harder to determine which practices are the most effective in supporting first responders (Alden et al., 2021). Evaluations of interventions have found that many had limited effects on mental or physical health outcomes, with exercise and imagery interventions (Wild et al., 2020) as well as trauma-focused psychotherapies (Alden et al., 2021) showing the most promise for improving first responder mental health. An exercise intervention encourages the benefits of exercise on physical and mental health outcomes seen in the general population, while an imagery intervention is an established psychological tool employed to improve performance and psychological skills (Simonsmeier et al., 2021; Wild et al., 2020). While a lot of police personnel are already reasonably active, specific types of training such as high-intensity intermittent training have been found to significantly reduce stress in already trained individuals (Lark et al., 2021). Trauma-focused psychotherapy is “any therapy that uses

cognitive, emotional, or behavioural techniques to facilitate processing a traumatic experience and in which the trauma focus is a central component" (Schnurr, 2017, p. 56). From an organisational perspective, to mitigate the negative effects of exposure to stressors, police, ambulance, and firefighter agencies can employ various preventative initiatives to assist their employees (Reynolds & Wagner, 2007). This typically goes beyond providing access to counselling and teaching personal coping skills; by examining the varying sources of stress, including organisational factors, a comprehensive, holistic, multi-staged approach to stress management can be formed (Reynolds & Wagner, 2007).

When looking at individual predictors of mental health problems in emergency workers, Wild et al. (2020) identified five key predictors: *personality variables*, including neuroticism, anxiety sensitivity, and trait anger; *coping variables*, including emotional suppression, behavioural disengagement, and rumination; *cognitions*, including attributions, resilience appraisals, and post-traumatic cognitions; *social support variables*, including support at work and general social support; and *physical inactivity*. Coping strategies play a role in managing trauma exposure, with active coping strategies facilitating more post-traumatic growth and greater well-being (Arble et al., 2018; Páez et al., 2007). Active coping involves purposefully dealing with problems, including seeking comfort and social support (Barendregt et al., 2015). Passive coping involves employing inactive strategies to avoid disagreements and conflicts with people or institutions, for example, denial and behavioural or mental disengagement (Blow et al., 2017; Li, 2014). Coping style has been found to contribute significantly to first responders' PTSS symptomology and post-traumatic growth (Donovan, 2022; Skeffington et al., 2017). It should be noted that higher PTSS scores have been linked with higher post-traumatic growth scores indicating that both positive and negative impacts of trauma exposure can be experienced simultaneously (Bhat & Rangaiah, 2016) Díaz-Tamayo et al. (2022) found that first responders frequently use passive coping

strategies such as avoidance or disconnection to downplay the perception of the stressful event or avoid confronting challenging situations. Passive coping strategies were strongly linked to PTSS, chronic stress, burnout, and psychiatric morbidity in first responders while active coping strategies had a protective effect (Díaz-Tamayo et al., 2022).

First responders have been suggested to be unlikely to seek treatment for PTSS following trauma exposure, largely due to stigmas around mental health that are still persistent in these occupations (Crowe et al., 2015; Haugen et al., 2017; Milliard, 2021; Olatunji, 2018). One study by Arble et al. (2018) identified police officers as a vulnerable population compared to other first responders due to a default use of avoidance-heavy strategy; the use of avoidant coping among police officers was found to have a greater consequence on well-being, increased substance use, and poorer post-traumatic growth compared to other first responders. Police-specific risk and protective factors should also be taken into consideration; for example, following violent assaults on police officers, regular preparatory and follow-up sessions were identified as a protective factors against PTSS while facing legal consequences following the assault was a risk factor (Ellrich & Baier, 2017). Social support is also suggested to play an important role in positive health outcomes, even though it is not easily classified as either an approach or avoidance strategy (Arble et al., 2018; Skeffington et al., 2017). Social support may be an important resource for organisations to consider for improving performance and reducing turnover as it has been shown to affect cynicism and organisational connectedness while protecting first responders from burnout (Huynh et al., 2013).

Chapter Four: Using Social Support to Cope with Trauma Exposure

The Relationship between Social Support and Well-Being

Thoits (2010, S46) defined social support as "emotional, informational, or practical assistance from significant others, such as family members, friends, or co-workers; support actually may be received from others or simply perceived to be available when needed". It involves the experience or perception of receiving love and care from others, being valued, and belonging to a social network (Wills, 1991). Social support can come from partners, friends, family, co-workers, social and community ties, and even pets (Allen et al., 2002; Taylor, 2011). A strong link has been found between social support and well-being; compared to socially isolated people, those who are socially integrated tend to be more physically and mentally healthy (Barrera Jr, 1986; House et al., 1988; Uchino, 2009). Apart from offering the benefit of practical advice and the encouragement of positive behaviours, social support is also suggested to support stress management on a physical level, for example, it has been shown to reduce cortisol levels (Eisenberger et al., 2007; Taylor, 2011). Social support is usually divided into received and perceived social support. Received is support that has been received or provided in the past while perceived is support that is expected to be provided in the future (Guilaran & de Terte, 2020). Social support was found to be negatively correlated with symptoms of PTSS, major depression, and general anxiety disorder (Kshtriya et al., 2020). Poor social support is one of the strongest risk factors for PTSS following trauma exposure (Brewin et al., 2000; Ozer et al., 2003). This was also found to be true for emergency personnel (Prati & Pietrantoni, 2010). The negative effects of occupational stressors and trauma exposure on the mental health of first responders have been heavily researched, with many studies identifying social support as an important moderator of this relationship (Greinacher et al., 2019; Kshtriya et al., 2020; Prati & Pietrantoni, 2010). In contrast to previous research on gender differences in social support discussed earlier, both

Prati and Pietrantoni (2010) and Reti et al. (2022a)found that for first responders, the relationship between social support and mental health is stable across different ages and does not appear to be moderated by gender. Stephens and Long (1999) conducted a study on New Zealand police officers and found that trauma was positively related to PTSS, but this relationship was moderated by emotional support from their peers and police officers' attitudes towards expressing emotions at work. This indicates that social support from a variety of sources, including from within the organisation, is an essential component in managing the negative effects of first responders' trauma exposure.

In seeking out and receiving social support, a first responder's interpretation of a traumatic event and their attribution patterns can be influenced by their support network (Prati & Pietrantoni, 2010). For example, feelings of guilt, shame, and self-loathing can be present after witnessing injuries or death; receiving social support can alter one's emotional state and provide adaptive coping strategies (Prati & Pietrantoni, 2010). Different types of support can offer distinct supportive functions, including emotional, instrumental, informational, companionship, and self-esteem support (Gottlieb & Bergen, 2010). However, it should be noted that if there is an under-provision of support (Siewert et al., 2011) or if there is a mismatch between the type of support needed and the type of support received (Kang & Wei, 2018), this can have detrimental effects. For example, if someone is seeking emotional support and receives advice in the form of instrumental support, this could make them feel misunderstood and worse than before they sought support. Perceived social support involves the cognitive appraisal of the availability and/or quality of support (Guilaran & de Terte, 2020). The act of perceiving that support is available from others in times of distress can be beneficial in reducing stress even if support is not given (Daly & Baumeister, 2023). While perceived support has no actual materialisation, it seems to play a large role in the protective effects of support (Cohen & Wills, 1985; Gottlieb & Bergen, 2010). When

compared to received social support, perceived social support has been found to have a greater impact on mental health (Haber et al., 2007; Nurullah, 2012; Prati & Pietrantoni, 2010; Reti et al., 2022a). There have been inconsistent findings on the relationship between received support and health with non-significant and even negative associations being found (Bolger & Amarel, 2007; Uchino, 2009). Helgeson (1993) suggested that received support levels do not indicate whether one's needs are being met. This suggests that it is important to distinguish between, and separately measure, the two types of social support in research.

The Role of Intimate Partners in Social Support

A romantic partner is considered to be an important source of social support and having a partner is suggested to enhance well-being (Musick & Bumpass, 2012; Schwarzer et al., 2004). Partners provide companionship, intimacy, and day-to-day interactions, as well as connections to networks of friends, family, and community that can provide social support (Musick & Bumpass, 2012). However, the types and benefits of social support from partners may depend on a variety of circumstances, for example, younger people are suggested to rely more on intimate partners as a source of emotional support than older people (Schwarzer et al., 2004). The association between having a romantic partner and well-being was also found to be mediated by perceived social support (Stronge et al., 2019). This research also found a stronger effect on well-being for men (Stronge et al., 2019). However, the benefits for well-being depend on the quality of the relationship as well as the individual's social motivations (Girme et al., 2016; Proulx et al., 2007). Those with high-quality relationships have been found to benefit from greater emotional regulation on a neurological level when receiving support from their spouse compared to support from a stranger or no one (Coan et al., 2006).

Intimate partners play an important role in providing social support to first responders; partners of those suffering from PTSS are suggested to play the key role of 'cheerleader' for their partner in encouraging the engagement of activities and the use of

mental health services (Meis et al., 2010; Regehr et al., 2005; Waddell et al., 2020). Waddell et al. (2020) highlighted how partners often monitor changes in symptoms and can also advocate on behalf of partners with PTSS who may be reluctant to seek treatment. Balderrama-Durbin et al. (2013) found that PTSS symptoms were negatively related to partner support in United States Air Force service members; further examination found that a large portion of this relationship was explained by the willingness to disclose deployment- and combat-related experiences to intimate partners. A study on disaster workers found that exposed disaster workers had significantly higher rates of acute stress disorder, PTSS, and depression compared to unexposed comparison subjects; however, an interesting finding of this study is that those who were single were more vulnerable (Fullerton et al., 2004). Reti et al. (2022a) found that ambulance personnel considered spouse and family support to be their strongest source of support. Police personnel were also found to seek support from significant others and family, however, friends were not considered a significant source of support (Padhy et al., 2022). It was suggested that this may be because it can be uncomfortable to share the stressful conditions of one's occupation with friends who may not be able to relate to the situation (Padhy et al., 2022). Research also suggests that a partner who is in the same occupation may be able to provide better support as they have an inherent understanding of the profession (Wallace & Jovanovic, 2011). A study by Halbesleben (2010) on police officers found that the association between spousal support and the use of active coping was moderated by their partner's occupation. Halbesleben (2010) suggested that having a partner in the same occupation may offer greater support resources that are relevant (e.g., advice on how they handled a similar situation) and be in a better position to engage in active coping mechanisms. Netterville (2022) found that interpersonal support and relationship satisfaction predicted PTSS severity and work PTEs were exacerbated by negative interpersonal support (e.g., a lack of understanding of their job or trauma processing needs). A systematic review

by Sharp et al. (2022) found that emotional withdrawal was a common occurrence between first responders and their partners; potential reasons for this included withdrawal behaviours associated with PTSS, partners protecting each other from difficult experiences, the impact of shift work and/or work stress, and behaviours learned by first responders in their work roles that resulted in withdrawal in their relationships (e.g., showing little emotion and detachment from their work). Police child abuse officers were found to be more withdrawn in their relationships as a result of their work (Brady et al., 2019; Craun et al., 2015). Karaffa et al. (2015) reported that the spouses of United States police officers believed it was their partners' occupation that caused them to be unemotional and detached. Reports of increased marital tension, withdrawal, conflict, poor communication, and emotional compensation, suggested that these are common occurrences in relationships with first responders that negatively impact wellbeing (Sharp et al., 2022). A first responder's exposure to trauma and dangerous work environments has detrimental effects not only on themselves but can also significantly impact the mental health of those who are supporting them (Cox et al., 2022; Lambert et al., 2012). Waddell et al. (2020) highlighted the importance and responsibility of emergency service organisations to recognise the significant role that intimate partners play in trauma recovery and establish how best to support their needs. Recent studies have shown promising results for educational interventions and programs on social support, active coping, and psychological first aid that aim to engage the partners and families of first responders (McKeon et al., 2021; O'Toole et al., 2022). McKeon et al. (2021) found that an online program that engaged with first responders and their self-nominated support partner showed better wellbeing outcomes (including reduced psychological distress, depression, anxiety, and stress, as well as increased quality of life and minutes of walking) for both parties. With partners being both heavily influential on the wellbeing outcomes of first responders, as well

as personally impacted by the dynamics of their relationships, they are a necessary component to consider when addressing first responder wellbeing.

Chapter Five: Research Aims and Hypotheses

The Present Study

The purpose of this research is to investigate whether a first responder's partner's occupation plays a role in the relationship between trauma exposure, social support, and well-being. While this study will be looking specifically at New Zealand police officers, results could potentially be generalizable to other first responder occupations. As previously discussed, social support is an extremely important factor in supporting the mental and physical health of first responders following exposure to traumatic events. Partners have also been found to be an important source of social support. However, there has been no research done that explores whether the occupations of partners affect the quality or quantity of social support provided to first responders. The present study will aim to fill this gap in the literature and find out if partners having any experience being first responders themselves affects levels of social support and well-being in New Zealand police officers.

Research Hypotheses

1. There is a positive relationship between trauma exposure and PTSS.
2. Social support will be negatively associated with psychological distress (PTSS, depressive symptoms, and life satisfaction).
3. Those with partners in first-responder roles will report higher levels of social support compared to those who have a partner in a non-first-responder role or those who have no partner.
4. Those with partners in first-responder roles will report lower levels of psychological distress (PTSS, depressive symptoms, and life satisfaction) compared to those who have a partner in a non-first-responder role or those who have no partner.

5. Partner support will be a stronger source of support for those with partners in first responder roles compared to those without partners in first responder roles.
6. The relationship between trauma exposure and PTSS will be moderated by social support, in that social support will decrease the effect of trauma exposure on PTSS.
7. The relationship between trauma exposure and PTSS will be moderated by perceived social support, in that perceived social support will decrease the effect of trauma exposure on PTSS.

Chapter Six: Method

Design

This study employed a cross-sectional, non-experimental design. A quantitative survey was utilised for this research project. Since this study explored novel relationships that had not been researched before, there were several quantitative questions included to expand on the findings; however, they were analysed in a quantitative manner. The independent variable was trauma exposure while the dependent variable was psychological distress (a combination of PTSS, depressive symptoms, and general health measures). Social support (a combination of received social support and perceived social support measures) was examined as a moderator of the relationships between the IV and DV.

Power Analysis

There has been a significant increase in the use of moderated multiple regression (MMR) analysis to test hypotheses concerning the moderating effects of categorical variables; however, there are several factors that affect the statistical power of this technique, including sample size (Aguinis, 1995; Aguinis et al., 2005). The adequacy of sample size for MMR also depends on the reliability of measures employed, the number of independent variables, and the frequency distribution of the dependent variable (Spicer, 2005). Stone-Romero and Anderson (1994) found that sample size has a significant effect on the power of MMR to detect moderators. They suggested that the sample size needed to be at least 120 to detect even medium and large moderating effects, with their definition of a small effect size going undetected with 120 participants. In contrast, Cohen (1992) suggests that for a medium effect in multiple regression with an alpha of 0.5, a sample size of 67 is required. As there seems to be a lack of consistency across the research, additionally a power analysis was conducted using the G*Power program. Ferguson (2009) has pointed out that there are

difficulties in the interpretation of effect sizes and a lack of agreement on the magnitude of effect that is necessary to establish practical significance. With this in mind, the power analysis was conducted predicting a medium effect size ($f^2 = 0.15$) in regards to the second hypothesis which is looking at the main theme of social support as a moderator between trauma exposure and well-being. Cohen (1988) suggested that 0.15 is a conventional value for a medium effect size. It should be noted that due to these inconsistencies in the literature, 0.15 could be interpreted as a small or possibly a large effect. It was decided to use a medium effect size for the parameters as a meta-analysis of studies on social support as a moderator has found the mean effect size was of medium magnitude (Prati & Pietrantoni, 2010). The power analysis was set with the test family: *F*-test, statistical test: linear multiple regression (fixed model, R^2 increase), type of power analysis: a priori, alpha: 0.05, power levels: 0.80, predictors: 8 (trauma exposure, psychological distress, social support, and control variables). The total sample size that was recommended was 119. Taking all of this into consideration, the minimum sample size was estimated to be 120.

Sample

The population of interest was sworn New Zealand police officers as they were likely to have been exposed to potentially traumatic events in an occupational capacity. A total of 252 officers responded to the survey. Ten participants were excluded for not completing the consent questions. There were 37 participants who were excluded due to missing or extreme values. Therefore, the final sample size was 205 officers. The sample was mostly comprised of participants who identified as female (67%) with those who identified as male making up the rest of the sample (33%). It is important to note that this sample is not reflective of the current makeup of New Zealand Police. Their most recent Annual Report indicated that only 25% of their officers are women (New Zealand Police, 2022). The ethnicities of participants shown below in Table 1 are reflective of those described in the 2022 Annual Report.

Table 1

Ethnic Composition of the Sample

Ethnicity	Number of participants	Percentage of sample
Māori	12	6%
Māori and Pākehā	17	8%
Māori and Other	7	3.5%
Pākehā	150	73%
Pākehā and Other	7	3.5%
Other	10	5%

Note. Some participants recorded multiple *Other* ethnicities. Ethnicities that fall into the *Other* category have not been reported to reduce the risk of participants being identified and preserve anonymity. Two participants were not included in this table as they preferred not to answer.

The participants' ages ranged from 23 to 61 years old with a mean age of 37.29 years (*SD* = 8.91). The median was 35 years, and the mode was 31 years. As there is a minimum age requirement of 18 years old to be eligible to attend the Royal New Zealand Police College (New Zealand Police, n.d.-c), the minimum value of 23 years is valid. There are also no regulations that require police officers to leave their jobs after reaching a certain age, if they complete the necessary physical fitness tests, therefore, the maximum value of 61 years old is also valid. The range of length of services was 0-39 years. The mean was 11.89 years (*SD* = 8.53), the median was 9 years, and the mode was 5 years. The minimum value of zero years is a valid response as it implies that those officers are in their first year of service. The

maximum value of 39 years of service is also valid as the greatest age recorded was 61 years. Regarding highest education levels, 1% had no qualification, 9% had a school certificate or NCEA Level 1, 22% had university entrance or NCEA Level 3, 8% completed a trade certificate, 48% completed a university certificate or degree, and 12% completed a postgraduate degree. Most participants were married (61.5%), while 25.9% had a partner/girlfriend/boyfriend, 5.9% were single, 4.9% were divorced/separated, and 2% selected *Other*. It should be noted that there is no recent data to assess the validity of representation in police officers regarding their age, education level, relationship status, and length of service. All descriptive statistics are outlined in Appendix C.

Procedure

To conduct this research, approval was sought from the New Zealand Police Research Panel (Research Agreement EV 12 597) and the Massey University Human Ethics Committee (approval number: 22/64). All active Police officers who had completed Police college were invited to participate in the study. The electronic survey used for data collection in this study was created using the Qualtrics computer software and included the psychometric tools outlined in the *Measures* section. This survey was piloted by three people that were not part of the sample group; however, two were first responders. This survey was piloted to ensure that the questions asked were clear and relevant and that there were no spelling or grammatical errors. The result of this was a minimal change made to the Social Support Scale to reduce confusion around the response options.

The link for the survey remained active for 4 weeks. Participants were asked to give consent to participate at the beginning of the survey before they could proceed to the questions. Participants had to indicate that they had read and understood the information sheet (see Appendix D) and that they gave consent for the collection of their responses. There was significant consideration given to ensure that officers were fully aware of important

aspects of the information sheet regarding health and safety; therefore, we included an additional consent section. Participants were asked to review the following statements and select each statement to indicate that they understand and wish to proceed: “I understand that this survey is anonymous”; “I understand that the survey will be asking me about my previous traumatic experiences (both personal and work-related)”; “I understand that I can leave the survey at any time”; “I understand that the survey is confidential. If I indicate that I, or others, are at immediate risk, there is no way for the researcher to contact me so I must seek help for myself”. If any of the statements were not selected, the participant was excluded. In answering the qualitative questions, participants were also asked to not use any identifying information (e.g., the names of people at incidents) to protect the anonymity of other police staff and civilians involved in the described potentially traumatic events. At the end of the survey, participants were offered the opportunity to enter their email address if they wanted to know the outcome of the research once it was complete.

Measures

Each standard measurement instrument was checked to ensure they were available for use for research purposes and permission was sought from Copyright owners when necessary (see Appendix E).

Demographic Items

The survey began with a series of questions that covered participants’ age, gender, ethnic identity, educational level, and years of service in New Zealand Police. As part of these demographic questions, there was also a question included that asked participants if they felt a positive connection to their ethnic cultural identity. This was done for any exploratory analyses that would be done around ethnicity as it plays an important role in well-being outcomes for ethnic minorities. The scale used to measure ethnicity was based off the scale employed in the 2001 New Zealand Census (Allan, 2001). However, the scoring was created

for the purpose of this study in that it did not use a ranking scale but combined the most common responses for those with multiple ethnic identities. The scale used to measure education was based off that employed by (de Terte, 2012). A ranking system was employed for this variable and participants were scored by their highest level of completed education.

Trauma Exposure

To measure trauma exposure in officers, the standard version of the Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2018) was utilised. The LEC-5 was developed to gather information about a person's potentially traumatic experiences in a clinical setting, therefore, it has no formal scoring protocol (National Center for PTSD, n.d.). It has shown good construct validity and test-retest reliability (item-level $\kappa > .50$), with its validity and reliability having been demonstrated in the United States, Poland, South Korea, Ethiopia, and Kenya (Bae et al., 2008; Girma et al., 2022; Gray et al., 2004; Kwobah et al., 2022; Rzeszutek et al., 2018). Strong convergence of total scores has also been found with validated PTSS severity measurement instruments (Pearson *r* range: .34 - .48; Weis et al., 2022), such as the PTSS checklist (Blevins et al., 2015), Clinician-Administered PTSS Scale for DSM-5 (CAPS-5; Gray et al., 2004; Weathers et al., 2017), and the Traumatic Life Events Questionnaire (Kubany et al., 2000). The standard version of the LEC-5 contains a list of 17 difficult or stressful things that can happen to people (see Appendix F). Participants were asked for each PTE to select one or more of the checkboxes to indicate whether (a) it happened to them personally, (b) they witnessed it, (c) they learned about it happening to a close family member or close friend, (d) they were exposed to it as part of their job, (e) they are not sure if it fits, or (f) it does not apply to them. Participants were asked to consider their entire life when going through the checklist. While there have been several proposed ways to score the results of the checklist, a commonly used system is to sum together all endorsed items from all of the exposure types to generate a total score; this is suggested to be the most

reliable scoring method (Weis et al., 2022). Therefore, total scores were created and used for analysis. There is no Cronbach's alpha for this measure as it is a checklist that will be unique to each participant and there is no need to test internal consistency.

Current Relationships

There are a series of nine questions that ask participants about their current relationship status and the occupation of their partner. More specifically, these questions ask if they have a partner who is currently a police officer, has ever been a police officer, is a current first responder (either paid or voluntary), or has ever been a first responder (paid or voluntary). For the first responder questions, there is also an option to select the role their partner occupied including ambulance personnel, firefighter, military personnel, emergency department nurse/doctor, or other. Participants are also asked if they have family or friends in first responder roles, and if so, they are asked to select all that apply from the following: immediate family, extended family, friends in the same occupation, and friends in a different occupation. There were also three open-text questions that asked about support-seeking behaviours; these were reported quantitatively. All these questions were developed for this piece of research by the candidate in consultation with the research supervisor. Please see Appendix G for the full list of these questions.

Social Support and Perceived Social Support

Social support was measured through a series of perceived and received social support measures with higher scores indicating better social support. The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet et al., 1988) is used to measure participants' levels of perceived social support. In previous research, it has demonstrated good to excellent test-retest reliability and internal consistency with a Cronbach's alpha of 0.92 – 0.94 in clinical samples and 0.81 – 0.98 in non-clinical samples (Clara et al., 2003; Pedersen et al., 2009;

Zimet et al., 1988; Zimet et al., 1990). The reliability and validity of the MSPSS has been replicated across many different countries and populations including Thailand, Russia, Turkey, Malaysia, and Colombia (Başol, 2008; Guan et al., 2015; Lee et al., 2017; Pushkarev et al., 2020; Trejos-Herrera et al., 2018; Wongpakaran et al., 2011). The MSPSS is also strongly correlated with the Social Support Behaviors scale (Kazarian & McCabe, 1991). The MSPSS involves participants being presented with 12 statements about social support and asked to rate each statement on a 7-point Likert scale with responses ranging from *strongly disagree* to *strongly agree*. Scores could also be split into three subscales: family, friends, and significant other. The MSPSS also has another question asking to identify the 'special person' who cares about their feelings. The response options to this question were changed to better reflect the research questions in this piece of research (see Appendix H for the full list of questions and adjustments made). The Cronbach's alpha reliability statistic for this study was .93.

The Social Support Scale (SSS) developed by Caplan et al. (1975) was also used to assess how much social support the participant perceives they receive from immediate supervisors, other people at work, partners or spouses, family, and friends. Alpha coefficients for this scale have ranged from .71 to .91 (Beehr et al., 2000; Beehr et al., 1990; Frese, 1999) and the scale's validity is supported by its convergence with variables including social stress and discrimination from constructs including social desirability (Frese, 1985). The scale presented to participants includes four questions about social support in relation to certain situations (see Appendix I). Participants were then asked to rate their different sources of support for each question. While there seem to be varying versions of response options, this study decided to model responses after a piece of research by de Terte (2012) which focused on trauma exposure and social support in New Zealand Police officers in 2009; it was deemed beneficial to be able to compare results to this study. Response options included (a)

don't have any such person, (b) *very little*, (c) *a little*, (d) *some*, (e) *a lot,* (f) *a great deal*. While the original scale grouped spouses or partners, family, and friends together, due to the purpose of this study, the decision was made to separate partners/spouses from family and friends. This was also done by Frese (1999) who found the test-retest correlations for the four groups ranged from .44 to .60 while the subscales and total score alpha coefficients ranged from .85 to .91. Higher subscale scores indicated that the participant had greater social support from that source, while higher total scored indicated greater social support. It has been highlighted that there are limitations associated with received social support constructs as it is difficult to know whether the participants are actually receiving social support or if they are simply reporting their perception of social support (de Terte, 2012; Frese, 1999). This is important to take into consideration; however, it should be noted that this criticism applies to the phenomenon of social support rather than any particular scale (de Terte, 2012). Therefore, the following scale was also included as it asks more directly about social support that has been received. The Cronbach's alpha statistics for this study were: total SSS = .90, supervisor support subscale = .90, other people at work subscale = .86, partner/spouse subscale = .97, and relatives/friends subscale = .89.

The decision to combine multiple measures to examine perceived social support was due to the importance of the variable to the study. The correlation between the two measures ($r = .75$, $p < .001$) shows that they measured slightly different things which meant a broader scope of the variable was captured and examined. The MSPSS is a commonly used and replicated scale for perceived social support; the decision to include the SSS as well was done to allow for the examination of partner support which was key to this study.

The Inventory of Socially Supportive Behaviors – Short Form (ISSB-SF; Barrera & Baca, 1990) includes 19 items asking about the social support participants received over the past 4 weeks (see Appendix J). The ISSB-SF has demonstrated good reliability (.84 - .89;

Barrera & Baca, 1990; Novotný et al., 2022). The short version is suggested to be a reliable and efficient tool to rapidly measure received support (Novotný et al., 2022). The shorter version was preferable for this study to reduce the time commitment needed for officers to complete the survey. Participants were provided with a list of activities that other people may have done for them in the previous month and asked to rate how often the activities happened to them using the following five-point Likert scale items: (a) *not at all*, (b) *once or twice*, (c) *about once a week*, (d) *several times a week*, and (e) *about every day*. Higher scores indicated higher levels of social support. For this study, the Cronbach's alpha statistic was .89.

Psychological Distress

Psychological distress scores were created by combining measures of PTSS, depressive symptoms, and life satisfaction with higher scores indicating increased psychological distress. It should be noted that some hypotheses also focused only on PTSS scores while others used the psychological distress scores. It is also important to highlight the fact that these measures are not being used in a diagnostic manner, they are only being used to identify the presence and severity of symptoms. The combined scoring of PTSS and depressive symptoms scores reflect the definition of psychological distress being a combination of both types of symptoms (Belay et al., 2021). It was decided to include a positively framed set of questions (PWI-A) to reduce the impact of potentially underreported scores for PTSS and depressive symptoms which may have had a stronger stigma attached to them.

Participants' PTSS scores were created using the PTSS Checklist for DSM-5 (PCL-5; Weathers et al., 2013). In varying populations, the PCL-5 has demonstrated strong internal consistency with values ranging from .85 - .96 and good test-retest reliability with scores ranging from .61 to .91 (Ashbaugh et al., 2016; Blevins et al., 2015; Bovin et al., 2016; Cheng et al., 2020; Ghazali & Chen, 2018; Ibrahim et al., 2018; Krüger-Gottschalk et al.,

2017). Participants were presented with 20 statements, which matched to the symptoms of PTSS in the DSM-5 and asked to rate on a 5-point Likert scale how much they had been bothered by the issue in the past four weeks (see Appendix K). Response options included (a) *not at all*, (b) a *little bit*, (c) *moderately*, (d) *quite a bit*, and (e) *extremely*. Higher scores indicated more severe PTSS. The Cronbach's alpha for this study was .94.

The Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) was used to identify depressive symptoms in patients; it has been deemed to be a simple and reliable tool to rapidly screen for depressive symptoms (Kroenke et al., 2001; Sun et al., 2020). The PHQ-9 has demonstrated satisfactory internal consistency with Cronbach's alpha scores ranging from .79 to .89 (Kroenke et al., 2001; Lotrakul et al., 2008; Maroufizadeh et al., 2019; Sun et al., 2020; Wang et al., 2014). It also showed significant convergent validity as it had a good correlation with the measures of the WHO-fiver Well-being Index, the Hospital Anxiety and Depression Scale, the Hamilton Depression Scale, and the Generalised Anxiety Disorder-7 (Maroufizadeh et al., 2019; Sun et al., 2020). Test-retest reliability was also found to be strong with scores ranging from .84 to .86 (Kroenke et al., 2001; Wang et al., 2014). Participants were provided with nine statements that map onto the DSM-5 criteria for major depressive disorder (see Appendix L). For the past 2 weeks, participants were asked to rate on a 4-point Likert scale how often they had been bothered by those problems. Response options included (a) *not at all*, (b) *several days*, (c) *more than half the days*, and (d) *nearly every day*. Higher scores indicated the presence of more depressive symptoms. There is also a tenth question asking participants how difficult the described symptoms have made their work, family, and social lives; responses included *not difficult at all, somewhat difficult, very difficult*, and *extremely difficult*. For this study, the Cronbach's alpha was .86.

The fifth edition of the Personal Well-being Index - Adult (PWI-A; International Wellbeing Group, 2013) was employed to measure life satisfaction in participants. The PWI-

A was specifically included as a measure so that participants had the option to report positive aspects of their well-being rather than just responding to questions about mental health symptoms. The PWI-A is a valid cross-cultural instrument that has been developed with the aid of over 150 researchers in more than 50 countries (International Wellbeing Group, 2013). It has demonstrated good reliability in Australia and overseas with Cronbach's alpha scores ranging from .70 to .85 and a test-retest reliability score of .84 (International Wellbeing Group, 2013; Lau & Cummins, 2005). Participants were given seven questions that asked them about their satisfaction with different aspects of their life (see Appendix M). Participants were presented with a slider scale for each statement ranging from 0 (*no satisfaction at all)* to 10 (*completely satisfied)*. These scores were inversed to be included in the psychological distress measure. The Cronbach's alpha for this study was .82.

Chapter Seven: Results

Overview

The statistical analysis techniques employed to test the seven hypotheses and exploratory analyses in this study will be discussed in this chapter. IBM SPSS Statistics (version 29) was used for data screening, cleaning, and analysis. To carry out the moderation analyses for hypotheses six and seven, a tool called PROCESS was downloaded and installed on SPSS. This tool was developed by Andrew Hayes and Kristopher Preacher specifically to carry out moderation analyses (Field, 2018). The benefits it offers over normal regression in SPSS Statistics are that it centres predictors, computes interaction terms automatically, and produces simple slopes analysis (Field, 2018).

Data Screening and Cleaning

Before beginning the analysis, the data had to be screened and cleaned due to the potential of missing data and entry errors. Both can impact the validity and reliability of statistical analyses and their results. First, the data was screened for entry errors. These have previously been connected to software malfunctions (Eloff et al., 2018); however, human error in data entry can also be a common occurrence (Rosenstein, 2019). This can be done by both participants and researchers either accidentally or intentionally. When participants complete online surveys another issue is careless responding; this results in survey responses that may not accurately reflect the participant's true scores (Ward & Pond III, 2015). This can be in the form of intentional content-responsive faking or unintentional socially desirable responding which both result in inaccurate responses (Paulhus, 1984). Another form of careless responding is content nonresponsivity; this is when participants answer the question without considering the item content (Ward & Pond III, 2015). Often participants may not take a study seriously nor answer conscientiously (Downs et al., 2010). While this can result

in responses that do not accurately reflect true scores, it can also produce invalid responses; for example, scoring 25 on a scale that has a maximum score of 20. Researchers may accidentally make data entry errors themselves; this is a common enough issue that multiple strategies are often implemented to identify and correct any errors (Barchard & Pace, 2011). However, there is also a significant history of researchers manipulating data, often due to the pressure of finding significant results in both industry and academia (Fanelli, 2009; Morris et al., 2015).

Before screening for specific invalid responses, each case was examined for repeating responses (e.g., if a participant responded with the first option to every question) which may indicate careless responding. The length of time taken to complete the survey was also examined to determine that there were no significantly short response times that indicate content nonresponsivity. To screen for invalid responses, univariate statistics were created to form maximum and minimum values for each of the variables; this ensured that recorded responses were within the possible score range. Both before and after the missing data issue was addressed, demographic variables (including age, gender, length of service, ethnicity, and education level) were examined for invalid responses. While many of these were categorical, they had numerical values assigned to them that could be invalid. All the scales and subscales (trauma exposure, perceived social support, received social support, depressive symptoms, PTSS, and life satisfaction) had total scores formed and reviewed following the data cleaning. During the process of screening all these scores, only two invalid scores were found. Two participants had lengths of services that did not fit with their ages, for example, the participant would have had to join at 14 years old for the data to be correct. This problem was dealt with during the data cleaning process.

To generate a total score for trauma exposure, scores for each of the 17 PTEs were added together. Scores for each PTE ranged from 0 (indicating there was no trauma exposure

for that PTE) to 4 (indicating that participants had that event happen to them personally, they witnessed it, they learned about it, and they were exposed to it through their job). Total scores for trauma exposure ranged from a minimum of 0 to a maximum of 68. The last question of the LEC-5 asked participants to respond to *Any other very stressful event or experience* with the same checkbox response options; if participants checked anything for this option they were asked to briefly identify in the event(s) they were thinking of in an open-text box. The most common responses were recorded to inform how the LEC-5 could be developed in the future. However, it was decided not to code the responses to these questions due to the subjectivity of responses. For example, a participant may have put a response about abuse, however, due to the inability to follow up on how this affected them (i.e., whether this was personally experienced, witnessed, part of their job, etc.) it difficult to code into another category. Since this was a self-report measure, total scores were taken from the checkbox responses instead of trying to code the *Other very stressful event or experience* responses.

Total scores for social support were formed by adding scores for the SSS, MSPSS, and ISSB-SF. The SSS subscale scores range from 0 to 20 and total scores ranged from 0 to 80. Each statement in the MSPSS was scored from 1 to 7 points with a total MSPSS score ranging from 12 to 84. Scores of 12 to 35 could be considered low social support, 36 to 60 moderate, and 61 to 84 high (Zimet et al., 1988). The ISSB-SF scores were calculated by adding together each of the 19 items; scores ranged from 19 to 95. Total social support scores ranged from 31 to 259 with higher scores indicating greater levels of social support. Total scores were also split into low (31 to 107), moderate (108 to 183), and high (184 to 259) levels of social support for the moderation analysis. Perceived social support was used as a separate variable in hypothesis testing, scores were a combination of the MSPSS and SSS. Total scores ranged from 12 to 164. Total scores were also split into low (12 to 63), moderate

(64 to 114), and high (115 to 164) levels of perceived social support for the moderation analysis.

PTSS and psychological distress were scored using the following measures. PCL-5 scores were created by scoring each of the 20 items 0 to 4 with total scores ranging from 0 to 80. PHQ-9 scores were created from scoring the nine items 0 to 4; total scores ranged from 0 to 36. The PWI-A scores were created by scoring the seven items 0 to 10 with total scores ranged from 0 to 70. To create a total score for psychological distress, the total scores from LEC-5, PHQ, and PWI-A (inversed); total scores ranged from 0 to 186.

The current relationship questions allowed participants to be split into different groups for data analysis. Those whose responses were 'spouse/married', 'girlfriend/boyfriend/partner', or 'other: fiancé' were placed into the partner group and those whose responses were 'separated/divorced', 'single', or 'widowed' were placed into no partner group. The partner group was then split into 'first responder partner' and 'civilian partner' based on whether their partner was, or had ever been, a police officer or other type of first responder. It was decided to include those whose partners had previously been (but were not currently) police officers and first responders as they would still have an understanding of the jobs and culture.

The second issue that needed to be screened for was missing data. It is a common problem in quantitative research that impacts nearly all studies (Altman & Bland, 2007; Baraldi & Enders, 2010). Due to its prevalence, it has been described as "one of the most important statistical and design problems in research" (Azar, 2002, p. 70). However, Little et al. (2014) noted that it is not so much the missing data itself that is the main concern, but the approaches and methods employed to deal with it. Traditional methods (e.g., listwise or pairwise deletion, mean substitution) may be used to create an appearance of completeness; however, they can produce results that are unreliable, inefficient (lack of power), and biased

(Enders, 2022; Graham, 2012; Little et al., 2014; Schafer & Graham, 2002; Van Buuren, 2018). Most statistical procedures are designed for complete data sets (Schafer & Graham, 2002). To analyse data with these statistical procedures, a data set with missing values must be edited to form a complete data set (Dong & Peng, 2013). Failing to do this will mean that the data is not suitable for a statistical procedure and the analyses will be vulnerable to violations of assumptions (Dong & Peng, 2013). This is especially important for analyses that utilise parametric techniques as misspecified parametric models can produce misleading results (Sun et al., 2017). Parametric techniques are useful for examining the relationship between a response and a set of covariates (explanatory variables) due to their high precision and accurate predictions (Li & Racine, 2023; Sun et al., 2017). However, parametric techniques rely strongly on assumptions about the distribution of the underlying population (i.e., the distribution is normal) and about the form or parameters (e.g., standard deviations and means) of the assumed distribution (Hoskin, 2012). As these tests rely on means and standard deviations, missing data and entry errors can affect the reliability and validity of results. Parametric techniques are considered appropriate when using interval-scaled data with a normal distribution of scores (Pallant, 2020). These techniques were deemed suitable for this study and preferred due to the benefits they offer.

While the quality of statistical inferences is linked to the portion of missing data, there seems to be little consensus on what an acceptable cutoff is to carry out valid statistical inferences (Dong & Peng, 2013). For example, some literature suggests that if 5% or less of the data is missing, it is acceptable to carry out the data analysis (Schafer, 1999) while others suggest that results may be biased with over 10% missing (Bennett, 2001). Another suggestion is that missing data patterns and mechanisms have a greater impact on results than the portion of missing data (Madley-Dowd et al., 2019; Tabachnick et al., 2013). Madley-Dowd et al. (2019) stated that unbiased results can be produced with large portions of data

missing as long as imputation models are properly specified, and the data is missing at random. 'Missing at random' refers to the pattern of the missing data. It is important to identify the source of missingness as it impacts the choice of imputation techniques when dealing with the problem (Salgado et al., 2016). Data can be Missing Not at Random (MNAR), Missing Completely at Random (MCAR), or Missing at Random (MAR). MNAR means that the reason the data is missing is systematically related to unobserved variables that were not measured by the researcher (Salgado et al., 2016). If data is not missing at random, it is difficult to detect the issue and deal with it. MCAR means that the missing values will have similar distributions to observed values as they are not explained by another variable (Bhaskaran & Smeeth, 2014). MAR means that there may be systematic differences between missing and observed values; however, these are explained by another observed variable; for example, if age or gender impacted the likeliness to respond to a question (Bhaskaran & Smeeth, 2014). If the data are MCAR or MAR, the reason the data is missing can be ignored which makes it easier to choose which methods to implement (Salgado et al., 2016).

To screen for missing data, a missing value analysis was conducted for all items that had compulsory answers (98); questions that were not necessary to answer if they did not apply (that is, those relating to having a partner) were not included. Those relating to whether the participants had first responder partners, family, or friends were classed as categorical variables. This initial analysis showed that 10% data was missing. Only three items had less than 2% missing data, with some missing up to 20%. The percentage of missing data for each item generally increased throughout the survey with items later in the survey having the highest percentages of missing data. Little's MCAR test was found to be significant (X^2 (3801, N = 252) = 4129.262, $p < .001$) suggesting that the data was not MCAR but could be MAR or MNAR. The percentage of data that was missing for each case was calculated. There

were 37 participants that were missing more than 5% of their data, with some missing 100% of it (see Table 2). Most participants (85%) were missing less than 5% of their data. 56.7% of participants were missing no data and 17% were missing only 1%. However, the overall value of 10% missing data posed a potential problem. It was decided that the 37 participants missing more than 5% of their data would be excluded from the analysis; this technique has been used in past research on the same population of interest (e.g., Johnston, 2015) and has been employed to maintain consistency with similar research in New Zealand. Due to the conflicting literature on the topic of missing data, it was deemed more important to reduce the risk of invalid and unreliable analyses from larger portions of missing data. Removing these participants still left a large enough sample (205 participants remaining) to carry out the hypothesis testing. It should also be noted that there was a significant demarcation between participants missing 5% of data and those missing more than 5%, with 8% being the next highest percentage of missing data.

Table 2

Percentage of Data Missing for Participants

Percentage of data missing	Number of participants
0%	143
1%	44
2%	9
3%	2
4%	3
5%	3
8%	1
10 – 29%	2

30 – 49%	12
50 – 69%	4
70 – 89%	6
90 – 100%	12

One of the risks of using listwise deletion if the data are MAR is that the sample may no longer be representative of the population (Van Ginkel et al., 2020). For example, if females were more likely to skip questions about relationships than males and they were more likely to be removed under listwise deletion. They then would be underrepresented in the leftover sample, and consequently, any statistical inferences relating to gender may be biased. A significant limitation of this study is that the sample is already not representative of the population being surveyed (67% female participants while only 25% of current police officers are female). However, descriptive statistics were run for the 37 participants who were excluded to ensure there were no particular populations being excluded that would further impact the generalisability of results. Gender, age, education levels, ethnicity, and years of service were all similarly distributed in comparison to the 205 remaining participants. While there was significantly more missing data, there was no indication that any specific group was being under-represented. The only thing to note is that there was one participant who was excluded that identified as nonbinary while the final sample was made up of only female and male participants. However, it is difficult to know if this is a significant limitation or not as the latest Annual Report (New Zealand Police, 2022) did not include statistics for those who had gender identities other than female or male. Taking all of this into consideration, there seemed to be no increased likeliness of introducing bias by excluding these participants.

After removing these participants, another missing value analysis was carried out. The total missing data dropped to 0.5% with only four variables with more than 2% missing data.

However, Little's MCAR test was found to be still significant in the new sample (X^2 (3174, N = 205) = 3318, $p < .05$). Even if Little's was found to be non-significant, this is only an indication that the data could be MCAR, there is no way to rule out the presence of a relationship with another variable (Little, 1988). Data are almost never missing completely at random (Newman, 2014). The significant result suggests that this data are either NMAR or MAR. When conducting research it is usually impossible to determine if the data are MAR or MNAR because this would require that the researcher has access to missing values (Newman, 2014). The *t*-tests produced from this analysis showed that many items from both the PCL-5 scale and PHQ-9 scale had significant 2-tailed *p* values, suggesting that there may be a relationship between these and another variable. To further explore this, a correlation analysis showed that there was a high correlation between PCL-5 total scores and PHQ-9 total scores ($r(203 = .797, p < .0001)$). However, this is not surprising as previous studies have found similar correlations between these two scales due to the comorbidity of PTSS and depressive symptoms (Gerrity et al., 2007; Yan et al., 2024). However, PCL-5 total scores were also found to have a significant relationship with gender ($r(203 = –.139, p < .0001)$), while PHQ-9 total scores had a significant relationship with age ($r(203 = –.144, p < .05)$). When looking at the rate of missing values for the PCL-5 questions, males were missing a higher percentage (0.37%) than females (0.15%). To look at the potential relationship between age and the PHQ-9 scale, participants were split into one of five age groups. The rate of missing values in relation to the portion of participants for the PHQ-9 questions was examined. Participants aged 20 to 29 were missing 0.28% of their values, ages 30 to 39 were missing 0.45%, ages 40 to 49 were missing 0.56%, ages 50 to 59 were missing 0.44%, and those over 60 years of age were missing 0%. It should be noted that the largest age group was 30- to 39-year-olds with 99 participants while 20- to 29-year-olds and 40- to 49-year-olds had 39 and 40 participants respectively. To further explore the mechanism of missingness, frequency tables of missing

data for each variable were examined. There were several questions that had higher frequencies of missing data than others. For example, both the MSPSS and the PHQ-9 had additional questions that were not part of their total score (e.g., 'If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?'). These questions were both missing higher rates of data (MSPSS 13 = 2.4%; PHQ 10 = 5.9%); however, they were not essential to the data analysis and were likely to be missing higher percentages of data due to them being non-applicable to all participants. The third subscale of the SSS also seemed to be missing higher percentages of data. The four questions were missing 2%, 2.9%, 2%, and 2.4% of their data. This subscale was asking participants to rate on a Likert scale how well people in their lives can be relied on when things get tough at work. They were rating immediate supervisors, other people at work, partner/spouse, and relatives/friends. It is possible that these questions could be missing data due to intentional omission relating to another variable. Without being able to determine that the data are for certain MAR or MNAR, the correlations described above may indicate that there is a systematic reason why the data are missing.

While the extent of the missing data problem was greatly reduced by excluding participants with more than 5% of their data missing, there were 61 participants still missing 1 – 6% of their data. The decision was made to use the maximum likelihood (ML) approach using the estimation-maximisation (EM) algorithm to deal with the missing data issue. This allowed for the inclusion of as many participants as possible in the analysis. The EM algorithm employs an iterative procedure to produce parameter estimates (El-Masri & Fox-Wasylyshyn, 2005). Multiple methods for managing missing data were considered before selecting EM. Traditional methods including listwise deletion and pairwise deletion have been discouraged by many researchers and suggested to be inefficient methods that introduce bias and lack of power (Elliott & Hawthorne, 2005; Enders, 2022; Graham, 2012; Little et al.,

2014; Schafer & Graham, 2002; Van Buuren, 2018). Listwise deletion involves removing all cases that are missing values of at least one variable while pairwise deletion eliminates cases that have missing data on the variables that are under analysis (El-Masri & Fox-Wasylyshyn, 2005; Pepinsky, 2018). Both of these techniques are only appropriate to employ when the data are MCAR; when data are MAR they have been found to introduce significant bias (Newman, 2014; Pepinsky, 2018; Shi et al., 2020). Newman (2014) stated that researchers should be using all available data; employing listwise deletion unnecessarily reduces the sample size and statistical power. Rosenthal (1994) goes as far as to suggest that not using all available data that participants have put their time and energy into is a violation of ethical imperative. The significant result of Little's test suggests that the data are either MAR or MNAR; however, it cannot be determined which. The decision to use EM was thoroughly appraised as there is a risk of introducing bias if the data is in fact MNAR. However, all common missing data techniques, including listwise deletion, pairwise deletion, single imputation, multiple imputation (MI), and ML, can produce biased results if the data are MNAR (Fielding et al., 2008; Newman, 2014). While historically there has been a tendency to use deletion methods over imputation methods, a significant benefit of MI and ML approaches is that they can produce unbiased results if the data are MAR, while deletion methods are highly likely to introduce bias if they are not MCAR (Newman, 2014; Van Ginkel et al., 2020). In the knowledge that listwise deletion would almost certainly introduce bias if the data were either MAR or MNAR, it was considered more appropriate to utilise techniques that would be suitable if the data did happen to be MAR. EM is highly recommended due to its ease of use and ability to produce accurate, unbiased parameters (Dong & Peng, 2013; El-Masri & Fox-Wasylyshyn, 2005; Strauss et al., 2003). It can also be used to accurately estimate the internal consistency reliability of scales with item-level missing data (Enders, 2003). Imputation methods should not be used to create values for

cases that are missing most or all of their data (Tabachnick et al., 2019). Therefore, the decision to remove cases missing more than 5% of their data allows for EM to be used for those with the majority of their data. As well as using the EM algorithm to impute missing values, it was also used to deal with the two invalid responses discussed earlier. For the two cases with age and length of service scores that were not viable, EM was used to replace the length of service value.

Univariate Analyses: Assumption Checking

To reduce the risk of introducing bias when using parametric tests, it was imperative to test several assumptions to ensure there were no violations that could impact the outcomes of the analyses. One-way analysis of variance (ANOVA) and *t*-tests were employed to test hypotheses one to three. The basic assumptions of these univariate tests are the following: values need to be measured in ratio scale or interval scale, simple random extraction, appropriate sample size, normality of distribution, and homogeneity of variance (Kim & Park, 2019). The measures and sampling were discussed earlier in the *Method* chapter, therefore, the assumptions left to check were distribution and variance. Many statistical procedures assume that the population is approximately normally distributed and can produce unreliable results if this assumption is violated (McClave et al., 2008; Park, 2015). The central limit theorem suggests that the distribution of sample mean values will be normally distributed regardless of the population distribution if the sample size is big enough (Kwak & Kim, 2017). In preparation for bivariate and multivariate analyses, all the continuous variables were assessed for normality (see Appendix C for descriptive statistics of continuous variables). It is important to assess data graphically and quantitatively (Henderson, 2006). Recommended techniques that were employed include histograms, probability plots, skewness tests, and kurtosis tests. The Kolmogorov-Smirnov and Shapiro-Wilk tests are recommended and commonly employed as tests of normality; however, they have been

deemed inappropriate for this study as they are only recommended for smaller sample sizes of three to 50 participants (Ahad et al., 2011; Kundu et al., 2011; Shapiro & Wilk, 1965). Values for the skewness and kurtosis tests were interpreted using the ratio of each statistic to its standard error; values that fell within the range of -2 and +2 indicated univariate normality (Koh, 2014). For both skewness and kurtosis, values between -1 and +1 are considered excellent for many psychometric tests; however, values between -2 and +2 are also acceptable (George, 2016). The tests for skewness and kurtosis were interpreted with caution as they have been suggested to sometimes produce conflicting results and may not be of great importance in sample sizes of 200 with visually normally distributed data (Henderson, 2006; Tabachnick et al., 2019). While there were some minor indications of nonnormal distribution, these were not considered of concern due to the sample size.

In assessing homogeneity of variance, Levene's test for Equality of Variances (Levene, 1960) was employed. A non-significant result of Levene's test indicates that the variances between two groups do not differ significantly from one another (George, 2016). The results of the test provide several choices of output to base the Levene's stastistic on; Brown and Forsythe (1974) suggested that using the mean provides the best power for symmetric, moderate-tailed distributions, while using the median was best when distribution is skewed. The distribution of the variable data was taken into consideration when interpreting Levene's stastitics. While this is a popular approach researchers use, the test is less effective for unequal group sizes and smaller samples (Field, 2018). Violating this assumption only matters if group sizes are unequal (Field, 2018). With larger samples, tests can be significant when variances are similar; with smaller samples, they can be non-significant when variances are different (Field, 2018). This test was carried out to look at the variance between groups for the different hypothesis tests; variables were tested for groups relevant to the hypothesis they were part of (e.g., trauma exposure was tested in multiple

hypotheses, so its variance was checked for multiple groups including first responder partner, social support, and perceived social support). First responder partner grouping was based on whether participants had a first responder partner (50% of participants), a civilian partner (39% of participants), or no partner (11%). Social support groups included low (8% of participants), moderate (71%), and high (21%) levels of social support. Perceived social support groups had low (5% of participants), moderate (38%), and high (57%) levels of perceived social support. While the groups were uneven, none of the Levene's test statistics were significant and since it was a larger sample it is assumed that there were no violations of this assumption.

In evaluating the normality of distribution, the data also had to be examined for outliers as these can cause non-normal distributions (Field, 2018). While there have been many varying definitions of what an outlier is, generally it is considered to be a data point that is inconsistent with or dissimilar to other data points in that it does not reflect the expected behaviour of the other data points (Barnett & Lewis, 1994; Osborne & Overbay, 2019; Wang et al., 2019). Hawkins (1980, p. 1) described an outlier as an observation that "deviates so much from other observations as to arouse suspicions that it was generated by a different mechanism". Outliers can occur due to a variety of reasons including human error, mechanical fault, instrument error, setup error, data-entry error, sampling errors, environmental changes, or more intentional fraudulent behaviour and malicious activity (Wang et al., 2019). The presence of outliers can increase sample variance and reduce the power of statistical tests, impact likeliness of type I and type II errors through assumption violations, and produce biased estimates (Figueiredo Filho et al., 2023; Osborne & Overbay, 2019) The z-score method is one of the more accurate methods employed to detect outliers in a dataset with scores over 3.29 signifying an outlier (Field, 2018; Merza & Mohammed, 2021). All the primary constructs were examined. Through this method, three scores were

detected as outliers. However, outliers should not be removed on statistical grounds alone because even though they may look extreme, they could be accurate pieces of information (Burke, 1998; Osborne & Overbay, 2019). It was important to consider whether these outliers may be typical scores for the sampled population (Field, 2018; Osborne & Overbay, 2019). Two of the outliers were high LEC-5 scores indicating high trauma exposure and another outlier was a high PCL-5 score indicating the presence of PTSS. All these outliers are considered normal and likely accurate in the role of a police officer with high trauma exposure and risk of PTSS. Since there were a modest number of outliers and the scores were believed to be representative of the population of frontline police officers, it was decided to retain the outliers.

Independent Variables

Trauma exposure, social support, and partner support were examined. There was no significant skewness, kurtosis, or Levene's statistics for any of the independent variables. Since trauma exposure was used in multiple hypotheses, the Levene's statistics were checked for the partners groups, social support groups, and perceived social support groups. The histogram for trauma exposure was slightly positively skewed while partner support was negatively skewed but the normal probability plots for both were mostly linear. Social support was normally distributed with a linear normal probability plot. It should be noted that the tests for partner support were done before and after removing those participants who did not have a partner (see Appendix N). It did not make sense to include those who would not receive partner support. While the partner support skewness was closer to -1 than 0 (-.978), it was not over the threshold to warrant concern.

Dependent Variables

Both PTSS and psychological distress were positively skewed in the histograms. While psychological distress had no concerning skewness or kurtosis statistics, PTSS had statistics close to 1 for both skewness (1.198) and kurtosis (.994). While these are still under the threshold of 2 that would strongly indicate assumption violation, the slightly higher results were taken into consideration. However, a factor to consider when looking at both PTSS and psychological distress is the potential that the survey results are not an accurate representation of the reality of symptoms. Police officers have been found to under-report symptoms of mental health issues when filling out surveys provided by their employer (Marshall et al., 2021). This could explain why PTSS and psychological distress were skewed towards the lower end of the scale. It should also be noted that the cutoff value commonly used for the PCL (the measure used to estimate PTSS) is 30, with scores higher than this indicating the presence of PTSS (Bliese et al., 2008; Searle et al., 2015). Rates of PTSS in police officers have been found to range between 6% to 32% (Lewis-Schroeder et al., 2018). Descriptive statistics showed that 23% of participants had scores of 30 or over. It would be unusual, and concerning, to have a normally distributed histogram for these variables as that would indicate a much higher portion of participants than expected have poor mental health. Both normal probability plots deviated slightly from linear but there were no significant results for the Levene's tests. Considering the size of the sample (N = 205), these deviations were not considered of significant concern.

Moderating Variables

The two moderating variables are social support and perceived social support; social support was already discussed above. Perceived social support was negatively skewed on the histogram, however, there were no significant scores for skewness or kurtosis. The normal

probability plot was fairly linear. The Levene's test was not necessary for perceived support since this variable was not being compared between multiple groups.

Control Variables

Length of service was the only control variable that was not dichotomous. Age was decided to not be included as a control variable due to its high correlation with length of service. The histogram showed that it was positively skewed; however, there were no significant scores for skewness or kurtosis. There was a slight deviation from the linear line of the normal probability plot and the Levene's statistic was not significant for the partner, social support, or perceived social support groups. The assumption of normality for categorical variables relates to the distribution of scores within the groups. The sample size was considered large enough to suggest that under the central limit theorem, the categorical demographic variables would meet the assumption of normality (Field, 2018). However, histograms and means were examined for PTSS, trauma exposure, social support, psychological distress, partner support, and perceived social support for the varying categorical demographic variables to ensure there was a similar distribution between groups.

Bivariate Analyses: Assumption Checking

Additivity and Linearity

The assumption of additivity and linearity refers to the relationship between the outcome variable and predictors in that outcome variable scores are linearly related to predictors (Field, 2018). Scatterplots were created to examine the linearity of the relationships between independent and dependent variables. This was important for the variables that were tested using linear and multiple regression because if the relationship between variables is curvilinear it cannot be described with a linear model (Field, 2018). Visual examination of the scatter plots indicated no curvilinearity; a weak negative

relationship was seen between social support and psychological distress while a weak positive relationship was seen between trauma exposure and PTSS. To ensure that these were correctly interpreted, ANOVA tables that tested linearity were also created. For the relationship between social support and psychological distress, the linearity test was statistically significant ($p < .001$) while the deviation from linearity test was non-significant ($p > .05$). However, should be noted that for the relationship between trauma exposure and PTSS, there were significant values for both the linearity test ($p < .05$) and the deviation from linearity test ($p < .01$). This suggests that there is a linear relationship between the two variables but also an additional nonlinear relationship. The visual indication of outliers in the scatterplot implied that this issue could be influencing the linearity of the relationship.

Multivariate Analyses: Assumption Checking

One of the important assumptions to ensure is not violated when conducting a regression analysis is multicollinearity. This occurs when two or more independent variables employed in the regression analysis are highly correlated (Daoud, 2017). When the predictor variables have no linear relationship, they are considered to be orthogonal (Jensen & Ramirez, 2013). A correlation analysis was conducted to ensure there was no relationship between the predictor variables and moderating variables for the two hypotheses carrying out a moderation analysis. Values close to +1 or -1 indicate a perfect positive linear relationship and a perfect negative relationship respectively, while 0 indicates no linear relationship between the variables (Mukaka, 2012). Trauma exposure and social support had no linear relationship, $r(203) = -.10$, $p > .05$. Trauma exposure and perceived social support also had no linear relationship, $r(203) = -.13$, $p > .05$. Another way to check whether predictor variables have a strong linear relationship is using the variance inflation factor (VIF); scores greater than 10 indicate a violation of the multicollinearity assumption (Field, 2018). Two analyses were run to test this, one with trauma exposure and social support and one with

trauma exposure and perceived social support; there was no evidence that the assumption was violated (VIF = 1.01; VIF = 1.02). Two separate tests were run to simulate the two separate regression analyses for hypothesis testing; there was likely to be a strong relationship between social support and perceived social support as they both contain the MSPSS and SSS measures. Since they are not used in the same regression analysis, this will not violate the assumption. The final assumption that needed to be tested was the assumption of independence which relates to how the errors in the model should not be related to one another (Field, 2018). This was tested using the Durbin-Watson statistic where scores below one or more than three indicate a violation of the assumption (Field, 2018). The cases were deemed sufficiently independent with Durbin-Watson statistics of 2.01 for the two models tested above.

Control Variables

For carrying out hypothesis testing, it had to be decided if any demographic variables needed to be controlled. This was done by examining the correlations between these demographic variables and the variables used in the analyses (see Appendix O for the correlation matrix). These were interpreted using the suggestions outlined in Cohen (1988) for indications of strong relationships ($r \geq .50$), moderate relationships ($r = .30 \leq .49$), and weak relationships ($r = .10 \leq .29$). Variables with no relationships or negligible relationships were those with correlations less than .10. The decision to include control variables alongside the independent and dependent variables must be made carefully as overcontrol can result in distortion and reduced statistical power (Spicer, 2005). Education level and age had no significant relationships to any of the independent or dependent variables. Length of service had a weak, negative relationship with psychological distress ($r = -.15$, $p < .05$), implying that those who had been officers longer had lower levels of psychological distress. Gender had a slight negative relationship with PTSS ($r = -.14$, $p < .05$) implying that males had slightly

higher PTSS scores than females. With the varying ethnicities, several significant, but weak, relationships were found; Māori had a significant positive relationship with PTSS ($r = .15$, $p < .05$) and psychological distress ($r = .15$, $p < .05$), and the Pākehā and Other group had a significant positive relationship with trauma exposure ($r = .25$, $p < .001$). This implies that Māori, on average, reported slightly higher levels of PTSS and psychological distress, while participants who identified in the Pākehā and Other category reported slightly higher levels of trauma exposure. In contrast, there was a weak, negative correlation between Pākehā and psychological distress ($r = -.17$, $p < .05$), implying that they reported lower levels of psychological distress. While they were significant, all these relationships were less than .29 indicating that they are weak relationships. Age and length of service both had weak, negative relationships with gender ($r = -.18$, $p < .05$; $r = -.24$, $p < .001$) implying that males on average were older and had longer lengths of service than females. Pākehā also had weak, positive relationships with age and length of service ($r = .20$, $p < .01$; $r = -.17$, $p < .05$) indicating that they were generally older and had longer periods of service than other ethnicities. There were also correlations found between some of the independent and dependent variables; for example, a positive correlation was found between being married and both social support ($r = .34$, $p < .001$) and perceived support ($r = .16$, $p < .05$) while being single was negatively correlated with those variables ($r = -.30$, $p < .001$; $r = -.34$, $p < .001$). These correlations are not surprising given the purpose of the research and previous findings. It should be noted that the correlation analysis is not drawing any conclusions on wellbeing factors based on gender or ethnicity as this is not the purpose of this research, it is simply being used to identify control variables.

While the sample size was moderate ($N = 205$), it was important to consider the impact of the introduction of control variables on the statistical power of tests. The inclusion of any control variables needs to be justified (Bernerth & Aguinis, 2016). Age and length of

service showed a strong, positive relationship ($r = .86$, $p < .001$). This relationship is not surprising as aging occurs alongside completing more years as an officer. This indicated multicollinearity between the two variables; to avoid violating this assumption, it was decided appropriate to include the length of service as a control, as it had a weak relationship with psychological distress, and leave out age. The statistically significant relationships for the length of service and gender were considered weak and unlikely to have much influence on models. However, as the sample size was considered large enough to include controls for the more basic tests, these two variables were included as control variables for the hierarchical linear regressions. Although the correlation analyses revealed correlations in the ethnicity and relationship groups, the sample size was too small to consider include as controls. When breaking samples into subgroups, a minimum sample size of 30 is necessary to carry out statistical analyses (Louangrath, 2014; Roscoe, 1975). Several of the ethnicity groups had very few participants (e.g., there were only seven participants in the group 'Māori and Other', and seven in 'Pākehā and Other') which could distort results if trying to control for this. Controlling for relationship status would have also resulted in subgroups with less than 30 participants. For the more complex analyses, it was decided that the potential complications of including the controls outweighed the possible benefits. Controlling for gender and length of service could introduce potential distortions from the complex adjustments that would occur by introducing numerous confounds (Spicer, 2005). Therefore, for the moderation analyses that were already testing a higher number of variables, it was decided that no control variables would be used to reduce the likelihood of lowering statistical power.

Hypothesis Testing

Hypotheses 1 to 2: Hierarchical Multiple Regression

H1: There is a positive relationship between trauma exposure and PTSS.

While a weak, positive relationship between these two variables appeared in the correlation analysis ($r = .147$, $p < .05$), a hierarchical multiple regression analysis was carried out to control for gender and length of service. These control variables were entered in block one of the analysis and PTSS was entered in block two. The first regression model was statically significant, $F(2, 202) = 5.21$, $p < .01$), as well as the second model, $F(3, 201) = 4.96$, $p < .01$) which meant the models accounted for a significant amount of variance. After controlling for length of service and gender, trauma exposure significantly contributed to the regression model, explaining 2% of the total variance (see Table 3). Both gender and length of service also significantly contributed to the regression model; the negative association of both variables implied that men and those who had been in the service for a shorter period experienced more PTSS. While the contribution that trauma exposure made to the model was minimal, a positive relationship was found thereby supporting H1.

Table 3

Hierarchical Multiple Regression of Trauma Exposure on PTSS showing Standardised Regression Coefficients, Multiple R, Total R^2, Adjusted R^2, and R^2 Change

Predictor Variable	Step 1	Step 2
Step 1: Controls	–.18*	–.18*
Gender	–.18*	–.18*
Length of service		
Step 2:		
Trauma exposure		.14*
Multiple R	.22	.26
Total R^2	.05	.07
Adjusted R^2	.04**	.06*
R^2 Change	.05**	.02*

*Note: *p < .05, **p < .01, ***p < .001*

H2: Social support will be negatively associated with psychological distress.

A moderate, negative relationship was found in the correlation analysis (r = -.42, p < .001), however, a hierarchical multiple regression analysis was necessary to implement control variables. Gender and length of service were entered in the first block, while social support was added to the second. Both regression models were statically significant, $F(2, 202) = 4.88$, $p < .01$; $F(3, 201) = 18.83$, $p < .001$. After controlling for length of service and gender, social support significantly contributed to the regression model; it explained 17% of the total variance (see Table 4). As with the previous hierarchical model, gender and length of service both significantly contributed to the regression model. As with PTSS, psychological distress had a negative association with gender and length of service indicating that men experienced higher levels of psychological distress than females and those who were in the service longer experienced lower psychological distress. A negative association was found between social support and psychological distress; therefore, the H2 was supported.

Table 4

Hierarchical Multiple Regression of Social Support on Psychological Distress showing Standardised Regression Coefficients, Multiple R, Total R^2, Adjusted R^2, and R^2 Change

Predictor Variable	Step 1	Step 2
Step 1: Controls	–.16*	–.14*
Gender	–.19**	–.19**
Length of service		
Step 2:		
Social Support		–.42***
Multiple R	.22	.47
Total R^2	.05	.22
Adjusted R^2	.04**	.21***
R^2 Change	.05**	.17***

*Note: *p < .05, **p < .01, *** p < .001*

Hypotheses 3 to 4: One-way Analysis of Variance (ANOVA)

H3: Those with partners in first responder roles will report higher levels of social support compared to those who have a partner in a non-first-responder role or those who have no partner.

This hypothesis was partially supported. There was a significant difference found between the three groups, $F(2, 202) = 22.14$, $p < .001$, therefore, the null hypothesis that there is no difference in social support levels between groups was rejected. However, when looking at the descriptive statistics in Table 5, we can see that social support levels are highest for those in the civilian partner group followed closely by those the in first responder partner group. Both of these groups had very wide ranges with some receiving very low and very high levels of social support. There is a significant drop in reported levels of social support for those in the no partner group; the mean, minimum, and maximum values are all lower than those with partners. Therefore, those with a first responder partner reported higher levels of social support than those without a partner, but not those with a civilian partner.

Table 5

Descriptive Statistics of Social Support for Partner Groups

	N	*M*	*SD*	Min	Max
First responder partner	103	157.69	31.56	65	215
Civilian partner	80	165.14	27.51	112	237
No partner	22	116.44	36.20	61	184

H4: Those with partners in first responder roles will report lower levels of psychological distress compared to those who have a partner in a non-first-responder role or those who have no partner.

This hypothesis was also partially supported; the groups were statistically significantly different, $F(2, 202) = 4.36$, $p < .05$. However, similar to the results for H5, Table 6 shows that both first responder partner and civilian partner groups had very wide ranges of

values with relatively close means. Of the two groups, those in the civilian partner group had the lower mean, but also the lowest minimum and highest maximum. Those in the no partner group reported a higher mean than both partner groups, indicating they experience generally higher levels of psychological distress. Therefore, those with a first responder partner reported lower levels of psychological distress than those without a partner, but not those with a civilian partner.

Table 6

Descriptive Statistics of Psychological Distress for Partner Groups

	N	*M*	*SD*	Min	Max
First responder partner	103	53.80	28.27	10	131
Civilian partner	80	47.64	26.04	6	132
No partner	22	66.72	27.20	24	113

Hypothesis 5: Independent T-test

H5: This hypothesis is that partner support will be a stronger source of support for those with partners in first responder roles compared to those without partners in first responder roles.

An independent samples *t*-test was carried out to compare levels of partner support between those who had a first responder partner and those who had a civilian partner. People without a partner were not included in this test as they would not have a source of partner support. The results of this test were non-significant, $t(181) = 1.46$, $p > .05$. Those with a first responder partner reported similar levels of partner support ($N = 103$, $M = 16.60$) to those with civilian partners ($N = 80$, $M = 15.80$), therefore, H5 was not supported.

Hypotheses 6 to 7: Moderation Analysis

H6: The relationship between trauma exposure and PTSS will be moderated by social support.

While the model was statistically significant ($p < .01$), the interaction between the variables was not significant ($p > .05$) indicating that there was no moderation effect of social support on the relationship between trauma exposure and PTSS. The *p* values for the *t*-statistics at the low, moderate, and high levels of social support were all greater than .05, indicating there was no significant effect. For interpreting the figure, a moderating effect is indicated by nonparallel lines (Judd et al., 2001). Keeping in mind that the results were non-significant (see Table 7), the deviation of the low social support line from parallel shown in Figure 1 implies that there may be some moderation effect for those who receive less social support. However, due to the lack of statistical significance, this is not enough evidence to support H6.

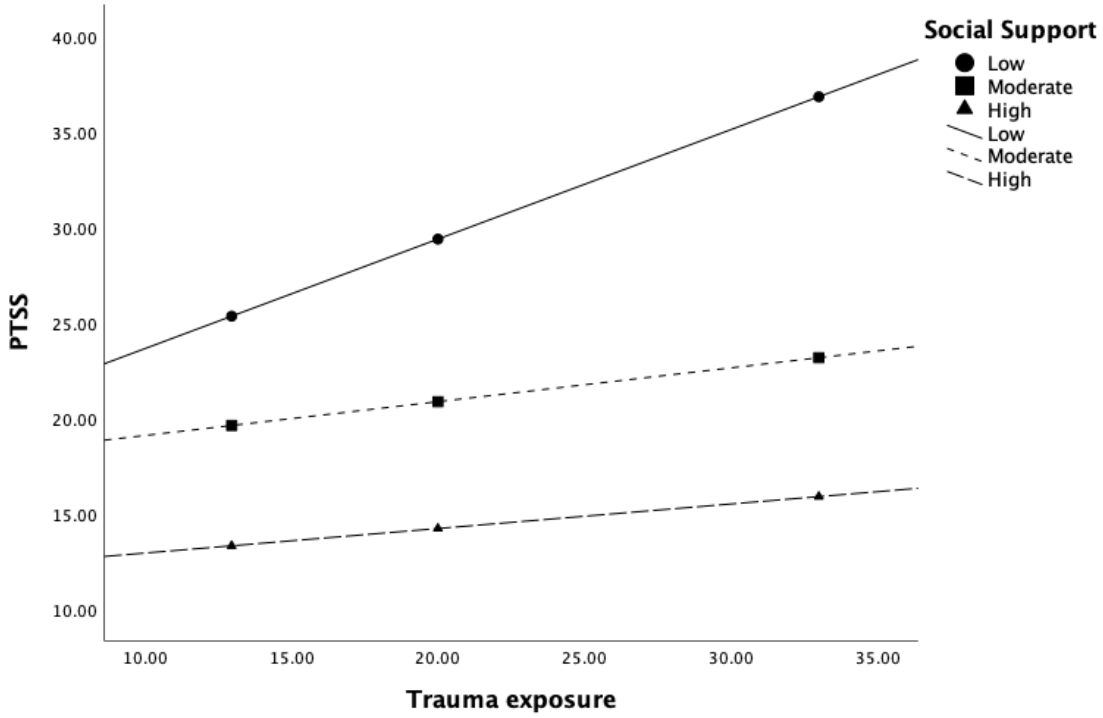
Table 7

Results of the Moderation Analysis on the Relationship between Trauma Exposure (X) on PTSS (Y) at Different Levels of Social Support

Level of Social Support	Effect	Std. Error	*t*	*p*
Low social support	.57	.38	1.51	.13
Moderate social support	.18	.14	1.26	.21
High social support	.13	.20	.64	.52

Figure 1

The Moderating Effects of Social Support on the Relationship between Trauma Exposure and PTSS



H7: The relationship between trauma exposure and PTSS will be moderated by perceived social support.

As with H6, the model was statistically significant, however, the interaction between the variables was not significant ($p > 0.05$) indicating that there was no moderation effect of perceived social support on the relationship between trauma exposure and PTSS. The *p* values for the *t*-statistics at the low, moderate, and high levels of perceived social support were all greater than .05, suggesting that there was no effect (see Table 8). The slope lines in Figure 2 are relatively parallel indicating that there is no difference between the three groups. Therefore, this hypothesis was also not supported.

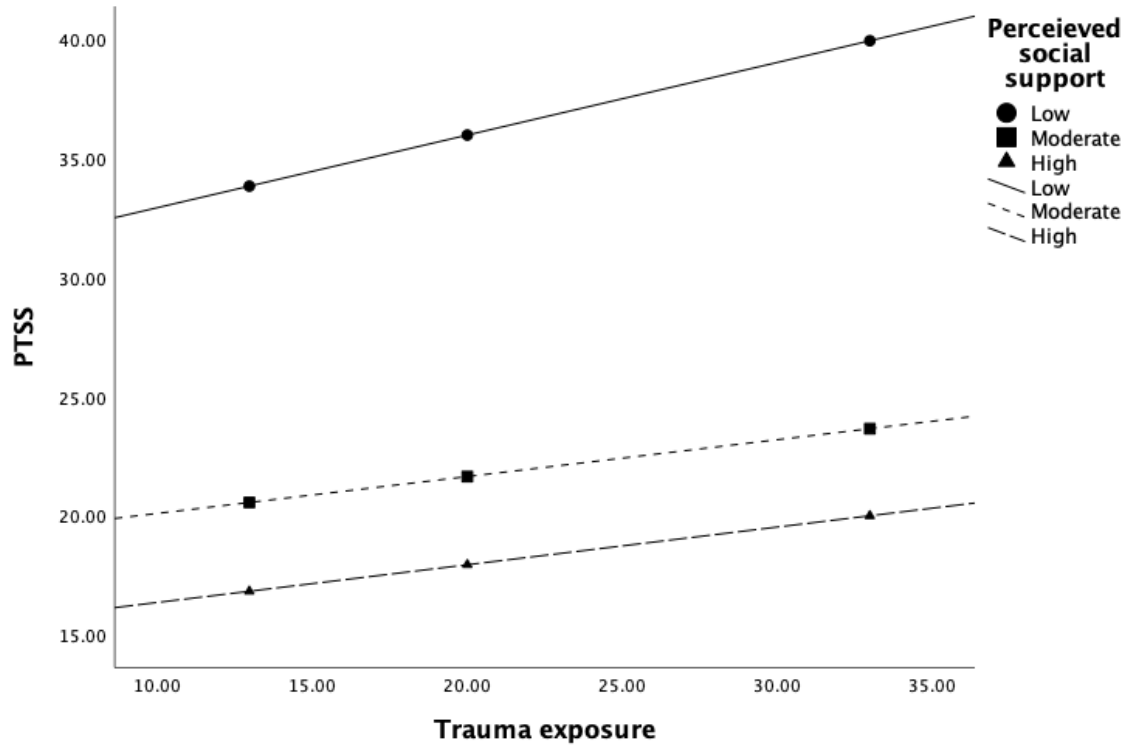
Table 8

Results of the Moderation Analysis on the Relationship between Trauma Exposure (X) on PTSS (Y) at Different Levels of Perceived Social Support

Level of Perceived Social Support	Effect	Std. Error	*t*	*p*
Low perceived social support	.30	.45	.67	.50
Moderate perceived social support	.15	.20	.76	.45
High perceived social support	.16	.14	1.13	.26

Figure 2

The Moderating Effects of Perceievd Social Support on the Relationship between Trauma Exposure and PTSS



Exploratory Analyses

After the initial analyses were carried out for the hypothesis testing, several exploratory analyses were carried out to look closer at potential themes and relationships that had emerged.

Assumption Checking

The qualitative exploratory analyses included both One-way ANOVA tests and moderation analyses. Therefore, the assumptions of univariate and multivariate tests needed to be met. These were carried out in and interpreted in the same manner as the assumption checking in the *Results* section. Histograms, probability plots, skewness tests, and kurtosis tests were carried out for social support, perceived social support, psychological distress, and PTSS in the hypothesis testing assumption checking. Received social support (ISSB total score), SSS Total scores, and MSPSS total scores were the only new variables that needed to be tested for normality of distribution. Distribution was sufficiently normal for these variables and the skewness and kurtosis scores all fell within the range of -2 and +2 which indicates univariate normality (Koh, 2014). One outlier was detected in the ISSB total scores, but as with the outliers in the *Results* section, it was decided not to be removed as there is no way to determine it is not an accurate result (Burke, 1998; Osborne & Overbay, 2019). Homogeneity of variance needed to be tested for the variables included in the One-way ANOVA tests for gender, low/moderate/high social support, and partner groups. This was done using Levene's test for Equality of Variances (Levene, 1960). It was decided to use statistics based on the median since many of the variables appeared visually slightly skewed (Brown & Forsythe, 1974). The results of Levene's tests were not significant which indicates that the variances between groups do not differ significantly from one another (George, 2016). For the moderation analyses, VIF scores were generated to ensure there was no multicollinearity between trauma exposure and the MSPSS, SSS, and ISSB total scores; no VIF scores were

higher than 10 indicating there was no violations of this assumption (scores ranged from 1.00 to 1.02).

Low, Moderate, and High Levels of Social Support

While social support was not found to moderate the relationship between trauma exposure and PTSS, a one-way ANOVA was carried out to see if there was a difference in PTSS scores between the three social support groups. The test showed there was a significant difference between the groups, $F(2, 202) = 8.93$, $p < .001$. Table 9 shows that those with low social support generally experience more PTSS and those with high social support experience less PTSS.

Table 9

Descriptive Statistics of PTSS at Varying Levels of Social Support

	N	*M*	*SD*	Min	Max
Low social support	17	33.12	15.26	13	63
Moderate social support	141	21.15	17.04	0	77
High social support	47	14.46	11.73	0	50

A one-way ANOVA was also carried out to see if the different levels of social support impacted levels of psychological distress. A significant difference was found between the low, moderate, and high social support groups, $F(2, 202) = 18.01$, $p < .001$. Table 10 shows that those in the low social support group reported higher levels of psychological distress, and the high social support group had the lowest scores of psychological distress.

Table 10

Descriptive Statistics of Psychological Distress at Varying Levels of Social Support

	N	*M*	*SD*	Min	Max
Low social support	17	79.63	23.18	40	120
Moderate social support	141	54.65	27.58	10	132
High social support	47	37.46	19.89	6	91

Perceived and Received Social Support

Analysis was also performed to see if there was any difference between the first responder partner, civilian partner, and no partner groups when splitting social support into perceived and received. A one-way ANOVA showed that there was a significant difference between the groups for both perceived ($F(2, 202) = 28.41$, $p < .001$) and received ($F(2, 202) = 4.08$, $p < .05$) social support. Table 11 shows that the group differences are similar to those in hypothesis three with the no partner group having the lowest mean. However, some interesting differences to note are that for received social support, the minimum scores are all very close for the three groups. While the no partner mean is still lower, the minimum and maximum for the no partner group are very similar to the first responder partner group. Another interesting statistic is the minimum score of perceived social support for the civilian partner group; it is significantly higher than the first responder partner and no partner groups.

Table 11

Descriptive Statistics of Perceived and Received Social Support for the Partner Groups

		N	*M*	*SD*	Min	Max
Perceived social support	First responder partner	103	116.41	23.04	43	153
	Civilian partner	80	122.09	19.61	79	158
	No partner	22	81.79	28.25	37	130
Received social support	First responder partner	103	41.29	12.37	20	67
	Civilian partner	80	43.05	12.29	21	85
	No partner	22	34.65	11.16	20	68

Gender

A one-way ANOVA was carried out to test if there were any differences between males and females for perceived social support, received social support, social support from partners, psychological distress, social support, and PTSS. The only variable that showed a statistically significant difference between the groups was PTSS, $F(1, 203) = 4.02$, $p < .05$. Males had a higher mean of 23.86 with a minimum of 0 and maximum of 77 while females

had a lower mean of 19 with a range of 0 to 73. This suggests that males generally experienced more PTSS than females.

Moderation analyses

As the hypothesis testing carried out moderation analyses with variables that were combinations of measures, the relationship between trauma exposure and PTSS was explored using the different types of social support that was measured (MSPSS, SSS, and ISSB) as the moderators. This was done to see if there was a specific facet of social support that may be influencing this relationship; received social support had not been tested and the correlation analysis revealed the two perceived support questionnaires measured slightly different things ($r = .75$, $p < .001$). These tests were done by creating three groups of scores for each measure based on the range of scores (e.g., scores of 19 to 44 for ISSB total scores fell into the *Low* group, 45 to 69 were *Moderate*, and 70 to 95 were *High*). While this was done to keep consistently with the methods used for the hypothesis testing it should be noted that it did create uneven groups (e.g., only two participants had scores that met the *High* group for the ISSB scores). None of three tests had significant interactions suggesting that none of the individual support measures moderated the relationship (see Tables 12, 13, and 14).

Table 12

Results of the Moderation Analysis on the Relationship between Trauma Exposure (X) and PTSS (Y) at Different Levels of MSPSS Scores

Level of MSPSS score	Effect	Std. Error	*t*	*p*
Low MSPSS score	.33	.45	.73	.47
Moderate MSPSS score	.12	.23	.51	.61
High MSPSS score	.18	.13	1.34	.18

Table 13

Results of the Moderation Analysis on the Relationship between Trauma Exposure (X) and PTSS (Y) at Different Levels of SSS Scores

Level of SSS score	Effect	Std. Error	*t*	*p*

Low SSS score	.83	.52	1.60	.11
Moderate SSS score	.17	.16	1.02	.31
High SSS score	.11	.16	.69	.49

Table 14

Results of the Moderation Analysis on the Relationship between Trauma Exposure (X) and PTSS (Y) at Different Levels of ISSB Scores

Level of ISSB score	Effect	Std. Error	*t*	*p*
Low ISSB score	.23	.15	1.51	.13
Moderate ISSB score	.24	.18	1.39	.17
High ISSB score	1.80	4.66	.39	.70

Exploratory Analysis of the Qualitative Questions

It should be noted that this is a quantitative study that does not include a true qualitative analysis. The three open-ended questions included in the survey are being labelled *qualitative* in this piece of research to distinguish them from the statistical analyses. Qualitative approaches were used to code the responses, but this study did not follow any of the typical processes that would deem it to be a true qualitative analysis. This analysis was classed as an exploratory investigation as it is forming a notion as to what variables may be in play in these relationships, but the lack of ability to clarify and follow up with more questions reduces the ability to form conclusions. The answers to the three qualitative questions were explored using thematic analysis. This is a method that involves searching for recurring themes in a qualitative data set (Riger & Sigurvinsdottir, 2016). An inductive approach to analysis was employed; this meant that the main research questions were known before beginning the analysis, however, the themes and final research questions emerged during the data analysis (Rivas, 2012). Keeping in mind that a large majority of the participants were Pākehā, these exploratory findings may not be representative of varying ethnic or cultural experiences. The participants were also mostly female which also reduces the generalisability

of this analysis. The data for each of the three questions was reviewed and the main themes that emerged were documented. These were then developed into codes using specific code words and phrases. The questions were the following: “Who do you usually talk to about potentially traumatic events that occur at work?”; “If you have a partner, are there any events that you are more likely to discuss with your partner?”; “If you have a partner, are there any events that you are less likely to discuss with your partner?”. Table 15 outlines the themes that emerged from these questions that were developed into codes for analysis. The qualitative questions were not compulsory to answer nor were they all applicable to every participant (e.g., questions two and three were for those with partners); therefore, there were some missing responses. Some participants also had multiple responses to one question; for example, some listed their partner, family, and co-workers as a response to the question of who they were most likely to speak to. Since participants could not be followed up to clarify, these responses were coded as they were reported (i.e., if a participant mentioned three themes in one answer they were recorded in all three themes). Therefore, the percentages in Tables 15 and 16 will not add up to 100% of the sample; the percentages represent how many participants reported that specific theme.

Table 15

Themes from the exploratory analysis of the qualitative questions

Theme	Description	Subthemes	N	N Percent
Partner	Participant mentioned if they are likely to speak with their partner about potentially traumatic work events	1. Speak with their partner	112	54.6%
		2. Speak with their partner but limit details	14	6.8%
		3. Specifically state they do not speak with their partner	6	2.9%

First Responders	Participant said that they are likely to speak with colleagues/friends who are first responders about potentially traumatic work events	1. Other current police officers	105	51.2%
		2. Ex-police officers	5	2.4%
		3. Other first responders	2	1.0%
Family	Participant said that they are likely to speak with family in a first responder occupation about potentially traumatic work events	1. Family who are police officers/ex-police	9	4.4%
		2. Family who are first responders	1	.5%
Professionals	Participant said they are likely to speak with a professional (i.e. psychologist, counsellor, etc.) about potentially traumatic work events	None	23	11.2%
Nobody	Participant said that they are likely to speak with nobody about potentially traumatic work events	1. Nobody at all	12	5.9%
		2. Generally nobody, but sometimes someone else	7	3.4%
Censor	Participants mention that they talk to others about potentially traumatic work events but limit the details and/or frequency of conversations	1. Limit conversations with partner	16	7.8%
		2. Limit conversations with family	4	2.0%
		3. Limit conversations with friends	8	3.9%
Understanding	Participants mention how those in first responder roles understand potentially traumatic work events and/or the lack of understanding	1. Other police officers understand	8	3.9%
		2. Other first responders understand	1	.5%

	from those who are not first responders	3. Those who are not first responders do not understand	9	4.4%
Traumatic events	Participants mention how they do or do not speak with their partner about potentially traumatic work events	1. Speak about more traumatic, upsetting events (e.g., deaths, suicides, etc.)	39	19.0%
		2. Speak about less traumatic events (e.g., "funny work stories")	21	10.2%
Anything	Participants mention how they speak to their partner about any/all events at work	1. All work events	44	21.5%
		2. Most work events	8	3.9%
Limit exposure	Participants mention how they limit exposure of potentially traumatic work events	1. Limit second-hand trauma exposure on others	26	12.7%
		2. Worried about effect on the mental health of their partner/ causing "stress", "distress", etc.	8	3.9%
		3. Partner does not want/like to talk about work events	3	1.5%
Death	Participants mention they do not speak about jobs involving sudden deaths (e.g., suicides, homicides, etc.)	None	16	7.8%
Children	Participants mention they do not speak about jobs involving children/young persons.	None	21	10.2%
Sexual	Participants mention they do not speak about jobs involving sexual violence/harm/harassment	None	16	7.8%

Family disputes	Participants mention they do not speak about jobs involving family disputes/harm	None	6	2.9%
Personal risk	Participants mention they do not speak about jobs when their personal safety was at risk	None	13	6.3%

Note. N represents the number of participants from the total sample of 205 that reported these themes. *N Percent* is the percentage of the total sample that reported these themes. These questions were not compulsory to answer.

The results shown in Table 15 suggest several important trends. Responses to who participants are likely to speak with about potentially traumatic work events included partners (61.4%), first responders (54.6%), family who are first responders (4.9%), and professionals (11.2%). However, there is also a portion of the sample that stated they often do not seek support from anybody (9.3%). Some of the sample reported that they speak about the majority of work events (25.4%). Some suggested that they speak about traumatic events (19%), while others reported that they speak with their partners about less traumatic work events (10.2%) and are careful to censor their conversations (7.8%). There was the suggestion that police officers were understanding and easy to speak with (3.9%), while those not in similar roles were more difficult to speak with as they did not understand (4.4%). Another issue that was addressed was the need or want to limit exposure of traumatic events and the impact of this on others (18.1%). The topics that emerged when discussing what type of events were not spoken about included events involving death (7.8%), children (10.2%), sexual violence (7.8%), family disputes (2.9%), or personal risk to the participant (6.3%).

Table 16

The Differences between the Partner Groups in the Number of Participants and Percentage of the Subgroup that Reported the Themes/Subthemes

Themes/Subthemes	First responder partner (*N* = 103)		Civilian partner (*N* = 80)		No partner (*N* = 22)	
Partner						
1. Speak with their partner	83	80.6%	29	36.3%	0	0%
2. Speak with their partner but limit details	1	1.0%	13	16.3%	0	0%
3. Specifically mention they do not speak with their partner	4	3.9%	2	2.5%	0	0%
First responders						
1. Other current police officers	41	39.8%	56	70.0%	13	59.1%
2. Ex-police officers	3	2.9%	2	2.5%	8	36.4%
3. Other first responders	0	0%	1	1.3%	1	4.5%
Family						
1. Family who are police officers	5	4.9%	2	2.5%	1	4.5%
2. Family who are first responders	1	1.0%	1	1.3%	0	0%
Professionals	16	15.5%	5	6.3%	2	9.1%
Nobody						
1. Nobody at all	4	3.9%	2	2.5%	6	27.3%
2. Generally nobody, but sometimes someone else	4	3.9%	2	2.5%	1	4.5%
Censor						
1. Limit conversations with partner	3	2.9%	13	16.3%	0	0%
2. Limit conversations with family	1	1.0%	3	3.8%	0	0%
3. Limit conversations with friends	2	1.9%	5	6.3%	1	4.5%
Understanding						
1. Other police officers understand	7	6.8%	1	1.3%	0	0%
2. Other first responders understand	0	0%	1	1.3%	0	0%

3. Those who are not first responders do not understand	2	1.9%	6	7.5%	1	4.5%
Traumatic events						
1. Speak about more traumatic, upsetting events (e.g., deaths, suicides, etc.)	29	28.2%	10	12.5%	0	0%
2. Speak about less traumatic events (e.g., "funny work stories")	3	2.9%	18	22.5%	0	0%
Anything						
1. All work events	39	37.9%	5	6.3%	0	0%
2. Most work events	5	4.9%	2	2.5%	1	4.5%
Limit exposure						
1. Limit second hand trauma exposure on others	7	6.8%	16	20.0%	3	13.6%
2. Worried about effect on the mental health of their partner/ causing "stress", "distress", etc.	3	2.9%	5	6.3%	0	0%
3. Partner does not want/like to talk about work events	2	1.9%	1	1.3%	0	0%
Death	3	2.9%	13	16.3%	1	4.5%
Children	7	6.8%	14	17.5%	0	0%
Sexual	7	6.8%	8	10.0%	1	4.5%
Family disputes	2	1.9%	4	5.0%	0	0%
Personal risk	4	3.9%	9	11.3%	0	0%

Note. N represents the number of participants from the total sample of 205 that reported these themes. *N Percent* is the percentage of the total sample that reported these themes. These questions were not compulsory to answer.

When asked if there is anything that they are less likely to discuss with their partner, in the first responder partner group 38 (36.9%) indicated 'yes' and 60 (58.3%) indicated 'no'. In the

civilian partner group, 62 (77.5%) indicated ‘yes’ while only 13 (16.3%) indicated no. Table 16 shows that a higher percentage of the first responder partner group reported speaking to their partner (81.6%) compared to the civilian partner group (52.6%). More of the civilian partner group reported censoring their conversations with their partner (16.3%) and limiting their exposure to the more traumatic events (27.6%) compared to the first responder partner group (2.9%; 11.6%). All the no partner group participants (100%) reported seeking support from other first responders, including colleagues, ex-officers, and other first responders, compared to 73.8% of the civilian partner group and 42.7% of the first responder partner group. The no partner group also reported the highest percentage of the subgroup that speaks with nobody (31.8%) compared to the other groups (7.8%; 5%). More of the first responder partner group were likely to speak about traumatic events (28.2%) while a larger portion of the civilian partner group spoke about less traumatic events with their partner (22.5%). For all of the topics that participants were less likely to speak about (death, children, etc.), higher portions of the civilian partner group reported these than the other groups.

Chapter eight: Discussion

Overview

This chapter will discuss the results regarding other literature in this domain. As predicted, trauma exposure had a significant positive relationship with PTSS; however, neither social support nor perceived social support was found to moderate this relationship. A significant negative relationship was also found between social support and psychological distress. The hypotheses that tested the levels of social support and psychological distress in the different partner groups were both partially supported. While a significant difference was found between the three groups for both social support and psychological distress, the first responder partner group reported better outcomes than the no partner group but not the civilian partner group. The first responder partner group and the civilian partner group reported similar levels of social support and psychological distress. Both groups had close means, with the civilian partner group reporting a slightly higher mean for social support and a slightly lower mean for psychological distress. However, the no partner group reported significantly lower social support and higher psychological distress compared to the two partner groups. When looking at the two partner groups, there was no significant difference found in levels of partner support.

The exploratory analyses revealed some interesting trends that would be useful to explore in future research. When looking at participants in groups based on high, moderate, and low social support levels, those in the high social support group had significantly lower PTSS and psychological distress levels while those in the low social support group had significantly higher PTSS and psychological distress levels. The three partner groups were also examined to see if there were differences between received and perceived social support levels. As with the total social support scores, the means of perceived and received social support were distributed similarly between the groups (no partner group scored lower than

the other two groups). However, the civilian partner group had a higher mean, minimum, and maximum score for perceived social support. The first responder partner and no partner groups also both had very similar scores for received social support. The primary constructs were also examined to see if there were significant differences according to gender. The only variable that showed a difference between males and females was PTSS, with males having generally higher scores than females. Moderation analyses revealed no moderation effect of any of the social support scales on the relationship between trauma exposure and PTSS.

The exploratory analysis of the qualitative questions revealed 15 themes relating to sources of support and what participants were more or less likely to speak about with their partners. These themes were explored in the entire sample as well as in the partner subgroups.

PTSS

The results from testing the first hypothesis showed that there was a significant, but weak, positive relationship between trauma exposure and PTSS (after controlling for gender, and length of service). This relationship was initially hypothesised as the effects of being exposed to multiple PTEs were suggested to be cumulative (Goodman et al., 1998). The predicted linear relationship between trauma exposure and PTSS would suggest that those who experienced exposure to more PTEs would have a higher risk of experiencing PTSS. The scale used to measure trauma exposure for this study was the LEC-5 which measured how many different PTEs the participant had experienced. It should be noted that the LEC-5 does not measure the number of times a specific PTE has been experienced; this is discussed in the *Limitations* section. These results are consistent with the previous literature that outlines trauma exposure as a risk for PTSS in first responder roles (e.g., Haugen et al., 2012; Kleim & Westphal, 2011; Lewis-Schroeder et al., 2018). While significant, the relationship that was found in this study was not a strong relationship; this implies that experiencing a larger number of PTEs does not necessarily equate to more severe PTSS. This is likely due to

the fact that PTSS can occur following exposure to just one PTE (APA, 2013). The linear relationship that Bhat and Rangaiah (2016) found between PTSS and posttraumatic growth suggests that experiencing more PTSS can have both positive and negative outcomes occurring simultaneously. Taking all of this into account, a positive weak relationship between trauma exposure and PTSS is a logical outcome.

PTSS and Social Support

Previous research has found that social support has a moderating effect on the relationship between trauma exposure/stressors and wellbeing outcomes in first responders (Greinacher et al., 2019; Kshtriya et al., 2020; Prati & Pietrantoni, 2010). This relationship was not replicated in this research. There were no significant results for social support or perceived social support as a moderator in the relationship between trauma exposure and PTSS. This was an unexpected result as the earlier hypothesis testing indicated that social support had a direct effect on wellbeing. Potentially the weak relationship between trauma exposure and PTSS impacted the outcome of these tests. It may also be that this relationship is moderated by a specific type of social support from a specific source that was not picked up through the broad use of social support in this research. For example, Stephens and Long (1999) found that the relationship between trauma exposure and PTSS in police officers was moderated by emotional support from their peers and police officers' attitudes towards expressing emotions at work. Parallel lines represent a non-significant relationship in the moderation analysis as there are no differences between the varying levels of the moderator variable (Field, 2018). For the moderation analysis between trauma exposure, PTSS, and social support, Figure 1 shows that the moderate and high social support groups were reasonably parallel; however, the low social support group has a steeper line indicating some form of moderation. While these results were not statistically significant and no conclusions can be drawn, this is still an interesting factor to consider. A meta-analysis by Zalta et al.

(2021) found stronger effects when looking at social support and PTSS when measuring negative social reactions compared to other types of social support. Potentially, the negative effects of low social support have a larger impact on the relationship between trauma exposure and PTSS than the protective effects described in higher levels of social support.

With the moderation analyses not being supported in the hypothesis testing, the decision was made to explore whether there were any significant impacts of different levels of social support on PTSS. As with the moderation analyses, social support groups were analysed based on low, moderate, and high social support scores. PTSS levels were significantly different between the three groups. The relationships seemed to be linear with the low social support group experiencing higher PTSS (M = 33.12) scores and the high social support group experiencing lower PTSS (M = 14.46) scores. The moderate social support group's mean score fell in the middle of the other groups for PTSS (M = 21.15). This relationship could be explained by the protective effect that social support has on mental health (Cohen & Wills, 1985; Gottlieb & Bergen, 2010). These findings also support the concept that the trauma exposure scores may have impacted the outcome of the moderation analysis. While it does not have the same impact as hypothesis testing, this exploratory analysis highlights the impact that social support has on wellbeing outcomes.

Psychological Distress

The analysis found a strong, negative relationship between social support and psychological distress after controlling for gender and length of service. For this study, psychological distress was made up of PTSS scores, depressive symptoms scores, and inversed personal wellbeing scores. The social support scores were made up of measures of both perceived and received social support from a variety of sources including family, friends, partners/spouses, and work supervisors. These findings suggest that lower social support is associated with lower wellbeing outcomes while greater social support has a

relationship with higher wellbeing. These findings support results found in previous research that good social support has a protective effect against negative health outcomes, while poor social support is a risk factor for negative health outcomes (Brewin et al., 2000; Kshtriya et al., 2020; Ozer et al., 2003). These findings highlight the importance of understanding the effects of social support in a high-risk occupation and the potential benefits of ensuring social support in the workplace is encouraged (e.g., training of staff/supervisors in providing social support to colleagues or focusing on the reduction of workplace bullying).

To further examine this relationship, an exploratory analysis was carried out to see if there was a difference in psychological distress scores for varying levels of social support. A significant difference was found between the groups with the high social support group experiencing the lowest psychological distress and the low social support group experiencing the highest psychological distress. This again supports the concept that positive social interactions can have beneficial, protective effects on mental health, however, negative social interactions can have adverse effects (Lepore, 1992). This could also be linked to the concept that offering the wrong type of social support (e.g., offering informational support when someone is seeking emotional support) can have a detrimental effect on wellbeing (Kang & Wei, 2018). Lower social support scores may not only reflect a lack of provision of support but potentially the wrong support being offered leading to a lower perception of support. Social support may be offered but it may also be undesired for a multitude of reasons (e.g., the support does not match the needs of the situation, the receiver wants to be perceived as competent, or the receiver wants to maintain privacy about sensitive information) and consequently declined (Floyd & Ray, 2017). For example, an officer may be engaging in avoidant coping mechanisms wanting to refrain from discussing the PTE and their partner could be trying to offer emotional support and encourage discussion resulting in a mismatch and decline of support. This may be important to consider in future research when trying to

understand how a lack of understanding of the police officer job may translate to a mismatch of social support.

Having a First Responder Partner

The primary focus of this research was to look at whether there was any difference in the levels of social support received depending on the occupation of intimate partners. The hypothesis was that having a partner in a first responder occupation would result in higher levels of social support compared to those with a partner in a civilian occupation and those with no partner. It has been suggested that partners in the same occupation can offer better support since they have a better understanding of the profession (Halbesleben, 2010; Netterville, 2022; Wallace & Jovanovic, 2011). This study hypothesised that having a first responder partner who understood the more difficult aspects of the job and the types of callouts police attend may result in the participant being more likely to speak with their partner and receive the social support they need following trauma exposure. The findings of this research allude to a more complicated relationship than expected. The results only partially supported the hypotheses. The group with the highest social support and lowest psychological distress scores was the civilian partner group which was followed closely by the first responder partner group. The no partner group had significantly lower social support and higher psychological distress compared to the two partner groups. This supports previous research that has found that people without a partner are more vulnerable to the negative effects of trauma exposure (e.g., Davey et al., 2000; Fullerton et al., 2004). With the significant relationship found between social support and psychological distress, it is not surprising that the no partner group was experiencing lower wellbeing outcomes alongside the lower social support rates. While the first responder partner and civilian partner groups had closer means for social support and psychological distress, an interesting factor to consider was that they both had quite large ranges between the maximum and minimum

scores. This suggests that there may be advantages and disadvantages for both first responder partners and civilian partners. There was also no significant difference found in partner support between these two groups. The first responder partner group had a similar minimum social support score (65) to the no partner group (61) which was much lower than the civilian partner group (112). This implies that in some situations, having a first responder partner may offer no benefit in social support compared to those with no partner. The benefits of having a partner who understands the profession found by Wallace and Jovanovic (2011) may be offset in first responder populations by the impacts of regular trauma exposure. Many negative effects of trauma exposure have been found in first responder populations such as PTSS, depression, anxiety, chronic fatigue, somatic or psychosomatic complaints, and difficulties with alcohol (Haugen et al., 2012; Kleim & Westphal, 2011; Lewis-Schroeder et al., 2018; Walker et al., 2016). This also includes difficulties in relationships (Cone et al., 2015). A potential explanation for these findings is that the benefits of understanding the job when offering social support may depend on the mental and physical health of the partner. If the partner is also a first responder and dealing with the same potential negative effects of trauma exposure, this may reduce their ability to provide social support. Research has shown that first responder's trauma exposure can have a negative effect on the mental health of their partner (Cox et al., 2022; Lambert et al., 2012). It potentially is difficult for those who are first responders to process their own PTEs as well as their partner's PTEs. However, the wide ranges in scores for both social support and psychological distress show that some have good social support and better health outcomes with a partner who is a first responder. Therefore, some may be experiencing the positive benefits described by Wallace and Jovanovic (2011) and Halbesleben (2010) of being able to understand, offer appropriate support, and encourage active coping. In terms of the civilian partner group, while their mean was higher for social support and lower for psychological distress, this group also had very wide ranges of scores

for both variables. This implies that this group potentially holds the opposite advantages and disadvantages. While this group may lack the understanding of the role and knowledge to offer practical support, they may also not be dealing with the negative effects of trauma exposure and therefore are in a better place to provide support. Another consideration for both partner groups is the impact of shift work. One of the identified consequences of doing shift work was the reduced quality and quantity of time spent with partners and family due to the lack of synchrony between work hours and their partner/family's routines (Finn, 1981). It may be possible that working varying shifts may also be impacting the ability to spend time with partners and provide social support on a regular basis.

An exploratory analysis was conducted to see if there were any differences between these groups for perceived and received social support. Perceived social support is suggested to have more of an impact on social support than received social support (Haber et al., 2007; Nurullah, 2012; Prati & Pietrantoni, 2010; Reti et al., 2022a). The only hypothesis that addressed perceived social support directly was the moderation analysis which was found to be non-significant. It was decided that it might be interesting to look at whether levels of perceived and received social support differed between the three partner groups following the discovery of the similarity of the two partner groups. Like the hypothesis testing, the no partner group had significantly lower levels of perceived and received support compared to the two partner groups, with the civilian partner group having the highest levels. Hypothesis three and four showed that those in the no partner group generally had lower social support and higher psychological distress compared to the other two groups. However, looking specifically at received social support, while the no partner mean was still lower, the minimum and maximum for the no partner group were very similar to the first responder partner group which implies that received support may not improve for all of those with a first responder partner compared to having no partner. The maximum received social support

score for the civilian partner group was considerably higher while the perceived social support maximum scores were similar for both partner groups. It may be possible that the added pressures of working in a first responder occupation (e.g., shift work, managing own mental health following PTE exposure) may reduce one's capacity to provide social support to their partner. The analysis also found that the minimum score of perceived social support for the civilian partner group was significantly higher than the first responder partner and no partner groups. This implies that having a partner who is not a first responder may improve perceived support. This may also tie into the concept that if both parties in a couple are first responders, they are both dealing with PTE exposure and the possible negative consequences of this, which may result in reduced ability to offer support to one another. These concepts are consistent with previous research on first responders and their partners; changes in personality and withdrawal associated with PTSS or learned behaviours from work (e.g., being emotionally detached from work) can cause withdrawal in relationships and negative effects on partners' wellbeing (Sharp et al., 2022).

These potential explanations for the results are supported by the findings of the exploratory analysis of the qualitative questions. In comparing the two partner groups, the first responder partner group was more likely to speak about PTEs that occurred at work with their partner, more likely to discuss all work events (including traumatic events) with their partner, and less likely to censor their conversations with their partner or avoid certain topics. A theme that arose in this group was that police officers specifically understood the types of jobs that they attended. In comparison, the civilian partner group spoke less with their partners about work PTEs and more with other first responders. They also reported they were more likely to censor their conversations with their partners, speak about less traumatic work events, and limit exposure to traumatic events. Several participants mentioned a lack of understanding from those who are not first responders. This fits with previous research that

has suggested a lack of understanding of the role may cause dissatisfaction in first responder relationships (Netterville, 2022). More members of this group also reported topics they avoid speaking with their partners about compared to the other group; the main topics included jobs that involved death, children, sexual violence, family disputes, and personal risk. It should be noted that these themes also emerged in the first responder partner group, just at lower rates. This is consistent with past research that found first responders may withdraw from their partners emotionally with the intention of protecting their partner or their family (Bochantin, 2016; Karaffa et al., 2015). This implies that for certain jobs, police officers may need to be offered more support (potentially in the form of professional help or supervisor support) as they are less likely to seek support from their partners in these cases. It also alludes to the importance of educating partners and families in providing support and encouraging positive coping mechanisms. Educational interventions and programs on social support, active coping, and psychological first aid that engage partners and families of first responders have shown promising results (McKeon et al., 2021; O'Toole et al., 2022). Netterville (2022) described the impact of partners understanding the first responder's job and their specific trauma processing needs (e.g., space, time, physical presence, or distraction) on processing work-related trauma; these could be key topics covered in education programs.

Another theme that emerged in both groups was how certain topics were avoided due to the mental health of their partner. This supports the concept that the likeliness of receiving support may rely on the current mental health of the officer's partner. If the partner is experiencing their own difficulties with mental health, they may not be open to, or able to, hear about the officer's PTEs and provide support. This could be for both groups, however, being a first responder may increase the likeliness of poor mental health outcomes; for example, if an officer's partner was experiencing PTSS after attending a car crash, they may not discuss their own exposure to car crashes with their partner. Only 11.2% mentioned that

they are likely to discuss work PTEs with a professional. Most of these were participants with first responder partners. Partners and police colleagues were the most mentioned sources of support following these events. A reasonably large portion (9.3%) also mentioned that they usually do not speak with anyone.

Compared to the partner groups, the no partner group's main source of support seemed to be other first responders (including colleagues), however, this group also had a higher percentage of the group that mentioned they do not speak with anyone (27.3%). The no partner group also mentioned they did not want to expose others to second-hand trauma. This highlights again the vulnerability of those who do not have a partner and the need to potentially offer alternative sources of social support to these groups following trauma exposure. Previous research has identified the positive benefits of increased supervisor communication and peer communication on the wellbeing of police officers (e.g., Johnston, 2015; Stephens & Long, 2000). Ellis and Normore (2016) highlighted how often in Western policing, there are strong standards of training and performance for frontline staff, but less so for those managing them. Training police supervisors in effective leadership, communication, and employee engagement influences the performance and job satisfaction of those they supervise (DeSpain, 2008; Ellis & Normore, 2016). With support from colleagues having a direct impact on psychological wellbeing, it is essential to consider ways to increase perceptions of available support and the amount of received support for police employees (Jackman et al., 2020). This may be even more pertinent to those who do not have a partner and may be less likely to seek out support. The findings from this exploratory analysis require more extensive examination in future studies; this will be further discussed in the *Implications and Future Research* section.

Gender

The final exploratory analysis looked at if there were any gender differences for the main measured variables. PTSS was the only variable that had a significant difference with males experiencing higher rates of PTSS than females. Most research in police and military populations in other countries has found that either females experienced more PTSS (e.g., Bowler et al., 2010; van der Meer et al., 2017) or there were no gender differences (e.g., Pereira, 2002; Pole et al., 2001). However, these findings are consistent with New Zealand-specific research on military and ambulance personnel which indicate that men are more likely to report poorer wellbeing outcomes (e.g., Reti et al., 2022b; Richardson et al., 2020). This is suggested to be caused by stigmas surrounding mental health that are present in New Zealand, especially in male-dominated occupations (Walmsley, 2021; Wellstead & Norriss, 2014). While these stigmas around seeking help seem to be present in police officers overseas (Velazquez & Hernandez, 2019), they may be exacerbated in New Zealand police officers resulting in higher PTSS scores for males that conflict with research on gender from other countries.

Limitations and Generalisability

There are several limitations that have affected the generalisability of these findings. First, the sample of this study does not accurately represent the New Zealand police officer population. For an unknown reason, more females responded to the survey than males. While the current New Zealand police population is approximately 25% female and 75% male according to the most recent Annual Report (New Zealand Police, 2022). The sample of this study was mostly comprised of females (67%) with males making up the rest of the sample (33%). This could have impacted PTSS presentation and weakened the relationships in the hypothesis testing due to the gender differences found for this variable. Previous research has also found differences in the effects of social support between males and females (e.g.,

Stronge et al., 2019). Therefore, with a larger male sample, different results may have been found. This limits the generalisibility of results to the New Zealand police population. However, hopefully, the results will still be able to provide a framework for further research into this topic.

Another limitation is the sample size. The final sample size of 205 was greater than the original estimated minimum sample size of 120 to carry out multiple linear regression. However, after commencing the analysis it was discovered that some groups that were examined were small. For example, some of the ethnicity groups only had seven participants, and the no partner group only had 22 participants compared to the partner groups which had 80 and 103 participants. Having small, uneven groups potentially reduced the reliability and generalisability of the hypothesis testing results. This may have contributed to the non-significant results found in the moderation analyses that did not replicate previous findings. Having a larger sample may have improved the reliability of both the qualitative and quantitative results.

Limitations regarding the chosen methodology and scales implemented have been touched on in other sections. There was a risk of introducing bias when using certain measures. For example, Edwards and Kotera (2021) suggested that officers can be reluctant to accurately disclose symptoms regarding mental health due to stigma in the industry and fear of losing work and/or promotions. While this piece of research was based in the United Kingdom, there is a chance that similar concerns may be present in New Zealand. Despite the survey being anonymous, by including measures of PTSS and depressive symptoms, participants may have been less likely to accurately disclose their symptoms leading to a reduction in the reliability of the results. While this is difficult to address when looking specifically at PTSS as a variable, having other scales that do not include common symptoms that have a significant stigma surrounding them (e.g., intrusive thoughts or flashbacks of the

PTE) may allow for more accurate representations of symptoms in these populations. The pattern of the missing data and the fact that it was not missing completely at random was discussed in the missing data analysis section. The pattern suggests that participants may have become fatigued with the length of the survey or found the questions regarding PTSS and depressive symptoms difficult to answer. There was a risk that bias was introduced when carrying out data analysis following data imputation.

Another potential limitation was utilising the LEC-5 to measure trauma exposure. Using this scale had advantages and disadvantages. Martin et al. (2013) suggested that cumulative trauma refers to how many different types of PTEs a person has been exposed to. From this perspective, the LEC-5 was an appropriate measure as higher scores indicated exposure to a larger number of different types of PTEs while lower scores indicated exposure to a smaller number of different PTEs. This was considered an important consideration as police officers can be exposed to a large variety of PTEs in routine police work. What the LEC-5 does not measure is the number of times a participant has been exposed to the same type of PTE. For example, a participant's score of two reflects they have been exposed to car crashes and fires; this seemingly low score does not consider that the participant may have attended over 20 crashes and five fires, increasing the risk of negative effects. However, asking participants for the number of times they have attended an event would increase the risk of unreliability as it would strongly rely on the participant's ability to accurately recall the events they have attended which would be more difficult for longer careers. It has also been suggested that measuring the number of event types can produce reliable and valid trauma response measurements without inflicting unnecessary levels of stress that can arise when reflecting on the different times an event happened (Wilker et al., 2015). This was an important ethical consideration for this study as much effort was put into reducing the risk of creating psychological distress for participants while they were completing a remote online

survey, potentially without support. Assessing event types as opposed to event frequencies is also less time-consuming and less strenuous for participants (Wilker et al., 2015). Looking at the results of this analysis, the relationship was likely weakened due to the fact that PTSS can occur following exposure to one or more traumatic events (APA, 2013). Therefore, the lack of a strong positive relationship is understandable; exposure to a higher number of PTEs does not necessarily translate to experiencing more severe PTSS as these can develop after exposure to just one PTE. Having been exposed to a higher amount of PTEs in a work environment could also potentially translate to more experience building positive coping mechanisms and opportunities for posttraumatic growth; newer staff may not have built the same resilience in the officer role. As this measure is typically used in a clinical setting to look at an individual's past PTEs, the LEC-5 has no formal scoring method (National Center for PTSD, n.d.). It was decided to add together scores for the events participants had witnessed, learned about, were part of their job, and had happened to them with a point allocated to each of these options; this was decided as the most reliable, ethical way to carry out the measurement for trauma exposure. Another limitation of using the LEC-5 is that it does not provide options for all the possible PTEs. There are many PTEs that are specific to policing (e.g., jobs with mass casualties, suicides, children, and sexual harm) that may not be adequately covered by the LEC-5. The Police Traumatic Experiences Checklist (Miller et al., 2021) has been developed as a version of the LEC that looks at police-specific PTEs. However, this does not consider PTEs that may have happened in an officer's personal life, therefore, not considering the impact of cumulative trauma over the officer's entire life. The LEC-5 has an *Any other very stressful event or experience* option that has an open-text box attached to it. This allowed participants to add any event they felt did not fall into the categories. This had advantages and disadvantages. The advantage is that it could be used to gather repeating themes to inform how the LEC-5 could be improved for future use. Themes

that arose in this piece of research were terrorist attacks/mass causality events, protests, events involving the death and/or harm of children, personal mental and/or physical health issues, death of a loved one (including the death of a pet), and relationship issues (e.g., divorce, abusive partner, etc.). However, having an open-text category also meant that it was difficult to interpret and code. Some of these *Any other very stressful event or experience* responses may have fallen under one of the original LEC-5 options (e.g., does the death of a loved one fall under *Severe human suffering*?); however, the inability to follow up meant that coding relied too heavily on the researcher's interpretations.

While past research has observed an impact of working unconventional shift times on mental and physical health (e.g., Brown et al., 2020; Feldman et al., 2021), shift work was not addressed in this study. As participants were not asked about their current work hours, there is no way to know if the negative impacts of shift work pertain to them. Effects include the reduction of restorative sleep, disruption of eating habits, and decrease in socialisation with friends and family (Brown et al., 2020; Finn, 1981). These effects are likely to impact mental health outcomes and social support levels; therefore, shift work could have been a very influential variable in the relationships explored in this study. Not including it was an oversight that could have impacted the reliability and validity of results.

A limitation of the exploratory analysis of the qualitative questions was the lack of specificity in the questions. For example, participants were asked, "If you have a partner, are there any events that you are more likely to discuss with your partner?". Many participants responded to these questions with 'yes' or 'no' but did not describe the events. This meant that analysis relied strongly on the researcher's interpretation as the response 'no' could be interpreted as 'no, we speak about everything', or 'no, we never speak about anything'. The question should have asked participants to explain their answers and provide examples of events. Another issue with these questions is that there was no clarification of what 'partners'

were being spoken about. Since the term ‘partner’ can be used in policing to describe the person that the officer is working or partnered with, it was sometimes difficult to distinguish if the participant was talking about their intimate partner or their work partner. These could both be important sources of support so it may be important going forward to distinguish between these. Another limitation of being unable to ask follow-up questions is that it is unknown whether confidentiality impacted the likeliness of participants discussing PTEs with their partners. PTEs involving confidentiality or privacy issues were mentioned by six participants. It is possible that, if promoted, more participants would have suggested confidentiality as a reason why they might not discuss PTEs with their partners. A qualitative analysis in the form on an interview would be ideal for future research to ensure there is no misinterpretation of the participants’ responses.

Ethics

As this research project progressed, there were several changes that were made to the original ethics plan. To ensure transparency, this section will outline what changes occurred and why. Several changes were made at the request of New Zealand Police to ensure that this piece of research was being carried out in line with their own ethical consideration. Several of these were linked to ensuring the safety of participants since the survey asked them to recall previous traumatic events. First, the option for participants to go in to win a voucher at the end of the survey was removed as New Zealand Police have a no-incentive policy. Instead, participants had the option to select one of twelve listed charities and the top five voted charities received a $200 donation as a token of our appreciation. Several reminders were added that should seek help if necessary alongside additional support options and resources. Originally the extended version of the LEC-5 was going to be used, however, there was concern that asking officers to recall the worst event that has happened to them could cause unnecessary psychological distress. This was especially important since the data was

anonymous and there was no way to identify participants if they indicated they wanted to harm themselves or others. It was made clear in the wellbeing reminders that due to the confidentiality of the survey; we would not be able to help them if they indicated that they needed it. Initially, participants were offered the option to withdraw before the study was published; however, due to the importance of ensuring confidentiality, there was no ethical way to identify and remove participants after they submitted their responses. A question was added to the end of the survey to confirm whether participants would like to have their responses used in the study or withdrawn. There were also several changes made to the hypotheses. These changes were made before any data analysis was carried out. The number of hypotheses was reduced from nine to seven to ensure focus was given to the most important hypotheses. Originally, hypothesis five was going to look at both spouse and family support, however, given the purpose of the study it was decided to focus solely on partner support. All of these changes were deemed minor amendments and approved by the Massey Human Ethics Committee.

At the end of the survey, participants were able to enter their email addresses if they wanted to know the outcome of the research. An executive summary (see Appendix P) was sent out to these participants in a fashion that maintained the privacy of the participants. Their email addresses were securely stored on Qualtrics. They were not copied or saved to any devices and were destroyed following the sending of the executive summary.

Implications and Future Research

This piece of research aimed to address a gap in the literature; therefore, there is a lot of opportunity to expand on these findings in future research and to see if the results can be replicated. This section addresses some of the implications of the research, potential directions for future research, and propositions on what could be done differently.

In terms of implications for New Zealand Police and other first responder organisations, there are several considerations that could be drawn from this piece of research. Mainly, the positive benefits of high social support and the negative effects of low social support have emerged. These findings suggest that social support plays a vital role in the wellbeing of officers and is an important consideration for these organisations when looking at how to support the wellbeing of their staff. This research has also been the first in the literature to look specifically at the role of partners in this population. Waddell et al. (2020) suggested there is a responsibility of emergency service organisations to recognise the significant role that intimate partners play in trauma recovery and figure out how to support not only their personnel but also their partners. For example, this could be in the form of offering mental health services to partners or offering training on how to offer support to first responders and engaging in positive coping mechanisms. The vulnerability of those who do not have a partner has been distinctly demonstrated in this research. Knowing that this group had significantly lower social support levels, first responder organisations should consider how they could offer other sources of social support to this population. For example, ensuring there is appropriate supervisor and peer support in place for these officers could reduce the likeliness of speaking with nobody about PTEs and not getting sufficient social support following these incidents. For example, supervisor and staff training on offering social support or establishing more social spaces and events to encourage positive social interactions may provide benefits. Continuing to encourage help-seeking behaviours within the organisation may also help to reduce stigmas around mental health and encourage better engagement in welfare services. This could be particularly important for those without a partner who are lacking positive social support following trauma exposure. The exploratory analysis also revealed that men were more likely to experience more PTSS. The stigmas surrounding mental health and masculinity in New Zealand discussed earlier may be the

reason for this relationship. Therefore, continuing to work on reducing stigmas around mental health, particularly in male-dominated industries, is a key consideration for first responder organisations. Due to the concerns about suicidality in first responder populations (Jones, 2017), the importance of understanding and utilising social support is pertinent in these organisations. Since low social support is linked with lower wellbeing, preventing negative social interactions (e.g., poor leadership, workplace bullying) and encouraging positive social support (e.g., team building or social activities) may help to mitigate the use of maladaptive coping mechanisms and the negative outcomes associated with these. In terms of offering support to partners, several interesting concepts emerged from these findings. Firstly, there was a theme of censoring conversations and a lack of understanding from those who were not first responders. Offering training to partners who are not first responders on how to provide social support to frontline officers may help to reduce this issue. Another theme that emerged was the impact of second-hand trauma on partners (both first responder and civilian). The concept that officers' social support may be dependent on the current mental health of their partners reinforces the importance of not only offering and encouraging the use of professional help to the officers but also to their partners. Another interesting finding that arose from the exploratory analysis of the qualitative questions was the specific topics that officers do not like to discuss with their partners; these included jobs involving death, children, sexual violence, family disputes, and personal risk to safety. As well as considering social support systems, the benefits of individual training on resilience and coping mechanisms could significantly reduce occupational stress for these more difficult PTEs (Andersen et al., 2015; Chitra & Karunanidhi, 2021).

The results of this study have indicated that the relationship between social support and a partner's occupation may be more complex than initially thought. While the qualitative section of this research indicated what may be occurring, future research should focus more

on the qualitative questions to try to uncover more specific dynamics of these relationships. Instead of having open-ended survey questions, interviews would allow for clarification and expansion of answers. The qualitative questions used in this study did not allow for this and in some cases relied too heavily on the researcher's interpretation. Being able to clarify, follow up, and get more definitive answers of what events may be more or less likely to be spoken about and why would be critical in future research to understand what factors may be affecting the provision of partner support. However, if qualitative questions are carried out in survey form, as discussed in the limitation section, the phrasing of the questions will be very important to ensure that answers are clear and specific. While these topics were reported by a larger portion of the civilian partner group, they also appeared in the first responder partner group. This suggests that officers attending jobs that involve these specific PTEs may need to be encouraged to seek support from alternative sources (i.e., professional help or peer/supervisor support) as they are less likely to discuss these with partners. These topics could also be included in any educational material presented to partners and family members who are supporting officers.

Another limitation that was discussed was the difficulties in measuring trauma exposure. Future research may want to consider combining the LEC-5 and Police Traumatic Experiences Checklist. Hopefully, this would allow participants to check both personal and work-related trauma and reduce the risk of entering specific work events into the *Any other very stressful event or experience* category.

Future research may also want to investigate whether the varying types of first responder occupations play a role in the provision of partner support. For example, exploring whether partners that are police officers more likely to provide higher levels of social support compared to partners that are fire fighters or ambulance officers. This piece of research grouped all types of first responders, so this distinction was not made. Both current and ex-

first responders were also grouped together in this research. It may be interesting to look at if there is a difference between current and ex-first responders; ex-first responders potentially could be in a better position to provide social support as they understand the job but are not currently dealing with the effects of regular trauma exposure. The sample size may also have to be slightly bigger to ensure sufficient numbers when comparing these groups.

While this research focused on partner support specifically, it may also be useful to look at the impact of having family members who are first responders. The qualitative analysis revealed the theme of seeking support from family who are in the same or a similar job. A theme that emerged was the benefit of seeking support from people in similar roles who understood the types of jobs that were being discussed. The measure used to look at partner support in this study, the Social Support Scale (Caplan et al., 1975), did not separate family support from friend support. Future research may want to adapt this measure to examine differences in family support for those who have first responder family members compared to those without first responder family members. This may offer more insight into the potential sources of social support for officers. Answering the same question posed in this research through a qualitative methodology may provide stronger insights into the dynamics at play.

Conclusion

The findings of this study highlight the importance of social support on wellbeing outcomes. The relationship found between trauma exposure and PTSS suggests that trauma exposure can have cumulative effects on police officers. However, while the relationship was significant, it was also weak, suggesting that this does not apply to all officers and PTSS could arise following any PTE exposure. Social support had a strong negative relationship with psychological distress suggesting that high social support has a buffering effect while low social support can have detrimental effects. While social support was not found to

moderate the relationship between trauma exposure and PTSS, significant differences between low, moderate, and high levels of social support in PTSS and psychological distress. These findings supported the notion that social support plays a vital role in the wellbeing outcomes of police officers.

When looking at the impact of partner's occupations, no significant differences were found in social support or psychological distress between first responder partners and partners that were not first responders. Those with no partners were found to be more vulnerable to negative wellbeing outcomes and had lower levels of social support. Men were also identified as more likely to experience greater PTSS following trauma exposure. The exploratory analysis of the qualitative questions revealed some potential explanations as to why both partner groups had such a large range of scores in both social support and psychological distress. There seemed to be advantages and disadvantages for both partner types. The complexities of these relationships will need to be further explored in future research.

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Appendix A

Diagnostic Criteria for Post-Traumatic Stress Disorder

A. Exposure to actual or threatened death, serious injury, or sexual violence in one or more of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).

Note: Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work-related.

B. Presence of one or more of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).

   Note: In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
2. Recurrent distressing dreams in which the content and/or effect of the dream are related to the traumatic event(s).

   Note: In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

Note: In children, trauma-specific re-enactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).
5. Marked psychological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).
2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two or more of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad;” “No one can be trusted;” “The world is completely dangerous;” “My whole nervous system is permanently ruined”).
3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
4. Persistent negative emotion state (e.g., fear, horror, anger, guilt, or shame).
5. Markedly diminished interest or participation in significant activities.
6. Feelings of detachment or estrangement from others.
7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).

E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidence by two (or more) of the following:

1. Irritable behavior and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
2. Reckless or self-destructive behavior.
3. Hyper-vigilance.
4. Exaggerated startle response.
5. Problems with concentration.
6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).

F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.

G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.

H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

Specify whether: With dissociative symptoms: The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:

1. Depersonalization: Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).
2. Derealization: Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).

Note: To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behavior during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

Specify if: With delayed expression: If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

Appendix B

Diagnostic Criteria for Major Depressive Disorder

A. Five (or more) of the following symptoms have been present during the same 2-week period and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood or (2) loss of interest or pleasure.

Note: Do not include symptoms that are clearly attributable to another medical condition.

1. Depressed most of the day, nearly every day as indicated by subjective report (e.g., feels sad, empty, hopeless) or observation made by others (e.g., appears tearful).

2. Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated by subjective account or observation).

3. Significant weight loss when not dieting or weight gain (e.g., change of more than 5% of body weight in a month), or decrease or increase in appetite nearly every day. (Note: in children, consider failure to make expected weight gain).

4. Insomnia or hypersomnia nearly every day.

5. Psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down).

6. Fatigue or loss of energy nearly every day.

7. Feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick).

8. Diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others).

9. Recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide.

B. The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.

C. The episode is not attributable to the physiological effects of a substance or to another medical condition.

Note: Criteria A-C represent a major depressive episode.

Note: Responses to a significant loss (e.g. bereavement, financial ruin, losses from a natural disaster, a serious medical illness or disability) may include feelings of intense sadness, rumination about the loss, insomnia, poor appetite, and weight loss noted in Criterion A, which may resemble a depressive episode. Although such symptoms may be understandable or considered appropriate to the loss, the presence of a major depressive episode in addition to the normal response to a significant loss should also be carefully considered. This decision inevitably requires the exercise of clinical judgement based on the individual's history and the cultural norms for the expression of distress in the context.

D. The occurrence of the major depressive episode is not better explained by schizoaffective disorder, schizophrenia, schizophreniform disorder, delusional disorder, or other specified and unspecified schizophrenia spectrum and other psychotic disorders.

E. There has never been a manic episode or a hypomanic episode.

Note: This exclusion does not apply if all of the manic-like or hypomanic-like episodes are substance-induced or are attributable to the physiological effects of another medical condition.

Appendix C

Descriptive Statistics

Table C1

Current relationship status

		Frequency	Percent
Valid	Married/spouse	126	61.5%
	Single	12	5.9%
	Divorced/separated	10	4.9%
	Partner/boyfriend/girlfriend	53	25.9%
	Other	4	2.0%
	Total	205	100.0%

Table C2

Education level

		Frequency	Percent
Valid	No qualification	2	1.0%
	School certificate or NCEA Level 1	18	8.8%
	University entrance or NCEA Level 3	45	22.0%
	Trade certificate	18	8.8%
	University certificate or degree	98	47.8%
	Postgraduate certificate or degree	24	11.7%
	Total	205	100.0%

Table C3

Gender

		Frequency	Percent
Valid	Male	68	33.2%
	Female	137	66.8%
	Total	205	100.0%

Table C4

Continuous variables

	N	Min	Max	M	SE	SD	Skewness	SE	Kurtosis	SE
Age (in years)	205	23	61	37.29	.62	8.91	.76	.17	-.31	.34
Length of service (in years)	205	0	39	11.68	.60	8.52	1.13	.17	.60	.34
Trauma exposure	205	1	56	22.12	.71	10.11	.77	.17	.32	.34
Social support	205	61	237	156.17	2.35	33.60	-.49	.17	.07	.34
Received social support	205	20	85	41.26	.87	12.40	.49	.17	-.23	.34
Perceived social support	205	37	158	114.91	1.76	25.22	-.81	.17	.39	.34
Spouse social support	205	0	20	14.63	.41	5.87	-1.42	.17	1.14	.34
PTSS	205	0	77	20.61	1.15	16.45	1.20	.17	.99	.34
Psychological distress	205	6	132	52.78	1.94	27.75	.72	.17	-.132	.34
Valid N (listwise)	205									

Appendix D

Information Sheet

(ON MASSEY UNIVERSITY LETTERHEAD)

Do New Zealand Police Officers benefit from enhanced social support if they have a partner who is also in a first responder occupation?

Information Sheet

Thank you for showing an interest in this research project. Please read this information sheet carefully before deciding if you would like to be involved. New Zealand Police sworn officers are being invited to participate. Participation is completely voluntary. If you decide to participate, thank you very much. If you decide not to participate, there will be no disadvantage to you, and thank you for thinking about our request.

What is the aim of this research project?

This piece of research will be exploring the relationship between trauma exposure, social support, and wellbeing in New Zealand Police officers. It will also be exploring how the occupations of partners, friends, and family impact levels of perceived and received social support. It will hopefully benefit NZ Police officers as we learn more about how to reduce the negative effects of trauma exposure. Potentially their partners and family will also benefit from this research as more will be found on the support systems of NZ Police officers. We also hope that the results will be beneficial and transferable to other first responder populations.

Who cannot participate?

Participants that meet one or more of the following criteria will be excluded:

1. Those who are under the age of 18
2. Those who are not a current New Zealand Police sworn officer
3. Those who have revoked their consent before submitting the survey
4. Those who did not respond "yes" to the survey's consent item
5. Those who did not complete the survey

What will participants be asked to do?

Should you agree to participate in this research project you will be asked to complete a questionnaire. The questionnaire will take approximately 15 minutes to complete. It will be completely anonymous and will not collect any identifying information (for example, names, email addresses, and phone numbers will NOT be collected). In open-text questions, please do not use any identifiable information (for example, the names of people at incidents). When you complete the questionnaire and submit your responses, you may opt to enter a charity of your choice. The top five charities will each receive a $200 donation as a token of our appreciation.

Are there any risks to participating?

The questionnaire will be asking you about previous traumatic experiences (both personal and work-related) as well as depression and post-traumatic stress symptoms. This could cause psychological discomfort or harm. Because this is a confidential survey, if you do disclose that you feel that there is an immediate risk to yourself or others we will not be able to contact you. You will need to seek help yourself. If you experience any negative effects, you can stop the questionnaire at any time and seek support from your District Wellness Advisor: https://tenone.police.govt.nz/page/hr-info/people-operations/safer-people/safer-people-contacts#wellness

The questionnaire will ask you about the following topics:

- General information (age, ethnicity, gender, education, length of time working for NZ Police)
- Your trauma exposure. There will be 17 questions about traumatic events that you may have witnessed, learned about, or had happen to you.
- Your current relationship status.
- The past and present occupations of your intimate partner, family, and friends. We will ask if they are or have ever been in first responder roles.
- Who you discuss traumatic work events with.
- Your social support. We will ask you about how you perceive your levels of support and about support that you have received.
- Your wellbeing. We will ask you about how you perceive your current wellbeing, if you are experiencing any post-traumatic stress symptoms, and if you are experiencing any depression symptoms.

For the open-ended questions, you may choose to respond in either English or Te Reo Māori. However, if you do choose to respond in Teo Reo Māori, we ask that you please provide a brief summary of your answer in English to avoid the risk of misinterpretation.

Can participants change their mind and withdraw from the research project?

You may withdraw from participation in the research project at any time before submitting the survey without any disadvantage to yourself of any kind. As data is anonymous, once the survey is submitted withdrawal is not possible.

Privacy and confidentiality.

All collected data will be anonymous so there is no risk of identifying participants. We will not publish any individual data, all data will be published as group data (for example, we will not individually quote participants but will say if five people mention ‘partner’ and ten mention ‘family’ in open-ended questions).

The data will be securely stored in such a way that only those mentioned below will be able to gain access to it. De-identified data may be made available to those wishing to use it for legitimate research purposes. They will have to apply to Associate Professor de Terte for de-identified data who will ensure it will be used for appropriate research purposes. All data obtained as a result of the research will be retained for 5 years in secure storage and destroyed after the 5-year mark.

The results of the project may be published and will be available in the Massey University Library.

What if participants have any questions?

If you have any questions about our research project, either now or in the future, please feel free to contact:

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This project has been reviewed and approved by the Massey University Human Ethics Committee: Northern, Application NOR 22/64.

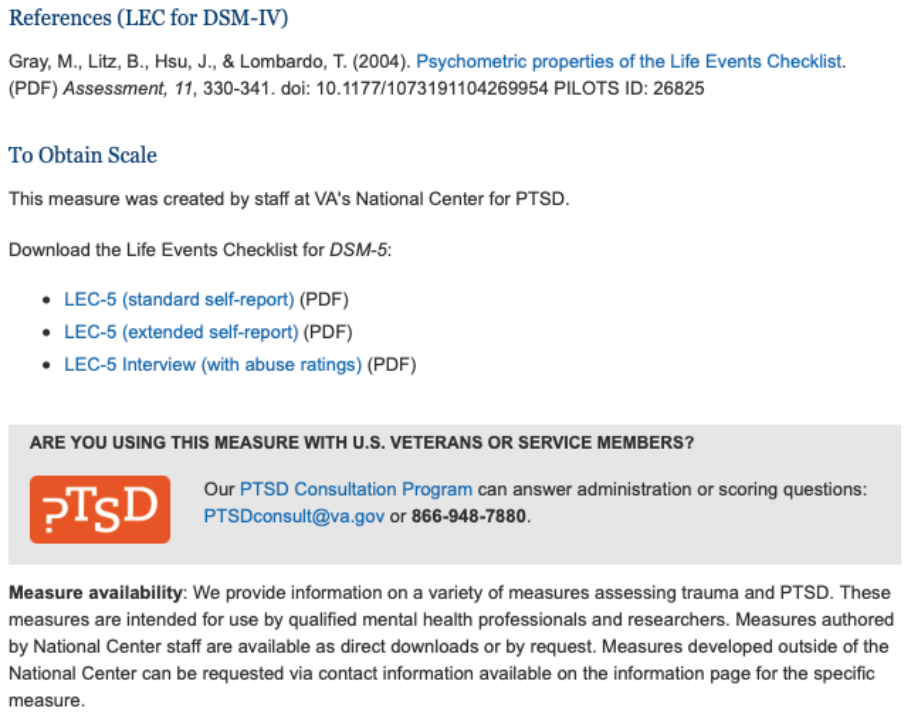
If you have any concerns about the conduct of this research, please contact Associate Professor Fiona Te Momo, Chair, Massey University Human Ethics Committee: Northern, telephone 09 414-0800 x 43347, email humanethicsnorth@massey.ac.nz

Appendix E

Permission to Use Measures

Figure E1

Permission to use LEC-5



References (LEC for DSM-IV)

Gray, M., Litz, B., Hsu, J., & Lombardo, T. (2004). Psychometric properties of the Life Events Checklist. (PDF) *Assessment, 11*, 330-341. doi: 10.1177/1073191104269954 PILOTS ID: 26825

To Obtain Scale

This measure was created by staff at VA's National Center for PTSD.

Download the Life Events Checklist for *DSM-5*:

- LEC-5 (standard self-report) (PDF)
- LEC-5 (extended self-report) (PDF)
- LEC-5 Interview (with abuse ratings) (PDF)

ARE YOU USING THIS MEASURE WITH U.S. VETERANS OR SERVICE MEMBERS?

PTSD

Our PTSD Consultation Program can answer administration or scoring questions: PTSDconsult@va.gov or **866-948-7880**.

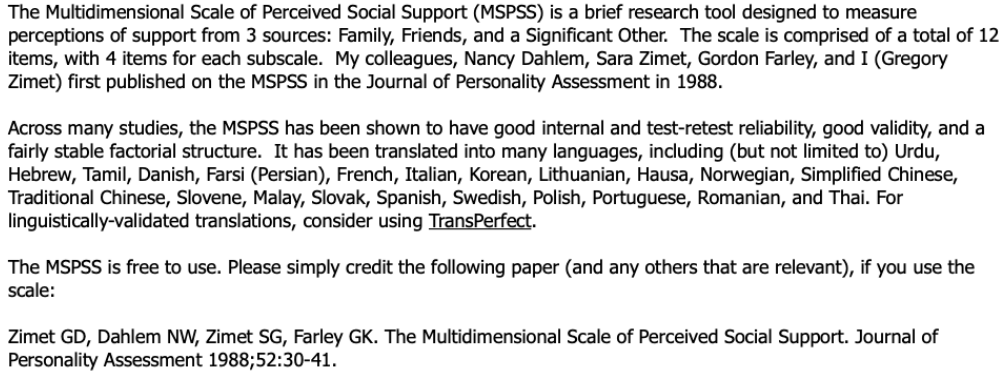
Measure availability: We provide information on a variety of measures assessing trauma and PTSD. These measures are intended for use by qualified mental health professionals and researchers. Measures authored by National Center staff are available as direct downloads or by request. Measures developed outside of the National Center can be requested via contact information available on the information page for the specific measure.

Note. Retrieved from: https://www.ptsd.va.gov/professional/assessment/te

measures/life_events_checklist.asp

Figure E2

Permission to use MSPSS



The Multidimensional Scale of Perceived Social Support (MSPSS) is a brief research tool designed to measure perceptions of support from 3 sources: Family, Friends, and a Significant Other. The scale is comprised of a total of 12 items, with 4 items for each subscale. My colleagues, Nancy Dahlem, Sara Zimet, Gordon Farley, and I (Gregory Zimet) first published on the MSPSS in the Journal of Personality Assessment in 1988.

Across many studies, the MSPSS has been shown to have good internal and test-retest reliability, good validity, and a fairly stable factorial structure. It has been translated into many languages, including (but not limited to) Urdu, Hebrew, Tamil, Danish, Farsi (Persian), French, Italian, Korean, Lithuanian, Hausa, Norwegian, Simplified Chinese, Traditional Chinese, Slovene, Malay, Slovak, Spanish, Swedish, Polish, Portuguese, Romanian, and Thai. For linguistically-validated translations, consider using TransPerfect.

The MSPSS is free to use. Please simply credit the following paper (and any others that are relevant), if you use the scale:

Zimet GD, Dahlem NW, Zimet SG, Farley GK. The Multidimensional Scale of Perceived Social Support. Journal of Personality Assessment 1988;52:30-41.

Note. Retrieved from: https://gzimet.wixsite.com/mspss

Figure E3

Permission to use ISSB

Recommended Use

Stress moderating effects of social support have been shown with subjects high in internal locus of control (Lefcourt et al., 1984; Sandler & Lakey, 1982). In other studies, stress moderating effects were not observed with the ISSB (Barrera & Balls, 1983); Cohen & Hoberman, 1983; Cohen et al., 1984; Sandler & Barrera, 1984). It is not clear that the ISSB measures a support concept that can be thought to buffer stress without considering specific personality conditioning variables.

Because it is a measure of the amount of social support received, I view the ISSB as an appropriate measure of "support mobilization" or "aid provision." It is clearly measuring a concept that differs from qualitative measures of support such as support satisfaction or perceived availability of social support.

The ISSB is in the public domain and can be used for research purposes without charge. It may be reproduced and modified to meet the needs of specific research projects.

Note. Retrieved from: https://www.sralab.org/rehabilitation-measures/inventory-socially-supportive-behaviors

Figure E4

Permission to use PCL-5

Additional Reviews (PCL for *DSM-IV*)

Orsillo (2001) (PDF) p. 281.

Orsillo, S. M. (2001). Measures for acute stress disorder and posttraumatic stress disorder. In M.M. Antony & S.M. Orsillo (Eds.), *Practitioner's guide to empirically based measures of anxiety* (pp. 255-307). KluwerAcademic/Plenum. PTSDpubs ID 24368

Norris and Hamblen (2004) (PDF) p. 79.

Norris, F. H. & Hamblen, J. L. (2004). Standardized self-report measures of civilian trauma and PTSD. In J.P. Wilson, T.M. Keane & T. Martin (Eds.), *Assessing psychological trauma and PTSD* (pp. 63-102). Guilford Press. PTSDpubs ID 18638

To Obtain Scale

This measure was developed by staff at VA's National Center for PTSD and is in the public domain and not copyrighted. In accordance with the American Psychological Association's ethical guidelines, this instrument is intended for use by qualified health professionals and researchers.

Download the PTSD Checklist for *DSM-5* (PCL-5):

- PCL-5, Past Month (PDF)
- PCL-5, Past Week (PDF)
- PCL-5 with Criterion A (PDF)
- PCL-5 with LEC-5 and Criterion A (PDF)
- Using the PTSD Checklist for *DSM-5* (PCL-5) (PDF)

Note. Retrieved from: https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp

Figure E5

Permission to use PHQ-9

The Patient Health Questionnaire-9 (PHQ-9) is a brief psychological screening instrument designed to measure symptoms of depression in primary care settings. Like the Pittsburgh Sleep Quality Inventory, Big Five Inventory, and Center for Epidemiologic Studies Depression Scale previously reviewed, the PHQ-9 is available to healthcare providers completely free of charge. Pfizer Inc., the legal copyright holder, explicitly states that "no permission [is] required to reproduce, translate, display or distribute [the PHQ-9]." **Check the end of this report to download the PHQ-9**.

Note. Retrieved from: https://www.bmedreport.com/archives/14638\

Figure E6

Permission to use PWI-A

Copyright

Note. Retrieved from: https://www.acqol.com.au/publications#publications

Figure E7

Permission to use SSS

Note. Email received from scale creator Van Harrison.

Appendix F

Life Events Checklist for DSM-5 (LEC-5)

Listed below are a number of difficult or stressful things that sometimes happen to people.

For each event **check one or more** of the boxes to the right to indicate that:

(a) *it happened to you* personally;

(b) you *witnessed it* happen to someone else;

(c) you *learned about it* happening to a close family member or close friend;

(d) you were exposed to it as *part of your job* (for example, paramedic, police, military, or other first responder);

(e) you're *not sure* if it fits; or

(f) it doesn't apply to you.

Be sure to consider your *entire life* (growing up as well as adulthood) as you go through this list of events.

[Multi-select checkbox options: happened to me, witnessed it, learned about it, part of my job, not sure, does not apply].

1. Natural disaster (for example, flood, hurricane, tornado, earthquake).
2. Fire or explosion.
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash).
4. Serious accident at work, home, or during recreational activity.
5. Exposure to toxic substance (for example, dangerous chemicals, radiation).
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up).

7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb).
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm).
9. Other unwanted or uncomfortable sexual experience.
10. Combat or exposure to a war-zone (in the military or as a civilian).
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war).
12. Life threatening illness or injury.
13. Severe human suffering.
14. Sudden violent death (for example, homicide, suicide).
15. Sudden accidental death.
16. Serious injury, harm, or death you caused to someone else.
17. Any other very stressful event or experience.

If you checked anything for the option “Any other very stressful event or experience”, briefly identify the event(s) you were thinking of.

Appendix G

Current Relationship Questions Developed for this Study

1. What is your current relationship status?

   [Multiple choice options: married/spouse, single, divorced/separated, girlfriend/boyfriend/partner, widowed, other, prefer not to say].

2. Do you have an intimate partner who is currently a police officer?

   [Multiple choice options: no, yes].

3. Do you have an intimate partner who has ever been a police officer?

   [Multiple choice options: no, yes].

4. Do you have an intimate partner who is currently in a first responder role, either paid or voluntary?

   [Multiple choice options: no, yes].

5. If so, please select all roles that apply to them.

   [Multi-select checkbox options: ambulance personnel, fire fighter, military personnel, emergency department nurse or doctor, other)].

6. Do you have an intimate partner who was ever in a first responder role, either paid or voluntary?

   [Multiple choice options: no, yes].

7. If so, please select all roles that apply to them.

   [Multi-select checkbox options: ambulance personnel, fire fighter, military personnel, emergency department nurse or doctor, other)].

8. Do you have any family or friends in a first responder role?

   [Multiple choice options: no, yes].

9. If so, please select all roles that apply to them.

[Multi-select checkbox options: immediate family/whānau, extended family/whānau, friends in the same occupation, friends in a different occupation].

10. Who do you usually talk to about potentially traumatic events that occur at work?

[Open-text question].

11. If you have a partner, are there any events that you are more likely to discuss with your partner?

[Open-text question].

12. If you have a partner, are there any events that you are less likely to discuss with your partner?

[Open-text question].

Appendix H

Multidimensional Scale of Perceived Social Support (MSPSS)

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

[Response options on 5-point Likert scale: strongly disagree, disagree, neither agree nor disagree, agree, strongly agree].

1. There is a special person who is around when I am in need.
2. There is a special person with whom I can share my joys and sorrows.
3. My family really tries to help me.
4. I get the emotional help and support I need from my family.
5. I have a special person who is a real source of comfort to me.
6. My friends really try to help me.
7. I count on my friends when things go wrong.
8. I can talk about my problems with my family.
9. I have friends with whom I can share my joys and sorrows.
10. There is a special person in my life who cares about my feelings.
11. My family is willing to help me make decisions.
12. I can talk about my problems with my friends.
13. Please identify that 'special person'.

[Multiple choice options: spouse, girlfriend/boyfriend/partner, friend, work colleague, professional (e.g. teacher, doctor, counsellor, pastor), family member]*.

*The original scale response options: spouse, partner, boyfriend/girlfriend, friend, professional (e.g. teacher, doctor, counsellor, pastor), other family member.

Appendix I

Social Support Scale (SSS)

[Multiple choice options on 5-point Likert Scale: very much, somewhat, a little, not at all, don't have any such person].

1. How much does each of these people go out of their way to do things to make your work life easier for you?

· Immediate supervisor

· Other people at work

· Partner/spouse

· Relatives/friends

2. How easy is it to talk with each of the following people?

· Immediate supervisor

· Other people at work

· Partner/spouse

· Relatives/friends

3. How much can each of these people be relied on when things get tough at work?

· Immediate supervisor

· Other people at work

· Partner/spouse

· Relatives/friends

4. How much is each of the following people willing to listen to your personal problems?

- Immediate supervisor
- Other people at work
- Partner/spouse
- Relatives/friends*

*The original scale grouped together spouse or partner, friends, and relatives.

Appendix J

Inventory of Socially Supportive Behaviours – Short Form (ISSB-SF)

[Multiple choice options on 5-point Likert scale: not at all, once or twice, about once a week, several times a week, about every day].

We are interested in learning about some of the ways that you feel people have helped you or tried to make life more pleasant for you over the past four weeks. Please read each item carefully and select the rating that you think is most accurate. During the **past four weeks**, how often did other people do these activities for you, to you, or with you?

1. Gave you some information on how to do something.
2. Helped you understand why you didn't do something well.
3. Suggested some action you should take.
4. Gave you feedback on how you were doing without saying it was good or bad.
5. Made it clear what was expected of you.
6. Told you what they did in a situation that was similar to yours.
7. Told you that they feel close to you.
8. Let you know that they will always be around if you need help.
9. Told you that you are OK just the way you are.
10. Expressed interest and concern in your well-being.
11. Comforted you by showing you some physical affection.
12. Told you that they would keep the things you talk about private.
13. Agreed that what you wanted to do was the right thing.
14. Did some activity together to help you get your mind off things.
15. Gave or loaned you over $25.

16. Provided you with a place to stay.

17. Loaned you or gave you something (a physical object) that you needed.

18. Pitched in to help you do something that needed to be done.

19. Went with you to someone who could take action.

Appendix K

Posttraumatic Stress Disorder Checklist for DSM-5 (PCL-5)

[Multiple choice options on 5-point Likert scale: not at all, a little bit, moderately, quite a bit, extremely].

Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then select the most appropriate response to indicate how much you have been bothered by that problem in the past four weeks.

In the four weeks, how much were you bothered by:

1. Repeated, disturbing, and unwanted memories of the stressful experience?
2. Repeated, disturbing dreams of the stressful experience?
3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?
4. Feeling very upset when something reminded you of the stressful experience?
5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?
6. Avoiding memories, thoughts, or feelings related to the stressful experience?
7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?
8. Trouble remembering important parts of the stressful experience?
9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?
10. Blaming yourself or someone else for the stressful experience or what happened after it?

11. Having strong feelings such as fear, horror, anger, guilt, or shame?

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

13. Feeling distant or cut off from other people?

14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?

15. Irritable behaviour, angry outbursts, or acting aggressively?

16. Taking too many risks or doing things that could cause you harm?

17. Bring “superalert” or watchful or on guard?

18. Feeling jumpy or easily startled?

19. Having difficulty concentrating?

20. Trouble falling or staying asleep?

Appendix L

Patient Health Questionnaire (PHQ-9)

[Multiple choice options on 4-point Likert scale: not at all, several days, more than half the days, nearly every day].

Over the past two weeks, how often have you been bothered by any of the following problems?

1. Having little interest or pleasure in doing things.
2. Feeling down, depressed or hopeless.
3. Having trouble falling or staying asleep, or sleeping too much.
4. Feeling tired or having little energy.
5. Having a poor appetite or overeating.
6. Feeling bad about yourself- or that you are a failure or have let yourself or your family down.
7. Having trouble concentrating on things, such as reading the newspaper or watching television.
8. Moving or speaking so slowly that other people could have noticed? Or the opposite- being so fidgety or restless that you have been moving around a lot more than usual.
9. Having thoughts that you would be better off dead or of hurting yourself in some way.
10. If you experienced any of the above problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people? [Multiple choice options: not difficult at all, somewhat difficult, very difficult, extremely difficult].

Appendix M

Personal Wellbeing Index – Adult (PWI-A)

[Multiple choice options on 5-point Likert scale: very dissatisfied, dissatisfied, neutral, satisfied, very satisfied].

1. How satisfied are you with your standard of living?
2. How satisfied are you with your health?
3. How satisfied are you with what you are achieving in life?
4. How satisfied are you with your personal relationships?
5. How satisfied are you with how safe you feel?
6. How satisfied are you with feeling part of your community?
7. How satisfied are you with your future security?

Appendix N

Assumption Checking for Partner Support

Figure N1

Distribution of partner support for entire sample

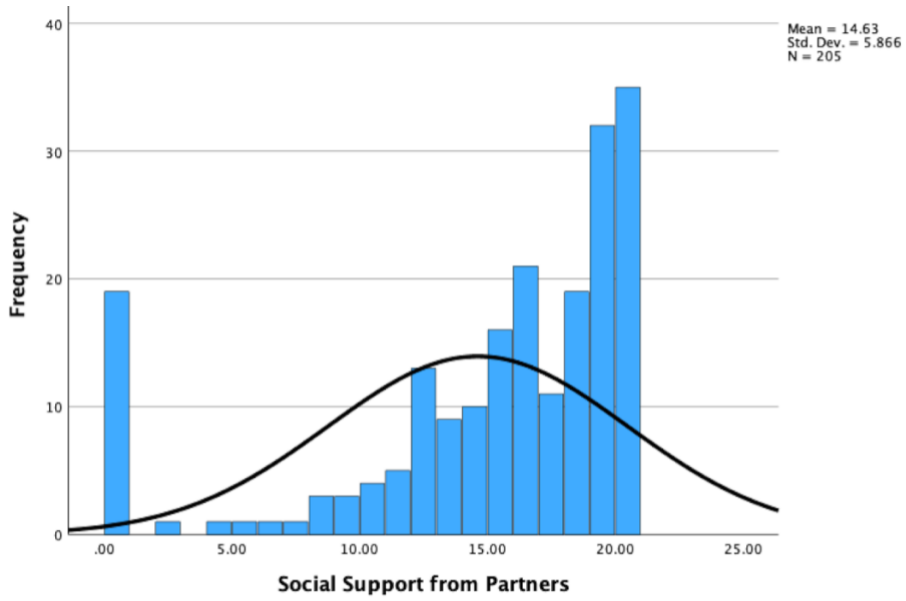


Figure N2

Distribution of partner support for participants with partners

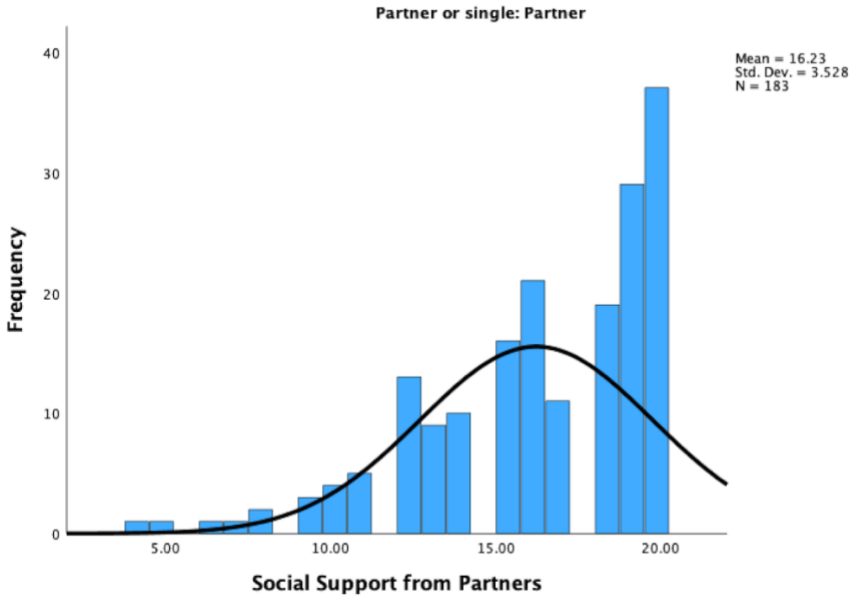


Table N1

Descriptive statistics of participants with partners for partner support

		Statistic	SE
Partner support	Mean	16.23	.26
	95% Confidence Interval Lower Bound	15.71	
	95% Confidence Interval Upper Bound	16.74	
	Median	17.00	
	Variance	12.45	
	SD	3.53	
	Min	4	
	Max	20	
	Range	16	
	Skewness	-.98	.18
	Kurtosis	.55	.36

Appendix O

Pearson's Product-Moment Correlations (Full Matrix)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.
1. Age	1																								
2. Gender	-.18*	1																							
3. Length of service	.86**	-.24**	1																						
4. Māori	-.11	.09	-.13	1																					
5. Māori and Other	-.01	.06	-.02	-.04	1																				
6. Māori and Pākehā	-.13	-.00	-.08	-.08	-.05	1																			
7. Pākehā	.20**	-.01	.17*	-.41**	-.29**	-.51**	1																		
8. Pākehā and Other	-.09	-.04	-.06	-.05	-.03	-.06	-.31**	1																	
9. Other ethnicity	-.35	-.08	-.02	-.06	-.04	-.07	-.37**	-.04	1																
10. No qualification	.10	-.14*	.13	-.03	-.02	-.03	.06	-.02	-.02	1															
11. NCEA Level 1	-.02	-.04	-.04	-.00	.05	-.10	-.01	-.06	.09	-.03	1														
12. NCEA Level 3	-.13	.02	-.05	.17*	-.02	.04	-.08	.03	-.07	-.05	-.17*	1													
13. Trade certificate	-.01	-.15*	-.03	-.08	.15*	.09	-.01	-.06	-.07	-.03	-.10	-.17*	1												
14. University degree	-.01	.09	-.02	-.03	-.11	.05	.01	.04	.01	-.10	-.30**	-.51**	-.30**	1											
15. Postgraduate Degree	.18**	.03	.11	-.09	.03	-.11	.08	.02	.06	-.04	-.11	-.19**	-.11	-.35**	1										
16. Married	.22**	-.11	.24**	.03	-.16*	.03	.09	.04	-.10	-.02	-.00	-.06	.03	.02	.04	1									
17. Single	-.06	-.05	-.09	-.06	.08	-.08	.06	-.05	.04	-.03	.07	-.08	.14*	-.11	.10	-.32**	1								
18. Divorced	.11	.02	.09	-.06	-.04	.09	-.02	-.04	-.05	-.02	.01	-.07	.01	.10	-.08	-.29**	-.06	1							
19. Partner	-.22**	.13	-.25**	-.01	.16*	-.03	-.07	-.05	.07	.06	-.03	.17*	-.14*	-.03	-.04	-.75**	-.15*	-.13	1						

20. Trauma exposure	-.09	-.04	.01	-.04	-.08	-.01	-.08	.25**	.07	-.01	.06	.06	-.02	-.10	.04	-.13	.05	.10	-.03	1				
21. PTSS	-.14	-.14*	-.13	.15*	.01	-.04	-.11	.03	.04	-.07	.12	.08	.01	-.11	-.04	-.23**	.07	.12	.11	.15*	1			
22. Social support	-.10	.06	-.03	-.05	-.03	.04	.03	.03	-.01	-.05	-.08	-.05	-.05	.14*	-.03	.16*	-.30**	-.26**	.12	-.10	-.28**	1		
23. Perceived support	-.05	.07	-.00	-.05	-.05	.03	.05	.01	-.00	-.03	-.07	-.03	-.03	.11	-.03	.23**	-.34**	-.29**	.08	-.13	-.33**	.95**	1	
24. Spouse support	-.04	.01	.04	.04	-.04	.01	-.00	.05	.02	.01	-.08	.05	-.08	.06	-.00	.34**	-.59**	-.49**	.16*	-.07	-.15*	.68**	.71**	1
25. Psych distress	-.12	-.12	-.15*	-.15*	.06	.01	-.17*	.01	.10	-.04	.09	.09	.07	-.13	-.03	-.24**	.10	.14*	.08	.19**	.93**	-.42**	-.45**	-.25**

Note. Listwise $N = 205$, * = $p < .05$, ** = $p < .01$

Appendix P

Executive Summary: The Effects of having a Partner in a First Responder Occupation on Social Support and Wellbeing in Police Officers

There has been a surge in research examining the protective effects of social support against the adverse effects of trauma exposure on wellbeing, particularly among first responder roles. Previous research has found that higher levels of social support and access to functional and rich social networks can result in better physical and psychological health. In contrast, poor social support can have negative effects. Intimate partners are an important source of social support for first responders. They can help to mitigate the development of post-traumatic stress symptoms (PTSS) and encourage help-seeking behaviours. A study by Netterville in 2022 on firefighters and police officers indicated that the ability to process work-related trauma was influenced by whether their partners understood the job. This study aimed to investigate whether having a partner who is a first responder affects the wellbeing of police officers. A positive relationship between trauma exposure and PTSS was found. This suggests that the more potentially traumatic events (PTEs) are experienced, the greater the likelihood of experiencing PTSS. However, neither social support nor perceived social support influenced this relationship. A negative relationship was found between social support and psychological distress. This indicates that having higher social support decreases the likelihood of experiencing psychological distress. Concerning having a first responder partner, the findings of this research allude to a more complicated relationship than expected. The results only partially supported the hypotheses. No significant differences were found between officers with first responder partners and officers with civilian partners in levels of social support, partner support, or psychological distress. The no partner group had significantly lower social support and higher psychological distress compared to the two partner groups. This supports previous research which suggests people without a partner may be more vulnerable to the negative effects of trauma exposure. With the significant

relationship found between social support and psychological distress, it is not surprising that the no partner group was experiencing lower wellbeing outcomes alongside the lower social support rates. While the first responder partner and civilian partner groups had closer means for social support and psychological distress, an interesting factor to consider was that they both had quite large ranges between the maximum and minimum scores. This suggests that there may be advantages and disadvantages for both first responder partners and civilian partners.

Analysis of the qualitative questions uncovered potential advantages and disadvantages for both partner types. In comparing the two partner groups, the first responder partner group was more likely to speak about PTEs that occurred at work with their partner, more likely to discuss all work events (including more traumatic events) with their partner, and less likely to censor their conversations with their partner or avoid certain topics. A theme that arose in this group was that police officers specifically understood the types of jobs that they attended. In comparison, the civilian partner group spoke less with their partners about work PTEs and more with other first responders. They also reported they were more likely to censor their conversations with their partners, speak about less traumatic work events, and limit exposure to traumatic events. Several participants mentioned a lack of understanding from those who are not first responders. Other themes that emerged were the topics that participants were likely to avoid speaking with their partners about; these included jobs that involved death, children, sexual violence, family disputes, and personal risk. It should be noted that more participants in the civilian partner group reported these themes; however, they also emerged in the first responder partner group, just at lower rates. Another theme that emerged in both groups was how certain topics were avoided due to the current mental health of their partner. This supports the concept that the likeliness of receiving support may rely on

the mental health of the officer's partner. This could be for both groups, however, being a first responder may increase the likeliness of poor mental health outcomes; for example, if an officer's partner was experiencing PTSS after attending a car crash, they may not discuss their own exposure to car crashes with their partner. These findings underscore the importance for organisations to support not only their employees but also their partners and families. Future research could delve deeper into these findings using qualitative methods to gain a richer understanding of the notions at play.

I want to extend my deepest gratitude to those who took part in my study. I would have not been able to complete this research without the time you put in. As a token of our appreciation, your top five voted charities each received a $200 donation; these were the SPCA, St John Ambulance, the Cancer Society of New Zealand, the Child Cancer Foundation, and the Mental Health Foundation of New Zealand. Over the past couple of years, I have gained a profound respect for the work carried out by our police officers and the difficulties they face. Thank you again. I hope that this thesis is able to help inform how best to support you in the work you do.

Warmest regards,

Jade Wickman