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# **Police Stress, General Well-being and Job Satisfaction: The Moderating Effects of Social Support**

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## **Abstract**

Over the last few decades police stress has become a subject of burgeoning research attention. Traditionally research on police stress has focused on risks to psychological well-being as coming primarily from job content, and the operational activities undertaken by officers. An emerging contemporary view is that job context, the organisational aspects of police life, is another source of stress that can impact just as much, or even more so, on officers' well-being. As predicted, organisational stress was found to have a negative relationship with both general well-being and job satisfaction. Once organisational stress was accounted for, operational stress had a significant positive relationship with job satisfaction. A negative relationship between operational stress and general well-being only became significant when conversation with supervisors reached at least moderate levels of frequency. Conversations with supervisors about non-job, negative, positive and disturbing aspects of the job were all found to have a reverse buffering effect. Communication with peers was found to be a significant predictor of both operational and organisational stress. Conversations about disturbing incidents and negative aspects of organisational life were had positive relationships with stress, while conversations about non-job related matters and positive aspects of organisational life were negatively related to stress. These findings could be used to help inform the development of functional formal and informal social networks in policing organisations.

## **Acknowledgements**

The journey of this thesis has been the worst and best of my life. Submitting this piece of work is the finale of 7 very challenging years. I personally believe I became my own case in point, developing relapsing-remitting multiple sclerosis after the years of professional and personal turmoil that gave me the energy and courage to complete this piece of work. I became very sick in 2014, but I have so far, miraculously, basically recovered all of the functions I lost. The whole experience was a gift. Albeit, very challenging. I would not have been able to make it to this finish line without the unwavering support of my mum, Rose Johnston.

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## **Personal Disclosure**

I (the principal researcher) am a currently serving uniformed member of the New Zealand Police, holding the rank of constable. I attended the Royal New Zealand Police College in 2008. I have since performed a variety of roles across the organisation, including general duties, road policing, community policing, project work, business improvement advisor, and, most recently, advisor on the national psychological services team. My operational and organisational experiences, along with that of my colleagues, were the motivation and inspiration for this piece of research. I am disclosing this information to highlight my awareness that biases may have arisen from these personal experiences that could have influenced this work.

It is also important to note that although some of the discussion (necessarily) touches on areas more closely aligned with clinical and health psychology, this research was undertaken with the goal of achieving an endorsement in industrial and organisational psychology.

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## **Introduction**

### *Police Stress - A Problem?*

Police work has been recognised, by some, to be one of the most stressful occupations (e.g., Beehr, Johnson & Nieva, 1995). Others have challenged this judgment, arguing that a number of other occupations are more physically dangerous (Abdollahi, 2002). This challenge rests on the premise that it is the threats to physical well-being that make police work stressful. It is argued here that this is a reductionist view that fails to capture the realities of what police officers are routinely called upon to cope with. Police officers are required to take charge of situations that pose imminent threats to human life, but this is only one aspect of the job. Police officers deal with all manner of human conflicts and catastrophes that pose serious threats to the psychological well-being of all involved, including them. Research has suggested that it is the frequency, as well as the severity of trauma exposure that makes the job a psychologically high-risk occupation (e.g., Stephens & Miller, 1998). In the space of a few months, officers can be exposed to more death, violence and harsh social realities than most people will face in a lifetime (Violanti & Aron, 1995). They are required to deal with a demand for service that is insatiable, in the face of limited resources and under intense public scrutiny (Fleming & Grabosky, 2009). The deleterious effects police work can have on the well-being of officers has been well documented (Abdollahi, 2002; Burke, Shakespeare-Finch, Paton & Ryan, 2006; Evans, Pistrang & Billings, 2013; Noblet, Rodwell & Allisey, 2009; Paton, 2006). Negative psychological outcomes include increased risk of developing posttraumatic stress disorder (PTSD), depression, anxiety, and alcohol abuse (Abdollahi, 2002; Stephens & Long, 2000). Negative physiological

outcomes include impaired immune function, headaches, musculoskeletal pain and cardiovascular disease (Garcia-Herrero, Mariscal, Guierrez, & Ritzel, 2013). These outcomes threaten officers' quality of life, and can have a significant adverse impact on their capacity to function effectively and efficiently at work.

In order to gain a deeper understanding of why police work is stressful, it is useful to consider the theories and frameworks that currently dominate thinking around the higher order constructs of stress and occupational stress. Chapter one of this thesis provides a general overview of that thinking. Chapter two applies this general thinking to the specific domain of police work, exploring common stressors and strains associated with the job. Chapter three examines the research findings on social support, which features in a couple of the general stress frameworks, as a moderator of the stressor-strain relationship in the police environment. This chapter builds the argument for the present study, which examined whether social support from police peers and supervisors buffers the negative effects of police stress on the general well-being and job satisfaction of officers.

## Chapter One

### *Defining Stress*

As the 21st Century evolves, the concept of stress is attracting increasing attention. The infancy of this century may be characterised as an environment of rapid, continuous change and diminishing resources. This kind of environment can be difficult for humans to function in. It is an environment that is widely regarded to create this phenomenon called stress. The term has been around for over 50 years (Hobfoll, 1989) and its use today is frequent and widespread. However, how “stress” should be defined remains the subject of some debate. A number of definitions of stress have been proposed. Some focus on stress as a response, and some focus on stress as a stimulus. Response-based definitions characterise stress as the body’s reactions to environmental conditions (Kring, Johnson, Davison, & Neale, 2010). Stimulus-based definitions focus on the environmental conditions themselves.

#### *1.1 Response-based definitions of stress*

Two pioneers of response-based definitions were Walter Cannon and Hans Selye (1932, 1950, cited in Hobfoll, 1989). Cannon was a physiologist who studied reactions of animals and humans to life-threatening situations. He observed that when faced with imminent harm both animals and humans have a tendency to make a choice: remain and fight to overcome the threat or flee to escape the threat (Kalat, 2009). He described this as an emotional reaction, an irrational, involuntary response (Landy & Conte, 2010). He noted that the body underwent physiological changes in preparation for this sudden action, such as increasing the heart rate and secreting the hormone adrenalin. This adaptive “fight or flight” reaction came to be known as a stress response (Jacobs, 2001).

Later, a medical school student, Hans Selye, observed that patients exhibited an almost identical sequence of physiological changes in response to a wide variety of diseases and traumatic experiences (both physical and psychological) (1956, cited in Landy & Conte, 2010). He also observed, during laboratory research, that rats experienced similar “fight or flight” physiological changes in response to dissimilar stimuli such as the sight of a cat, temperature extremes and confinement (Kring et al., 2010). Selye defined stress as: “the nonspecific response of the body to any demand made upon it” (1979, cited in Kalat, 2009, p. 366).

Stress is commonly used to refer to a negative physical or psychological state. Cannon’s “fight or flight” response defines stress first and foremost as a survival function, meaning it serves a positive purpose. The physiological changes that occur during this reaction improve performance and immune function (Kalat, 2009). However, Cannon also observed that a prolonged or severe stress response is costly to both animals and humans because it can damage a number of biological systems (Hobfoll, 1989). Selye further developed Cannon’s line of thinking, proposed the General Adaptation Syndrome (GAS), a stress response process featuring three distinct phases (Kalat, 2009; Kring et al., 2010).

The first phase of GAS is alarm, when the body prepares for sudden action through increased activity of the sympathetic nervous system. This system is responsible for the “fight or flight” readiness observed by Cannon. The second phase is called resistance. Sympathetic nervous system activity declines and activity in the hypothalamus-pituitary-adrenal cortex (HPA) axis increases. This body system reacts more slowly and becomes the dominant response when the body remains in a prolonged state of stress. The HPA axis stimulates secretion of cortisol and other hormones to sustain heightened vigilance and

immune responses. This prepares the body for early detection of further threats, and enhances the capacity to fight infection and heal wounds. If the body adapts to the environmental conditions causing the stress response, cortisol production declines. If adaptation does not occur the body goes into the third phase, which is exhaustion. After intense prolonged stress the individual becomes tired and vulnerable and the body no longer has the energy to sustain heightened responses. The immune system can become weak and have trouble defending the body against infection. It can also get stronger and become unselective, recognising and attacking the body's own cells as if they were foreign invaders (Kalat, 2009; Kring et al, 2010; Landy & Conte, 2010).

### *1.2 Stimulus-based definitions of stress*

Definitions of stress that are purely response-based have been criticised for not providing a clear cut criteria. Increased sympathetic nervous system activity can also occur under circumstances that would not typically be considered stressful (according to Cannon's definition). For example, when anticipating or experiencing pleasurable events such as eating (Kalat, 2009). Consequently, stimulus-based definitions have been proposed that place emphasis on the environmental conditions that cause these physiological changes (Kring et al, 2010). Using Selye's laboratory observations to put this into context, this means defining the stress experience by focusing on the sight of a cat, temperature extremes and confinement, rather than the nonspecific, physiological reactions induced by these stimuli. Stimulus-based definitions are helpful, in theory, for predicting when stress responses might occur. The problem with applying this approach to understanding (and predicting) human stress reactions is that people vary widely in how they respond when presented with the same stimuli (Landy & Conte, 2010). Environmental conditions that stimulate "fight or

flight” changes in one person may not stimulate the same physiological response in another. That is, any “fight or flight” changes might be comparatively stronger, weaker, delayed or negligible.

### *1.3 An integrated approach*

Balancing the merits and limitations of both response and stimulus-based definitions, stress may be best understood by recognising that these definitions are not mutually exclusive. McEwen (2000) proposed an integrative definition of stress: “events that are interpreted as threatening to an individual and which elicit physiological and behavioural responses” (p. 173). In acknowledging the stimuli McEwen’s definition differs to Selye’s, but the idea remains that the body reacts to different environmental conditions in the same way. McEwen’s definition highlights the subjective nature of the experience of stress, it is perception of the environment rather than the environment itself that determines whether a stress response is elicited. He proposed that perception is influenced by a cognitive appraisal of a situation, and of the resources available to handle that situation. This theory suggests that when an appraisal results in the perception that the demands of a situation are greater than the resources that are available to cope with these demands, a stress response occurs. According to this theory, the experience of stress is psychological before it is physiological.

### *1.4 Understanding occupational stress*

These theories and definitions lay the foundations for understanding stress in the workplace. In the past, researchers in organisational settings have tended to suggest that stress at any level has a direct negative effect on job performance (Noblet, Maharee-Lawler & Rodwell, 2012). This is somewhat inconsistent with Cannon and Selye’s observations that



a stress response improves functions associated with performance, at least initially. Contemporary organisational research is beginning to distinguish between stressors that enhance an individual's work achievement and stressors that hinder achievement (Landy & Conte, 2010). Studies have indicated that low and high levels of stress lead to poor performance and moderate levels lead to increased performance by heightening energy, motivation and attentiveness (LePine, LePine & Jackson, 2004).

Different phases of the GAS theory distinguish between good stress, which Selye termed eustress (Kalat, 2009), and bad stress, commonly referred to as either distress or just stress (Landy & Conte, 2010). In the work setting, eustress, which can be aligned with phases 1 and 2 of GAS, motivates individuals to work hard and meet their goals. Distress, which can be aligned with phase 3, results from stress responses that persist over time and produce negative health outcomes. Although workplace stress can be episodic, chronic stress is more common and more damaging to the body (McEwen, 1998). Chronic stress, or distress, has been associated with decreased job satisfaction (Burke & Paton, 2006; Kawada & Otsuka, 2011), reduced motivation (LePine et al., 2004), and health issues (physical and psychological), such as cardiovascular problems (Kroes, 1976), impaired immune function (Garcia-Herrero et al., 2013), mood disorders and addictions (Abdollahi, 2002; Stephens & Long, 2000). This in turn can lead to reduced quantity and quality of output, higher rates of absenteeism and reduced quality of life for the workers (Landy & Conte, 2010).

One of the most dominant contemporary occupational stress frameworks is Karasek and Theorell's Demand-Control-Support (DCS) Model (Mark & Smith, 2008). This model has guided many large-scale occupational stress studies (e.g., Noblet et al., 2009; van der Doef & Maes, 1999). The DCS model proposes that stress responses at work are directly related to

the relationship between demands placed on an employee and the external resources available to address those demands. According to Karasek and Theorell (1990, cited in Landy & Conte, 2010), high work demands and low control results in a stress response. They defined job demands according to two different criteria: workload and intellectual requirements. They defined job control as a combination of levels of autonomy and discretion for using different skills. The model was originally proposed featuring only the two dimensions of demand and control, but was later expanded to recognise buffering effects of social support (1990, cited in Noblet et al., 2009). A buffering effect is observed when social support weakens the impact of stress (i.e., lower manifestation of strain) (Cohen & Wills, 1985). The DCS Model retains the foundational idea offered by McEwen, that a stress response results from an imbalance between demands and resources. However, it differs in that Karasek and Theorell did not formally emphasize perception (subjectivity) in their model (Mark & Smith, 2008). Consequently, it is vulnerable to criticisms similar to that directed at stimulus-based definitions. The model does not attempt to explicitly explain why individuals react to the same situations differently. A strength of this framework is that it offers some clear cut criteria that are lacking in purely response-based approaches.

Another major theory of occupational stress is the Person-Environment (P-E) Fit Model (Edwards, 1996). This model proposes that the amount of stress a person experiences is influenced by their appraisal of the demands made on them by the environment, and his or her capability to deal with those demands. The P-E Fit Model also emphasises the role of perceptions, and therefore aligns closely with McEwen's definition of stress. The person-job environment fit focuses on the extent to which an individual perceives their knowledge,

skills, abilities and interests to be compatible with a particular job. The person-organisation fit focuses on the extent to which an individual's personal values are held by most others in the organisation (Edwards, 1996; Landy & Conte, 2010). This idea of sharing values refers to the implicit assumptions, or culture of the organisation rather than the espoused values. There can be gaps and conflicts between these two levels of values (Schein, 1990). Although the P-E Fit model acknowledges that individuals respond to the same situations differently, it lacks the clear cut criteria offered by the DCS Model.

Kahn and Byosiere (1992, Landy & Conte, 2010) developed an alternative framework for conceptualising occupational stress that covers several important factors in the stress response process. Like the P-E Fit model, this framework builds on McEwen's definition, integrating response and stimulus-based definitions. The first element is environmental conditions, the stimuli, defined as stressors. Stressors can be physical or psychological. Physical stressors include factors such as strenuous physical activity and temperature extremes. Psychological stressors include a perceived lack of predictability in or control over environmental conditions, role ambiguity, role conflict (within the workplace and between the workplace and other environments, for example home life), interpersonal conflict and emotional labour. It is suggested here that the role of perception plays a greater part in determining the presence of psychological stressors than physical stressors. In terms of capacity to withstand environmental conditions, although the body and mind are, arguably, inextricably connected (Jacobs, 2001), as distinct entities the limitations of the body appear to be less variable between individuals than the limitations of the mind.

The second element of Kahn and Byosiere's framework is moderators of the stress response process, being factors that influence how the environmental conditions are appraised.

Moderators include individual differences in personality, resilience, coping style and locus of control (Marcelline, Fusilier, Ganster & Mayes, 1987). Concordant with the DCS Model, social support is also recognised in this framework as a moderator of the stress response process (Landy & Conte, 2010). Kahn and Byosiere's framework is helpful for putting into context the physiological changes described by Selye in the GAS. Some people have chronically high levels of stress hormones simply because they experience frequent stressors, others may have high levels because they have trouble coping with stressors (Kalat, 2009; Landy & Conte, 2010).

The third and last element of the framework is consequences of exposure to stressors, defined as the strains. Strains are often divided into three categories: behavioural (e.g., physical violence), psychological (e.g., depersonalization, where individuals become hardened by their jobs and tend to treat clients like objects), and physiological (e.g., elevated blood pressure) (Landy & Conte, 2010). Strains can manifest differently in individuals to a certain extent (Kalat, 2009), but this element essentially captures the concept of the response-based definitions that have been discussed.

Yet another framework for understanding occupational stress is the Conservation of Resources (COR) Model (Hobfoll, 1989). This is a general, rather than context specific theory of stress. However, it offers another approach to conceptualising the experience of stress at work. Hobfoll (1989) proposed that people are motivated to attain, develop and retain resources that bring about experiences of pleasure and success. He suggested that any threat of potential, or actual loss of these resources would cause a person to experience distress. Hobfoll claimed that his theory comprehensively explained behaviour in stressful situations. While this is an attractive proposition, and is not disputed here, it is suggested

that the COR Model provides a foundation for, rather than replaces, other theories of stress and occupational stress. It allows for the integration of key features from both stimulus-based and response-based definitions (e.g., the value of resources, and what is threatening to these resources is subjective). However, it does not offer clear-cut criteria and is therefore vulnerable to criticisms similar to those directed at purely response-based definitions.

### *1.5 Defining stress for this study*

This chapter has not provided an exhaustive overview of the various definitions and theories of stress, generally, and occupational stress specifically. However, those that have been discussed demonstrate that although there are a number of different perspectives, at a foundational level there is general consensus that a stress response is caused by an imbalance between demands made on an individual and the resources that individual has to cope with these demands. For this study, it is accepted that perception plays a crucial role in determining whether such an imbalance exists, more so for psychological demands than physical demands.

## Chapter Two

### *Understanding Police Stress*

#### *2.1 Operational stress*

Traditionally, research into the effects of police work on the health of officers has generally assumed the primary threat to well-being is operational experience (Burke & Paton, 2006; Huddleston, Paton & Stephens, 2006; Paton, 2006). This assumption is based in the pathogenic paradigm, which presupposes that exposure to stressors disrupts an individual's capacity to function normally, and will always result in pathological outcomes (Dunning, 2003; Paton, Violanti, & Dunning, 2000). Operational experiences are held to be stressors as they involve routine exposure to challenging and traumatic situations that remind officers' of the vulnerability of human life, such as managing imminent threats to the well-being of themselves and others (Noblet et al., 2009) and dealing with death. These situations can present both physical and psychological stressors.

Operational experiences also require officers to move fluidly between the potentially conflicting roles of: protector, which requires taking sides; peace-keeper, which requires taking no sides; and gate-keeper, disciplining others for their own good, for example issuing traffic tickets. Pasciak (2012) asserted that most officers are fundamentally decent and moral, which can make it difficult to do some of the things they have to do to keep people safe and hold them to account. Like those that they serve and protect, police officers are also human, and vulnerable to engaging in some of the behaviours that they are required to gate-keep in others. When this occurs it can create cognitive dissonance, which can result in

uncomfortable or distressing emotions (Smith, Nolen-Hoeksema, Fredrickson & Loftus, 2003).

The emotional labour burden associated with operational activities is another major potential stressor that may put officers at risk of experiencing exhaustion (GAS phase 3) and burnout, which Maslach, Schaufeli and Leiter (2001) define as a multidimensional construct comprising three domains: exhaustion, cynicism and inefficacy. Emotional labour refers to the stress of managing the full range of one's own emotions when a situation requires the expression of only certain emotions (Hochschild, 1979). This entails taking control over what is widely regarded to be an irrational, automatic reaction. Stress and discomfort are likely to occur when the emotions required to be displayed differ from one's actual emotions (Landy & Conte, 2010).

An officer's emotional reaction to any given situation depends on various factors. There are personal moderating influences such as coping style (Shakespeare-Finch, 2002) and age (Frederickson, Tugade, Waugh, & Larkin, 2003) that effect how individuals' appraise and makes sense of an experience. That is, how they assess whether or not an imbalance exists between the demands faced and the coping resources that are available to them. As emphasised by a number of the general stress and occupational stress frameworks, the way a situation is interpreted, that is, appraised, affects individuals' reactions to it (and any strain experienced) (Paton, 2006). There are also moderating situational factors, some of which are described in more detail further on in this chapter.

There are a number of factors associated with operational activities, other than dealing directly with distressed or violent people, which can create negative cognitive and emotional states for officers. These include dealing with recidivist offenders, losing cases in

court, not being able to help people to a satisfactory degree due to things such as resource and legislative constraints, and trying to help people who, for various reasons, are reluctant to help themselves or accept help from others (Hart, Wearing & Heady, 1995).

In police populations suppression of emotion is a common response to the emotional labour burden, particularly for males, and also to the dissonance that can be experienced after making errors they have held others to account for (Pasciak, 2012). Suppressing emotions or showing false emotions requires cognitive and psychological effort which is likely to be stressful over the long term. It creates a chronic negative emotional state (Hochschild, 1979; Landy & Conte, 2010). Physical threats stimulate a stress response (Cannon's "fight or flight", phase 1 'Alarm' of the GAS), but so do negative cognitions and emotions (Kring et al., 2010). In the course of their training and operational experience, officers are conditioned to pay attention to negative information. According to Gilmartin (1986), this can lead to states of mind and emotion that, outside of the operational environment, and perhaps even within the operational environment, do not necessarily serve them well. For example, hypervigilance, suspicion and paranoia, which stimulate sympathetic nervous system activity and can keep the stress response systems (in particular the HPA axis) active and the body in a continual state of emergency for far longer than it is designed to cope with (Kring et al, 2010).

Pessimism, reduced tolerance, and heightened irritability or anger are also cognitive and emotional patterns that can emerge (Gilmartin, 1986) which have a similar effect on the stress response systems. Negative cognitive and emotional patterns may be considered strains in themselves, but can also create further strain given this sustained effect they can have on the stress response systems (Kring et al., 2010). It is suggested that it is the effects



of psychological stress such as this put officers at risk of experiencing the exhaustion described in phase 3 of Selye's GAS.

There are also physical stressors that put officers at risk for entering the exhaustion phase of Selye's GAS model of the stress response. Shift work and irregular meal-times can disrupt natural biorhythms. This can lead to chronic fatigue and biochemical imbalances, both of which can, in the short term, have an adverse impact on cognitive functioning (Burch, Yost, Johnson & Allen, 2005; Kalat, 2009). For example, slower information processing, memory impairments, slower reaction times, reduced accuracy when executing physical tasks, attentional deficits, and premature reactions (Svenson & Maule, 1993). These factors can also have a long-term adverse impact on general well-being, both physical and psychological health, and performance (Landy & Conte, 2010). Fatigue and biochemical imbalances can also have an impact on emotion processing, which can create, perpetuate or exacerbate the negative cognitive and emotional states that have previously been described (Burch et al., 2005; Ellis, 2007; Kalat, 2009; Kring et al., 2010).

Although the picture painted thus far may suggest otherwise, as recognised by a number of the general stress and occupational stress frameworks, not all operational stressors are detrimental to well-being. The association between repeated exposure to trauma and risk of negative psychological outcomes for emergency personnel, and in particular police officers, has been well established (e.g., Addis & Stephens, 2008; Huddlestone, Paton & Stephens, 2006; Paton, 2006). However, the pathogenic paradigm as a framework for understanding police stress, as a global concept, is coming under increasing scrutiny (Abdollahi, 2002; Burke & Paton, 2006; Violanti, & Aron, 1994; Violanti & Aron, 1993). Generalising the findings from a study conducted by Stephens and Miller (1998), most officers appear to

recover after trauma exposure (and, potentially, from the development of PTSD symptomatology) without developing a disorder.

There is growing evidence that exposure to such stressors can generate positive outcomes, such as achieving a meaningful result, enhanced professional capability, increased self-efficacy, a greater appreciation for family, and posttraumatic growth (Paton, 2006; Stetz, Stetz, & Bliese, 2006). Gist and Woodall (2000) argued that for police officers, and personnel in other similar high-risk occupations, the encounter with adversity is perceived as a challenge in which individuals can use their skills to face the situations they have chosen to and been trained to manage. A number of researchers have offered support for this argument (Abdollahi, 2002; Burke & Paton, 2006; Paton, 2006; Noblet et al., 2009).

Self-selection and training does not render police officers immune from experiencing adverse outcomes (North, et al., 2005). It is difficult to establish, with a great degree of accuracy, the prevalence of psychological difficulties in currently serving and retired police officers. The police culture has traditionally discouraged disclosure of personal difficulties (Pasciak, 2012). Although research has suggested that the prevalence of PTSD in police populations may be similar to that in a general population of people who have experienced at least one traumatic event (Stephens & Miller, 1997), it has been asserted that other manifestations of strain for example, alcohol abuse (Swatt, Gibson & Leeper Piquero, 2007) and interpersonal dysfunction (Hurrell & Kroes, 1975) are much more prevalent.

Critics of the traditional conceptualization of police stress neither dispute nor disregard the evidence of negative outcomes after exposure to trauma. Rather, the critics argue for a balanced approach that reflects the evidence of and potential for positive outcomes (Frederickson, Tugade, Waugh, & Larkin, 2003; Linley & Joseph, 2004; Tedeschi & Calhoun,

2003). Work with combat veterans in this area has shown that individuals can experience negative and positive outcomes concurrently, suggesting the two types of outcomes result from separate pathways rather than being bipolar dimensions (Aldwin, Levinson, & Spiro, 1994).

## *2.2 Organisational stress*

The extent to which traumatic stress outcomes are positive, negative or both differs with individuals. Individual differences in various psychological tendencies effect trauma and general stress reactions (de Terte & Stephens, 2014). Situational factors have also been shown to interact with these personal factors to influence outcomes. An emerging body of evidence has shown that the police organisation's culture plays a crucial role (Gist & Woodall, 1998; Johnston & Paton, 2003; Stephens & Long, 2000). This culture is manifested in formal and informal selection, training, socialisation, and decision-making practices (Schein, 1996). The culture is a system of shared beliefs, norms and values that members use to make sense of their experiences within the organisational context (Schein, 1990).

Operational activities are undertaken within this context, thus organisational culture influences traumatic stress, and general stress outcomes. For example, Paton and Stephens (1996) asserted that vulnerability to negative outcomes increases if an experience is interpreted in a culture that discourages emotional disclosure or focuses on blaming staff for unsatisfactory operational results. In the same token, the likelihood of a positive outcome is heightened if, for example, senior staff can reduce performance guilt by acknowledging situational constraints that affected those results (Alexander & Wells, 1991).

Aside from the influence of organisational culture on traumatic stress outcomes, research has shown that stressful aspects of police work are just as likely to result from an officer's

experience of wider organisational life (Abdollahi, 2002; Bartol, 1996; Burke & Paton, 2006; Hart, Wearing & Heady, 1995; Paton, Violanti, & Dunning, 2000). Such stressors include heavy workloads, inappropriate leadership styles (Weick, 1995, cited in Paton, 2006), poor communication (Noblet et al, 2009) and organisationally sanctioned procedures that are deemed to over-complicate or hinder effective, efficient critical incident management (Alexander & Wells, 1991; Violanti & Paton, 1999). As mentioned, these factors play a part in operational stress reactions but have also become recognised as a separate source, or category of police stress (Abdollahi, 2002).

The impact of these stressors on officers has traditionally not been deemed as important to psychological functioning as the operational aspects of policing. However, recent scientific research has found that organisational aspects are just as important in determining officers' well-being (Burke & Paton, 2006). Officer well-being is vital to the well-being of the organisation as a whole. Policing organisations are reliant on human resources in order to effectively perform the services they are mandated to deliver. Negative views of the organisation, that are generated, perpetuated or exacerbated by organisational stress, are likely to have a detrimental impact on organisational performance. This can be due to a number of different phenomena that are associated with the occupational setting such as an increase in counter-productive work behaviours, decreased citizenship behaviours (Landy & Conte, 2010), and lower affective commitment (Eisenberger et al., 1986).

Consequently, a contemporary view of police stress is that if stress risk management strategies are to be effective they need to address both operational and organisational factors. Failure to have effective strategies in place can have serious consequences not just for individuals and teams of officers, but the organisation as a whole.

### *2.3 Defining operational and organisational stress for this study*

For this research project, operational stressors are defined as job-content stressors. That is, the activities, both physical and psychological, that police officers regard as being job performance requirements. Organisational stressors are defined as tangible and intangible aspects of police life that officers regard as being within the organisation's control.

### *2.4 Measuring the strain of police stress*

As Garcia-Herrero et al., (2013) pointed out, strain resulting from police stress can manifest in different individuals in a number of different ways. For this study, job satisfaction was considered to be an appropriate measure of strain as it has been shown to be generally related to well-being of officers at work and is sensitive to changes in operational and organisational experiences (Burke & Paton, 2006). General well-being was also chosen to measure officers' level of strain as stress experienced at work can continue to effect functioning of the officer as they move through their different life roles (Kossek & Ozeki, 1998).

## Chapter Three

### *Coping with Police Stress using Social Support*

In recent years there has been a progressive shift in the focus of police stress risk management strategies from predominantly post-event intervention to pre-event strain prevention (Gist & Woodall, 2000). Together post and pre-event stress management techniques are sometimes divided into three categories: primary, secondary and tertiary (Landy & Conte, 2010). Primary interventions would be those that are directed at the stressor, and attempt to prevent strain by eliminating the factors that induced the stress response. This approach can target external factors such as job design, or internal factors such as cognitive habits (Quick, Quick, Nelson & Hurrell, 1997). Secondary interventions are response directed and seek to reduce or prevent the experience of strain by encouraging adaptive emotional, cognitive and behavioural habits, among other goals (Cooper & Sadri, 1995). Tertiary interventions are focused on healing any strain that manifests in those that have experienced a stress reaction (Quick et al., 1997). Given the function policing agencies exist to perform, police officers and organisations will never be able to eliminate many of the potential stressors associated with the job. Effective use of stress management tools at all three of these intervention levels is vital for protecting officers against the potential strain they are at risk of.

Use of social support as an approach to managing stress is a concept that is attracting steadily increasing research attention. Research has been done across a variety of disciplines and contexts. Although the findings have been mixed (e.g., Beehr, Bowling & Bennett, 2010; Stephens & Long, 2000), social support has become widely recognised as a

key feature in the stressor-strain experience. It is generally accepted as having a beneficial effect on the maintenance and recovery of psychological well-being and physical health (Cohen & Wills, 1985).

Social support, like stress, has been defined in a number of ways. Although the definitions vary, it is typically conceptualised as a multi-dimensional construct (e.g., Cohen & Wills, 1985; Collins, 2008; Kaufmann & Beehr, 1989). The varying definitions often distinguish between intangible and tangible sources of social support. The term intangible is used here to refer to the provision of emotional support, such as sympathy, compassion and empathy. The term tangible is used to refer to the provision of material resources, such as money, physical assistance, or information. Although considered conceptually distinct, Cohen and Wills (1985) point out that different dimensions of social support are often interdependent in naturalistic settings.

### *3.1 The effects of social support: Theoretical foundations*

Cohen and Wills (1985) identified two major hypotheses on the role social support plays in the stressor-strain experience. One of these is that social support has a direct effect, meaning that the presence or absence of social support influences the environmental appraisal process. This approach supports the premise that perception plays a critical role in determining whether a stress response is experienced. As a direct effect social support would prevent, weaken or strengthen perceptions that an imbalance between demands and coping resources exists. The other theory is that social support moderates the manifestation of strain when a stress response is experienced. This means that the relationship between two variables changes at different levels of social support (Field, 2013). As it is generally accepted that social support helps rather than hinders maintenance or restoration of well-

being, the moderation hypothesis is often referred to as the buffering hypothesis (Cohen & Wills, 1985).

A process of deduction can be used to understand the mechanisms through which tangible social support could change a perceived imbalance between demands faced and available coping resources. Understanding the mechanisms of intangible sources of support requires a different approach. It has been speculated that intangible support may alter the stress response state by creating physiological changes (e.g., calming of the sympathetic nervous system) through emotionally induced effects on the neuroendocrine and immune systems (Jemmott & Locke, 1964).

The theories that have been offered for how or why this happens include social information processing (Stephens & Long, 2000) social identity and social attachment theories (Hobfoll, Freedy, Lane & Geller, 1990). Information processing theories propose that people form schemas for understanding their experiences in the world through social interaction. Intangible social support could therefore impact the stressor-strain experience by influencing the way an experience, or one's reactions to an experience, are perceived (Resick, Monson & Rizvi, 2007).

Social identity theories suggest that one way people come to understand themselves is through social comparison (Haslam, 2001). Hobfoll, Freedy, Lane and Geller (1990) proposed that a sense of identity is important for achieving psychological stability. They also proposed that humans have an innate drive to belong, and that a sense of belonging provided through intangible (and tangible) support (social attachment) helps to ameliorate the experience of distress.



These theories are neither mutually exclusive nor collectively exhaustive in attempting to explain how and why intangible support influences well-being. It is suggested here that it is possible the mechanisms underlying any effects of intangible support on the stressor-strain experience may depend on whether it is used as a primary, secondary, or tertiary stress management tool.

### *3.2 Operationalising social support*

Trauma theories and therapeutic interventions have tended to emphasize the importance of talking as a way of recovering psychological equilibrium after trauma exposure (Resick et al., 2007). People often report the need to talk, and find the process of doing so to be beneficial. Using Horowitz' model as a framework, talking to others about a stressful event may help a person to understand the experience (Stephens & Long, 2000) and/or normalise their stress reaction. Normalising stress reactions is an important part of the recovery process (Gilmartin, 1989). As talking tends to be a social activity, measurement of interpersonal communication is one approach that has been taken to operationalising social support. This approach has been adopted in the context of general occupational stress, as well as the specific focus on trauma exposure (e.g., Beehr et al., 2010; Stephens & Miller, 1998).

### *3.3 The effects of social support: Research findings*

Family, friends, intimate partners and colleagues have been studied as potential sources of social support (Patterson, 2003). Landy and Conte (2010) suggested that in the present day support at work has become increasingly important as familial networks have become smaller and wider spread. When compared to other occupational groups, the rate at which

police officers tend to engage in job-related socialising suggests their workplace relationships are especially important to them (Skolnick, 2000).

There are a number of theories as to why support from colleagues may be particularly important for police officers. Socialising with other officers may provide the opportunity to relax without fear of the intense, and often critical public scrutiny they face. They may develop strong emotional bonds with each other given the intensity of the operational experiences they share together (Rosenbloom, Williams, & Watkins, 2010). Marzuk, Nock, Leon, Portera and Tardiff (2002) proposed that police work is addictive and that this can make life hard to cope with outside of the police environment. They suggested that as a result, officers can become detached from people and activities outside of this environment. This may be due to, in part, a desire to protect the people around them from being exposed to some of the harsh realities they face. The widely held stereotype of police officers as superhuman (Violanti, 1995), and the social expectation that they will remain calm and in control regardless of what they are faced with might deter officers from talking to non-police personnel or seeking professional help (Mahalik, Good, & Englar-Carlson, 2003; Smith, 2009).

Although the presence of social support is widely accepted as being beneficial to well-being, the social support research generally paints an “enigmatic” picture (Beehr, Farmer, Glazer, Gudanowski, & Nadig Nair 2003, p. 220). Studies of the relationship between collegial support and operational stress for police officers have produced promising, but also inconsistent results. Direct effects (e.g., Stephens & Miller, 1998), buffering effects (e.g., Stephens & Long, 2000), and reverse buffering (e.g., Beehr et al., 2010; Stephens & Long, 2000) effects have been found.

Stephens and Long (2000) investigated whether communication with police supervisors and peers buffered the negative effects of exposure to trauma. They sampled 527 New Zealand police officers and one of their findings was that talking with peers about a traumatic experience had a buffering effect on the positive relationship between trauma exposure and PTSD symptomatology, but that talking with supervisors did not. Inconsistent with this, Evans, Pistrang and Billing (2013) found with 19 British police officers that supportive social interactions with both peers and supervisors, about a traumatic experience, were generally beneficial. Although participants in their study expressed ambivalence towards talking to colleagues about emotions, use of humour appeared to have a positive function. These studies are specifically mentioned here because they demonstrate the point made by Cohen and Wills (1985), that one of the challenges with understanding the social support research is the variety of methodologies that have been used. Stephens and Long (2000) conducted quantitative analyses to test the buffering hypothesis. Evans et al. (2013) explored police officers' experiences of post-trauma interactions with colleagues. They used a qualitative methodology for data collection and analysis, and therefore did not test either the moderating or direct-effect social support hypotheses. This makes it difficult to compare the findings. Although Stephens and Long did not find communications with supervisors about disturbing events to moderate the stressor-strain relationship, their research did not discount a direct effect of disturbing supervisor communications on either the stressor and/or the strain.

Much of the research that has been done has focused on the use of social support in the police environment as a means of coping with trauma exposure. This is predictable given traditional conceptualisations of police stress. However, with the contemporary paradigm of

police stress that is emerging, studies are beginning to look at the role social support plays in dealing with the organisational stress associated with police work.

Noblet et al. (2009) found in a study focused on organisational stressors, with a sample of 2085 Australian police officers, which supported the importance of social support from both peers and supervisors in preventing adverse health outcomes. The objective of their study was to assess the capacity of the DCS model of stress to account for the strain experienced by police officers working in environments that have undergone large-scale management reforms. Support was shown to be one of the strongest predictors of police officers' attitudes and behaviours. This is inconsistent with, and even contradictory to findings from research with a range of other occupational groups which have shown increased levels of social support to have no buffering effect or even a reverse buffering effect against stress related to work context (e.g., Beehr et al., 2010; Beehr et al., 2003).

A number of explanations have been offered for the inconsistencies and contradictions in findings about the relationship between job-related stress and social support. As well as acknowledging the methodological variations, for example the way social support has been operationalised and analysed (e.g., Evans et al., 2013; Stephens & Long, 2000), Cohen and Wills (1985) suggested that better efforts to match specific needs of specific stressors to the source and type of social support might help to clarify the situation. Empirical support for this suggestion has been provided by a few (e.g., McIntosh, 1991). Noblet et al. (2009) suggested that inconsistencies may be explained by incorrect modelling, and speculated that work stress and social support may not have a simple linear relationship as had previously been assumed (Rydstedt, Ferrie & Head, 2006). They suggested that there are limits to the amount of guidance, feedback, and assistance that people can tolerate, and just

as a lack of supportive resources can be harmful to employee well-being, excess amounts of support may be equally toxic.

Noblet et al. (2009) looked at the additive, interaction, and non-linear effects of the DCS component variables on measures of health, job satisfaction and organisational commitment. Strong support was found for the additive model; all three components predicted outcome variables; few of the two- or three- way interaction variables were supported. While they did not find support for their suggestion of a non-linear relationship in their own study, Stephens and Long (2000) findings may suggest support for this. They found that moderate levels of peer support after trauma exposure were beneficial, but that low and high levels were not.

Although the research findings currently available paint a complex, confusing picture, it is clear that social support can buffer the negative effects of job-related stress under certain conditions. This may be said generally, and also specifically in the context of police stress. If social support systems are currently, or are to become an integral feature of police stress risk management strategies, further investigation is needed in order to establish the conditions under which the benefits of social support for preventing stress can be properly reaped.

### *3.4 The present study*

The objective of this study was to investigate the conditions under which social support may moderate the negative effects of police stress on the general well-being and job satisfaction of New Zealand police officers.

*Hypothesis 1:* Operational stress will have a significant negative relationship with general well-being.

*Hypothesis 2:* Organisational stress will have a significant negative relationship with general well-being.

*Hypotheses 3:* Operational stress will have a significant negative relationship with job satisfaction.

*Hypothesis 4:* Organisational stress will have a significant negative relationship with job satisfaction.

*Hypothesis 5:* Social support will moderate relationship predicted in hypothesis 1.

*Hypothesis 6:* Social support will moderate the relationship predicted in hypothesis 2.

*Hypothesis 7:* Social support will moderate the relationship predicted in hypothesis 3.

*Hypothesis 8:* Social support will moderate the relationship predicted in hypothesis 4.

## **Chapter Four**

### *Research Methodology*

#### *4.1 Design*

This study was conducted using a cross-sectional, non-experimental design. Quantitative survey research was used to increase the number of participants that could be accommodated for within the time and cost constraints of the study. The independent variable (IV) was police stress (as a two factor construct). The dependent variables (DVs) were general well-being and job satisfaction. Social support was examined as a moderator of any relationships found between the IV and DVs.

#### *4.2 Power analysis*

As a general rule, the number of cases required for sufficient statistical power depends on the alpha levels that have been chosen and the expected effect size. For multiple regression, which was the intended analysis technique, adequacy of sample size also depends the number of independent variables, reliability of the measures and frequency distribution of the dependent variable (Spicer, 2005). Tabachnick and Fidell (2007) state that the general rule of thumb for detecting a moderate effect is a minimum sample size of 50 cases plus eight times the number of independent variables. Detecting a medium size Beta under the same assumptions is 104 cases plus the number of independent variables.

Given the inconsistencies and contradictions found across the social support research, a power analysis was conducted with a prediction of a medium effect size ( $f^2 = 0.15$ ) (for Hypothesis 5, the over-arching interest of this study). It is noted that 0.15 may be interpreted by some as a small or even a large effect. Coolican (2009) points out that interpretation of effect sizes varies as it is not an exact science. The power analysis was run

in the G\*Power program using the following parameters: the conventional alpha and power levels of 0.05 and 0.80 respectively, test family: F-test, statistical test: multiple regression (fixed model, increase in  $R^2$ ), type of power analysis: a priori, predictors: 9 (operational stress, organisational stress, social support, and the control variables). The results of this analysis indicated a minimum sample size of 114 was necessary for the findings to have sufficient statistical power. Guided by the general rule of thumb for multiple regression, with reliable measures (Cronbach's alpha values reported in 4.5) and normal distribution (discussed below), the minimum sample size was estimated to be 122.

#### *4.3 Sample*

The population of interest was police officers with regular exposure, or potential exposure, to operational stressors. Although most, if not all officers are also exposed to organisational stressors, the presence of current operational stressors was considered to be of primary importance given that this study intended to examine levels of police stress as a whole.

Of the 2300 sampled, 872 officers responded (38%). Data was excluded from 185 due to missing or extreme values. This produced a final sample group of 687 officers. The majority of the participants were male (76%), which is consistent with gender representations of New Zealand Police and policing. The ethnic composition was representative of NZ Police from the rank of Senior Sergeant and below (80% Caucasian, 8% New Zealand Maori, 2% Asian, 6% Polynesian, 1% Indian, and 4% other) (New Zealand Police, 2015).

The participant age range was from 19 to 64 years with a mean of 40.23 years ( $SD = 8.91$ ). Both the median and mode were 41 years. The mean length of service was 12.51 years and both the median and mode were 10 years. Under current selection guidelines the minimum age to be eligible to attend the Royal New Zealand Police College is eighteen years



([www.newcops.co.nz](http://www.newcops.co.nz)), so 19 years is a valid minimum value. Provided officers meet the physical fitness standards there is no requirement to exit the service upon reaching a certain age, so 64 years is a valid maximum value. The range for length of service was 0-45 years, with a mean of 12.51 years ( $SD = 8.37$ ). The minimum value of zero is valid. It is interpreted as the option selected by participants in their first year of service. Given that the maximum age recorded was 64 years, 45 years of service is also recognised as a valid response. Both age and length of service were representative of the current averages for New Zealand Police (Senior Sergeant and below) (New Zealand Police, 2015).

Excluding commissioned officers, the rank breakdown was also representative of the population (45% constables, 12% senior constables, 14% sergeants, 5% senior sergeants, 6% detective constables, 8% detectives, 5% detective sergeants, 3% detective senior sergeants, 0% commissioned officers (inspectors and superintendents), 1% other). Data to assess how representative the relationship status and educational level breakdown is of the New Zealand Police was not provided.

#### *4.4 Procedure*

Approval for conducting this research was obtained from the New Zealand Police Research and Evaluation Steering Committee (RESC), the Massey University Human Ethics Committee (approval number: 14/33) and the District Commanders in Wellington, Central and Counties-Manukau. Police officers in these Districts up to and including the rank of senior sergeant were invited to participate (all non-commissioned officers). This included those with the designation detective.

An electronic survey was assembled with the psychometric tools outlined in 4.5 using the Qualtrics computer software. The survey was piloted with a small group of commissioned

officers who were not part of the sample group. The purpose of piloting was to gauge perceptions of the fit of the jargon used in the Police Daily Hassles Scale (PDHS) to the New Zealand Police culture. As a result of piloting, several changes to the PDHS were made. Approval for these changes was obtained from the owners of the PDHS.

Participants were initially approached by way of a letter sent to their work addresses through the New Zealand Police internal mail system. The letter (Appendix A) was an invitation to participate. It provided a brief introduction to the researcher, and outlined the background and purpose of the research (an information sheet sent to them is contained in Appendix B). Shortly after this, a web-address link to the survey was sent to participants' work e-mail addresses, for the survey to be completed online. Participants were given the option of contacting the researcher themselves to obtain a paper-based copy of the survey if they preferred to complete the survey using this method. No-one contacted the researcher (or supervisor) requesting this. Participants were advised that the survey could be completed on any device from which they had access to the New Zealand Police email system, or that the link could be forwarded to an alternative email address to be completed in a non-work setting if that was preferred. The link remained active for two months, during which time participants were sent two reminder emails at appropriate intervals including about 7 days before the link closed. Consent to participate was obtained at the start of the survey. Participants were required to register that they had read and understood the information sheet before they could proceed with the survey.

## *4.5 Measures*

### 4.5.1 Demographic Items

Participants were asked to complete a series of questions that covered their age, gender, rank, marital status, ethnic group, educational level, and years of service in New Zealand Police. Participants were not asked to disclose their role to protect anonymity.

### 4.5.2 Police Stress

An adapted version of the Police Daily Hassles Scale (PDHS) was used to measure police stress. This is one of the two subscales that make up the Police Daily Hassles and Uplifts Scale. It examines operational and organisational experiences that police officers encounter on a regular basis. The full, original scale contains 86 questions about negative experiences (hassles) considered harmful to well-being, and 50 questions about positive experiences (uplifts) considered beneficial to well-being (Hart, Wearing, & Heady, 1994).

Only questions about negative work experiences were included in this study. Participants were asked to indicate on a scale of 0 (*definitely does not apply to me*) to 5 (*strongly applies to me*) how much each of these experiences had hassled, bothered or pressured them over the past three months. A principal components analysis was conducted to categorise the stress items as either operational or organisational stressors. Item scores were then added together to produce two separate police stress scores. Higher scores indicated higher levels of stress.

The mentioned changes for which approval was sought are contained in Appendix C. The full and final list of the PDHS items has not been included in this thesis, with the intention of recognising the copy right protection. Extracting the PDHS subscale and making these changes was not expected to have a significant adverse effect the reliability of the measure.

This scale has been shown to be a reliable measure in New Zealand police populations (e.g., Burke & Paton, 2006). For this study, the Cronbach's alpha reliability statistics were 0.96 and 0.97 for the operational and organisational stress sub-scales respectively.

#### 4.5.3 Social Support

Social support was measured with as frequency and content of communication, with an adapted version of the scale used by Stephens and Long (2000). Stephens and Long's scale contained 15 items exploring content of communication (non-work-related, negative work-related, positive work-related and the additional disturbing work-related items) and 2 items that explored ease of communication around trauma (ease of talking about feelings, ease of talking about the details). The ease of communication items were combined into one measure as they were found to be highly correlated ( $r(515)=0.69, p<0.001$ ). This combined measure was included in this study. An additional item was added to explore ease of communication around organisational stressors ('It is easy to talk about experiences in the organisation that I have found difficult'). The total number of items on the scale therefore remained at 17 (see Appendix D).

Participants were asked to complete the scale twice, once with reference to peers and once with reference to supervisors (any supervisors, whether they be line supervisors or senior managers). Studies have shown differential effects of peer and supervisor communications (e.g., Stephens & Long, 2000). They were instructed to make a rating on a Likert scale that ranged from 1 (*never*) to 5 (*very frequently*), thinking about communication had within the last 3 months. This time frame was chosen so as to maintain consistency with the frame-of-reference for the PDHS items. Consistency was intended to serve the dual purpose of increasing the validity of the results and avoiding confusion for participants.

Twelve social support scores were calculated (total, non-job, negative, positive, disturbing and ease of communication with peers and supervisors) by summing responses to the relevant items. Subscale scores were produced as well as total scores, given the findings produced by Stephens and Long (2000). Higher scores indicated greater levels of support. Cronbach's alpha statistics for this study were: peer total = .90, supervisor total = .94, peer non-job = .92, supervisor non-job = .94, peer negative = .80, supervisor negative = .84, peer positive = .85, supervisor positive = .91, peer disturbing = .88, supervisor disturbing = .93, peer ease of communication = .89 and supervisor ease of communication = .95.

#### 4.5.4 General Well-being

The General Health Question-12 (GHQ-12) was used to measure general well-being. This scale is a derivative of the GHQ (Goldberg & Hillier, 1979). The original GHQ was intended for use in clinical settings to detect psychiatric disturbances that are not easily recognised through standard psychiatric interviewing. It provides an indicator of psychological well-being by targeting two domains: inability to function normally and the appearance of distress. The original, full-length version of the GHQ comprises 60 questions that probe various dimensions of symptoms which, when clustered together, provide an undifferentiated diagnosis of psychological distress (Goldberg & Hillier, 1979).

Confirmatory factor analyses has suggested that the GHQ-12 has a correlated three-factor structure of Anxiety/Depression, Social Dysfunction and Loss of Confidence (Mäkikangas, Feldt, Kinnunen, Tolvanen, Kinnunen, & Pulkkinen, 2006). It comprises six positively worded and six negatively worded items that tap into these factors to produce an overall picture of an individual's present state of psychological well-being (or distress) (Wang & Lin, 2011). The tool has been used to provide an index of general well-being in non-clinical settings,

such as occupational, due to its cross sample validity (Banks, Clegg, Jackson, Kemp, Stafford & Wall, 1980; Goldberg & Hillier, 1979). It has been shown to be a reliable and valid measure in police populations (Lawson, Rodwell, & Noblet, 2012).

Participants in this study were asked to rate the 12 items (see Appendix E) on a 4-point Likert scale (item responses ranged 1 = *less than usual* to 4 = *much more than usual*). Positively keyed items were coded 0-0-1-1 and negatively keyed items were coded 1-1-0-0. A total score was then calculated. Scores were then calculated by adding responses to all 12 questions. The Cronbach's alpha for this study .77.

#### 4.5.5 Job Satisfaction

Job satisfaction was measured using the 18-item Job Satisfaction Inventory (JSI) (Brayfield & Rothe, 1951) (see Appendix F). This was the scale used by Burke and Paton in their 2006 study, where it was shown to be a reliable and valid measure of job satisfaction in police officers. The JSI assesses how the respondent feels about work overall (e.g., "I find my job rewarding") without seeking to identify feelings about specific facets (e.g., pay, development opportunities). Nine of the items are negatively keyed to avoid the distorting effects of acquiescence bias. This study employed the same response scale and scoring method used by Burke and Paton, which was the approach designed by Brayfield and Rothe when the JSI was constructed. Respondents are asked to indicate their opinion on each item on a 5-point scale (1=*strongly agree* and 5= *strongly disagree*). Positively keyed items were reverse scored to account for this. An index of job satisfaction was then calculated by summing the item scores. Scores can range from 18-90. The Cronbach's alpha for this study .89

## Chapter Five

### *Results*

#### *5.1 Overview*

This chapter presents the results of the statistical analyses that were conducted on the data collected to address each of the eight hypotheses of this study. Detailed first is a description of the methods used to screen and clean up the data in preparation for the analyses. The univariate data properties are then examined. This is followed by a discussion on the statistical techniques used, and the results of hypothesis testing at the bivariate and multivariate levels. The results of the analyses were reported separately. The last section of this chapter describes the techniques used and results of some exploratory analyses that were also undertaken.

#### *5.2 Preparing the data for analysis*

Incomplete data is a ubiquitous problem in social science research (Field, 2009; Pallant, 2011; Tabachnick & Fidell, 2007). Entry errors and missing values can create significant distortions in results, particularly those obtained from analyses that employ parametric techniques. Parametric techniques are relatively powerful tests that produce estimations of population parameters (Coolican, 2009). These techniques rely heavily on statistics such as the mean and standard deviation. Both entry errors and missing values can have an impact on these statistics which, consequently, can affect the reliability and validity of results.

Parametric tests have more stringent requirements around data properties than non-parametric techniques, but can produce more significant results. The use of them is guided by the research question and method of measurement. This family of tests is popular for examining relationships between variables that have been measured on ratio or interval

scales (Pallant, 2011). Given the objective and hypotheses of this study it was considered appropriate and preferable to use parametric techniques to analyse the data.

### *5.2.1 Data screening*

There are a number of reasons that entry errors and missing values might occur. Data entry errors can be made by the researcher or participants. They can also be the result of software malfunctions. These errors can create invalid responses, for example a score of 20 on a scale with a score range of 0-18. When due to human error, invalid responses may be a genuine mistake or they might be intentional. They may be the result of participants trying to distort or disguise their actual (self-assessed) state/stance to protect themselves against predicted negative repercussions. Invalid responses may also be the result of participants failing to take the study seriously (Pallant, 2011).

To check for invalid responses, univariate statistics were generated for each of the variables measured to look at the minimum and maximum values that had been recorded. Total scores for each of the scales and subscales (police stress, job satisfaction, general well-being and social support) were calculated and screened for validity after the missing data problem had been addressed. Of the continuous variables (primary constructs, age and length of service), one of the scores fell outside of the possible range, this was for length of service. The reason for this and steps taken to address the problem are detailed in 5.3.2. Most of the demographic variables were categorical, however each category was numbered. All of the responses for these variables (gender, rank, ethnicity, education level, and relationship status) were valid (inspected both before and after the missing data problem was addressed).



A missing value analysis was conducted. The results of this showed that, overall, 16% of values were missing. This may have been due to either accidental or intentional omission.

### *5.2.2 Data clean up*

Data clean up involves dealing with any entry errors and missing values, so as to minimize the impact they could have on the reliability and validity of the results. No entry errors needed to be addressed. The presence of missing data did present a problem however. Choosing how to deal with this was an important decision, as the approach adopted can have a dramatic effect on the results (Tabachnick & Fidell, 2007). Understanding why values were missing was a crucial step in determining the best approach. Values can be missing completely at random (MCAR), missing at random (MAR), or missing not at random (MNAR). MCAR means there is nothing systematic going on that makes some values more likely to be missing than others. That is, the missing values cannot be explained by a third, unobserved variable. MAR means there is a relationship between the missing data and the observed variables (e.g., females are more likely to answer particular questions than males). Values that have been observed can be used to predict the values that are missing. MNAR means missing values are explained by unobserved variables. MNAR present the biggest problem because the missing values cannot be predicted with any great degree of confidence (Acock, 2005).

To analyse the mechanism operating in this study, Little's MCAR Test was performed. The result of this test was non-significant ( $X^2(47518) = 47088.99, p < 0.92$ ), which suggests that data was MCAR. This result was only used as an indication. It can mask what is going on in the data (Enders, 2010). In illustration of this point, a relatively high percentage of responses were missing for the police stress items relating to dual careers. A skip pattern

was built into the survey tool for this section, so this was to be expected. These responses were not missing at random (i.e. these survey items were not relevant and therefore presented to all participants) but this is hidden by the non-significant result of Little's test which suggests items were missing at random. Little's test was also interpreted with caution as it is possible to establish with confidence that data are not MCAR (so they are either MAR or NMAR) but there is no way to definitively determine that data are MCAR. The presence of a relationship with another variable can never be eliminated (Little, 1988).

With this in mind, the missing data was also examined using other approaches. Frequency tables and statistics on the percentage of values missing by item and by case were produced. The pattern in the frequency table showed that, in general, the number of missing values increased over the course of the survey. The response rate was higher, on average, for the police stress items than the social support and general well-being items.

An inspection of the values missing by case showed that 71% of cases had values missing. The extent of this ranged from 0.5% (1 item) to 100% (188 items). The majority of these (75%) had <5% missing values. Missing a few items might be explained by a systematic mechanism for a particular case (intentional omission), but it is deemed a plausible assumption that the values are missing completely at random (accidental omission). This assumption is supported by the result of Little's test. However, it is more plausible to assume that values are missing systematically for the cases with a relatively large ratio of missing to complete values. This contradicts Little's test result test, which suggests items MCAR.

Given the extent of the missing data problem and the difficulty in understanding this problem, several approaches were considered for dealing with it. These included different

options for case exclusion (list-wise and pair-wise deletion) and data imputation (the simple mean, estimation-maximisation and multiple imputation). Spicer (2005) warns against imputing values unless it is deemed absolutely necessary as this can severely distort the results. He asserts that list-wise deletion should be used if the number of remaining cases provides sufficient statistical power and is adequate for conducting a reliable multiple regression.

Given that it was difficult to predict the effect size for this study, the maximum number of cases suitable for analysis was considered desirable. As the total sample size was 872, excluding cases with missing values was still deemed an appropriate option. Use of pair-wise deletion is discouraged because different analyses end up having different sets of data, different sample sizes, different parameter estimates and different standard errors (Spicer, 2012). Although list-wise deletion is the recommended approach where case numbers allow, Garcon (2015) suggested it should only be used if there are not too many missing values (<5%). This is primarily based on the impact of list-wise deletion on sample size. Although this was not considered to be a problem for this study, list-wise deletion requires that the data be MCAR, to avoid introducing bias.

Although Little's MCAR test was non-significant it was a safer assumption that the data were at least MAR. Considering the extent and nature of the missing data problem, the decision was made to impute the missing values using the estimation-maximisation (EM) method. Tabachnick and Fidell (2007) recommend this as the simplest and most reasonable imputation approach if data are either MCAR or MAR. There are robust debates surrounding imputation techniques, and what the rate of missing data should be for imputation to be acceptable. Garcon (2015) argued that imputation is an appropriate

method when the rate of missing values is not over 20%, and the data are MCAR or MAR. Although the overall rate of missing values in this study was under 20%, the concern was about the rate of missing values by case. Greater numbers of missing values by case was more suggestive of MNAR. Imputation should not be used to compute an entire case of values (or close to it) (Tachnick & Fidell, 2007). As noted, over 150 cases had more than 5% of values missing, a number of them upwards of 50%.

With consideration given to the controversy surrounding imputation and acceptable rates of missing data, using imputation for cases with no more than 5% of missing values was deemed to be a safe compromise. All cases showing more than 5% of values missing were removed from the original data set. After these cases had been removed a missing values analysis showed a dramatic reduction in missing values to 0.9%. There was some reduction in cases that were missing values (down to 64%,  $N = 701$ ). The dual career items, which had been subject to the skip pattern, were excluded from score calculations due to the extent of values that were required to be imputed for these variables (49% for both items). Little's MCAR test was run on this second data set prior to imputing the missing values, and was again shown to be non-significant ( $\chi^2 = 41612.85$ ,  $df = 41820$ ,  $Sig. = 0.76$ ).

### *5.3 Police stress: Principal components analyses*

A principal components factor analysis (PCA) was conducted on the 124 police stress items with oblique (direct oblimin) rotation. This was done to determine which items should be used to calculate scores for each source of stress (i.e., what did this particular police population consider to be an operational or organisational stressor). This method of factor analysis was chosen so that all of the individual differences in the data could be analysed (Spicer, 2005).

The KMO statistic ( $=.96$ ) indicated the sample size was adequate for conducting a PCA (Field, 2013). Bartlett's test of sphericity is not reported as the utility of this statistic has been questioned (Field, 2009). For the purposes of this study it was deemed appropriate to simply try to group the items into the two expected components (operational and organisational stress). Instead of using eigenvalues for factor extraction, SPSS was given the command to produce the fixed number of 2 components. After the analysis was run, it was easy to identify how to label the two components as operational and organisational stress upon examination of the item clusters. The two components together accounted for 37% of the explained variance. Component 1 (organisational stress) accounted for 30%, leaving 7% accounted for by component 2 (operational stress).

As the sample size was over 600, factor loadings over  $.21$  were considered significant (Stevens, 2002). All of the items apart from "exams for work purposes" met this threshold of significance. A number of the items had fairly similar, moderate correlations with both components. Rather than excluding these items, they were included in the score calculation of the component they were most highly correlated to. It is acknowledged that this approach introduces the risk of inflating the significance of some results (for example, the zero-order correlation between operational and organisational stress). The possible impact of this was investigated as part of the exploratory analyses. A table showing the total variance explained by the 2 factors is included in Appendix G. The pattern matrix has not been included to protect the copyright of the subscale.

#### *5.4 Univariate analyses: Assumption checking*

Before analyses were run to test the hypotheses, the statistical conditions required to produce accurate probabilities using parametric techniques were checked. One of these conditions is that the dependent variables be normally distributed in the population (Spicer, 2005). According to the central limit theorem, if the sample data are normally distributed then the sampling distribution is also normally distributed (Field, 2009). A summary of the descriptive statistics is included in Appendix H.

Histograms, normal probability plots, skewness and kurtosis statistics were examined to assess the distribution of scores for each of the continuous variables. Examining the distribution of the police stress and social support scores, as well as the dependent variables, enabled conclusions to be drawn about the homogeneity of variances across all of the variables. If all variables included in a regression are normally distributed they are assumed to be homoscedastic, another condition required for producing trustworthy regression results. Examining the distribution of the independent and control variable scores was also necessary for determining the validity of correlation test statistics, unless one of the variable measures was dichotomous (Tabachnick & Fidell, 2007),

The predicted impact of the skewness and kurtosis statistics was evaluated using a common rule of thumb identified by Coolican (2009). This rule being that a significant violation of the normality assumption has occurred if the skewness or kurtosis statistic is greater than twice (either plus or minus) its standard error. Consideration was given to transforming these statistics to z-scores, as another way of assessing the impact. However, in a sample of this size it is more important to look at the shape of the distribution (Field, 2009). Use of the Kolmogorov-Smirnov and Shapiro-Wilk statistics was discounted as these tests are known to

be overly sensitive in larger samples. Anyway, if the sample size is over 200 the effect of skewness and kurtosis statistics are negligible when distribution is visually normal (Tabachnick & Fidell, 2007). A number of these statistics indicated violations of normality. As the sample size was greater than 600, based on visual assessments, the majority were not considered to of concern.

#### Visual assessments of distribution

##### *Dependent Variables.*

The scores for general well-being and job satisfaction were concluded to have sufficiently normal distributions. Normal probability plots for both showed points that formed a nearly linear pattern. The spike observed around the mean on the general well-being histogram suggested a leptokurtic distribution. This assessment was contradictory to the negative kurtosis statistic, which was assessed to be significant. However, this was not concerning ( $N = 687$ ). The histogram for job satisfaction supported a conclusion that the violation indicated by skewness and kurtosis statistics was mild (Coolican, 2009).

##### *Independent Variables.*

Both operational and organisational stress scores were concluded to be normally distributed. Normal probability plots showed nearly linear patterns for both variables. A slight positive skew observed on the organisational stress histogram suggested a violation of the normality assumption. The skewness statistic supported this assessment. This was not anticipated to have a significant distortion effect ( $N = 687$ ).

##### *Moderating Variables.*

Histograms and normal probability plots indicated that non-job, negative, positive and disturbing communication scores were normally distributed. The normal probability plot for ease of communication showed a nearly linear pattern. However, the histogram indicated

cause for concern as it depicted a comb-shaped distribution (Ehrlich, 2002). The pattern of peaks and troughs suggested that a relationship might exist between the responses on the 2 items measuring ease of communication. The peaks were shown at scores divisible by 2 (supporting an inference that, generally, how participants responded to the second item may have mirrored how they responded to the first item). The inter-item correlation was calculated to check for item redundancy. This was high ( $r = 0.91$ ,  $p < 0.01$ ) (Field, 2013), suggesting the 2 items could be measuring the same thing.

The normality assumption was assessed again using only the 'easy to talk about experiences on the job' item, leaving out the item that was added to the scale for this study ('easy to talk about experiences in the organisation'). The histogram produced using this approach indicated a normal distribution. The normal probability plot showed a nearly linear pattern. The skewness and kurtosis statistics were acceptable. As the same pattern was observed in the supervisor ease of communication scores, the decision was made to exclude the item 'easy to talk about experiences in the organisation', rather than transform the data using both item scores to make up the sub-scale. Although leaving the second item out could have biased the results, this was deemed the best approach. Field (2009) warns that data transformations are controversial for a number of reasons and other options for dealing with non-normal distributions should be considered. Total peer support scores, calculated using only the one original item for 'ease of communication' produced a histogram and normal probability plot that suggested the normality assumption had been met.

Normal probability plots showed nearly linear patterns for all of the supervisor support scores. Looking at the histograms, all scores showed slight unexpected peaks at the lower extreme of scores but this was not concerning ( $N = 687$ ). Ease of communication was again



the only score that was not concluded to be normally distributed. The comb-shaped distribution was similar to, but more pronounced than the peer ease of communication scores. The graph showed a positive skew with one tail at the upper extreme of scores. The pattern of peaks and troughs again suggested responses on the 2 items measuring ease of communication could be correlated. The inter-item correlation was high ( $r = 0.81, p < 0.01$ ) (Field, 2013) so, again, another assessment of normality was conducted looking at the distribution of scores for just the item 'experiences on the job'.

The normal probability plot showed a nearly linear pattern. The histogram displayed a nearly normal distribution (no comb pattern), although the slight positive skew was still evident. The skewness and kurtosis statistics both indicated a violation of the normality assumption. This was not concerning ( $N = 687$ ). Total supervisor social support scores were calculated using only the one original item for ease of communication, as was done for calculating total peer support scores. The histogram and normal probability plot suggested a normal distribution.

#### *Control Variables.*

Only data measured on an interval scale can be used in correlation and regression analyses, unless one of the variable measures is dichotomous (Spicer, 2005). Age and length of service were the only variables of the demographic data collected using an interval scale. Age was normally distributed. Length of service was not normally distributed. This was to be expected, given the proportion of lower to higher ranked participants and the predicted relationship between length of service and rank (discussed in 5.3.3). The normal probability plot showed slight deviations at the lower extreme and in the center of the line. The histogram showed a noticeable positive skew, which was reflected in the skewness statistic.

It also showed one score sitting outside of the possible range (minimum: -2.37). The dataset was inspected and this case was identified. A check of the original data showed this score had been imputed. The score was removed but the case was retained, with the intention of using list-wise delete exclusion for all further analyses involving length of service. Consideration was given to transforming this variable, however doing so may have hindered interpretation by rendering a widely used scale (time) meaningless (Tabachnick & Fidell, 2007).

For categorical variables, to meet the normality assumption the scores must be normally distributed within each of the groups. This is again assessed by looking at the sampling distribution of means. Central limit theorem predicts normality for this in a large sample size. As the overall sample size was 687 for all of the categorical demographic variables, the normality assumption was accepted as being met (Tabachnick & Fidell, 2007). Given that all of the variables were assumed to be normally distributed within the different groups, the groups were also assumed to be homoscedastic (using the same approach adopted for the continuous variables). Both of the conclusions regarding normality and homoscedasticity were drawn with caution, as although the overall sample size was large there were relatively large variations in group sizes for example, for males  $N = 527$  whereas for females  $N = 163$ .

#### Removal of outliers

The impact of the outliers observed in the graphs was assessed using standardized z-scores. Raw score outliers detected in the boxplots were retained, with no transformations performed, if none of the z-scores fell outside more than 3.29 standard deviations either side of the mean (Field, 2009; Tabachnick & Fidell, 2007). Cases falling outside of this range

were removed from the data set; 14 cases were identified as outliers and removed, producing a sample for analysis of 687 ( $N = 686$  for analyses involving length of service).

### *5.5 Testing hypotheses using Pearson's product-moment correlations*

#### Assumption checking

Scatterplots were generated to visually check for bivariate linearity and outliers in the relationships between operational stress, organisational stress, general well-being and job satisfaction scores. Cook's distance was used to assess the impact of outliers that were apparent in each of these scatterplots. Cook's distance was the chosen method as, according to Tabachnick and Fidell (2007), recent research raises questions about the reliability of leverage and Mahalanobis distance (other commonly used methods). The cut-off point applied was that suggested by Cook and Weisberg (1982), being that values greater than 1 would be identified as concerning.

The scatterplots indicated very weak negative linear relationships between both sources of stress and general well-being. Negative linear relationships were also observed between both sources of stress and job satisfaction. The stress-satisfaction relationships appeared to be slightly stronger than the stress-general well-being relationships. None of the Cook's distance ( $D$ ) values suggested any cases should be removed (maximum Cook's  $D$  values: operational stress and general well-being = 0.08; operational stress and job satisfaction = 0.08; organisational stress and general well-being = 0.09; organisational stress and job satisfaction 0.08). Although several outliers had the visual appearance of being potentially concerning, particularly for the stress-general well-being relationships, the insignificant impact of these (as indicated by Cook's  $D$ ) was likely due to the sample size ( $N = 687$ ).

As there were no indications of curvilinear relationships and distributions were roughly equal (Pallant, 2011), Pearson's product-moment correlations were generated to test hypotheses 1-4. The categorical demographic variables were dummy coded and included in a correlation matrix with the two police stress scores, general well-being and job satisfaction scores. As no direction was hypothesized this analysis was run using a two-tailed test (Field, 2009).

The magnitude of the correlations was interpreted using Cohen's (1988) guidelines, being that a weak relationship is indicated by ( $r = 0.10 \leq 0.29$ ), a moderate relationship ( $r = 0.30 \leq 0.49$ ), and a strong relationship ( $r \geq 0.50$ ). Correlations less than 0.10 were interpreted as having a negligible or no relationship. All significant correlations are reported in the hypothesis testing commentary below. Only the correlations that were at least weak in strength have been reported and interpreted. A full matrix is included as Appendix I.

Hypothesis testing (H1-H4):

*H1: operational stress will have a significant negative relationship with general well-being*

*H2: organisational stress will have a significant negative relationship with general well-being*

*H3: operational stress will have a significant negative relationship with job satisfaction*

*H4: organisational stress will have a significant negative relationship with job satisfaction*

Pearson's product-moment correlations offered support for H1-H4 (H1:  $r = -.17, p < 0.01$ ; H2:  $r = -.29, p < 0.01$ ; H3:  $r = -.22, p < 0.01$ ; H4:  $r = -.41, p < 0.01$ ). The relationships between each source of stress and job satisfaction were stronger than the relationships between each source of stress and general well-being. These correlations also show that organisational stress had stronger relationships with both general well-being and job satisfaction than operational stress did. Applying Cohen's scale, the relationship between organisational

stress and job satisfaction was moderate, and the other three relationships were relatively weak. The significance and magnitude of these correlations provided justification for progressing on to multivariate analyses (Pallant, 2011).

#### Control variables

The correlations between the primary constructs and the demographic variables were examined to determine whether controlling for any of these variables in the multivariate analyses was also justified. Deciding which demographic variables to include in the analyses was important. Spicer (2005) warns that adding more predictors increases the probability of chance effects (sampling error) due to a reduction in statistical power. The variance explained by newly added predictors must therefore outweigh this effect in order to justify inclusion of them in the model.

Relationship status and level of education showed no significant relationships with any of the primary constructs. The Caucasian ethnic group was shown to have significant negative relationships with organisational stress ( $r = -0.08, p < 0.05$ ) and general well-being ( $r = -0.15, p < 0.01$ ). These relationships were negligible and weak, respectively. The latter suggests Caucasians reported slightly lower levels of general well-being than the other ethnic groups, on average. Significant positive, weak correlations were found between general well-being and the NZ Maori ethnic group ( $r = 0.10, p < 0.05$ ) or Indian ( $r = 0.12, p < 0.01$ ). This suggests participants from these groups reported slightly higher levels of well-being, on average. The Polynesian group was shown to have a significant positive, but negligible relationship with organisational stress ( $r = 0.08, p < 0.05$ ). No significant relationships were found between any of the ethnic groups and job satisfaction.

Constables showed a weak, positive relationship ( $r = 0.14, p < 0.01$ ) with operational stress, and senior constables showed a weak negative relationship. This suggests constables reported slightly higher levels of operational stress, and senior constables reported lower levels, on average. The rank of superintendent had a negative and weak relationship with job satisfaction ( $r = -0.10, p < 0.01$ ).

A significant weak, negative relationship was found between gender and general well-being ( $r = -0.10, p < 0.01$ ). This suggests females reported slightly lower levels of well-being, on average. Length of service and age were both shown to have significant weak, negative correlations with operational stress ( $r = -0.16, p < 0.01$  and  $r = -0.19, p < 0.01$ , respectively). Although Pearson's  $r$  does not distinguish between independent and dependent variables, the only meaningful interpretation of these correlations is that operational stress decreases slightly as age and length of service increase (age and length of service cannot decrease as operational stress increases).

The correlations between age, length of service and rank were examined to assess the potential for multicollinearity between these variables. Multicollinearity occurs when independent variables are highly correlated in some way, which suggests that each variable may offer little unique information (Spicer, 2005). Some of the correlations were significant, and the pattern largely supported the logical assumption that these variables would be related. For example, the relationships age and length of service had with the rank of constable was negative ( $r = -0.46, p < 0.01$ ;  $r = -0.65, p < 0.01$ ) suggesting constables were younger and had shorter lengths of service. By comparison, the relationships between age,

length of service and the rank of senior constable<sup>1</sup> were positive ( $r = 0.37, p < 0.01$ ;  $r = 0.40, p < 0.01$ ). The correlation between age and length of service was high ( $r = 0.75, p < 0.01$ ). Given the nature of the relationships between rank, length of service and age, and that length of service was not normally distributed, it was considered appropriate to include only age as a control variable. This was done to avoid any negative impact of adding a significant number of predictors to the regression models (there were 12 rank groups to dummy code) (Spicer, 2005) and transforming length of service, which was not normally distributed (Field, 2010).

All of the statistically significant relationships involving demographic variables were considered to have little or limited practical importance, as assessed using the coefficients of determination ( $r^2$ ) (Field, 2009; Pallant, 2011). None of these variables explained much more than 1% of the variance in scores. However, the sample size also offered sufficient statistical power to support a more complex model. Ethnicity, gender and age were controlled for in the analysis of the relationships between sources of stress and general well-being as each of these factors had significant zero-order correlations with the sources of stress and/or general well-being. Applying the same approach, age was the only control variable included in the analysis of the relationships between sources of stress and job satisfaction.

#### *5.6 Hypothesis Testing: Hierarchical regression and moderation analyses*

Hierarchical multiple regression analyses were performed to assess the ability of each source of stress to predict general well-being and job satisfaction, after controlling the influence of any demographic variables and for the significant, strong relationship between

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<sup>1</sup> Obtained automatically after 14 years of service

the sources of stress ( $r = 0.68, p < 0.001$ ). This relationship may have confounded the other significant correlations observed between each source of stress, general well-being and job satisfaction. It was also of interest to investigate the unique predictive power of each source of stress.

#### Checking assumptions - multivariate

Scatterplots of the residuals were used to test for normality, linearity, and homoscedasticity. Cook's D statistic was used to evaluate the impact of outliers. Multicollinearity and independence of cases were assessed using the variance inflation factor (VIF) and the Durbin-Watson statistic, respectively. These assumptions were taken as met if the VIF values were less than 10 and the Durbin-Watson statistic was between 1 and 3 (Field, 2009).

The scatterplot of general well-being residuals suggested that the assumptions of normality, linearity and homoscedasticity had been met (Pallant, 2011; Tabachnick & Fidell, 2007). The maximum Cook's D value (=0.07) showed that no data points were outliers and consequently did not require removal. There was no indication of multicollinearity (maximum VIF = 2.05) and the cases were adequately independent (Durbin-Watson = 2.07).

The scatterplot of job satisfaction residuals suggested the assumptions of linearity and homoscedasticity had been met, but that the normality assumption had been violated. This is consistent with observations made of the distribution of the raw job satisfaction scores. Field (2009) states that the options for dealing with violations of multivariate assumptions are limited. Also, that violations do not invalidate results, but do weaken them. Transformations of the data were considered. However, given that the other assumptions were met, cases were adequately independent (Durbin-Watson = 2.14), multicollinearity



was not an issue (maximum VIF = 2.03), and no outliers were identified (maximum Cook's D = 0.02), this violation was not considered to be serious. No transformations were performed.

Hypotheses 1 & 2:

Hierarchical multiple regression was performed. The demographic control variables of gender, age and ethnicity were entered at step one, organisational stress as step two, and operational stress as block three (Table 1). Organisational stress was entered before operational stress because the stronger correlations suggested the former could explain more of the variance of scores for both general well-being and job satisfaction than the latter (Burke & Paton, 2006; Stephens & Paton, 2007). This assumption was also supported by the results of the principal components analysis, which suggested that organisational stress (factor 1) explained a larger amount of variance in police stress than operational stress (factor 2).

Table 1. Hierarchical regression of operational and organisational stress on general well-being

	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.23	.05	.05**
(Constant)	9.04	.60				
Gender	-.71	.23	-.12*			
Age	-.03	.01	-.09*			
Caucasian	-.88	.25	-.13**			
Indian	2.63	1.07	.09*			
Step 2				.38	.14	** .09
(Constant)	10.70	.60				
Gender	-.76	.22	-.12**			
Age	-.02	.01	-.08*			
Caucasian	-1.04	.24	-.16**			
Indian	2.40	1.02	.09*			
Organisational Stress	-.01	.00	-.31**			
Step 3				.38	.14	.00
(Constant)	10.51	.65				
Gender	-.75	.22	-.12**			
Age	-.02	.01	-.08*			

Caucasian	-1.04	.24	-.16**
Indian	2.43	1.02	.09*
Organisational Stress	-.02	.00	-.33**
Operational Stress	.00	.00	.04

Note: \* $p < .05$ , \*\* $p < .001$

To summarise, at step 1 the analysis revealed that being Caucasian, gender, and age contributed significantly to the regression model, together explaining 3.7% of the total variance. Examining the standardised coefficients, being Caucasian made the greatest contribution, followed by gender, and finally age. All three variables were negatively associated with general well-being. The negative associations with being Caucasian and gender indicated this ethnic group and females reported lower levels of general well-being, on average. The negative association with age suggests general well-being levels were lower in older people.

*H1: operational stress will have a significant negative relationship with general well-being*

At step 3, operational stress did not contribute significantly to the regression model. H1 was therefore not supported.

*H2: organisational stress will have a significant negative relationship with general well-being*

At step 2, organisational stress accounted for a further 9.2% of the total variance. It had a significant negative association with general well-being. This suggests greater levels of organisational stress were associated with lower levels of general well-being. H2 was therefore supported.

#### Hypotheses 3 & 4:

Hierarchical multiple regression was performed. Results of the analysis are displayed in Table 2.

Table 2. Hierarchical regression of operational and organisational stress on job satisfaction.

	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.03	.00	.00
(Constant)	67.56	1.66				
Age	-.03	.04	-.03			
Step 2				.41	.17	.17**
(Constant)	75.65	1.63				
Age	-.02	.04	-.02			
Organisational Stress	-.07	.01	-.41**			
Step 3				.42	.18	.01*
(Constant)	75.53	1.80				
Age	.00	.04	.00			
Organisational Stress	-.08	.01	-.50**			
Operational Stress	.02	.01	.13*			

Note: \* $p < .05$ , \*\* $p < .001$

At step 1, age did not have a significant relationship with job satisfaction.

*H3: operational stress will have a significant negative relationship with job satisfaction*

Operational stress made a significant, albeit comparatively small contribution once organisational stress had been controlled for, explaining 1% of the total variance. The standardised beta coefficients revealed it had a significant positive relationship with job satisfaction. H4 was therefore not supported.

*H4: organisational stress will have a significant negative relationship with job satisfaction*

At step 2, organisational stress was found to make a significant contribution to the regression model, explaining 16.7% of the total variance in job satisfaction scores. It had a significant negative association with job satisfaction. H4 was therefore supported.

Hypothesis 5-8:

Moderation analyses were run to test hypotheses 5-8. To conduct the analyses a custom dialog box called PROCESS, written by Andrew Hayes and Kristopher Preacher, was

downloaded and installed on SPSS. This tool was designed specifically for conducting moderation and mediation analyses (Field, 2013). The PROCESS tool performs data centering automatically, which Field (2013) claims is important for interpreting effects. Forty-eight analyses were run in total, testing the effects of total support scores and the effects of each of the separate types of support from both peers and supervisors.

*H5: Social support will moderate the relationship predicted in H1.*

Supervisor social support was found to have a significant moderating effect on the negative relationship between operational stress and general well-being. Significant effects were observed for total supervisor support ( $\Delta R^2 = .01$ ,  $F(1, 683) = 10.07$ ,  $p < .05$ ). Additionally, for each type of supervisor support separately with the exception of ease of communication [non-job:  $\Delta R^2 = .01$ ,  $F(1, 683) = 8.10$ ,  $p < .05$ ; negative:  $\Delta R^2 = .01$ ,  $F(1, 683) = 6.11$ ,  $p < .05$ ; positive:  $\Delta R^2 = .01$ ,  $F(1, 683) = 4.90$ ,  $p < .05$ ; disturbing:  $\Delta R^2 = .02$ ,  $F(1, 683) = 10.98$ ,  $p < .001$ ]. No significant interaction effects were found in the relationships between either source of stress and job satisfaction. For peer social support, no results have been reported as no significant interaction effects were found. H5 was therefore only partially supported.

Although operational stress was not found to have a significant relationship with general well-being when organisational stress was controlled for (H1), according to Louis (2013), independent and dependent variables do not have to have a significant correlation with each other to get a significant moderation effect. The significance of the correlation between the independent and the dependent variable can be different at different levels of the moderator.

*H6: Social support will moderate the relationship predicted in H2.*

A significant interaction effect was found between organisational stress and positive supervisor communication ( $\Delta R^2 = .13$ ,  $F(3, 683) = 34.41$ ,  $p < .001$ ). No significant interactions were found for any other type of supervisor communication, or for any type of peer communication. H6 was therefore only partially supported.

*H7 and H8: Social support will moderate the relationships predicted in H3 and H4.*

Peer and supervisor communications were not found to have any significant interaction effects with either source of stress when regressed on job satisfaction. Neither H7 nor H8 were therefore supported.

The conditional effects of the police stress (X) variables on general well-being (Y) at different levels of supervisor communications are contained in tables 3-8. A simple slopes analysis was conducted to gain a better understanding of the nature of these effects (depicted in figures 1-6) (Field, 2013).

The figures were interpreted by examining the slopes, with no reference to the Y intercept. According to Jose (personal communication, 2nd November, 2015), moderation analyses can produce Y intercepts that are not possible scores and therefore this value is not helpful for interpretation. The slopes of the regression lines represent the relationship between stress and general well-being, and the presence of multiple lines reflects the relationship between operational stress and general well-being at three different levels of social support. Steeper slopes reflect stronger relationships between operational stress and general well-being (Jose, 2013).

Field (2013) states: “moderation occurs when the relationship between two variables changes as a function of a third variable” (p. 407). Parallel lines would therefore suggest there is no significant interaction effect because it would mean the relationship between stress and general well-being is the same at different levels of supervisor support. All of these graphs produced lines that were non-parallel, suggesting level of supervisor communications changed the relationship between operational stress and general well-being, and organisational stress and general well-being.

For all of the moderating effects observed, higher levels of supervisor communication strengthened the negative relationship between stress and general well-being. The degree to which communication strengthened this negative relationship varied only slightly (in terms of  $\Delta R^2$ ) with the type of communication.

Positive communication also strengthened the negative relationship between organisational stress and general well-being, although this was significantly greater ( $\Delta R^2 = 13\%$ ) when compared to the impact of some types of communication on the relationship between operational stress and general well-being (maximum  $\Delta R^2 = 2\%$  (disturbing communication)).

For the negative relationship between operational stress and general well-being, when all types of supervisor communication were at low levels the negative relationships between operational stress and well-being were non-significant. The relationships when supervisor communications were at moderate (being the mean) and high levels were all significant. The negative relationship between organisational stress and well-being was significant at all levels of positive supervisor communication, and higher levels of communication strengthened this negative relationship. These findings suggest that communication with

supervisors has an exacerbation (Jose, 2013) or reverse buffering (Stephens & Long, 2000) effect on the negative relationship between police stress and general well-being.

Table 3. Relationship between operational stress (X) and general well-being (Y) at different levels of total supervisor communications

Communication Frequency	Effect	Std. Error	t	p
28.88 (Low)	-.00	.00	-1.14	.26
39.89 (Mod.)	-.01	.00	-4.62	.00
50.89 (High)	-.01	.00	-5.76	.00

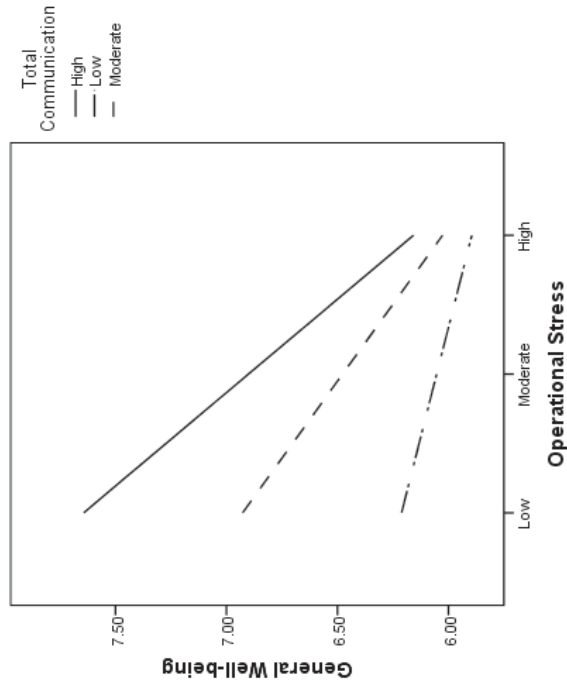


Figure 1. The moderating effects of total supervisor communication on the relationship between operational stress and general well-being.

Table 4. Relationship between operational stress (X) and general well-being (Y) at different levels of non-job supervisor communications

Communication Frequency	Effect	Std. Error	t	p
7.26 (Low)	-.00	.00	-1.04	.30
10.86 (Mod.)	-.01	.00	-4.18	.00
14.45 (High)	-.01	.00	-5.22	.00

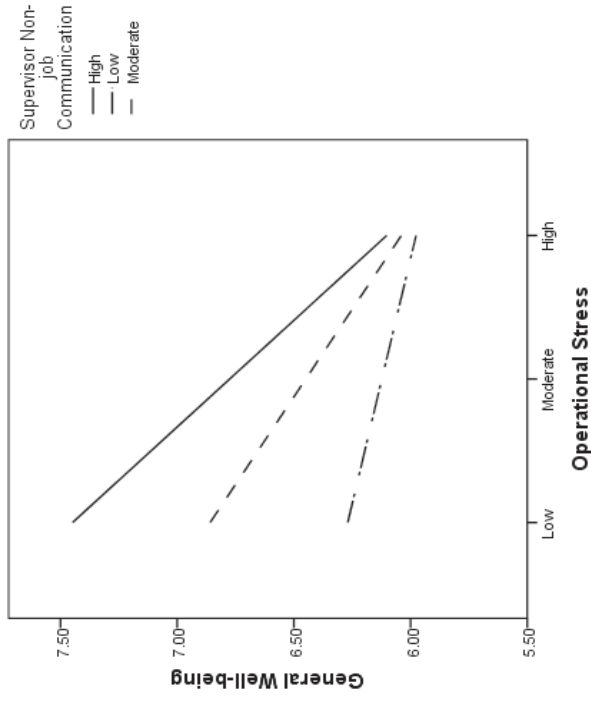


Figure 2. The moderating effects of non-job supervisor communication on the relationship between operational stress and general well-being.



Table 5. Relationship between operational stress (X) and general well-being (Y) at different levels of negative supervisor communications.

Communication Frequency	Effect	Std. Error	t	p
6.13 (Low)	<b>-.00</b>	<b>.00</b>	-1.40	<b>.16</b>
9.25 (Mod.)	<b>-.01</b>	<b>.00</b>	-4.10	<b>.00</b>
12.36 (High)	<b>-.01</b>	<b>.00</b>	-5.00	<b>.00</b>

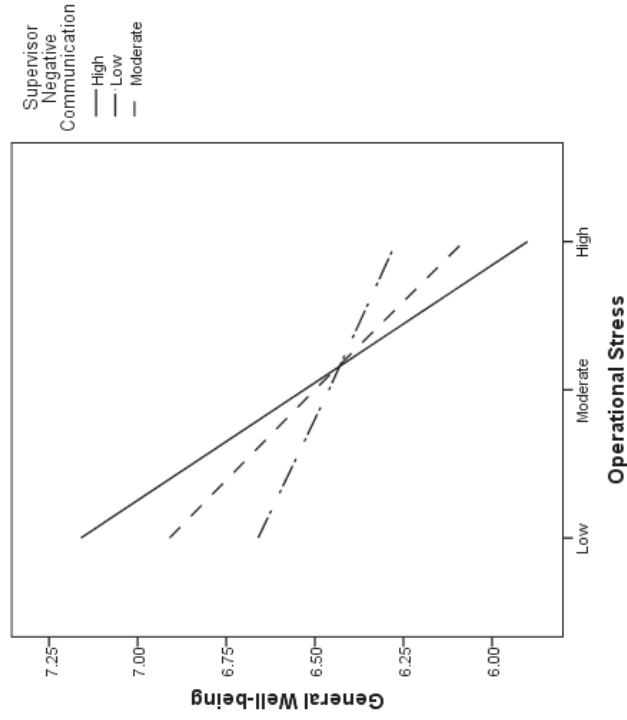


Figure 3. The moderating effects of negative supervisor communication on the relationship between operational stress and general well-being

Table 6. Relationship between operational stress (X) and general well-being (Y) at different levels of positive supervisor communications.

Communication Frequency	Effect	Std. Error	t	p
7.56 (Low)	<b>-.00</b>	<b>.00</b>	-1.73	<b>.09</b>
11.00 (Mod.)	<b>-.01</b>	<b>.00</b>	-4.47	<b>.00</b>
14.35 (High)	<b>-.01</b>	<b>.00</b>	-4.82	<b>.00</b>

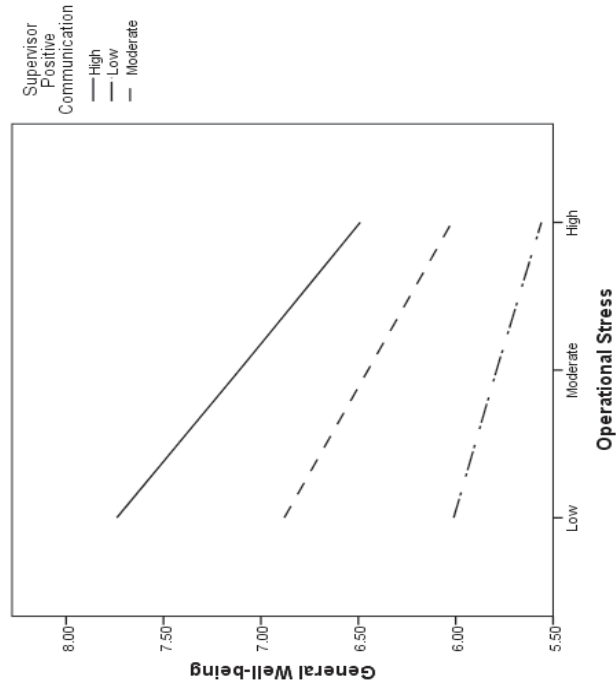


Figure 4. The moderating effects of positive supervisor communication on the relationship between operational stress and general well-being

Table 7. Relationship between operational stress (X) and general well-being (Y) at different levels of disturbing supervisor communications.

Communication Frequency	Effect	Std. Error	t	p
3.90 (Low)	-.00	.00	-9.99	.33
6.40 (Mod.)	-.01	.00	-4.74	.00
8.92 (High)	-.02	.00	-5.73	.00

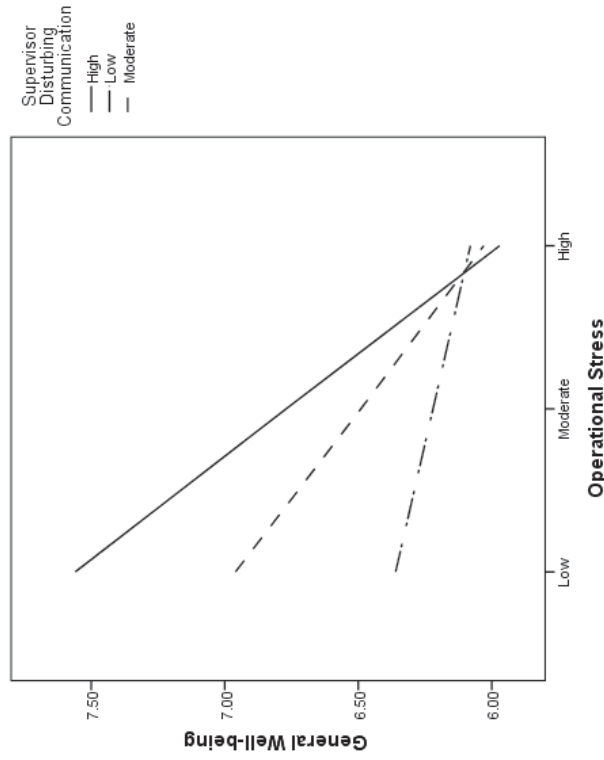


Figure 5. The moderating effects of disturbing supervisor communications on the relationship between operational stress and general well-being

Table 8. Relationship between organisational stress (X) and general well-being (Y) at different levels of positive supervisor communications.

Communication Frequency	Effect	Std. Error	t	p
7.56 (Low)	-.01	.00	-3.15	.00
11.00 (Mod.)	-.01	.00	-6.70	.00
14.35 (High)	-.02	.00	-6.47	.00

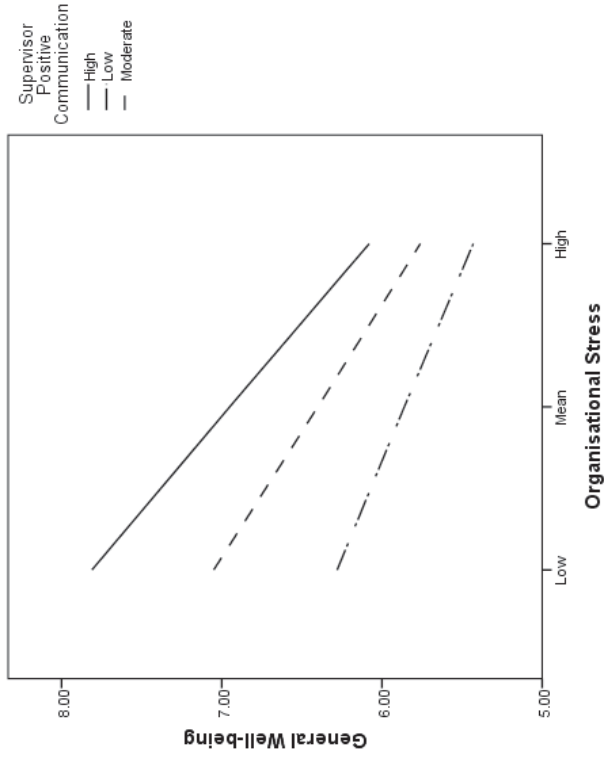


Figure 6. The moderating effects of disturbing supervisor communications on the relationship between operational stress and general well-being

### *5.7 Exploratory Analyses*

Hierarchical regression analyses were performed again to investigate whether peer social support was a significant predictor of either source of stress.

#### Assumption checking

Bivariate linearity and outliers in the relationships between types of communication and both sources of stress were assessed using the approach detailed in 5.3.2. All types of peer communication appeared on the scatterplots to be appropriate for multiple regression analyses. No bivariate outliers were removed (all maximum Cook's D values were less than 1). Scatterplots of operational and organisational stress residuals suggested that the assumptions of multivariate normality, linearity and homoscedasticity had been met for each of the four models produced (Pallant, 2011; Tabachnick & Fidell, 2007). The maximum Cook's D values (all less than 1) showed no removal of multivariate outliers were required. There was no indication of multicollinearity (all VIF values <10) and the cases were adequately independent (Durbin-Watson statistics:  $1.94 \leq 2.11$ ) (REF).

#### Peer support and operational Stress

To determine control variables to include, the approach outlined in 5.3.3 was adopted (Pearson's correlation matrix including peers support scores included as Appendix H), age was entered at step 1 and total peer support at step 2. Age explained almost as much of the total variance (2.7%) as total peer support (3.2%). Age was negatively correlated with operational stress (standardised  $\beta = -0.14$ ,  $t(684) = -3.59$ ,  $p < 0.001$ ), suggesting older age was associated with lower levels of this type of stress. Total peer support was positively correlated (standardised  $\beta = 0.18$ ,  $t(684) = 4.81$ ,  $p < 0.001$ ), suggesting greater frequency of peer interaction was associated with higher levels of operational stress.

The separate peer support scores were then entered in place of total peer support to examine the nature of the relationships different types of peer communication had with operational stress. Age, Caucasian and the Polynesian demographic variables were entered at step 1 and the peer support scores were entered at step 2. When the different types of peer communication were entered as separate scores, together they explained 16% of the variance in operational stress scores. The standardised beta coefficients, displayed in Table 9 revealed negative and disturbing communications had significant positive relationships with operational stress, non-job and ease of communication had significant negative relationships, and positive communication had no significant relationship. This suggests greater frequency of disturbing and negative communication is associated with higher levels of operational stress, and greater frequency of non-job communication and ease of communication was associated with lower levels of stress.

Table 9. Hierarchical regression of peer communications on operational stress

	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.17	.03	.03**
(Constant)	159.62	11.86				
Age	-.96	.23	-.16**			
Caucasian	-4.50	5.76	-.03			
Polynesian	5.49	10.03	.02			
Step 2				.43	.19	.16**
(Constant)	105.81	15.30				
Age	-1.04	.22	-.18**			
Caucasian	-6.60	5.32	-.05			
Polynesian	-3.38	9.32	-.02			
Peer Non-job	-2.92	.69	-.19**			
Peer Negative	6.65	.67	.39**			
Peer Positive	.33	.74	.02			
Peer Disturbing	3.39	1.01	.16**			
Peer Ease	2.49	1.42	-.09			

Note: \* $p < .05$ , \*\* $p < .001$

### Peer support and organisational stress

Given these findings, peer support was expected to have a significant relationship with organisational stress, due to the significant positive relationship between operational and organisational stress.

As none of the demographic variables had significant relationships with organisational stress or total peer support, total peer support was the only independent variable entered into the regression analyses. Total peer support did not have a significant relationship with organisational stress (standardised  $\beta = 0.07$ ,  $t(685) = 1.91$ ,  $p < 0.06$ ).

Age, the Caucasian and the Polynesian demographic variables were again entered at step 1 and the peer support scores were entered at step 2. When entered as separate scores, the different types of peer communication together made a significant contribution and explained 25% of the total variance in organisational stress scores. The standardised beta coefficients, displayed in Table 5, showed only non-job and negative communications had significant relationships with organisational stress. Non-job had a negative association, and negative communication had a significant positive association. This indicates greater frequency of discussions about non-job related topics was associated with lower levels of organisational stress and greater frequency of discussions about negative work-related topics was associated with higher levels. The impact of negative communication was greater than the impact of non-job communication.

Table 10. Hierarchical regression of peer communications on organisational stress

	<i>B</i>	<i>SE B</i>	$\beta$	<i>R</i>	<i>R</i> <sup>2</sup>	$\Delta R^2$
Step 1				.09	.01	.01
(Constant)	113.40	11.86				
Age	.12	.25	-.02			
Caucasian	-8.40	6.49	-.06			
Polynesian	10.45	11.31	.04			

Step 2				.50	.25	.25**
(Constant)	86.09	16.30				
Age	-.06	.23	-.01			
Caucasian	-12.97	5.67	-.09*			
Polynesian	2.72	9.93	.01			
Peer Non-job	-4.66	.73	-.27**			
Peer Negative	9.82	.72	.52**			
Peer Positive	-1.60	.79	-.08*			
Peer Disturbing	1.66	1.08	.07			
Peer Ease	-2.48	1.51	-.08			

Note: \* $p < .05$ , \*\* $p < .001$

#### Investigating for bias in police stress scores

The police stress scores were recalculated excluding the three items that were most similarly correlated with both factors. Pearson's product-moment correlations between the stress scores and the excluded items were then produced. The results showed only a small reduction in the correlation between operational and organisational stress ( $r = 0.68$ ,  $p < 0.01$ ). The items that had been correlated with both factors in the PCA were all found to have significant, similar zero-order correlations with both operational stress and organisational stress. By similar, it is meant that the items were similarly correlated with both sources of stress and the pattern was similar to that observed in the factor loadings. The risk of introducing bias from adopting the approach outlined in 5.3.1 was therefore considered to be low or negligible.

## Chapter Six

### *Discussion*

#### *6.1 Overview*

It was predicted that both operational and organisational stress, as distinguishable dimensions of police stress, would have negative relationships with officers' general well-being and job satisfaction. It was further predicted that social support from police peers and supervisors would moderate these relationships. These predictions were partially supported. Organisational stress was found to have significant negative relationships with both general well-being and job satisfaction. Talking with peers did not have a significant moderating effect on either of these relationships, but some types of communication were found to be significant predictors of organisational stress. Negative communication had a significant positive association while non-job and positive communications had significant negative associations. Higher levels of positive communications with supervisors was found to have a significant exacerbation effect on a negative relationship between organisational stress and general well-being.

When organisational stress was accounted for, operational stress did not have a significant relationship with general well-being until communication with supervisors reached at least moderate levels of frequency. Higher levels of total, non-job, negative, positive and disturbing supervisor communications were found to have significant exacerbation effects on a negative relationship between operational stress and general well-being. Operational stress was found to have a significant positive main effect with job satisfaction. Peer support did not have a significant moderating effect on any of these relationships, but was found to be a significant predictor of operational stress. Disturbing and negative peer

communications had significant positive associations and non-job communications had a significant negative association. This chapter provides a commentary on possible explanations for and implications of these findings for both the theories and the practices that currently surround stress risk management for police officers.

## *6.2 Operational stress*

This section considers the hypotheses and findings of the main effects between operational stress and general well-being, and operational stress and job satisfaction. The finding that operational stress did not have a significant direct relationship with general well-being (when organisational stress was accounted for) lends support to the argument that the pathogenic paradigm cannot comprehensively explain participants' reactions to operational stressors. This finding might also reflect the approach taken for detecting the manifestation of strain. A number of different tools have been used to examine the impact of job-content stressors on police officers. Self-reporting of PTSD symptomatology has been a popular choice (e.g., Stephens & Miller, 1998; Yuan et al., 2011). This particular measure of strain has been consistently shown to have a significant positive relationship with trauma exposure, with an increase in the severity and/or frequency of trauma exposure associated with higher levels of symptoms.

It was the generalization of these findings, and the acknowledgement of Hans Selye's observation of a stress response as a "non-specific reaction" (Kalat, 2009, p. 366) that supported the formulation of hypothesis one of the current study. Routine exposure, or the potential of exposure to trauma-related incidents was only one of a number of domains recognised under the rubric of operational stress in this study. For this reason, PTSD



symptomatology was not, on its own, considered to be an appropriate measure of strain. By definition, it requires exposure to a traumatic incident.

This consideration supported the rationale for choosing the GHQ-12 as an alternative, global measure of psychological health. This was deemed an appropriate method for detecting the strain of both operational and organisational stressors. Although theory and empirical evidence suggest indices of psychological distress (produced using the GHQ-12) and PTSD symptomatology would have a positive correlation (e.g. Maia et al., 2007), the GHQ-12 likely probes different sequelae of symptoms to that of PTSD measures. This could potentially explain, at least in part, the failure to find a significant main effect between operational stress and general well-being.

Another possible explanation is that the response scale options might have been ambiguous and/or misleading. There are variations in the item wording and the wording of the four points on the Likert scales that are typically used for the GHQ-12. Some versions pose questions, for example 'over the last month, have you been feeling unhappy or depressed?' with rating options from 'not at all' to 'much more than usual'. Other versions, like the version of the GHQ-12 used in this study, present the items as statements and offer a different set of response options. For example, 'indicate the extent to which you have experienced/felt the following over the last month: unhappy or depressed' with response options from 'less than usual' to 'much more than usual'. One participant suggested that these response options could be interpreted in a way that implied the respondent was in a general state of unhappiness or depression. This was valid and valuable feedback.

Although some participants may have found the GHQ-12 scale ambiguous, the reliability coefficient was adequate (Cronbach's  $\alpha = 0.77$ ) therefore this finding, and the other findings

relating to general well-being yet to be discussed, can be accepted with a reasonable degree of confidence. The prediction that operational stress would have a significant negative relationship with job satisfaction was formed based on evidence supporting traditional conceptualizations of the occupational stress-strain relationship. This view assumes that exposure to workplace stressors always leads to negative outcomes (such as reduced job satisfaction). The finding that operational stress had a significant positive relationship with job satisfaction contradicts the traditional paradigm.

These results instead offer support for the emerging contemporary view that stress at work can enhance a person's contentment, either contextually or globally, by providing an opportunity for growth. The finding gives credence to the suggestion that police officers embrace operational stressors, which may be what attract them to and retains them in the role. Individuals can be motivated to become, and remain police officers for different reasons. Assuming most are attracted to the role for the job content, operational exposure gives officers the opportunity to help people. It also gives them the opportunity to practice and advance their skills, and thus develop a sense of mastery. This has been shown to be associated with psychological phenomena that are conducive to well-being, such as self-efficacy (Stetz et al., 2006) and an internal locus of control (Fusilier et al., 1987).

The positive relationship found between operational stress and job satisfaction might also shed some light on results from studies which have indicated that despite what police officers are called upon to deal with, they tend to report similar or higher levels of job satisfaction compared with those in occupations considered to be less stressful (Hart, 1999). This conclusion can only be provisional, as no norm-group comparison of job satisfaction scores was undertaken.

### *6.3 Organisational stress*

The finding that organisational stress was much stronger than operational stress in predicting general well-being and job satisfaction is consistent with results of previous studies. Burke and Paton (2006) found that once organisational stress had been accounted for, in the initial stages of their analyses, operational stress no longer had a significant relationship with job satisfaction. In the final stages of their analysis this relationship became significant and was, as in the current study, also shown to be positive. Huddleston, Stephens and Paton (2007) compared the effects of both trauma exposure and organisational stressors in the appearance of psychological distress in a New Zealand police population. They also found that organisational stressors had the strongest effect.

The significant relationship between organisational stress and general well-being in this study also offers support for Selye's theory that a stress response is a non-specific reaction. This states that the manifestation of strain is not necessarily reflective of the source of stress. The GHQ was originally designed for use in clinical settings to detect psychiatric disturbances. Such psychological states have typically been more closely aligned with traditional conceptualisations of police stress. This finding also shows the global impact that stress generated at work can have on officers' quality of life. Job satisfaction is a context-specific measure of strain, however general well-being is a non-contextualised measure.

Together these findings provide evidence to support a shifting paradigm of police stress, revealing that organisational stressors are just as important, if not more important in determining police officers' well-being. It has been suggested that the greater impact of organisational stressors may be due to the fact that these stressors are less expected than operational stressors (Huddleston et al., 2006). They also offer support for the theory that

positive and negative outcomes of stress are not bipolar dimensions of the same continuum, and can occur concurrently: operational stress had a positive relationship with job satisfaction and organisational stress had a negative relationship. The presence of a negative relationship between operational stress and general well-being (at higher levels of supervisor communication) and a positive relationship with job satisfaction may also offer support the suggestion that positive and negative outcomes are not discrete entities (Hart, 1999)

#### *6.4 Supervisor Support*

It was not anticipated that most types of communication with supervisors had a significant exacerbation effect on a negative relationship between operational stress and general well-being. Although it was not predicted given that talking is generally accepted to be an adaptive way of coping with some of the job-content stressors police officers face, the expectation arose that any significant moderating effects would be “buffering” (Cohen & Wills, 1985). This would mean that talking with police supervisors would be a protective factor for officers in terms of the level of strain experienced as a result of workplace stress.

Stephens, Long, and Miller (1997) made the observation that throughout the social support literature the increase in explained variance when significant moderating effects are found is often uncomfortably low. The results of this study are mostly consistent with this observation. The changes in  $R^2$  resulting from interaction effects between operational stress and supervisor communications were relatively small (maximum  $\Delta R^2 = 2\%$  (disturbing communications)) and may appear to have little practical importance. It is suggested here that the salient point is that the negative relationship between operational stress and general well-being only became significant once frequency of communication with supervisors reached at least moderate levels. The change in  $R^2$  resulting from the interaction

between organisational stress and positive supervisor communication had comparatively greater practical importance ( $\Delta R^2 = 13\%$ ), and was significant at all levels of communication frequency.

Despite the empirical evidence and general acceptance that talking (as a form of social support) is an adaptive coping strategy, neutral, reverse buffering and direct negative effects have been found in a number of different settings (e.g., Beehr & Kaufmann, 1986, 1989; Hobfoll and London, 1986), including policing organisations (e.g., Stephens, 1996; Stephens & Long, 2000). Stephens, Long and Miller (1997) found that communication about negative aspects of work with both peers and supervisors was positively related to traumatic stress symptoms. Beehr and Kaufmann (1989) found that police officers who experienced more functional (evidence that others are receptive to one's needs), instrumental support reported greater levels of strain.

The fact that ease of communication was the only aspect of supervisor communication that did not show a reverse buffering effect was an interesting finding. A number of studies have found ease of talking to be a protective factor in the stressor-strain relationship (Evans et al., 2013; Stephens, 1996; Stephens & Long, 2000; Stephens, Long & Miller, 1997). Given the problems identified in the univariate properties of this subscale score, the failure to find any kind of significance in this aspect of communication may be due to measurement error.

There are a number of possible explanations for these findings. The scale measured frequency of communication with supervisors which, in itself, did not give an indication of how superficial this communication was (Cohen & Wills, 1983; Pasciak, 2012). Greater levels of communication might increase expectations of intangible support: if the communication was superficial, it may have failed to meet these expectations and help in alleviating

negative psychological states. Charuvastra and Cloitre (2008) suggested that positive social interaction can facilitate adaptive stress responses, whereas negative or even neutral interactions can heighten and maintain maladaptive responses. That is, instead of supporting the formation of positive, adaptive cognitive appraisals, talking to others might affirm, consolidate and/or magnify negative, maladaptive appraisals.

Another possibility, proposed by Evans et al. (2013), is that “unsupportive, unreceptive, and critical responses” (p. 2) might discourage further talking, and increase cognitive avoidance and suppression, which are widely accepted as being maladaptive psychological habits. These theories are helpful for understanding the reverse buffering effects of negative and disturbing communications that were found in this study. The latter may also serve, in part, to explain the reverse buffering effects of positive and non-job communications. These types of communication may also encourage avoidance and suppression by acting as distractors or creating the need to engage in surface acting (Landy & Conte, 2010).

Reflecting on these theories, it is necessary to consider the fact that although supervisor support had a reverse buffering effect, peer support did not. Differences between the two sources of social interaction might be reflective of the different psychological dynamics that exist in relationships where there are formal and informal disparities of power. Beehr et al. (2003) suggested that people more senior in the hierarchy have more formal power than people lower in the hierarchy and demand characteristics from their messages might have more powerful effects in terms of strains.

Another point to note is that supervisors are responsible for performance development and management, and may have an influence over future job prospects (both promotion and lateral movements). If subordinates have been socialised to believe talking might make

them appear weak, the power supervisors have over their current and future working conditions could encourage surface acting (Landy & Conte, 2010). Another key responsibility of supervisors is to facilitate and encourage job control and autonomy, which the demand-control-support model of workplace stress identifies as a protective factor (Noblet et al., 2009). Greater frequency of communication with supervisors may influence subordinates' perceptions of how much control and autonomy they have.

The reverse buffering effect of positive communications on the relationship between organisational stress and general well-being calls for a slightly different explanatory approach. The interaction effect was significant at all levels of communication frequency, and was considerably greater in terms of variance explained. An important factor for understanding this is that interactions at work (with both supervisors and peers) featured as one of the domains of organisational stress, but not as a domain of operational stress. Beehr et al. (2003) suggested cognitive dissonance might occur when the source of stress and support are the same it creates internal conflict, which creates tension and adds to the person's strain thus creating a reverse buffering effect. If supervisors are a source of stress at work, engaging with them about positive aspects of the job in particular could generate dissonance and also create the need to engage in surface acting.

Reflecting on these findings, it is important to give consideration to the support the supervisors are receiving themselves. They are also humans, and subject to the same human effects of stress and social support as their subordinates. Solomon and Smith (1994) discussed how the demands on a social network for support occur at a time when all members may have need of support, which makes the provision of support a highly stressful

event in itself. This potentially reduces the quality of support offered. This may be particularly true in policing organisations, given the functions they serve.

Other organisational factors may account for these findings. The traditionally hyper-masculine police culture is often identified as a barrier to officers seeking, accepting and offering social support, both with colleagues and outside of work (Pasciak, 2012). This organisational culture determines what types of conversations are acceptable, and what reactions to operational experiences are acceptable (Frewin, Stephens & Tuffin, 2006). Sharing of emotional experiences is not an aspect of support that is often found in police culture (Pasciak, 2012).

It is suggested here that the traditional, global characterization of police culture has a limited ability to explain the findings of social support research in policing organisations. According to Schein (1990), culture is a fairly stable organisational trait that is resistant to change and therefore slow to evolve. While a plethora of evidence supports the presupposition that police culture acts as a barrier to social support, it is suggested here that the inconsistency in research findings is also likely to reflect the influence of sub-cultures and organisational climate (Huddleston et al., 2006; Paton et al., 2008). While culture is often associated with cognitive variables such as beliefs and values, organisational climate is more commonly associated with affective states (Landy & Conte, 2010).

Hart and Cooper (2001) described organisational climate as officers' perceptions of how their organisation functions, and propose that these perceptions influence both officers' well-being and performance. James and McIntyre (1996, cited in Landy & Conte, 2010) asserted that the construct of organisational climate is made up of four dimensions: role stress and lack of harmony, job challenge and autonomy, leadership facilitation and support,



and work group cooperation, friendliness and warmth. An organisation's climate is more changeable than its culture, as the factors it is theorised to be made up of are more vulnerable to changing environmental conditions such as resourcing and organisational structure (for example, centralization to decentralization) (Landy & Conte, 2010).

In the 21st Century global work environment, organisations are having to fight harder to acquire, retain and expand of pools of resources. The environment is changing constantly and rapidly. Organisations therefore have to change constantly and rapidly in order to be able to survive (Clegg & Walsh, 2004). Although policing organisations are not-for-profit, the national economic environment impacts on budget allocations, and thus impacts on the operating strategies of public sector agencies. The amount of organisational change that has occurred in the New Zealand Police over the last five years (New Zealand Police, 2015) may have destabilized some of the formal and informal relationship structures within the organisation, impacting on the levels of trust that exist between the ranks. Trust is regularly identified by police officers as an important feature in their decision to talk about their experiences, and the personal impact that talking has on their well-being (Barker & Camarata, 1998).

#### *6.5 Peer Support*

The positive relationships between disturbing and negative peer communications and operational stress indicates that those who talked more to their peers about these aspects of the job tended to report higher levels of operational stress. Conversely, the negative relationships between positive and non-job peer communications and operational stress suggests these who engaged more in these types of discussions reported lower levels of operational stress.

The consistency of these findings with that of previous studies is variable. Similarly to this study, Stephens et al. (1997) found that talking with peers was generally associated with lower self-reported symptoms of PTSD, but talking about negative aspects of work was associated with a greater number of PTSD symptoms. Inconsistent with this study, they also found that ease of talking about trauma had the strongest impact.

Ease of talking about trauma has been found to be an important aspect of peer support in other studies as well (e.g., Stephens & Long, 2000), and it is suggested that the non-significant findings in this study may be explained by the way ease of communication was measured. The univariate properties of this subscale (with two items) showed an abnormal distribution. Inclusion of an item regarding ease of talking about experiences in the organisation might have affected interpretation of, and subsequently response tendencies towards the original ease of communication item. The findings of Stephens et al. (1997) relate to the relationship between peer support and the experience of strain, whereas the findings discussed above relate to peer communication and the experience of stress. Nonetheless, it is relevant and useful to compare the results given the relationship between stressors and strains.

In a study using a very similar scale, Stephens and Long (2000) found that, at moderate levels, talking to peers about negative and disturbing work experiences was a buffer in the stressor-strain relationship. Talking with peers about non-work matters was found to have a reverse buffering effect. These findings compared to that of the present study paint a confusing picture. The positive relationship found between negative and disturbing communications and operational stress in this study suggests that these types of peer communication could be associated with higher levels of strain (given the relationship

between stressors and strains). By the same token, the negative relationship between non-job communication and operational stress suggests talking about non-work matters could be associated with lower levels of strain. The finding that operational stress had a significant positive relationship with job satisfaction highlights the complexity in defining strain. The comparisons with Stephens and Longs' (2000) study are made tentatively, given that the measures and analyses that produced the two sets of findings were quite different.

The finding that disturbing peer communications had a non-significant relationship with organisational stress was predictable, as this subscale specifically tapped operational stressors. The findings that negative communication had a positive relationship with organisational stress, and that non-job and positive communications had a negative relationship were also predictable when considered alongside some of the theories, which have previously been outlined. For example, talking about negative aspects of organisational life is more likely to create or reinforce a negative appraisal of the job context. Although it has been proposed that these types of discussions can have a cathartic effect, these findings suggest that having these discussions with peers may not be conducive to well-being. Organisational stress had a much greater impact on measures of well-being than operational stress did, and negative communication with peers had a stronger effect ( $\beta = .52, p < .001$ ) on organisational stress than any other type of communication (non-job:  $\beta = -.27, p < .001$ ; positive:  $\beta = -.08, p < .05$ ).

There are a number of possible explanations for these findings. Talking about negative and disturbing aspects of work with peers may cause officers to focus on these stressors and ruminate, reinforcing negative situational appraisals. This might occur if officers are not equipped to help each other normalise stress reactions, either because they do not know

themselves what a normal stress reaction is (for any given individual), or what should be (rather than what *is*) a socially acceptable stress reaction. These suggestions are made with reference to both operational and organisational stressors.

Another possibility is that peers may be under similar stress at the same time and may not have the emotional energy to help each other reframe negative and disturbing experiences. Talking could lead to cognitive dissonance, over-exposure and/or transferred stress, depending on the extent to which a peer engages in surface or deep acting (Landy & Conte, 2010). The negative relationships between non-job communication and both sources of stress suggests that this type of communication may actually be a healthy activity.

In terms of variance explained, peer interactions accounted for a greater amount of difference between individuals' scores (operational stress: 16%, organisational stress: 25%) than the significant interaction effects of supervisor communications did. There are a number of reasons why peer interactions may be particularly important in the workplace. There are no formal power dynamics, therefore some of the factors that may encourage impression management with supervisors are not present. Peers may share more experiences together, are likely to be facing similar pressures and spend more time together. Time spent together could have both positive and negative outcomes, but one positive outcome is that it might facilitate development of trust.

#### *6.6 Generalisability*

The districts and ranks that were sampled were specifically chosen to increase the generalisability of the results. Together they provide a broad coverage of possible operational and organisational experiences. The ranks chosen generally perform different core functions thus face, or have the potential to face, differences in type and/or frequency

of exposure to various operational stressors. The districts chosen capture a range of the factors that can effect type and frequency (Reiss, 1986), such as: size of the communities, economic drivers within communities (urban versus rural), and the socio-economic status of communities. A number of factors also have the potential to effect type and/or frequency of exposure to organisational stressors across these ranks and districts, for example differences in resource allocation priorities and practices, and differences in role demands.

However, there are particular ranks and work groups that were not sampled due to the nature of the roles they typically perform. This limits the generalisability of the findings to both the New Zealand police and uniformed populations from other policing jurisdictions. Commissioned officers, those holding the rank of inspector and above, were not deliberately sampled because they generally hold roles in which they are unlikely to be routinely exposed to day-to-day operational stressors, as it was defined and measured in this study. The nature and level of responsibility they have may impact on the types and levels of occupational stressors they face.

#### *6.7 Other limitations*

Some of the other limitations of this study have been examined in the methodology, results and discussion chapters (for example, potential bias in the police stress scores and ambiguity in interpreting the GHQ-12 response scale). Other limitations include the cross-sectional design of the study, which prevents conclusions being drawn about the direction of the relationships between the constructs of interest. The missing values pattern indicated that people may have become fatigued with the survey and/or may have found the general well-being questions overly sensitive or otherwise difficult to answer. This could have had a negative impact on the reliability of the GHQ-12 scale. The different valences associated

with the words distress and well-being have the potential to introduce bias. Even though the GHQ-12 can produce scores for distress or well-being, the decision to label the construct 'general well-being' and score it accordingly may have affected response behaviours. The data analysis techniques used have a limited capacity to elucidate the relationships examined. Other researchers have suggested that these relationships would be better understood if the more sophisticated technique of structural equation modelling was employed (e.g., Burke & Paton, 2006).

### *6.8 Conclusions*

The findings of this study support the emerging contemporary view of police stress, that job context is as important, if not more important as job content in determining the well-being of police officers. The findings also offer support for both the moderating and main effect hypotheses of the role social support plays in the stressor-strain relationship. However, the nature of the impact, in particular the reverse buffering effect of supervisor communication that was found, raises questions about whether it is appropriate to recognise frequency of verbal communication as a measure of social support. The term 'support' has positive connotations. This study has shown that greater frequency of communication about certain topics, and with certain people, can be harmful rather than helpful. Attention is drawn to Solomon et al.'s (1987) discussion about the evidence for a distinction between social support and social interaction. Although the traditional conceptualisation of police stress connect it, most saliently, to trauma theory and clinical psychology, the findings of this study suggest that police officers have more in common with workers in other industries than has previously been accepted. It is therefore suggested that police stress is a domain requiring

greater involvement of and collaboration between specialists from a number of different fields of psychological practice.

#### *6.9 Practical implications and recommendations for future research*

The findings of this study may be used to help inform the development of formal and informal peer support networks, by highlighting the particular importance of peer relations at work in the maintenance of officer well-being. Also, for offering guidance on the types of conversations they should be engaging in and encouraging among co-workers. These findings may also be useful for leadership development, by drawing the attention of supervisors to the global impact their interactions with subordinates can have. Also, for raising their awareness of some of the individual and organisational factors that might undermine the establishment and maintenance of functional supervisor-subordinate relationships. In order to offer guidance to police supervisors on conversing with subordinates around operational stressors, further research is needed in order to better understand which of the suggested explanations (or other explanations) might account for the reverse buffering effects found in this study.

Other suggestions for future research include investigating the role gender and ethnicity play in the police stressor-strain experience. Ethnicity, particularly the Caucasian ethnicity, and being female were shown to be significant predictors of some of the constructs of interest. No commentary is offered on what might account for these significant associations because of the way these individual differences were measured in this study. Biological identity is not necessarily an accurate depiction of gender and cultural social identities. These latter identities are thought to be the product of complex interactions between internal (biology) and external environmental conditions, and help shape the lenses through

which an individual makes sense of the world (Haslam, 2001). This process of sense-making appears to play an important part in the experience of police stress, and it is suggested that only using biological identity to explain these significant associations may generate crude or inaccurate conclusions.



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**Appendix A. Letter to participants**

(ON MASSEY UNIVERSITY LETTERHEAD)

(Date)

Dear....

My name is Fiona Johnston and I am studying towards a Master of Arts in Psychology. I am inviting you to take part in a research project I am doing on the role of support from police peers and supervisors in preventing or minimizing the negative effects of police stress.

I work full-time as a police constable in the Wellington District. I am doing this study independently of my operational role and membership in New Zealand Police.

I chose to undertake this project because I want my colleagues to find their work rewarding, be able to do their jobs well, and, generally, to lead enjoyable lives. Your part in this project would involve completing a questionnaire of about 125 questions. It should take about 20 minutes. These questions will be about operational and organisational stressors you are currently experiencing, how satisfied you are in your job, your psychological health, and how much support you are getting at work.

Participation is voluntary, and will be anonymous. Please see the attached Information Sheet for details on steps that will be taken to protect your anonymity.

This Information Sheet also contains further details on the background to the project, how you will receive the questionnaire, and what will happen with the results.

I would really appreciate you taking the time to help me with this. If you have any questions, you can contact me at [fiona.johnston@police.govt.nz](mailto:fiona.johnston@police.govt.nz). Alternative contacts for me are listed on the Information Sheet. You can also talk to my thesis supervisor Dr Ian de Terte ([i.deterte@massey.ac.nz](mailto:i.deterte@massey.ac.nz)).

Many thanks,

*(Signed)*

Fiona Johnston

## Appendix B. Information Sheet

(ON MASSEY UNIVERSITY LETTERHEAD)

### Police stress, Job Satisfaction and General Well-being: The Protective Effects of Social Support

#### INVITATION

You are being invited to take part in a research project on the role of support from police peers and supervisors in preventing or minimizing the negative effects of job stress. You have been selected based on your operational and organisational experiences in a policing organisation.

#### PEOPLE BEHIND THE PROJECT

##### *The researcher:*

My name is Fiona Johnston and I am studying through Massey University towards a Master of Arts in Industrial and Organisational Psychology. I also work full-time as a sworn police member, currently working in the Wellington District. I am doing this study independently of my operational role and employment in New Zealand Police. I chose to undertake this project because I want my colleagues to find their work rewarding, be able to do their jobs well, and, generally, to lead enjoyable lives.

##### *My supervisor:*

This project is being supervised by Dr Ian de Terte, a senior lecturer in Clinical Psychology at Massey University. Ian was a detective for **the** New Zealand Police prior to becoming a Clinical Psychologist.

## **BACKGROUND TO PROJECT**

Job stress is a major occupational hazard for police officers. Both operational and organisational experiences can generate this stress, and it is crucial that police officers have effective methods for managing and minimizing the negative impact it can have. Negative outcomes for physical health include lowered immunity, headaches, musculoskeletal pain and cardiovascular disease. Negative outcomes for psychological health include increased risk of developing posttraumatic stress disorder, depression, anxiety and tendencies to abuse alcohol. It can also affect motivation, performance, and the amount of satisfaction officers get from their jobs. Research has shown that support from police peers and supervisors can protect officers against the negative effects of police stress. Findings have been mixed and further investigation is needed in order to establish when and how this support is most beneficial. Clarifying this will help individual officers, and the policing organisation as a whole, work to ensure social support networks are properly established, developed, and maintained.

## **WHAT WILL HAPPEN**

For this study, you will be asked to complete a questionnaire comprising questions about operational and organisational stressors you are currently facing, what your levels of well-being and job satisfaction are, and how much support you are getting from police peers and supervisors. A link to this questionnaire will be sent to your work email addresses. I will send out a reminder when the survey is going to be end. You can complete it at a time, location, and a setting that suits you. If you wish to complete it in a location and setting from which you do not have access to the police Outlook email system, you can forward the link to an alternative email address. The questionnaire should take approximately 20 minutes to complete on-line. You can contact Fiona if you wish to complete a paper-based copy of the questionnaire. Responses will be analysed collectively using statistical techniques, but no individual will be able to be identified.

An executive summary of the results will be provided to participants on request and will be on the web (URL to be advised via email when the responses have been analysed). This executive summary will also be provided to the organisation's research committee. The study may be submitted to a peer reviewed journal, and the results may be disseminated via a conference presentation. A copy of the thesis will be deposited in the police library and the Massey University library.

#### **RISK OF HARM**

Participating in this study is not anticipated to cause you any discomfort or distress. If completing the questionnaire does cause you harm or distress you can contact your regular general practitioner or a clinical psychologist. A list of clinical psychologists can be obtained from <http://www.nzccp.co.nz> and <http://www.psychology.org.nz>. Please note there will be a charge that you will be responsible for if you consult a clinical psychologist. There is also the option of contacting your local police welfare officer.

#### **CONFIDENTIALITY/ANONYMITY**

Participation will be anonymous. Responses will be recorded, under a confidentiality agreement, by IT services at Massey University. Any particulars that could identify you, such as name, QID and work address, will be removed from the data before it is accessed by Fiona or Ian. No-one else will have access to this data. You have the right to decline to answer any particular questions. The completed paper-based copies can be returned anonymously via post.

#### **PARTICIPANTS' RIGHTS**

Participation is voluntary. It is encouraged, the more people that fill out the questionnaire the more informative the results will be. However, you are under no obligation to accept this invitation. There are no anticipated negative consequences for you, professionally or personally, whether or not you chose to participate. Completion of the questionnaire implies consent. To re-iterate, you have the right to decline to answer any particular question

## FOR FURTHER INFORMATION

If you have any questions about this project do not hesitate to contact:

- Fiona Johnston (the researcher) at -  
fiona.johnston@police.govt.nz OR [fionajohnston55@yahoo.co.nz](mailto:fionajohnston55@yahoo.co.nz) OR  
on 021 399 789
- Dr Ian de Terte (research supervisor) at –  
i.deterte@massey.ac.nz

This project has been reviewed and approved by the Massey University Ethics Committee: Southern B, Application: 14/33. If you have any concerns about the conduct of this research please contact Prof John O'Neill, Acting Chair, Massey University Human Ethics Committee: Southern B, telephone (06) 350 5799 ext. 81090, email: [humanethicsouthb@massey.ac.nz](mailto:humanethicsouthb@massey.ac.nz)

## Appendix C. Approved Changes to PDHS

The mentioned changes made to the PDHS for this study were:

- Minor jargon amendments to better fit the organisational culture, for example from “Dirty *mess* rooms” to “Dirty *meal* rooms”.
- Item removal: “Station instability”. Feedback from members of the pilot group indicated mixed interpretation of what constituted station instability, so the item was removed to try to reduce any impact this may have had on reliability.
- Several item additions: single items referring to managers, collectively, were split into two items to enable participants to comment separately on stressors relating to senior managers and line supervisors. For example, the original item “A lack of encouragement from senior managers” was split into: “A lack of encouragement from senior managers” and “A lack of encouragement from my line supervisor”. The item “Departmental handling of complaints” was also split into two, to enable participants to differentiate between aspects of the complaint handling. This item became: “The process for handling complaints against staff” and “Time taken to resolve complaints against staff”. An item “The push for the progression of women in policing” was added alongside the item “Jobs for the boys (“boys club”), as this is a highly topical issue relating to the strategic direction of the New Zealand Police.
- The time over which to consider the negative experiences was extended. The original PDHS asks participants to consider these experiences over the past month. Pilot group members communicated that this time frame was frustratingly short, and suggested a three month time frame would be better received by participants.



## **Appendix D. Social Support Scale**

“Rate the following items in terms of frequency over the last 3 months, first with reference to your peers (those of the same rank) and second with reference to your supervisor(s) (any superior(s), either line supervisor(s) or senior manager(s))”. [A five point scale: never-rarely-occasionally-frequently-very frequently].

### Communication about non-job topics

- We discuss things that are happening in our personal lives
- We talk about off-the-job interests that we have in common
- We share personal information about our background and families
- We talk about off-the-job social events

### Communication about negative aspects of work

- We talk about how we dislike some parts of our work
- We talk about the bad things about our work
- We talk about problems in working with the public
- We talk about how this station is a lousy place to work

### Communication about positive aspects of work

- We talk about the good things about our work
- We share interesting ideas about police work
- We talk about how this station is a good place to work
- We talk about the rewarding things about being a police officer

### Communication about disturbing events

- We talk about jobs that have been personally distressing
- We discuss parts of the job that are upsetting
- We discuss situations on the job that have been terrifying

### Ease of Communications

- It is easy to talk about experiences on the job that I have found difficult
- It is easy to talk about experiences in the organisation that I have found difficult

### **Appendix E. General Well-being Scale (GHQ-12)**

“Indicate the extent to which you have experienced/felt the following over the last 3 months”

[Four-point Likert scale: less than usual, no more than usual, rather more than usual, or much more than usual].

1. Able to concentrate
2. Capable of making decisions
3. Face up to problems
4. Lost sleep over worry
5. Constantly under strain
6. Could not overcome difficulties
7. Unhappy and depressed
8. Loss of confidence in self
9. Thinking of self as worthless
10. Play useful part in things
11. Enjoy day-to-day activities
12. Reasonably happy

## **Appendix F. Job Satisfaction Inventory (JSI)**

“Indicate how the following statements best describe how you feel about your present job”.

[Five-point Likert scale: strongly agree, agree, undecided, disagree, strongly disagree].

1. My job is a hobby to me.
2. My job is usually interesting enough to keep me from getting bored.
3. It seems that my friends are more interested in their jobs.
4. I consider my job rather unpleasant.
5. I enjoy work more than my leisure time.
6. I am often bored with my job.
7. I feel fairly well satisfied with my present job.
8. Most of the time I have to force myself to go to work.
9. I am satisfied with my job for the time being.
10. I feel that my job is no more interesting than others I could get.
11. I definitely dislike my work.
12. I feel that I am happier in my work than most other people.
13. Most days I am enthusiastic about my work.
14. Each day of work seems like it will never end.
15. I like my job better than the average worker does.
16. My job is pretty uninteresting.
17. I find real enjoyment in my work.
18. I am disappointed that I ever took this job.

**Appendix G. Principal Components Factor Analysis Results**

Component	Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	
1	36.780	29.662	29.662	36.780	29.662	29.662	31.009
2	8.261	6.662	36.324	8.261	6.662	36.324	28.716

Extraction Method: Principal Component Analysis.

**Appendix H. Descriptive Statistics**

	N	Min.	Max.	Mean		SD	Skewness		Kurtosis	
				Mean	SE		SE	SE	SE	SE
General Well-being	687	.00	12.00	6.45	.10	2.63	.14	.09	-.02	.19
Job Satisfaction	687	36.00	90.00	66.44	.36	9.39	-.50	.09	.38	.19
Operational Stress	687	2.00	285.00	117.89	2.02	52.98	.23	.09	-.25	.19
Organisational Stress	687	.00	278.71	112.05	2.25	59.06	.28	.09	-.43	.19
Peer Non-job	687	4.00	20.00	13.42	.13	3.39	-.29	.09	-.09	.19
Peer Negative	687	4.00	20.00	12.48	.12	3.10	-.07	.09	-.31	.19
Peer Positive	687	4.00	20.00	12.63	.11	2.97	-.03	.09	-.15	.19
Peer Disturbing	687	3.00	15.00	7.66	.10	2.52	.36	.09	.06	.19
Peer Ease	687	2.00	10.00	5.75	.07	1.82	-.06	.09	-.42	.19
Peer Total	687	16.00	76.00	49.08	.35	9.20	-.22	.09	.39	.19
Supervisor Non-job	687	4.00	20.01	10.86	.14	3.59	.12	.09	-.21	.19
Supervisor Negative	687	4.00	20.00	9.24	.12	3.11	.31	.09	-.09	.19
Supervisor Positive	687	4.00	20.00	10.95	.13	3.39	-.06	.09	-.37	.19
Supervisor Disturbing	687	3.00	13.00	6.40	.10	2.51	.39	.09	-.48	.19
Supervisor Ease	687	2.00	10.00	4.86	.08	1.97	.21	.09	-.61	.19
Supervisor Total	687	16.00	72.00	39.89	.42	11.01	-.09	.09	-.22	.19
Age	687	19.00	64.00	40.23	.34	8.91	.03	.09	-.57	.19
Length of service (in years)	687	-2.37	41.00	12.51	.32	8.37	.75	.09	.04	.19
Valid N (listwise)	687									

**Gender**

	Frequency	Percent
Valid		
Male	524	76.3
Female	163	23.7
Total	687	100.0

**Relationship Status**

	Frequency	Percent
Valid		
Single	94	13.7
De facto relationship	153	22.2
Married	435	63.3
Civil union	5	.7
Total	687	100.0

**Ethnicity**

	Frequency	Percent
Valid		
Caucasian	552	80.3
New Zealand Maori	54	7.9
Asian	11	1.6
Polynesian	38	5.5
Indian	6	.9
Other (Please specify)	26	3.8
Total	687	100.0

**Rank**

	Frequency	Percent
Valid		
Constable	312	45
Senior Constable	82	12
Sergeant	99	14
Senior Sergeant	34	5
Detective Constable	41	6
Detective	58	8
Detective Sergeant	33	5
Detective Senior Sergeant	17	3
Inspector	2	0
Superintendent	1	0
Other	8	1
Total	687	100.0

**Level of Education**

	Frequency	Percent
Valid		
NCEA Level 1 or Equivalent	140	20
University Entrance, Bursary or NCEA level 3	157	22
Tertiary certificate or diploma	216	30
Bachelor's degree	148	22
Postgraduate	26	4
Total	687	100.0

**Appendix I. 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	26	27	28	29	30	31	32					
1. Op. Stress	1																																				
2. Orig. Stress	**-.69	1																																			
3. Well-being	**-.17	**-.29	1																																		
4. Job Satisfaction	**-.22	**-.41	**-.43	1																																	
5. Age	**-.16	.01	*.08	-.03	1																																
6. Service (yrs)	**-.19	.01	*.08	-.07	**75	1																															
7. Gender	-.04	-.03	*.10	.00	**-.13	**-.18	1																														
8. Caucasian	-.05	-.08	**-.15	-.07	.03	*.10	.01	1																													
9. NZ Maori	.00	-.01	*.10	.05	.04	.00	.05	**-.59	1																												
10. Asian	.07	.08	.02	.00	*.09	-.11	-.07	**-.26	-.04	1																											
11. Polynesian	.05	.07	.05	.03	-.07	-.09	-.02	**-.05	-.07	-.03	1																										
12. Indian	-.03	-.01	**0.12	.02	-.06	*.08	.02	**-.19	-.03	-.01	-.02	1																									
13. Other Ethnic	.01	.04	.05	.02	.05	.02	-.04	-.40	-.06	-.03	-.05	-.02	1																								



	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	26	27	28	29	30	31						
14. Single	.03	.00	.00	.03	**-.13	**-.11	**-.23	-.03	-.01	.02	.00	.01	.05	1																							
15. De Facto	.05	.01	-.04	.02	**-.19	**-.18	**-.12	.02	.00	-.04	.03	-.05	-.03	**-.21	1																						
16. Married	-.06	-.01	.03	-.04	**-.26	**-.25	**-.28	-.01	.01	.03	-.03	-.04	-.01	**-.52	**-.70	1																					
17. Civil Union	.02	.01	.00	.01	-.03	-.05	.07	.00	-.03	-.01	.05	-.01	-.02	-.03	-.05	**-.1	1																				
18. Constable	**-.14	.04	*.09	.02	**-.46	**-.65	**-.12	*-.09	.03	.07	*.10	.04	-.03	*.08	**-.15	*-.20	.06	1																			
19. Snr Constable	**-.13	-.01	-.04	-.01	**-.37	**-.40	.00	-.01	.04	-.05	-.01	-.03	.02	.01	-.03	.03	-.03	**-.33	1																		
20. Sergeant	.01	.00	-.01	.03	**-.22	**-.31	*-.10	.06	-.01	-.05	-.06	-.04	.03	-.05	-.01	.06	-.04	**-.37	**-.15	1																	
21. Snr Sgt	-.06	.02	.03	.04	**-.11	**-.19	*-.08	.06	-.02	-.03	-.06	-.02	-.01	-.05	-.07	*.01	-.02	**-.21	*.08	*-.09	1																
22. Det. Constable	.00	-.03	-.06	-.07	**-.15	**-.13	.00	-.01	-.01	.02	-.01	**-.1	-.02	.02	-.04	.01	-.02	**-.23	*-.09	*.10	-.06	1															
23. Detective	-.02	.00	-.06	-.07	-.01	.05	.03	.02	-.05	.04	.00	-.03	.02	-.04	-.05	*.08	-.03	**-.28	**-.11	**-.1	-.07	-.08	1														
24. Det. Sgt	-.02	-.03	-.05	.03	**-.12	**-.17	-.01	.03	-.02	-.03	-.02	-.02	.03	-.01	*.09	.07	.06	**-.20	*-.08	*.09	-.05	-.06	-.07	1													
25. Det. Snr Sgt	-.07	*.08	.04	.05	**-.15	**-.25	*-.09	*.08	-.05	-.02	-.04	-.01	-.03	-.04	-.04	.06	-.01	**-.14	-.06	-.07	-.04	-.04	-.05	-.04	1												
26. Inspector	.04	.01	-.03	-.03	.01	.02	-.03	-.04	*.08	-.01	-.01	-.01	-.01	-.02	-.03	.04	.00	-.05	-.02	-.02	-.01	-.01	-.02	-.01	1												
27. Supt	-.06	-.07	-.04	*-.10	-.01	.02	-.02	*-.08	**-.13	.00	-.01	-.01	-.01	-.02	-.02	.03	.00	-.03	-.01	-.02	-.01	-.01	-.01	-.01	-.01	1											
28. Other Rank	.04	.03	.01	.01	-.07	*-.10	.07	.02	-.03	-.01	-.03	-.01	-.02	.00	.07	-.06	-.01	*.10	-.04	-.04	-.02	-.03	-.03	-.02	-.02	-.01	.00	1									
29. NCEA Lt/Eq	.06	.00	-.03	-.01	**-.15	.07	*-.08	.02	.04	-.06	-.03	-.05	.00	-.04	-.07	*.10	-.04	-.02	*.10	-.02	-.06	.01	-.02	-.01	-.03	-.03	-.08	.05	1								

	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	26	27	28	29	30	31	
30. Uni Erit	-06	-04	-02	.00	-04	.06	.02	-01	-03	-07	.06	-01	.04	.02	.00	-03	.04	-02	.07	-05	.04	.00	-03	.06	.01	-03	-02	-06	**-.26	1		
31. Undergraduate	.03	.02	.07	.02	.01	-01	-05	*-.02	*.09	-03	.02	.01	.05	-03	.06	-02	-02	.06	-05	*.09	.02	-07	-05	-07	.00	-04	-03	-01	**-.33	**-.35	1	
32. Graduate	.00	.01	.00	.00	**-.18	**-.16	**-.13	*.08	-07	**-.13	*.08	.03	-07	*.09	-03	-06	.04	.01	*.11	-05	-01	.05	.07	.06	-02	*.10	-02	.01	**-.26	**-.27	**-.35	1
33. Postgraduate	-04	.02	-05	-03	.00	.01	.03	.02	-06	-10	-01	.06	-04	-03	.01	.02	-02	-07	-07	.03	.03	*.08	.05	-04	**-.12	-01	-01	.05	*.10	*.10	**-.13	*.10

Note: Listwise N=687, \* =  $p < .05$ , \*\*  $p < .001$

**Appendix J. Pearson's Product-moment Correlations Including Peer Support Scores (partial matrix)**

	1	2	3	4	5	6	7	8
1. Operational Stress	1							
2. Organisational Stress	.69**	1						
3. Peer Total Communications	.20**	.07	1					
4. Peer Non-job Communications	.05	-.09*	.80**	1				
5. Peer Negative Communications	.36**	.40**	.64**	.41**	1			
6. Peer Positive Communications	.03	-.12**	.67**	.40**	.12**	1		
7. Peer Disturbing Communications	.17**	.06	.74**	.42**	.34**	.41**	1	
8. Peer Ease of Communications	.07	-.05	.68**	.44**	.25**	.48**	.64**	1
9. Age	-.16**	.01	-.16**	-.23**	-.10*	-.05	-.03	-.13**
10. Gender	-.04	-.03	.02	.06	-.05	-.06	.09*	.06
11. Length of service (in years)	-.19**	.01	-.15**	-.19**	-.08*	-.05	-.08*	-.11**
12. Caucasian	-.05	-.08*	-.05	.01	.03	-.08*	-.10*	-.06
13. Indian	-.03	-.01	-.03	-.03	-.08	.00	.04	.01
14. NZMaori	.00	-.01	.04	.03	-.02	.05	.04	.05
15. Asian	.07	.08*	-.02	.00	.00	-.04	-.04	-.01
16. Polynesian	.05	.07	.09*	.00	.03	.09*	.15**	.10*
18. Other Ethnic	.01	.04	-.03	-.04	-.03	.03	-.02	-.07
19. Single	.03	.00	.06	.09*	.03	.04	.01	.07
20. De Facto	.05	.01	.04	.04	.04	.00	.04	.01
21. Married	-.06	-.01	-.08*	-.10*	-.07	-.02	-.05	-.04
22. Civil Union	.02	.01	-.02	-.01	.01	-.04	.00	-.05
23. Constable	.14**	.04	.06	.09*	.10*	-.04	.02	-.01
24. Senior Constable	-.13**	-.01	.00	-.01	.02	.01	-.01	-.01

	1	2	3	4	5	6	7	8
26. Senior Sergeant	-0.06	.02	-.05	-.07	-.10*	.06	-.02	.00
27. Detective Constable	.00	-.03	.04	.06	.04	-.01	.04	.01
28. Detective	-.02	.00	.07	.11**	.06	-.01	.01	.08*
29. Detective Sergeant	-.02	-.03	-.08*	-.07	-.07*	-.01	-.07	-.05
30. Detective Senior Sergeant	-.07*	-.08*	-.02	.00	-.08*	.07	-.06	.01
31. Inspector	.04	.01	-.03	.01	-.01	-.01	-.07	-.05
32. Superintendent	.10	.07	.23	.45	.04	.64	.89	.89
33. Other Rank	.04	.03	.00	.05	-.06	.01	-.02	.00
34. NCEA L1 or equivalent	.06	.00	-.05	-.08*	.04	-.07	-.02	-.08*
35. University Entrance, NCEA L3 or Equivalent	-.06	-.04	.02	.05	-.01	.00	.01	.00
36. Tertiary Certificate/Diploma	.03	.02	.04	.02	.01	.05	.04	.02
37. Bachelor's Degree	.00	.01	.00	.04	-.02	-.01	-.04	.04
38. Postgraduate	-.04	.02	-.02	-.01	-.01	.01	-.05	.01

Note: Listwise N=687, \* =  $p < .05$ , \*\*  $p < .001$