Do Online Social Networks contribute to Social Connectedness and Wellbeing for ex-New Zealand Police officers?

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Abstract

Police officers are routinely exposed to a wide range of stressors as part of their operational day. Research has demonstrated that chronic exposure to stress can impact wellbeing. Police are not immune to this phenomenon, and an increased incidence of compromised wellbeing has been reported in police cohorts. Officers in active service are typically the focus of wellbeing research despite evidence that the detrimental effects of policing endure into retirement. Social connectedness is well supported in the research literature as a promoter of wellbeing. Over the last two decades, the internet and online social networking platforms have transformed how individuals and groups socially connect (Klimmt et al., 2018; Vorderer et al., 2017). Part of this transformation has been the rapid growth of online social networking platforms. In response to this growth, a burgeoning research interest in the effects of social network use on wellbeing has developed. This study used a cross-sectional research design to explore the relationships between social networking site use, social connectedness and wellbeing for a group of ex-police officers. Participants completed a survey assessing their social network site use, online social connectedness, loneliness and wellbeing. The research survey included the use of a scaled model of wellbeing based in te ao Māori, Te Whare Tapa Whā, in conjunction with a validated scale of wellbeing. No statistically significant relationships were observed between social network site use, social connectedness and wellbeing. A moderate positive relationship was observed between the validated wellbeing scale and the Te Whare Tapa Whā scale. Although participants overwhelmingly reported that their social network use was detrimental to their wellbeing, this was not reflected in the study's data analysis. This study contributes to the limited research with ex-police officers and provides exploratory data to inform future research with this population. Recommendations regarding research design and population engagement for this cohort are made. This study also provides exploratory evidence for the validity of a scaled version of Te Whare Tapa Whā as a quantitative measure of wellbeing.

Acknowledgments

He aha te mea nui o te ao

What is the most important thing in the world?

He tāngata, he tāngata, he tāngata

It is the people, it is the people, it is the people

Māori Proverb

For my heart: Holly, Alex, Felix, and Sam, without you this thesis would not exist. I have no words that could come close to describing your support. This work is your work too.

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Introduction

Policing is widely recognized as a highly stressful occupation, and the diverse range of stressors associated with policing and their outcomes have been a focus of research with the police cohorts (Violanti et al., 2017; Syed et al., 2020). A wide array of stressors have been identified for police from operation and organisational sources and through pervasive cultural stressors that have been associated with policing (Brough et al., 2016; Charman, 2017). With a wide array of stressors present in policing, it should be no surprise that policing has been identified as one of the most stressful professions (Johnson et al., 2005; Waters & Ussery, 2007). Research examining the relationship between stress and wellbeing strongly indicates that working environments that routinely include chronic stress can harm physical and psychological wellbeing (Black, 2002; Cohen et al., 2007; Marin et al., 2011). Day-to-day frontline police officers are routinely exposed to stressful and often traumatic events; these events have been identified as contributors to the compromised wellbeing reported in police populations (Can & Hendy, 2014; Ménard & Arter, 2013). There is also evidence that suggests that police officers have significantly lower life expectancy post-retirement compared to similar samples in the general population, indicating that it is likely that for some, the detrimental effects of policing endure into retirement (Brandl & Smith, 2013; Hartley et al., 2011; Purba & Demou, 2019; Violanti et al., 2017).

Social connectedness is a multidimensional construct encompassing elements such as the quality of the network relationships, perceived support, received support, and breadth of one's social network (Ashida & Heaney, 2008; Haslam et al., 2016). Enhanced social connectedness has an extensive history of being positively linked to wellbeing (Cohen, 2004; Cohen & Wills, 1985; Hale et al., 2005; Hilbrink, 2022). Throughout history, social networks have been enacted through face-to-face interactions. However, the scope of social interactions has been rapidly transformed due to widely adopted technology advances in the last two decades. As technology has advanced, so too has the mechanism and manner in which social networks are created, maintained and enacted. Social networks have expanded rapidly and significantly during this period, driven by the development and widespread adoption of the internet and social networking sites (SNSs). The use of SNSs is now widespread. In 2024, more than 5 billion people worldwide engaged in SNS use; this number is expected to increase to more than 6 billion by 2028 (Dixon, 2024). The four SNSs, Facebook (FB), WhatsApp, Facebook Messenger, and Instagram all reported over one billion active users per month in 2024 (Dixon, 2024). This rapid change in how people are socially interacting has led to growing research interest in the effects of the use of social networking sites on wellbeing (Coyne et al., 2018; Huang, 2018; Ortiz-Ospina, 2019;

Valkenburg, 2022; Verduyn et al., 2017). Research outcomes regarding the impact of SNS use on wellbeing have produced mixed results. While there is evidence that certain types of SNS use may compromise wellbeing (Andreassen, 2015; Liu et al., 2017; Stockdale & Coyne, 2020), there is also evidence that SNS use may be of benefit to specific groups of users (Ellison et al., 2007; Lee et al., 2013).

To date, limited research has examined the factors that enhance wellbeing in the ex-policing population. Social network site use may offer unique advantages for this population due to factors related to the policing culture. The ability of SNS groups to circumvent the temporal and physical limitations of traditional social groups and provide genuine anonymity may have unique benefits for ex-police by circumventing some of the barriers associated with police culture that have historically prevented police officers from seeking support. Given that the ex-police population has been identified as vulnerable, and the use of SNSs is common, this study seeks to explore the potential for SNS use to provide a conduit for enhancing the social connectedness and wellbeing of ex-police officers.

Consistent with previous research indicating that SNS use can enhance wellbeing and elements of social connectedness but be detrimental to those elements when SNS use is excessive (Brkljačić et al., 2019; Burke et al., 2010). This study proposes that low to moderate use of SNSs will provide positive benefits to wellbeing, and as SNS use increases, these benefits will diminish. Excessive SNS use is predicted to lead to diminished wellbeing. This novel study may be the first research examining the potential for SNS sue to enhance the wellbeing of the retired police population. This study will also contribute to the broader research examining the relationship between SNS use, social connectedness and wellbeing.

This study is divided into six chapters; the initial three chapters define key terms and review relevant research literature. Chapters four to six will describe the experimental work undertaken, the research outcomes and make recommendations for future research in this area.

Chapter One

Policing

The Challenge of Policing

Policing is widely recognised as one of the most challenging professional environments to work in (Johnson et al., 2005; Pole et al., 2006; Queirós et al., 2020; Waters & Ussery, 2007). Policing is one of a few occupations where first-hand exposure to life-threatening events for colleagues, members of the public or oneself is a real possibility at the beginning of each work shift. The day-to-day tasks of a police officer can include physical confrontation, conflict de-escalation, high-speed vehicle pursuit, handling of deceased, death notifications, and regular exposure to a wide variety of other stressors. Police officers are often the first responders when traumatic events occur, and they are tasked with bringing safety, security, and direction to members of the public who, at the time, may be experiencing the worst day of their life. These events create stress not only for the victim but for all parties involved.

Traumatic events induce stress, stressful events (stressors) are defined as events perceived by the individual as unpredictable or uncontrollable and exceed the individual's natural regulatory capacity to adapt or maintain homeostasis (Cohen et al., 2007; Koolhaas et al., 2011). Exposure to stressors can increase an individual's risk of developing a broad range of health issues, and detrimental exposure can occur through both one-off and ongoing stressors (Cohen et al., 2007; Tsigos & Chrousos, 2002). Immediate and chronic stressors have been linked to several significant mental health issues, such as depression, burnout, and impaired cognitive function and stress may amplify preexisting vulnerabilities for both mental health and physical conditions (Marin et al., 2011).

The body responds to both immediate and chronic stressors in many ways, and activation of the sympathetic-adreno-medullar (SAM) axis and the hypothalamic-adrenal-pituitary (HPA) axis are

central pathways in the body's stress response (Cohen et al., 2007; Tsigos & Chrousos, 2002). When activated, the SAM axis and HPA axis mobilise a range of proteins, hormones, and neurotransmitters to prepare the body for immediate action by increasing heart and respiratory rate, providing fuel and energy, activating the immune system and increasing focus and attention (Cohen et al., 2007; Tsigos & Chrousos, 2002). As some bodily functions are mobilised, others are suppressed as they are considered redundant for immediate action. Suppressed functions include appetite, reproduction and some cell growth functions (Cohen et al., 2007; Tsigos & Chrousos, 2002). Chronic activation of the SAM and HPA axes that exceed the body's ability to adapt or recover has been linked to compromised long-term health outcomes, including depression, diabetes, obesity, fatigue, immune system suppression, and cardiopulmonary disease (Cohen et al., 2007; Koolhaas et al., 2011).

For police, exposure to stressors, including acute trauma, can occur through a wide range of avenues. These include first-hand exposure, vicarious exposure – through colleagues, victims and offenders, and exposure through job tasks, such as distressing file material or events such as court appearances. However, beyond the overt exposure to stressors discussed above, researchers have identified a raft of other stressors that are proposed to be equally harmful to the wellbeing[1] of police officers (Porter & Lee, 2023; Purba & Demou, 2019; Waters & Ussery, 2007).

Researchers have taken various approaches to categorising the stressors associated with police work. Categories such as acute and chronic, explosive and corrosive, as well as occupation and organisational, are common (Velazquez & Hernandez, 2019; Waters & Ussery, 2007). Fo this study four categories will be used to indicate the origins of specific stressors, they will be occupational stressors, organisational stressors, role conflict stressors, and police culture stressors. These categories are defined as follows:

- Occupational stressors - Stressors that may occur as part of day-to-day policing (e.g., physical confrontation, shiftwork, and death notifications).

[1] A complete definition of wellbeing is provided in Chapter 3

- Organisational stressors – Stressors that are specific to the function of the policing structure (e.g., rigorous oversight, under-resourced role, or relentless workload).
- Role conflict stressors - Personal vs occupational role conflict (e.g., spillover of work role traits such as taking an authoritarian position in personal relationships or being inappropriately emotionally detached with loved ones).
- Cultural stressors – Stressors that researchers have identified can be inherent to policing culture. For example, under-reporting of compromised wellbeing and isolation from wider support networks.

Some researchers include cultural stressors within organisational stressors, describing both as organisational culture (Brough et al., 2016; Purba & Demou, 2019). Cultural stressors will be examined separately for several reasons. Unlike organisational stressors such as long work hours or high workload, cultural stressors are more nuanced regarding their impact on the individual, and research evidence supports cultural influences in policing as having a mixed influence on wellbeing (Brough et al., 2016; Purba & Demou, 2019). Cultural stressors will be examined later in this chapter concerning the significant impact they have on police personnel's engagement in wellbeing research, and this point warrants a distinct focussed discussion. Role conflict stressors have been separately categorised as they are often not included in research investigating the impact of policing on wellbeing, yet any erosion of engagement in beneficial support networks can negatively impact wellbeing (Cohen, 2004).

In the next section, the four categories of stressors will be used to provide structure and clarity for a review of research that has examined the relationship between policing, potential sources of stress, and factors associated with wellbeing. For occupational stressors, only examples of additional stressors beyond the risk of immediate physical harm (an occupational stressor) will be discussed, as the stress experienced by events that involve imminent risk of harm to self is primarily intuitive. To follow this examination, responses to stressors (coping strategies) that research has

identified are commonly used by police personnel and other first responder personnel will be outlined. To conclude this section, an argument will be stated for the need and value of this research, and why it is focussed on ex-police officers and stressors that have been identified as unique to the ex-police officer population will be briefly discussed.

Stressors in Policing

Occupational Stressors

Occupational stress refers to stress that occurs routinely as part of a job role. The potential for detrimental impact on wellbeing from exposure to stressor events is well documented in stress outcomes research (Breslau et al., 1999; May & Wisco, 2016; McFarlane, 2010). Researchers have demonstrated that harmful exposure can result from single or multiple events and direct and vicarious exposure (May & Wisco, 2016; Molnar et al., 2017). Despite their training, police officers are not immune to the negative consequences of exposure to stressors. Significant research demonstrates that when compared to the general public, police populations often exhibit higher rates of depression and anxiety-related disorders and higher rates of post-traumatic stress disorder (PTSD) and post-traumatic - stress symptoms (Davey et al., 2001; den Heyer, 2021; Newell et al., 2022; Syed et al., 2020). These findings are expected considering the nature of policing and the potential for exposure to stressors. Porter (2023) reported that 92% of police officers deal with critical incidents in their first two years. Den Heyer (2021) reported that the police population may exhibit greater levels of adverse outcomes from trauma exposure than those recorded by military personnel.

For police, occupational risks are not limited to psychological risks, and other more tangible risks associated with policing have been identified. The operational routine associated with many roles in the police can be detrimental to factors that support physical health (Allen et al., 2023; Gerber et al., 2010). Society's need for a constant 24/7hr police presence means that many policing roles involve routine shift work, often outside of a typical Monday to Friday work week. The negative

impact of shift work on wellbeing is well supported in the research literature (Costa, 2010; Gerber et al., 2010; Kecklund & Axelsson, 2016). For police officers and other shift workers, shift work can contribute to irregular or disrupted sleep, errors during work, infrequent contact and isolation from beneficial personal support networks, poor diet, increased stress, and increased risk of cardiometabolic disease (Brown et al., 2020; Costa, 2010; Gerber et al., 2010; Kecklund & Axelsson, 2016).

Organizational Stressors

Researchers examining the organisational stressors associated with police work have found that organisational stress is a significant component of the overall stress associated with policing (Parnaby & Broll, 2020; Purba & Demou, 2019). Overwhelming workloads, excessive administrative demands, lack of experienced support, mistrust of the policing structure, and heightened scrutiny and oversight have been identified as contributors to organisation stress (Baek et al., 2021; den Heyer, 2021; Parnaby & Broll, 2020; Purba & Demou, 2019). For police, these stressors have been associated with job dissatisfaction, increased emotional fatigue, burnout, and increased levels of cynicism (Baek et al., 2021; Porter & Lee, 2023; Purba & Demou, 2019). In addition to these stressors, there is evidence that some police organisations may provide mixed messages regarding seeking help. Turner (2019) used semi-structured interviews to examine the experiences of a small group of British police officers and reported that participants felt that police organisations tended to minimise the effects of exposure to trauma, and this discouraged help-seeking. Other researchers (Kirschman et al., 2015; Marshall et al., 2021; Waters & Ussery, 2007) noted that although police administrations overtly promoted seeking support, and formal support was easily accessible and available, it was commonly understood by officers that seeking support had the potential to not only negatively impact career progression but also had potential be used as evidence to question past decisions, including decisions made during investigations or arrests. These factors all contributed to poor engagement with formal support.

Personal Stressors

The conflict between work life and personal life is well documented for the police cohort (Karaffa et al., 2015; Sharp et al., 2022; Waters & Ussery, 2007). The demands of shift work can have disruptive spillover effects for individuals and their family units, as family units must adjust to changing routines. Other job-related stressors can bleed into personal relationships. Spouses/partners and other family members of police report experiences of fear, anxiety, and somatic complaints as a result of day-to-day concern for the wellbeing of their loved one (Friese, 2020; Karaffa et al., 2015; Sharp et al., 2022). Role conflict also presents challenges for police officers but is not always present. In qualitative research, Granholm Valmari et al. (2023) found that balancing conflicting roles and commitments was a central concern for police officers. However, some research participants reported that the roles were complimentary, with shift work allowing increased contact with children and family commitments and providing a distraction from thinking about work. Other researchers have reported that skills valuable for policing may cause conflict if bought into personal relationships, such as taking control, giving instruction or emotional detachment (Karaffa et al., 2015; Sharp et al., 2022). Stress from policing may have negative effects on personal relationships. In a study examining the impact of police work on their spouses and families (n=400, Alexander & Walker, 1996), two-thirds of participants reported that their family relationships had been impaired due to stress from the job. In contrast, Casas and Benuto (2022) reviewed research that examined the effect on families of first responders. They found that while existing research literature indicates increased risk for first responder families, it is too early to make definitive conclusions, and future research in this area requires increased attention to sample diversity, research design, and outcome measurement.

While work-life personal life conflict is common for many occupations, the spillover effects that police officers' families may experience due to concern about safety are typically limited to first

responder populations. Research indicates that these effects are complex, may be significant and require further investigation (Casas & Benuto, 2022).

Cultural Stressors

In addition to the occupational and operational stressors identified, common themes have been identified in police culture that are sources of stress and may be detrimental to police officer's wellbeing. Themes of machoism, emotional invulnerability and mistrust of outsiders have been regularly associated with policing culture (Crank, 2014; Porter & Lee, 2023; Thoen et al., 2020; Turner & Jenkins, 2019). In research that examined police culture and barriers to help-seeking, machoism and the need to be seen as invulnerable to traumatic events encountered on the job prevented officers from seeking support and were experienced as increasing stress for some officers (Kirschman et al., 2015; Loftus, 2009; Newell et al., 2022; Turner & Jenkins, 2019). The stigma associated with seeking help and fear of appearing weak or unfit for the job to colleagues and the police administration also inhibits help-seeking (Loftus, 2009; Newell et al., 2022). Turner (2019) reported that research participants stated that while formal support was available, they expressed concerns about the confidentiality of disclosures and the impact on their future career progression. Unsurprisingly, when present, these themes fostered attitudes that discouraged help-seeking behaviour, encouraged suppression of appropriate emotional distress, and encouraged isolation (Bell & Eski, 2016; Tucker, 2015; Waters & Ussery, 2007). Another theme researchers have identified that can be present in police culture is a strong sense of cohesive solidarity (Brough et al., 2016; Crank, 2014; Loftus, 2009). Strong cohesive solidarity in professional groups is not in itself problematic. In professional groups, solidarity creates a consciousness that aligns group members' actions toward protecting other members and reinforcing group values (Alpert et al., 2015). Alpert et al. (2015) suggested that the strength of group solidarity is positively related to the consequences of failing to protect group members or group values; with this in mind, it is logical that robust, cohesive solidarity is likely an essential element of police work or any work where at any moment an individual may

need to rely on a colleague for their safety in the threat of immediate danger. While solidarity is intuitively an essential element of policing, several authors have suggested that the strong solidarity formed among police may inhibit some from seeking help for themselves or help for colleagues when they are not coping with the significant demands of the job (Brough et al., 2016; Crank, 2014; Loftus, 2009). Through a similar mechanism to outcomes of cultural themes of machoism and invulnerability, strong solidarity may mean that some police officers may not seek support when they need it due to concern that their colleagues may doubt their ability to perform on the job. Others may not intervene with colleagues who are struggling for fear of perceptions of undermining their colleague's ability to perform on the job and undermining cultural themes of invulnerability. Cultural themes that suppress open dialogue can lead to police officers reporting experiences of isolation on the job (Pole et al., 2006; Turner & Jenkins, 2019). These experiences of isolation can also extend to support networks that are external to the workplace. Research with police has reported that withdrawal from personal support networks is common (Pole, 2006; Tuner, 2019). The strong solidarity that police groups form has been implicated in this withdrawal, as with solidarity comes an insider-outsider mentality that can act as a barrier to sharing insider information with outsiders (Porter & Lee, 2023; Turner & Jenkins, 2019; Woody, 2005). Traditional support networks such as friends and family may be seen as lacking the understanding that can only be acquired through first-hand policing. Other police choose not to use personal support networks for fear of burdening family and friends with distressing events from their job (Alexander & Walker, 1996; Karaffa et al., 2015).

Professional boundaries associated with policing can restrict engagement with personal support networks. A critical part of policing is the ability to adhere to legal and ethical principles including maintaining confidentiality and privacy when working with sensitive information. This is an essential component of day-to-day policing can also present as a barrier for police officers regarding their ability to use support networks that are external to their job.

The following section will focus on stressors that are associated with retirement from the police. This discussion does not include resigned police officers, as there is extremely limited research on this population.

Stress in Retirement

While most police officers do well in retirement, researchers have identified unique stressors that can occur for retired police that can be detrimental to their wellbeing. Two significant stressors appear in this literature: the stress resulting from the loss of professional social networks, resulting in feelings of isolation, and the stress that can occur from social identity transition (Carney et al., 2021; Parnaby & Broll, 2020). For some retired officers, the strong solidarity and bond formed with colleagues during a career in policing can feel like it evaporates on retirement as overnight they transition from being a police officer to being a member of the public. This experience can lead to feelings of isolation and loss (Carney et al., 2021). Feelings of isolation may be compounded as the withdrawal from personal networks during their career in policing comes back to bite in retirement, with retired officers finding that collegial support networks are now unavailable and their personal support networks have diminished over time (Carney et al., 2021; Parnaby & Broll, 2020).

Challenges to social identity can create stress for police officers in retirement. Social identity Theory (Hogg, 2016) suggests that social identities are formed through interactions with others, and individuals signal their group membership by enacting characteristics and behaviours that are socially shared within a group. As this happens, individuals also shape their sense of self as a group member (Charman, 2017, p. 41). Some retired police officers experience a loss of social identity when they leave the police. A well-formed social identity that has been moulded and reinforced by the strong solidarity, close bonds and defined purpose developed through years of working alongside colleagues in challenging environments can feel like it is lost on retirement (Bullock et al., 2020; Carney et al., 2021; Parnaby & Broll, 2020). In research examining the impact of retirement on the wellbeing of a group of police officers, Carney et al. (2021) found that the loss of daily interactions

with colleagues was a stressor post-retirement, and that some retirees actively sought community social networks to fill this perceived void. Carney et al. (2021) suggested that maintaining social networks through the retirement transition and developing peer support groups may improve retirement for those police who may otherwise struggle.

In response to stressors individuals, employ a range of coping strategies, these strategies will now be explored. Initially an overview of common coping strategies will be given. This will be followed by an examination of coping strategies that have been identified in research literature that are commonly used by the policing population.

Coping Strategies

Strategies for coping with stress can be categorised into effective and ineffective strategies (Anshel, 2000, 2016). Effective coping strategies deal with the stressor in a manner that makes the immediate impact of the stressor more manageable and improves the resources of the individual to manage future stressors effectively. Effective strategies include information/help-seeking, using social support networks, problem-solving, perspective-taking, addressing the stressor directly, and psychological distancing (Anshel, 2016; Holahan et al., 2005). Dark humour or gallows humour is another coping tool that is commonly found in stress-coping research with police and other first responder professionals (Charman, 2013; Rowe & Regehr, 2010). Dark humour is often cynical and may involve in-group slang and association between trauma and something trivial. Those outside the group can misunderstand dark humour as inappropriate and incompatible with the gravity of presenting traumatic events (Van Wormer & Boes, 1997). Dark humour is proposed to have many functions, including acknowledgement of the gravity of an event while simultaneously providing emotional distance, a controlled release of intolerable emotions, an opportunity to signal group cohesion, and trivialising an event to lessen its impact (Charman, 2013; Rowe & Regehr, 2010).

Resilience has been a central construct of interest for researchers interested in factors that support individuals in effectively coping with stressful events. Conservation of Resources Stress

Theory (COR) (Hobfoll, 1988) presents an integrative theory of stress. COR assumes that individuals are naturally nested in biological and social networks, and therefore, the impact of stressful events on the individual is conditional on their ability to access and mobilise internal and network-based resources. COR's premise is particularly relevant to this research in that an individual's resilience can be directly attributed to the properties of the biological and social networks of the individual (Hobfoll, 2012). Therefore, a broad range of internal and network-based resources are relevant to effective coping.

Ineffective coping strategies increase the stress experienced and reduce the individual's capacity to manage future stressors. Ineffective coping strategies have a theme of avoidance and include strategies such as denial, substance use to numb or improve difficult emotions or mood, aggression, rumination, catastrophising, and blaming (Anshel, 2016; Holahan et al., 2005).

The effects of both effective and ineffective coping strategies are cumulative. Effective strategies are protective as they enhance the individual's ability to cope with future stressors through familiarity with the strategy from past use and through motivation being present from past success. Ineffective strategies also have cumulative effects, but they are corrosive. They decrease the ability of the individual to manage future stress through decreasing wellbeing and failing to equip the individual for future stressful events.

Coping Strategies of Police

Research evaluating coping strategies among police and other first responder populations indicates that a variety of coping strategies are used. In research with a sample of New Zealand police officers (n = 176), de Terte et al. (2014) presented the Three Part Model of Psychological Resilience (3-PR). The 3-PR identifies environmental factors such as social support, physical behaviours like adaptive health practices, and cognitions such as adaptive coping and optimism as central elements for pre-stressor and post-stressor resilience. de Terte (2014) reported that collegial social support was important to post-stressor psychological resilience.

Other research has demonstrated that using ineffective avoidance strategies in the police cohort is common (Anshel, 2000; Bell & Eski, 2016; Sharp et al., 2022; Waters & Ussery, 2007). Ineffective strategies contribute to increased experienced stress and reduced capacity to manage future stressors. Coping styles have been identified as a moderator between stressors and their outcomes, with ineffective coping being linked to factors associated with compromised wellbeing (Folkman & Lazarus, 1988; Morasco et al., 2013). Ineffective coping strategies likely contribute to research that indicates poor outcomes for police cohorts in the domains of physical health, mental health, addiction, and job satisfaction (Anshel, 2016; den Heyer, 2021; Violanti, 2020; Violanti et al., 2013).

While the bulk of research in this area supports the potential for stressors in policing to impact wellbeing negatively, not all researchers agree. The next section will explore some of the conflicting research regarding the outcomes of stress on police.

Wellbeing Research for Police

In response to research that indicates policing is a stressful, high-risk occupation with the potential for detrimental outcomes, researchers have taken an interest in the specific factors that both enhance and detract from the wellbeing of police. As discussed, many researchers examining the relationship between wellbeing factors and policing report higher rates of suicide, depression and trauma-related symptoms, increased physical illness and injury, alcohol abuse, and higher rates of mortality when compared to the general public (den Heyer, 2021; Pole et al., 2006; Violanti et al., 2013). However, some researchers have reported mixed results in this area, providing evidence that police suicide rates, mortality, mental health symptoms and alcohol abuse are comparable to those of the general public. In a literature review of 44 articles that examined suicide among law enforcement officers in the USA between 1997 and 2016, Violanti et al. (2018) found that inconsistent methodology and poor research design resulted in no clear relationship between law enforcement work and higher rates of suicide. Lindsay (2008) compared the alcohol use of a group of

law enforcement officers (n=1328) to a similar cohort of the general public in Mississippi and found no statistically significant differences between the two groups. Van der Velden (2013) compared mental health symptoms among a group of police (n=647), bank employees who had experienced a robbery and others who had not (n=144 and n=1113), supermarket workers (n=335), psychiatric hospital workers (n=219), pre and post deployment soldiers (n=278 and n=236), firefighters (n=123), government employees (n=76) and a group trained for resiliency (n=710). Van der Velden (2013) found no statistically significant differences in the prevalence of mental health symptoms between groups. While both Lindsay (2008) and the research of van der Velden et al. (2013) indicate that police work presents no higher risk to wellbeing then many other professions, several important methodological issues regarding how confidentiality and underreporting were addressed were not reported in their research.

Research Design and Interpretation with Police cohorts.

The mixed outcomes of research examining wellbeing outcomes associated with policing indicate that the relationship between policing and outcomes to wellbeing is complex and requires robust attention to design and data interpretation. Police and other first responder populations are unique regarding the strategies they use to manage job-related stress and its potential flow-on effects. For example, the ability to detach emotionally in the face of traumatic events is an essential skill in the policing role and does not always indicate the presence of an avoidance-themed strategy (Kirschman et al., 2015). Also, the impact on police and other first responders of exposure to trauma is complex and involves other moderating factors beyond the scope of this literature review. Factors such as resilience, personality type, family mental health history and coping style have all been implicated as relevant to how police experience stress and how they cope with it (Anshel, 2016; Holahan et al., 2005; Kirschman et al., 2015; Manning et al., 2015; Pole et al., 2006).

The underreporting of the effects of job stress, the restrictive aspects of cultural themes, the potential for mistrust of policing structure, and mistrust of outsiders can create a significant

challenge for researchers working with police populations (Newell et al., 2022). The stigma associated with mental health and the general issues of underreporting of information that can challenge dominant cultural themes is well documented in research with police (Bell & Eski, 2016; Bikos, 2020; Demou et al., 2020; Marshall et al., 2021). Other issues, such as research design and methodology, have been identified as barriers to drawing clear conclusions in research with Police (Violanti, 2018). For example, Lindsay (2008) and van der Velden (2013), neglect to explain how potential bias related to under-reporting was addressed in their research design. Many researchers have approached the issue of under/inaccurate reporting by police participants by taking measures to ensure participants' confidentiality. Other researchers have included additional approaches with police, including choosing ex-police officers for their research sample; this contrasts with the bulk of research in this area that has aimed to capture the impact of job-related stress on active officers. For retired or resigned police officers, research examining the enduring effects of police work is limited. However, research with retired or resigned police officers offers a unique perspective and has some advantages compared to research with active officers. Research with ex-police officers is likely to be unencumbered by the cultural, organisational, and operational restraints previously noted that inhibit active officers from fully disclosing the effects of policing on their wellbeing (Parnaby & Broll, 2020; Pole et al., 2006). Research with ex-police provides a different perspective that is not currently being captured by the bulk of the research with police. Also, the current research examining the wellbeing of retired and resigned police indicates that for some, time spent serving in the police has lasting effects (Black et al., 2013; Pole et al., 2006). In research examining the impact of both work and personal stressors on life satisfaction for police retirees, Parnaby and& Broll (2020) found that when compared to the general population, police retirees were more susceptible to several mental health difficulties, including depression, anxiety, and post-traumatic stress symptoms. Post-traumatic stress symptoms refer to symptoms associated with PTSD that may or may not eventually meet the clinical threshold for Post traumatic Stress Disorder (Morrill et al., 2008). In research comparing their age or retirement and age of death with a cohort of retired Detroit police officers, Brandl and Smith

(2013) found significantly shorter periods of retirement before death for police when compared to other city employees. Brandl and Smith (2013) found that the physical health of retired police officers was compromised in several ways, identifying higher rates of cardiovascular disease, certain types of cancer, and somatic complaints for retired police when compared to the general population. In a similar study of the life expectancy of a group of male New York police officers (n= 2800), Violanti et al. (2013) found a mean difference in life expectancy of 21.9 years (95% CI; 14.5-29.3, p>.0001) when compared to the life expectancy for males in the general population in the USA. In research examining post-traumatic symptoms in current retired and resigned New Zealand police, den Heyer (2021) reported that post-traumatic stress symptoms were present in the current, retired, and resigned police population with 14% of his research participants (n=4489) indicating clinically significant symptoms.

The previous section has examined some of the identified stressors that are associated with police work and suggested that research that focuses on the experience of ex-police officers is of value and underrepresented in the area of outcomes associated with job-related stress.

This Study and the Focus of this Research

Most research into the wellbeing outcomes of policing has focussed on the experiences of actively serving officers, despite the limited research involving retired officers indicating that lasting detrimental effects to wellbeing may be present from police work. Research examining the wellbeing of ex-police officers has the potential not only to help clarify wellbeing outcomes related to the policing role for retired or resigned police officers but also inform future interventions for police, enhancing positive outcomes for current and future ex-police officers.

To summarise, despite some contention in the current research literature, the bulk of the current research examining the relationship between wellbeing factors and policing indicates that policing involves exposure to organisational, occupational, cultural and role conflict stressors that have the potential to compromise wellbeing, personal relationships, and support networks

significantly. A significant body of research has demonstrated that when compared to the general public, current, retired, and resigned police report higher rates of depression, anxiety, and post-traumatic symptoms, increased illness and somatic complaints, and increased rates of alcohol use (Black et al., 2013; Brandl & Smith, 2013; Ménard & Arter, 2013; Parnaby & Broll, 2020; Pole et al., 2006; Purba & Demou, 2019). Withdrawal from non-police support is commonly reported, and some police officers report experiences of isolation as the stressors associated with police work spill into relationships with /spouse partners and other personal support networks (Friese, 2020). Officers actively serving may feel restricted regarding reporting compromised wellbeing, leading to isolation (Bell & Eski, 2016). Research with retired and resigned police officers may reduce or negate the impact of this restriction. Despite research in this population indicating lasting effects related to policing, research with this population is limited, and this area warrants further investigation. This research intends to provide additional prospective data in this area.

At this point, it would be beneficial to explore the concept of wellbeing in greater depth and discuss the factors researchers have identified that can compromise or enhance it. The following chapter will explore wellbeing.

Chapter Two

Wellbeing - What it is and Why it Matters.

Although there is no commonly accepted definition of wellbeing in scientific literature, two concepts of wellbeing have provided the foundation for the current wellbeing discourse. They are Hedonic Wellbeing (Kahneman et al., 1999) and Eudaimonic Wellbeing (Ryff, 2013). This section will examine the historical origins of Hedonic and Eudaimonic wellbeing. Hedonic Wellbeing (Kahneman et al., 1999) and Eudaimonic Wellbeing (Ryff, 2013) will be defined and reviewed, and the significant points of difference between the two concepts will be highlighted. This section will consider the proposed influences of both wellbeing concepts in current psychological literature. An operational definition of wellbeing for this research will follow. Finally, this chapter will conclude with an argument for wellbeing's relevance as a research topic. The next section will review the origins of Hedonic and Eudaimonic wellbeing.

A Brief History of Wellbeing.

Hedonic Wellbeing

The discussion on whether happiness or leading a good life defines wellbeing has been present in Western literature for over 2500 years. The formal examination of the concept of wellbeing's often attributed to ancient Greece (Diener & Ryan, 2009); however, in Eastern history, Siddhārrtha Gautama of Shakya, now commonly known as Buddha (c. 563 BCE or 480 BCE-400 BCE) was reported to examine the concept of wellbeing in his teachings (Gowans, 2004). Buddha asked followers to consider the elements that constituted happiness and a good life (Gowans, 2004). However, because of the practical constraints of this thesis, eastern influences on the modern Western wellbeing concept will not be examined but are acknowledged to provide a fuller account of the historical origins of the wellbeing concept (see Han and Chen (2024) for a comparison of Eastern and Western wellbeing concepts).

Two wellbeing perspectives that still underpin many current wellbeing concepts are the hedonic and eudaimonic perspectives. Both perspectives emerged during a similar period in ancient Greece. The formal birth of the hedonic perspective of wellbeing is credited to Aristippus of Cyrene (435-356 BCE) (REF). Aristippus, a student of Socrates, founded the Cyrenaic school of hedonistic philosophy. This school advocated that pleasure was the highest value of humankind, and the lowest value was pain (Lampe, 2014); therefore, wellbeing could be maximised by prioritising pleasure-seeking moments and minimizing unpleasant events. By living this manner, Aristippus proposed that maximum happiness could be achieved at any one time and a good life would result (Kesebir & Diener, 2008). In popular culture, the hedonistic perspective is often presented as simply the pursuit of excess over morals, health, and the rights of others (Ksendzova, 2015); however, Aristippus's teachings presented a balanced version of hedonism that included maximizing physical health and the pursuit of a peaceful mind (Vittersø, 2016). The importance of subjectivism underscored the Cyrenaic teachings about wellbeing; wellbeing was not assessed by universal measures external to the individual but by the individual's subjective assessment of their wellbeing (Lampe, 2014). The evaluative experience of the individual continues to be a central feature of modern wellbeing concepts that have emerged from the hedonic wellbeing perspective (Diener, 2009).

Eudaimonic Wellbeing

As the Hedonic perspective evolved, so too did the Eudaimonic concept of wellbeing (Vittersø, 2001). Aristotle (384-322 BCE), an active critic of the Hedonic perspective of wellbeing, believed that the hedonic perspective reduced human motives to the same level as that of animals (Huta, 2016). In 350 BCE, Aristotle wrote the Nicomachean Ethics, an ethical examination of the elements constituting a good life (Huta, 2016). In the Nicomachean Ethics, Aristotle used the term eudaimonia and proposed that eudaimonic wellbeing consisted of living a good life, and a good life was a life in which one strived to be the best they could be (Vittersø, 2001). In current wellbeing literature, Eudaimonia is typically translated to a good life, happiness, or flourishing and underpins

wellbeing theories with goals of self-actualisation and engagement in a meaningful and purposeful life (Huta, 2016; Vittersø, 2001).

Differences between Wellbeing Concepts

There are two key differences between Hedonic and Eudaimonic concepts of wellbeing. The Hedonic idea that the pursuit of happiness and pleasure that was essential for wellbeing was unhitched from Aristotle's eudaimonic wellbeing concept. Eudaimonic wellbeing emphasized that pursuing purpose and meaning was the way to obtain wellbeing, irrespective of whether this pursuit resulted in happiness or pleasure (Ryff et al., 2021). This emphasis on purpose and meaning was a fundamental departure from the hedonic perspective, as with this approach, behaviours that did not at face-value appear to result in immediate happiness or pleasure could still result in improved wellbeing. For example, a sleep-deprived parent of a newborn may not experience an increase in happiness or pleasure by once again meeting their baby's needs in the middle of the night. However, they may experience increased wellbeing from knowing they are meeting their parental responsibilities. The second significant difference between the Hedonic and Eudaimonic concepts was how wellbeing was assessed. The eudaimonic concept encouraged objective assessment of wellbeing, in direct contrast to the subjective assessment of wellbeing, a central feature of the hedonic approach (Diener, 2009). Wellbeing theories from the eudaimonic approach can be characterised as Objective List Theories (Crisp, 2001). These theories assess individual wellbeing against a set of universal factors that, when combined, are assumed to describe wellbeing for any individual. Central themes of Hedonic and Eudaimonic Wellbeing, underpin much of the Wellbeing literature found today (David et al., 2014; Huta, 2016; Ryan & Deci, 2001).

The previous section provided a brief history of the origin of Hedonic and Eudaimonic wellbeing constructs. The history of the concept of wellbeing is extensive. The hedonic perspective associated with Aristippus, views wellbeing as the pursuit of pleasure, avoidance of pain, subjective, and based on the individual's experience. In contrast, the eudaimonic position, associated with

Aristotle, focussed on purposeful living and self-actualisation and wellbeing is assessed though universal standards of meaning and purpose irrespective of subjective experience. Both perspectives form the foundation of many modern wellbeing theories. In the following sections, concepts of Hedonic and Eudaimonic wellbeing defined in current research psychology will be examined in further detail, the nexus between the definitions will be identified, and their modern-day counterparts will be briefly discussed.

Current Theories of Wellbeing

Hedonic Psychology and Subjective Wellbeing

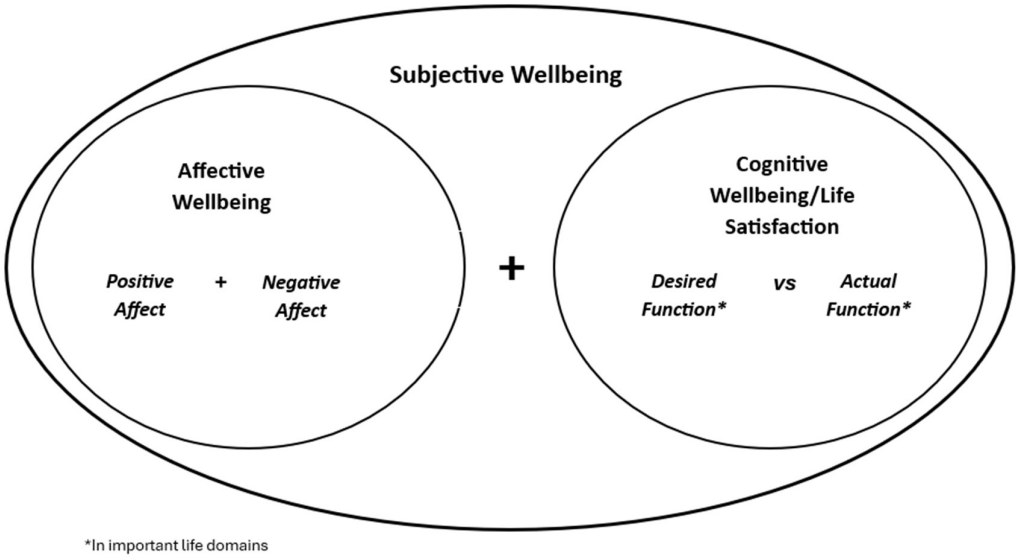
The term Hedonic Psychology introduced by Kahneman et al. (1999) described Hedonic Psychology as the study of the biological, social, and phenomenological experiences that make life pleasant or unpleasant. In contemporary research literature, Hedonic wellbeing has often been operationalised as Subjective Wellbeing (Diener & Lucas, 1999). As Subjective Wellbeing is the most frequently used construct for wellbeing underpinned by Hedonic Psychology (Ryan & Deci, 2001; Huta, 2016), the construct of Subjective Wellbeing is the subject of this research. Subjective Wellbeing comprises Affective Wellbeing and Cognitive Wellbeing. Affective Wellbeing can be further divided into two constructs: positive affect (PA), and the absence of negative affect (NA) (Diener & Ryan, 2009). At face value, PA and NA may appear to represent opposite poles on a bi-directional affect scale. However, research examining the correlation between PA and NA has reported mixed results, and the relationship between the two constructs is yet to be clearly defined (Crawford & Henry, 2004; Diener & Emmons, 1984). Cognitive Wellbeing is typically measured by assessing Life Satisfaction (Life Satisfaction) (Diener et al., 1999).

To briefly summarise, Subjective Wellbeing is composed of Affective Wellbeing and Cognitive Wellbeing. Affective Wellbeing has two constructs, PA and NA, and Cognitive Wellbeing refers to Life Satisfaction, see Figure 1. Affective wellbeing and Cognitive Wellbeing will be examined later in this section. Research has demonstrated that Affective Wellbeing and Cognitive Wellbeing are highly

correlated (Berlin & Connolly, 2019); this should be intuitive as when individuals experience PA, they likely feel optimistic about their life, and when they assess their life positively (Life Satisfaction), they likely experience PA. Research supports Affective Wellbeing and Cognitive Wellbeing as separate but not entirely independent constructs (David et al., 2014). To support comprehension of the Subjective Wellbeing construct and provide additional clarity regarding the connection between Affective Wellbeing and Cognitive Wellbeing, the following sections will provide a detailed examination of Affective Wellbeing and Cognitive Wellbeing.

Figure 1

Subjective Wellbeing



Affective Wellbeing.

Affective Wellbeing consists of Positive Affect and the absence of Negative Affect. Researchers have identified specific feelings that are associated with PA and NA (Watson et al., 1988). Feelings of happiness, relaxation, comfort, satisfaction, competence, and autonomy have all

been associated with PA (Huta, 2016). In contrast, feelings of anxiety and emotional distress have been associated with NA (Huta, 2016; Watson et al., 1988). As mentioned, PA and NA are separable but related constructs, meaning that a reduction of NA for an individual does not, by default, lead to an increase in PA (Crawford & Henry, 2004). Affective wellbeing is thought to be transient and is assessed by examining less stable information, such as the present emotional state (Diener et al., 2003). However, stable factors such as personality type, temperament, and congruence between environment and personality type have all been shown to influence reported Affective Wellbeing (Diener et al., 2003; Vittersø, 2001). Other factors, such as culture and gender, have been identified as potential moderators of Affective Wellbeing (Batz & Tay, 2018; Diener et al., 2003). Culture may influence Affective Wellbeing in two ways. Firstly, cultural norms may influence the type of feelings an individual identifies and reports, with culturally normative feelings being reported more frequently (Diener et al., 2003). Secondly, culture may influence the value an individual attributes to a feeling, influencing their assessment of their Affective Wellbeing, with individuals giving culturally normative feelings greater weighting as they assess their Affective Wellbeing (Diener et al., 2003; Schimmack et al., 2002). Concerning the influence of gender on affect, research has produced mixed results and indicated that the interaction between culture and gender might be significant in assessing the relationship between gender and affect (Batz & Tay, 2018).

Cognitive Wellbeing.

Cognitive Wellbeing is evaluated by assessing Life Satisfaction. Common measures of Life Satisfaction ask individuals to compare their desired function to their actual function in common life domains (Diener, 2009; Tov, 2018). These domains typically cover mental and physical health, employment, relationships, and education (Diener, 2009; Tov, 2018). Two processes are suggested for how individuals assess their Life Satisfaction in Cognitive Wellbeing literature: the Top-down and Bottom-up processes (Diener & Emmons, 1984; Headey et al., 1991). In the Bottom-up process, individuals aggregate individual assessments of each domain to reach an overarching Life Satisfaction

assessment (Headey et al., 1991). In support of this approach, domain satisfaction ratings have demonstrated a strong to moderate correlation with global Life Satisfaction ratings (Headey et al., 1991). The Top-down process proposes that the overarching assessment of Life Satisfaction influences the assessment of each domain (Headey et al., 1991). In support of this approach, individual assessment of Life Satisfaction has been found to be stable over time and resistant to changes in objective life circumstances (Diener et al., 1999). Research supports a complex interplay between individual differences, objective circumstances, and culture when individuals assess their Life Satisfaction, and several researchers have provided evidence that both top-down and bottom-up approaches are relevant to the overall measurement of Life Satisfaction (Feist et al., 1995; Headey et al., 1991; Schimmack et al., 2002).

Beyond the process by which individuals assess their Life Satisfaction, many other factors have been identified as relevant to how individuals assess their Life Satisfaction (Diener et al., 2003). The correlation between Life Satisfaction and age has been extensively studied, and life events such as marriage have been proposed as protective factors against age-related decline in Life Satisfaction (Frijters & Beatton, 2012). Facets of personality traits have also been shown to influence reported Life Satisfaction (Diener et al., 2018). Cheerfulness, related to extraversion, and depression, related to neuroticism, have also been shown to be significant factors in how an individual assesses their Life Satisfaction (Røysamb et al., 2018). Vittersø (2001) proposed that personality traits may influence how an individual prioritises their Life Satisfaction domains, suggesting that individuals who tend toward neuroticism give greater weight to dissatisfying domains and individuals who tend toward extraversion giving greater weight to domains they find satisfying. If Vittersø (2001) is correct, personality will influence Life Satisfaction assessment through both top-down and bottom-up mechanisms. Culture has also been shown to influence Life Satisfaction assessment (Oishi et al. 2013). Individuals from cultures that emphasise the importance of Life Satisfaction score higher through top-down methods of assessment than through aggregating domain assessment, indicating

their reported Life Satisfaction may be influenced by the collective cultural approach to Life Satisfaction rather than their individual experience (Oishi et al., 2013; Tov, 2018).

In summary, the preceding section highlights that Subjective Wellbeing is a widely studied construct of wellbeing, emphasizing the subjective evaluation of wellbeing by the individual. Subjective Wellbeing comprises two factors: Affective Wellbeing and Cognitive Wellbeing. Positive affect and negative affect define Affective Wellbeing. Positive affect and negative affect are related but distinct dimensions. Evaluating Life Satisfaction is a common method for assessing Cognitive Wellbeing. Current research suggests that individual differences, objective circumstances, and cultural factors may influence how individuals assess their Life Satisfaction and reported Subjective Wellbeing.

Affective Wellbeing comprises positive affect (PA) and the absence of negative affect (NA). Feelings such as happiness and satisfaction are associated with PA, and feelings such as anxiety are associated with NA. Affective Wellbeing is often viewed as transient, but it appears to be influenced by factors like personality, culture, and gender. Cognitive Wellbeing is assessed through Life Satisfaction and by comparing desired and actual functioning in significant life domains. Both affective and cognitive wellbeing are dimensions of Subjective Wellbeing. Individual differences, cultural influences, and life circumstances influence Subjective Wellbeing. The next section will examine Eudaimonic Wellbeing.

Eudaimonic Wellbeing – Current Theories

Three key theories have emerged in the psychology literature to define eudaimonic wellbeing (Vittersø, 2001). They are: Waterman's Eudaimonic Identity Model (Waterman, 2011), Ryff's Model of Psychological Wellbeing (Ryff, 1989), and Self-Determination Theory (Deci & Ryan, 2008). Waterman’s Eudaimonic Identity Model (2011) suggests that feelings of personal expressiveness (Wellbeing) occur when individuals engage in activities that align with their true potential and purpose. Waterman (2011) suggested that wellbeing can be assessed by examining six dimensions: self-discovery, perceived development of self, sense of purpose and meaning, intense

involvement in activities, investment of effort, and enjoyment of activities as a personal expression. Ryff's Model of Psychological Wellbeing (1989) proposed that wellbeing can be assessed by examining an individual's performance across six distinct dimensions of wellness: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. Self-Determination Theory (Deci & Ryan, 2008) introduced a motivational and self-development framework for Eudaimonic Wellbeing that proposed that three psychological needs must be fulfilled for optimal wellbeing. These needs are autonomy - the need for choices consistent with intrinsic motivation, competence - the sense of mastery, and relatedness - the feeling of positive connection with others. Central to Self-Determination Theory is the relationship between the quality of wellbeing experiences and motivation (Deci & Ryan, 2008). In Self-Determination Theory, the quality of the wellbeing experience is determined by the type and source of motivation driving the experience. Poor quality wellbeing experiences are motivated by external regulation, have high levels of external control, and are perceived as detrimental to autonomy, competence, and relatedness. In contrast, high-quality wellbeing experiences are self-initiated, intrinsically motivated, and fully aligned with the individual's values and goals. These experiences are proposed to yield the greatest wellbeing.

To summarise this section, three central theories are associated with Eudaimonic Wellbeing, and they identify the following aspects as being central to Eudaimonic Wellbeing:

- Wellbeing involves purposeful action toward intrinsic values and goals, autonomy, and positive relationships.
- Active engagement in meaningful events that support self-actualisation and personal growth enhances wellbeing.
- Experiences that generate thoughts and feelings of mastery, purpose, and connectedness enhance wellbeing.

- While subjective assessment of wellbeing is included in Eudaimonic Wellbeing, universal constructs of wellbeing facets, such as mastery or quality of relationships, are also included in the wellbeing assessment.

The following section will briefly discuss the nexus between hedonic and eudaimonic wellbeing. Other wellbeing models will be touched upon, and specific to this research, the concept of Digital Wellbeing will be introduced.

The Nexus of Subjective Wellbeing and Eudaimonic Wellbeing and Other Models.

At this point, it should be apparent that although Subjective Wellbeing and Eudaimonic Wellbeing may be conceptually unique, they are, in practical terms, concepts that overlap. Critics of Subjective Wellbeing and Eudaimonic Wellbeing generally agree that while they are independent constructs, they are complementary and highly correlated (Huta, 2016; Tov, 2018). Several wellbeing models have been proposed in an attempt to straddle the HWB and Eudaimonic Wellbeing divide. Flourishing is a term that has been associated with wellbeing (Huppert & So, 2013; Keyes et al., 2002). Keyes's (2002) version of wellbeing, Flourishing, is described as positive feelings and positive functioning in life. Flourishing is described by Keyes (2002) as the opposite of languishing, which equates to the absence of mental health. Huppert and So's (2013) conceptualised Flourishing to include competence, emotional stability, engagement, meaning, optimism, positive emotion, positive relationships, resilience, self-esteem, and vitality. The similarities between Flourishing, Subjective Wellbeing and Eudaimonic Wellbeing are evident, but other wellbeing theories are slightly more obtuse. Csikszentmihalyi (2013) claimed that individuals experience the highest levels of wellbeing from experiences of Flow. Flow describes a state of optimal performance, during which an individual's highest skill level is appropriately challenged, engagement in the moment is enhanced, and temporal awareness is compromised (Csikszentmihalyi, 2013). Seligman (2018) introduced the PERMA model, which includes aspects of Flow and defines wellbeing as a positive emotion, engagement, positive relationships, meaning, and achievement. Many other models and theories of

wellbeing have been proposed, and there are too many to discuss in this work. However, another model of wellbeing directly relevant to wellbeing research and online social networks is Digital Wellbeing (Vanden Abeele, 2020). Digital wellbeing will be examined in the following section.

Digital Wellbeing

The rapid integration and emergence of internet-capable devices into contemporary routines has led to a growing interest in understanding the relationship between social network use and wellbeing (Valkenburg, 2022). In response to this interest, research in this domain has grown rapidly. The term Digital Wellbeing has emerged from digital connectivity research (Valkenburg, 2022; Vanden Abeele, 2020). Digital Wellbeing describes the experience of an optimal balance between connectivity and disconnection, dependent on the interplay between the person, device, and context-specific factors (Valkenburg, 2022; Vanden Abeele, 2020).

Researchers tend to agree that almost unrestricted internet and digital connectivity have resulted in paradoxical effects for users (Lang & Jarvenpaa, 2005; Vanden Abeele & Nguyen, 2022). For example, widespread internet and mobile connectivity has allowed individuals almost unrestricted connectivity to the broader global online community, eroding the temporal and physical barriers previously limiting interactions to one's immediate surroundings and the individuals present. Individuals can now engage in social interaction, information-seeking, and entertainment-seeking behaviour anytime they desire, almost anywhere in the world. Unrestricted connectivity has expanded individuals' access to resources that can enhance their wellbeing. However, this unrestricted access has also brought about less beneficial outcomes. Unbounded social connectivity has resulted in significant shifts not only in how, when, and with whom we communicate, but also in the expectations placed upon us by others and ourselves regarding our availability to communicate (Hall, 2020; Hall & Baym, 2012; Vanden Abeele & Nguyen, 2022). The term Permanently Connected or Permanently Online has been used to describe the phenomenon of almost unrestricted connectivity, and the experience of feeling permanently connected permanently online has been

linked to experiences of increased vigilance, reported stress, and fear of missing out (Klimmt et al., 2018; Vorderer et al., 2017).

Other questionable outcomes of being PCPO include experiences of an increase in compromised/competing role demands, as PCPO availability has increased the permeability of the border between work-life demands and personal-life demands. (Rose, 2014; Stephens, 2020). Smartphones are the key tool in Social Network Site (SNS) connectivity and are currently the most widely used digital device to access the internet (We Are Social & Meltwater, 2023).

Despite researchers acknowledging the paradoxical effects that are present with mobile internet connectivity, some researchers have implicated the smartphone as the harmful gateway to harmful SNS use, and research examining both SNS and smartphone outcomes has been weighted toward examining the effects of connectivity with limited interest in the beneficial effects (Ding et al., 2019; Panova & Carbonell, 2018; Twenge, 2017; Vanden Abeele & Nguyen, 2022). For example, Twenge (2019; 2022; 2018) and other authors (Andreassen, 2015; Salehan & Negahban, 2013) have written extensively on the negative outcomes of smartphone and SNS use, and have suggested in some cases that irreparable damage to the wellbeing of an entire generation of smartphone and SNS users is occurring. However, as discussed research examining the relationship between SNS and detrimental outcomes to wellbeing is inconclusive and more research is needed in this area before a conclusive relationship between SNS use and wellbeing can be identified (Parry et al., 2022; Valkenburg, 2022). For example, Heffer et al. (2019) reported that social media use failed to predict depressive symptoms and instead found that depressive symptoms predicted increased frequency of social use but only among adolescent females. Verduyn et al. (2017) found that the type of SNS use moderated between SNS use and wellbeing. Verduyn et al. (2017) also reported that active users who engaged with others could benefit from SNS use, while passive users who engaged in comparison behaviour were at greater risk of detrimental outcomes.

Other problems in theoretical approaches have been identified with past research in this area, with some of the previous research examining the relationship between wellbeing, smartphone use, and SNS use, incorrectly convoluting smartphone and SNS use with pathological behaviours common in the substance addiction field (Harris et al., 2020; Katevas et al., 2018; Stavrova & Denissen, 2021; Varona et al., 2022). Andreassen et al. (2015; 2014) has researched the relationship between SNS use and addiction extensively and defines SNS addiction as:

> Being overly concerned about Social Network Sites (SNSs), driven by a strong motivation to log on to or use SNSs, and to devote so much time and effort to SNSs that it impairs other social activities, studies/jobs, interpersonal relationships, and/or psychological health and wellbeing. (Andreassen, 2015, p. 1)

With minor changes, this definition could be applied to many activities commonly undertaken by functioning members of society, such as train spotting, various sporting activities, or working excessive hours. While these activities also have the potential for negative impact on relationships and wellbeing, few would consider those who engage in them people with an addiction. These and other conceptual issues with the addiction model of SNSs and smartphone use have been identified (Harris et al., 2020). Harris et al. (2020) reviewed 78 validated scales designed to identify problem smartphone use and found that many were based on substance/gambling-addiction frameworks that lacked scientific evidence supporting their validity for examining problem smartphone use. Harris et al. (2020) also found that many measures demonstrated poor psychometric properties. Varona et al. (2022) examined 37 instruments designed to assess SNS addiction. They found no standardised theoretical basis for SNS addiction, vague definitions of what constituted SNS addiction, lack of consensus for cut-off points for problem SNS behaviour and overlapping dimensions for some of the instruments examined.

Despite these conceptual problems for defining problem SNS use and its measurement, a variety of strategies that align with the substance addiction field have been suggested to address

problem SNS behaviour. (Andreassen, 2015). These strategies include abstinence-type approaches, commonly known as digital detox or unplugging. Abstinence is a common strategy in the 12-step programme approach to substance addiction treatment (Kelly et al., 2020) and the use of apps that limit device accessibility akin to the harm reduction approach, also promoted in the substance addiction field (Marlatt & Witkiewitz, 2002). Unsurprisingly, the efficacy of these approaches has been inconclusive (Andreassen, 2015), and approaches such as abstinence and harm reduction fail to acknowledge the loss of the positive benefits of SNS use that also occurs when these strategies are engaged. Recent research has supported only a weak relationship between SNS use and compromised wellbeing and called for increased rigour in future research design, including definitions for predictors, outcomes, and wellbeing (Valkenburg, 2022; Parry et al., 2022).

With limited evidence for the efficacy of the current problem SNS use interventions and findings supporting methodological conceptual and psychometric issues related to many of the current measures for problem SNS use, there is a need for further research examining the potential beneficial outcomes of SNS use and identify valid methods of measuring those benefits. This research will contribute to this area.

Extensive research has demonstrated that there are both positive and negative outcomes for the individual from digital connectivity. There is growing concern about the potential detrimental impacts on mental health of smartphone and SNS use. Current research shows inconsistencies in the relationship between SNS use and wellbeing, with some studies suggesting that the type of engagement (active vs passive) may moderate SNS effects (Parry et al., 2022; Valkenburg, 2022) Some researchers have transposed addiction models to examine the effects of SNS. This approach presents conceptual and measurement issues. A more appropriate approach to SNS use is likely provided via the concept of Digital Wellbeing (Vanden Abeele, 2020). The next section will consider the relationship between wellbeing, individual differences, and societal and cultural influences.

The Effect of Individual Differences and Culture on Wellbeing

Genetics

Research regarding the influence of genetic characteristics on reported wellbeing has been inconclusive. In two meta-analyses of family and twin studies that examined the relationship between genetics and reported wellbeing that included some twins that were raised separately, Røysamb et al. (2018) found that across multiple countries, heritability averages were .36 and .40. They reported that heritability across the studies demonstrated heterogeneity and concluded that population demographics might account for the variability in reported wellbeing. Research regarding whether genetic characteristics related to wellbeing are additive is also inconclusive (Røysamb et al., 2018; Vittersø, 2001).

Personality

Research examining the relationship between personality and wellbeing indicates strong relationships between some personality facets and reported wellbeing (Anglim et al., 2020; DeNeve & Cooper, 1998; Steel et al., 2008). In a meta-analysis of 377 articles and 462 studies examining the relationship between domains and facets of The Big Five (McCrae & John, 1992) and the Hexaco (Lee & Ashton, 2004) in relation to Subjective Wellbeing and PWB, Anglim et al. (2020) reported that regression analysis indicated that up to 46% of the variance in wellbeing scales could be explained by personality domains and 53% by facets. Research had demonstrated strong relationships between personality and reported wellbeing, indicating that personality traits and facets are significant predictors of wellbeing (DeNeve & Cooper, 1998; Steel et al., 2008).

Life Events

The Set point theory for wellbeing proposes that life events only temporarily effect wellbeing as individuals have a wellbeing set point or equilibrium point that they return to after experiencing

significant adverse or favourable life events (Costa & McCrae, 1980; Headey & Wearing, 1989). However, as previously indicated, current research indicates that the relationship between individual lifetime events and reported wellbeing is complex, and lifetime events may have a differential impact on reported wellbeing (Diener et al., 2018; Kettlewell et al., 2020). Kettlewell et al. (2020) found that positive and negative life events had a differential impact on reported affective and cognitive wellbeing, with affective wellbeing returning to pre-event levels at a two-year follow-up for positive events but increases in cognitive wellbeing being maintained. Other negative life events, such as the death of a spouse, disability, or financial loss have demonstrated enduring negative impact on both affective and cognitive wellbeing (Diener et al., 2003; Kettlewell et al., 2020). Diener et al. (2000), Oishi et al. (2018), and Vittersø (2016) have all suggested that personality traits influence how significant life events are assessed with respect to wellbeing, indicating that further research is required in this area.

Age

A universal relationship between age and wellbeing is yet to be defined (Steptoe et al., 2015). It has been proposed for Subjective Wellbeing that as we age, we prioritise positive over negative processing and that this leads to bias in attention for positive information over negative information, influencing the Affective Wellbeing component of Subjective Wellbeing positively (Kennedy et al., 2004; Ryff et al., 2021). There is also evidence that for some groups, the relationship between Life Satisfaction and age follows a U-shaped curve, with higher Life Satisfaction reported in young adulthood, then declining until the late 60s, and then rising again to peak in older adulthood (Ryff et al., 2021; Steptoe et al., 2015), but more research is needed in this area. For Psychological Wellbeing, factors associated with mastery and autonomy have demonstrated a positive relationship with ageing, but other factors associated with purpose and personal growth have not (Ryff & Keyes, 1995).

Socioeconomic Status and Education

In widely publicised research regarding the impact of socioeconomic status (SES) on wellbeing, Kahneman and Deaton (2010) found that increases in income above $75,000 USD demonstrated a positive relationship between SES and life evaluation but an incrementally decreasing relationship with emotional wellbeing, concluding that life satisfaction was for sale, but happiness was not. However, Killingsworth et al. (2023) revisited this research and found that unhappiness was a moderator, that flattened reported emotional wellbeing as income increased above the $75,000 USD threshold reported by Kahneman and Deaton (2010). In practical terms, it is intuitive that basic physical and psychological needs related to SES, such as shelter, food, safety, and autonomy, have all been empirically related to wellbeing, as have other factors that are used to assess SES such as education, occupation, health, and income (Diener et al., 2018). The relationship between SES and wellbeing has been extensively studied in multinational, cross-sectional studies, with income and education consistently positively related to Life Satisfaction (Diener et al., 2018; Fernández-Ballesteros et al., 2001).

Race and Gender

Race appears to be relevant to reported levels of both Subjective Wellbeing and Eudaimonic Wellbeing. Research that has predominantly been completed in the USA has demonstrated that greater levels of reported Subjective Wellbeing for those who identify as white in relation to those who identify as black persist when factors such as income, education, and marital status are controlled for (Keyes, 2009). However, when discrimination was controlled, blacks reported higher levels of Hedonic wellbeing (Keyes, 2009). In research assessing Eudaimonic Wellbeing, blacks report greater levels than whites (Keyes, 2009). In explanation, Ryff (2021) proposed that social disadvantage may build resilience in minority populations, increasing the purpose and meaning these populations attribute to their lives. These findings indicate that wellbeing measures that combine both Subjective Wellbeing and Eudaimonic Wellbeing may provide a more comprehensive

understanding of wellbeing than specific Subjective Wellbeing or eudaimonic wellbeing measures when assessing multicultural groups. Research into the relationship between gender and reported wellbeing has produced inconclusive results, with the outcomes indicating that further research is needed in this area (Keyes, 2009).

Societal differences

There are significant differences when comparing the wellbeing of different countries (Diener et al., 2003). As discussed previously, reported wellbeing is affected by socioeconomic status, age, race, and genetics, which can significantly vary from country to country. Societal structural features have also been linked to reported wellbeing, such as perceived safety, degree of perceived corruption, availability of greenspaces and level of pollution (Eger & Maridal, 2015; Orru et al., 2016; Ryff et al., 2021).

Culture

As with Subjective Wellbeing, it is worthwhile to highlight the cultural factors that influence how wellbeing is assessed and experienced. A long standing critique of Eudaimonic Wellbeing has been its lack of construct clarity from its proponents and the question of whose standards are being used to assess what constitutes a good or meaningful life (Diener et al., 2018). Ryff (1989) captures this conceptual problem succinctly in her examination of happiness concerning psychological wellbeing, observing that “theories of positive psychological function are essentially manifestations of middle-class values” (Pg 1079). To consider Ryff's (1989) position, wellbeing constructs in indigenous cultures will be considered.

For indigenous populations, definitions of wellbeing include specific culturally relevant factors. A commonly used model to assess wellbeing in New Zealand is Te Whare Tapa Whā (TWTW) (Durie, 2006). Te Whare Tapa Whā is based on Indigenous Māori knowledge and consists of four dimensions: Whanau -family and those who positively support an individual, Tinana - physical health,

engagement activities that promote it and care for an individual's environment, Wairua -a spiritual connection to something more significant than the individual- this can be a form of religion or for some can include a connection to the land or sea, or a group or place), and Hinengaro – heart, mind, thoughts and feelings (Durie, 2006). Since its inception in New Zealand, TWTW has increasingly gained traction in the health, justice, and military sectors as a global wellbeing assessment. While some dimensional overlaps can be observed between Subjective Wellbeing, Eudaimonic Wellbeing, and TWTW, other indigenous wellbeing models in New Zealand, such as Te Wheke (Pere, 1991) and Te Pae Mahutonga (Durie, 1999), bear little resemblance to Subjective Wellbeing or Eudaimonic Wellbeing. Dimensions such as Mauriora (cultural identity), Mauri (life force) and Hā a koro ma, a kui ma (cultural legacy) have little common ground with Subjective Wellbeing and Eudaimonic Wellbeing including having no direct translation for these dimensions in the English language. Māori are not alone in uniquely assessing wellbeing, and research indicates that commonly used wellbeing measures may have limited validity with other Indigenous populations (Butler et al., 2019; Le Grande et al., 2017). In a literature review that examined wellbeing dimensions associated with the Indigenous Aboriginal culture; Butler et al. (2019) identified nine domains that described the Aboriginal definition of wellbeing. Le Grande et al. (2017) examined wellbeing assessment instruments for Indigenous Aboriginals and concluded that standard Western instruments failed to capture dimensional aspects vital to Aboriginal understandings of wellbeing. Overall, this research stresses the need to include culturally sensitive approaches to wellbeing assessment.

To summarise, research evidence points to wellbeing being a fluid construct with significant variation from individual to individual, society to society, and culture to culture. Wellbeing is influenced by intrinsic factors specific to the individual and the ecological system (Bronfenbrenner, 1992) in which the individual exits. The next section will briefly examine the relationship between individual wellbeing and social connectedness.

Social Networks and Wellbeing

The preceding discussion should indicate that a wide variety of influences impact how individual wellbeing is assessed and reported, including the individual's social network. Effective social networks are a central influence on wellbeing, and the positive relationship between social connectedness and wellbeing is well documented (Cohen, 2004; Jetten et al., 2012; Uchino, 2004; Umberson & Karas Montez, 2010). As discussed, the relationship between individual wellbeing and social network wellbeing is multi-directional, as the wellbeing experienced by individual network members has been found to increase the potential for wellbeing effects across the entire network (Fowler & Christakis, 2008). In a longitudinal study (n=4500) over 20 years of individuals who were part of the same heart study, Fowler and Christakis (2008) examined the social networks of participants in relation to their reported happiness. They found that people who reported PA were more likely to be surrounded by others reporting PA by up to three degrees of separation. This was still true when they controlled for the tendency of similar types to attract. Fowler and Christackis (2008) concluded that an individual's PA could increase the PA experienced by others within their social network, indicating that the PA of an individual's social network can indicate the likelihood of future PA for the individual. Fowler and Christackis (2008) findings have also been found to be relevant to online networks in research examining the phenomena of Digital Emotion Contagion (Goldenberg & Gross, 2020; Hatfield et al., 1993; Kramer et al., 2014). Emotional contagion refers to the predominantly subconscious process through which individuals align their emotional state with the emotional themes of their social networks (Hatfield et al., 1993). Digital Emotional Contagion refers to the same process occurring via networks of SNS users (Kramer et al., 2014; Goldenberg & Gross, 2020). In controversial research due to concerns regarding ethical consent (Hallinan et al., 2020), Kramer et al. (2014) manipulated the News Feeds of a large group of FB users (N=689003), exposing users to varying levels of positive or negative emotional content. Kramer et al. (2014) then monitored FB user's posts for changes in their emotional content and found a positive relationship between news feed emotional content and user post emotional content. Fowler and Christackis et

al., (2008) and Karmer et al., (2017) findings indicate digital networks have potential to be a conduit for influencing the affect of SNS users. Considering that in October 2023, FB reported over three billion active users per month (We Are Social & Waterman, 2023), the ability to manipulate the affect of SNS users covertly is an area of research that warrants further attention to ensure that ethical approaches by SNS site owners are maintained in online social networks. It should be of considerable concern the central elements to wellbeing such autonomy and affect can be manipulated for large groups of SNS users (Jongepier & Klenk, 2022; Susser et al., 2019). These concerns should prompt Digital Wellbeing researchers to ensure that challenges to autonomy and covert manipulation of affect are a central consideration for research design and interpretation in this area. This concludes the examination of digital wellbeing; the essential question of why wellbeing matters will now be examined.

Why Wellbeing Matters?

A large and growing body of research links increased levels of reported wellbeing to a raft of bio-psycho-social benefits throughout the lifespan (David et al., 2014; Durand, 2015; Huppert & Ruggeri, 2017; Vittersø, 2001). Benefits include increased longevity, improved physical health, reduced stress responses, increased immune system function, increased social contact and community engagement, greater educational achievement, increased creativity, reduced risk of mental health issues throughout the lifespan, and increased productivity and satisfaction in the workplace (David et al., 2014; Durand, 2015; Huppert & Ruggeri, 2017; Vittersø, 2001). Compelling research indicates that wellbeing matters as it profoundly impacts the individual and those within their social network throughout the lifespan, suggesting that wellbeing should be a central consideration of any intervention designed to enhance human performance. In the following section, wellbeing will be defined for this research.

Defining Wellbeing for this Study

Existing research on the subject of wellbeing is extensive. Due to the broad range of benefits related to improved wellbeing, wellbeing continues to be a topic of interest across many disciplines. The preceding section has provided an overview of the leading perspectives currently shaping psychological research examining wellbeing. For this study, an integrated definition of wellbeing will be used. Wellbeing for this research will be defined as:

- A preponderance of positive affect compared to negative affect.
- A positive assessment of Life Satisfaction.
- Positive function in domains that are important to the individual, including relationships.
- A sense of meaning and purpose.

The role of social networks in promoting wellbeing has been a recurring theme in this chapter. The following chapter will explore social connectedness and its influence on wellbeing.

Chapter Three

Social Connectedness

This chapter will discuss the construct of social connectedness. Three broad categories proposed to describe social connectedness will be identified, then research demonstrating how these categories contribute to social connectedness and individual wellbeing will be reviewed. The relevance of social connectedness to this research will be stated to complete this section.

Like wellbeing, social connectedness has no widely accepted definition. Instead, it can be described as an umbrella term that identifies a complex set of overlapping factors often combined to imply the presence of social connectedness (Jetten et al., 2012). Factors typically used to assess social connectedness can be organised into three broad categories: structural support, functional support, and the absence of loneliness (Frieling et al., 2018; Holt-Lunstad, 2018; Valtorta et al., 2016). Social connectedness has a strong positive association with wellbeing and is associated with a broad range of other positive outcomes (Uchino, 2004; Umberson & Karas Montez, 2010). Benefits of social connectedness include reduced risk of depression and anxiety, improved cognitive function, reduced memory decline, reduced cognitive decline, reduced risk of Alzheimer's disease, greater perceived self-efficacy, improved emotional regulation, improved sense of security and self-worth, increased happiness, improved endocrine responses both at baseline and while experience stress, and lowered mortality (Cohen, 2004; Haslam et al., 2016; Jetten et al., 2012; Uchino, 2004).

The next section will examine structural support, functional support, and loneliness in further detail. This section will include identifying how these factors relate to the assessment of social connectedness.

Structural Support

Structural support refers to elements of social networks, such as their size, the frequency of member contact, the reciprocity of contact, the strength of relational ties, and the social role diversity of individuals within the network (Dissing et al., 2018). Social role diversity describes the variety of roles that an individual may have in a social network. For example, an individual may simultaneously be a father, brother, colleague, club member and teacher within the same social network. Individuals with wide social role diversity tend to have diverse broader networks (Dissing et al., 2018). Structural support and various combinations of its elements have been consistently linked to factors that impact wellbeing (Ashida & Heaney, 2008; Cohen, 2004; Umberson & Karas Montez, 2010)

Several terms in the social connectedness literature describe structural support. Commonly used terms that comprise structural support factors or have structural support factors as a central component are social capital, social integration, social participation, social support, and social networks (Haslam, 2015). Unfortunately, it is not unusual in research to find these terms used interchangeably, which it could be argued has contributed to the lack of a universal definition for social connectedness. The next section will discuss mechanisms by which structural support is believed to affect individuals.

Two related theories that are central to understanding how structural support may influence health outcomes are Social Identity Theory (Tajfel et al., 1979) and Self-Categorization Theory (Turner & Reynolds, 2011). Social Identity Theory suggests that a sense of self and understanding of identity develops through interaction with others (Tajfel, 1979). Individuals strive to feel secure and maintain a positive sense of self by privileging social networks that support their preferred self, creating 'them and us' (in-group/other) categorizations (Tajfel, 1979). Self-Categorization Theory proposes that individuals define themselves and others through categorizations (groups). Categorizations have historical, cognitive, cultural, and social expectations attached to them, and these influence how

individuals interpret events and how they respond to them (Turner & Reynolds, 2011). Like Social Identity Theory, individuals define their sense of self and interpretation of external events (including events related to wellbeing) according to group values (Turner & Reynolds, 2011). Social Identity Theory (Tajfel, 1979) and Self-Categorization Theory (Turner & Reynolds, 2011) propose that individuals shape their sense of self and their interpretation and response to external events, including events relevant to wellbeing, through others.

Social networks may have a range of influence on their members. Both Thoits and Hewitt (2001) and Uchino (2004) have suggested that there may be differing outcomes from obligatory networks, such as family groups versus voluntary networks, shared interest groups with voluntary networks proposed to promote greater self-esteem, autonomy and less anxiety than obligatory ties. Other well-known social groups, such as criminal gangs, may actively promote activities that harm the health and wellbeing of group members and others.

Functional Support

A wide variety of cognitive, emotional, and resource benefits that can be present in a social network are described as functional support (Uchino, 2004). These benefits can be divided into four overlapping domains: emotional support, informational support, tangible support, and belonging (Cohen et al., 1985; Cohen & Wills, 1985; Uchino, 2004). Emotional support refers to empathy or sympathy provided when an individual is faced with stressors (Cohen et al., 1985). Relationship satisfaction in the form of friendship, membership, or intimacy and through the provision of a large range of other positive emotional experiences are all examples of emotional support. Informational support refers to the provision of information to the individual. Informational support includes providing advice, information, and suggestions (Frieling et al., 2018; Hale et al., 2005). Tangible support refers to the provision of goods or services such as food, money, labour, employment, or transport (Uchino, 2004; Cohen et al., 1985). Finally, belonging support refers to the presence of

others with whom to engage in activities, and it is closely related to emotional support in providing opportunities for positive activities and shared engagement (Cohen et al., 1995; Uchino, 2004).

Functional support is provided through two pathways: received and perceived support (Uchino, 2004; Cohen, 1985). Received support refers to the current and past support an individual has received. Perceived support refers to the support an individual believes is available in the present or future (Cohen et al., 1985; Uchino, 2004). Social connectedness research indicates that the two pathways are relatively independent concerning their wellbeing effects, but perceived support likely has a stronger relationship to wellbeing than received support (Jetten et al., 2012; Kaul & Lakey, 2003). The stronger relationship identified between wellbeing and perceived support is proposed to occur due to factors such as received support not always aligning with needed support, negative self-perception associated with the need to get support, and the fact that those requesting tangible support may be experiencing higher levels of stress than those who do not (Uchino, 2004, Chen 1985 (Guilaran et al., 2018).

The mechanism by which functional support influences individual group members is complex. Relationships in social networks are multi-directional, and network members may receive support through a direct request to the network, uninitiated contact, or simply being part of the group. For example, normative moderation occurs when an individual identifies with a social network (Umberson & Karas Montez, 2010). This moderation may benefit wellbeing by promoting wellbeing behaviours. A social network may support positive health choices influencing members' thoughts, actions and feelings regarding food, exercise, or alcohol, including how they perceive others' engagement with food, exercise, or alcohol (Uchino, 2004; Umberson & Karas Montez, 2010). Alternatively, a group may benefit an individual's wellbeing through deterrence or moderation of risky or antisocial behaviours such as dangerous driving, verbal or physical confrontation or other behaviours likely to increase stress and risk to wellbeing (Uchino, 2004; Umberson & Karas Montez, 2010).

Two theories feature in social support literature regarding why social support is of benefit. The Main Effects Model and the Stress Buffering Model (Cassel, 1974; Cohen & Wills, 1985; Mitchell et al., 1982). A significant body of research demonstrates that socially active individuals report lower baseline stress, lower stress responsivity, and lower blood pressure than those who are socially isolated (Cohen, 2004; Uchino, 2006). The Main Effects Model proposes that members of social support networks generally have better baseline physiological, psychological, emotional, and social functioning due to the structural and functional support they receive and are, therefore, better equipped to manage adverse life events as they occur (Cohen, 2004). Proponents of the Stress Buffering Model (Cohen & Wills, 1985) propose that the primary benefit social networks provide is their ability to provide resources during adverse life events as they occur, and beyond this, social networks have limited wellbeing benefits. There is evidence that both theories are correct and provide different but related elements of social support (Ashida & Heaney, 2008; Cohen, 2004; Wheaton, 1985).

In summary, structural support describes aspects of a social network, including its number of members, frequency of member interactions, reciprocity of communication, strength of relational bonds and diversity of roles within the network. Functional support describes both tangible and intangible support intrinsic to social network membership. Individuals are thought to be shaped by group norms, values, and rituals in how they act, perceive themselves relative to other group members, and perceive other groups. Social network membership may promote wellbeing or detract from it. This next section will discuss the negative impact of loneliness on social connectedness and wellbeing.

The Role of Loneliness in Social Connectedness Assessment.

Loneliness is defined as an individual's subjective response to the discrepancy between their desired quantity and quality of social connections and the actual quantity and quality of social connections (Hawkley & Cacioppo, 2010). Loneliness research indicates that the greater the

discrepancy, the greater the loneliness experienced (de Jong-Gierveld et al., 2006; Hawkley & Cacioppo, 2010; Russell et al., 1978). The loneliness construct consists of two components: emotional loneliness – the perceived lack of interpersonal closeness or intimacy within an individual's social network, and social isolation - the lack of meaningful engagement with a social network or lack of a social network (de Jong-Gierveld et al., 2006). Relationship expectations and standards inform subjective loneliness; therefore, isolated individuals are not lonely by default, and lonely individuals are not always isolated (de Jong-Gierveld et al., 2006; Hawkley & Cacioppo, 2010). Loneliness can be experienced throughout the lifespan and appears responsive to individual experiences (Cacioppo et al., 2002). Loneliness researchers propose several theories regarding the cause of loneliness. The Social Needs Explanation (Weiss, 1975) proposes that deficits in relationships that cannot meet inherent relational needs (e.g., trust, support, interdependence, and sense of worth) create loneliness. The Social Needs approach draws significantly from Attachment Theory (Bowlby, 1979), events such as experiences of childhood bullying, insecure attachment, exposure to sustained parental conflict as a child, and traumatic relationship separations can increase reported loneliness (Flett et al., 2016). Interactionist explanations of loneliness propose that the interaction between events, culture and individual differences create experiences of loneliness (Heinrich & Gullone, 2006). For example, increased loneliness may be experienced by someone in an unfamiliar group who tends toward introversion and is from a collectivist culture; comparatively, someone in the same group who tends towards extraversion and is from an individualist culture may not experience loneliness. Finally, the Cognitive Discrepancy explanation (Perlman et al., 1984) proposes that discrepancies between desired and actual support, and problem thinking linked to self-blame, lead to deficits in interpersonal interactions including how these interactions are perceived. There is some support for this explanation in research that indicates that loneliness is correlated with perceived social incompetence, victimization and peer rejection among young adults and school children (Cassidy & Asher, 1992; Watson & Nesdale, 2012).

For individuals who experience prolonged loneliness, research evidence strongly supports an increased risk of a raft of adverse health outcomes, including increased risk of cardiovascular disease, stroke and dementia (Cacioppo et al., 2015; Hawkley & Cacioppo, 2010; Heinrich & Gullone, 2006; Meng et al., 2024; Uchino, 2004). Increased mortality and morbidity has been linked to individuals who experience long-term loneliness (Cacioppo et al., 2015; Penninkilampi et al., 2018). Scales used to assess loneliness are often included in social connectedness measures due to loneliness's negative correlation with social connectedness (Heinrich & Gullone, 2006; Lee & Robbins, 1995).

The Measurement of Loneliness

In scientific research, loneliness is treated as a unidimensional and multidimensional construct; therefore, single-item and multi-item measures are commonly used in assessment (Heinrich & Gullone, 2006; Mund et al., 2023; Russell et al., 1978). There has been some debate regarding the psychometric validity of single-item measures in that they may fail to fully capture both the emotional and social isolation components of the loneliness construct (Heinrich & Gullone, 2006; Mund et al., 2023). However, recent research indicates that single-item and multi-item measures are highly correlated (Mund et al., 2023). Like other measures that assess undesirable constructs, loneliness measures must contend with the potential for social desirability bias. To address this issue, some commonly used measures, such as the UCLA Loneliness Scale (Russell et al., 1978) and the De Jong Gierveld Loneliness Scales (De Jong Gierveld & Van Tilburg, 2010), do not use the word loneliness or lonely in their item construction (Marangoni & Ickes, 1989). Marangoni and Ickes (1989) and Jylhä and Saarenheimo (2010) have argued that measures that do not use the word lonely/loneliness in item construction introduce both validity and ethical issues, in that they do not overly state what they measure and may not be reliable measures between participants due to the subjective nature of loneliness. However, in defence of the need to include the term loneliness in loneliness scales neither the UCLA Loneliness Scale (Russell, 1996) or the De Jong Gierveld Loneliness

Scales (De Jong Gierveld & Van Tilburg, 2010) use the term loneliness and both demonstrate robust psychometric properties. In an examination of four studies from community groups, Students, Nurses, Teachers and Elderly, n ≥ 284, Russell (1996) reported a coefficient α = .89 - .94 and test-retest at one year r = .73 for the UCLA Loneliness Scale. In testing across seven countries with large samples (n ≥ 1565) De Jong Gierveld and Van Tilburg (2010) reported α ≥ .81 for the short version of the scale.

In summary, dependent on whether loneliness is theorised as a unidimensional or multidimensional construct, measures can be single-item or multi-item. For commonly used measures of loneliness, both multi-dimension and unidimensional constructs demonstrate good psychometric properties, and research has demonstrated a high correlation between both approaches (Mund et al., 2023). The following section will examine proposed mechanisms of action for loneliness.

The Mechanism of Action for Loneliness.

The mechanism of action for structural and functional support provides a brief and easily determined understanding of the mechanism of action for loneliness. Loneliness impacts the individual through three interlinked mechanisms (Cacioppo et al., 2002). Initially, loneliness is said to deprive the individual of opportunities to access the benefits of structural and functional support and in doing so, it decreases opportunities for group normative influences that encourage lifestyle behaviours that may be beneficial to wellbeing, such as regular exercise, wearing seatbelts or visiting the doctor when sick (Cohen, 2004). In addition , perceived loneliness and associated adverse mental health outcomes may result in dysregulation of the HPA Axis, including reactivity and chronic activation due to stress (Hawkley & Cacioppo, 2010). As discussed in Chapter One, the negative relationship between chronic activation of the HPA Axis and other internal regulatory mechanisms in response to psychological or emotional stressors and physical pathology is well supported in the research literature (Cohen et al., 2007; Tsigos & Chrousos, 2002). The final mechanism through which

loneliness negatively impacts individuals is by denying them access to the Stress-buffering and Main Effects benefits associated with support network membership.

To summarize, social connectedness has no widely accepted definition, it is typically assessed by examining an individual's structural and functional supports and perceived loneliness. Loneliness is defined as an individual's subjective response to the discrepancy between their desired quantity and quality of social connections and the actual quantity and quality of social connections, and research indicates that the greater the discrepancy, the greater the loneliness experienced. From this point onward, social connectedness will be used as a general term to describe structural, functional support and the absence of loneliness. The following section will briefly discuss the proposed moderators of social connectedness.

The Effect of Individual Differences and Culture on Social Connectedness.

The significant factors influencing social connectedness include personality, social network expectations/norms and culture (Cohen, 1985). The next section will describe the influence of personality, attachment styles, and culture on social connectedness.

Personality

Unsurprisingly, personality types influence how individuals establish and maintain social connectedness, and researchers have demonstrated that personality types that tend towards higher extroversion, openness and agreeableness are more likely to report greater perceived social connectedness (Cohen, 2004; Uchino, 2004). Conversely, individuals who tend toward neuroticism, introversion or hostility are likelier to report lower levels of social connectedness and may have more difficulty expressing their needs in relationships, leading to weaker social ties (Uchino, 2004).

Attachment Styles

As discussed, it has been proposed that attachment style significantly influence an individual’s perceptions and expectations of their social relationships throughout the life course,

including how individuals establish, maintain and perceive their social relationships and how they experience them with regard to social connectedness (Uchino 2004). Dividing attachment styles into two broad categories, avoidant and secure, individuals who tend toward avoidant attachment are likely to perceive lower levels of social connectedness, be less inclined to accept support and be less satisfied with the support they receive than individuals who tend toward secure attachment in their relationships (Uchino, 2004). Attachment styles have also been identified in the loneliness literature as a potential multiplier of loneliness-related anxiety (Cacioppo et al., 2002).

Culture

Given that cultural identity is a type of group membership with shared ideas, values, rituals, and history, it is intuitive that cultural norms can impact social connectedness. Broad cultural norms related to social connectedness, such as collectivism and individualism, influence the individual's social connectedness in several ways, and collectivist cultures, by their definition, value social connectedness and offer greater opportunities and expectations for individuals to engage in social networks compared to individualistic cultures. Culture has been identified as a moderator of several factors related to social connectedness (Chen et al., 2012; Wang et al., 2010). These factors include the type of support provided, the frequency offered, the motivation for providing support, help-seeking attitudes, and recipient perceptions of the support (Chen et al., 2012). For example, traditional Māori culture is oriented toward collectivism (Durie, 1995). A form of introduction based on Māori knowledge, the Pepeha is an increasingly used method of introduction in New Zealand in formal settings (O'Toole, 2020). The Pepeha conveys to the listener not only who the individual is but also whom they are connected to via linage, including the speaker's geographically located tribe (Iwi), collective group membership (hapu) and the mountain and body of water that the speaker perceives connection to (Connor, 2019). In this introduction, the speaker maps out a network of social connectedness, including lineage and connection to geographical features, as in Māori culture, these features have a relational aspect from which an individual can draw support too (Connor,

2019). This example highlights the impact of different cultural understandings, both how an individual perceives their support social network and from where they draw support. Finally, it is worth noting that when the ability to engage in social connectedness behaviour is inhibited or enhanced for entire populations, such as during recent COVID-19 restrictions, the impact on individuals may vary according to their collectivist or individual cultural orientation.

To summarize this section, individual differences such as personality and attachment style have demonstrated a moderating effect on factors associated with social connectedness. Culture likely affects how individuals perceive and engage in their social connectedness behaviours and how they understand the social connectedness behaviours of others.

The widespread adoption of the internet and the introduction of SNSs in the last two decades have dramatically reshaped how individuals socially connect (Klimmt et al., 2018; Vorderer et al., 2017). The next section will examine the impact of SNSs on social networks and social connectedness, beginning by defining the term SNS. To follow, a brief history of the evolution of SNS, why research in this area is important, and the factors that influence SNS use. To conclude, social connectedness in relation to ex-police officers will be examined.

Social Networking Sites

Ellison (2007) described SNSs as web-based platforms that allow individuals to construct profiles, connect with other users, and list and transverse those connections to view other users. For an SNS user in 2024, Ellison's (2007) definition is still valid but fails to capture the breadth of function SNSs now hold. The first version of what would be widely recognised as a SNS, Sixdegrees.com, was launched in 1997; despite having millions of early technology adopters, Sixdegrees.com failed in 2000 (Ellison, 2007). Ellison (2007) proposes that Sixdegrees.com failed due to early adopters' disinterest in connecting with strangers and limited numbers of internet users having extended online networks of friends (Ellison, 2007). Despite the failure of Sixdegrees.com, the early 2000s saw the emergence of several key SNSs such as LinkedIn 2003, MySpace 2003, Facebook 2004, Flickr

2004, Reddit, YouTube 2005 and Twitter 2006, which boosted engagement in online social platforms and allowed users a wider variety of mediums and methods through which they could engage with each other. Since the early 2000s, SNS use has proliferated. In 2015, Pew Research reported a nearly 10x increase in the number of SNS users in the USA since 2005 (Perrin, 2015). In the same year (2005), 5% of households in the USA reported social media use, by 2019, this figure had grown to 79% (Ortiz-Ospina, 2019). Facebook, the dominant SNS site since its emergence in 2004, reported 100 million users by 2008 (Ortiz-Ospina, 2019). In October 2023, Facebook reported over 3 billion active users, with its nearest rival, YouTube, recording almost 2.5 billion users, and currently estimated that 84% of all adults are engaged in some form of social media use worldwide (Meltwater, 2024). The adoption of SNS use has been rapid and is comparable to other communication technologies that have fundamentally reshaped the dynamics and function of many aspects of modern living (Ortiz-Ospina, 2019). Worldwide, SNS users spend an average of 145 minutes daily on social network platforms (Meltwater, 2024), according to the American Time Use Survey (2022), that is more time per day on average then Americans spent engaging in Sports and exercise (29mins), caring for or helping household members (51mins) or eating or drinking (71mins).

Given the significant amount of time and volume of SNS users that regularly engage with SNS, it is understandable that interest from social scientists has burgeoned regarding the impact of SNS use on wellbeing. This exploratory research will add to the pool of knowledge regarding the potential outcomes of SNS use for ex-police officers.

Before the development of the internet, internet-capable devices and SNS, social networks that did not involve face-to-face contact were rare but not absent, CB Radio networks being an example. However, how social networks are formed and maintained has been significantly reshaped in the last 20 years (Ellison, 2007). This change has primarily been supported by integrating the internet into modern day-to-day routines, the increased accessibility of a wide array of internet-capable devices, including desktop computers, laptops and smartphones, and the development of

SNS. These developments have changed how commonly identified life domains such as Work, Education, Leisure, and Relationships function and have significantly reshaped traditional face-to-face networks. Social network sites have not only enhanced how groups communicate, share, and disseminate information and knowledge but have also provided an additional domain where social networks are formed and maintained, divorced from the physical constraints associated with well-established life domains. In addition, the internet has provided the possibility of connection to a seemingly endless supply of new social networks, many of which solely exist online. As a result of these changes, opportunities for social connectedness have increased significantly, and often in a non-intuitive manner. A raft of new social identities has emerged, and their origin and enactment are primarily in the online domain. Traditional identity roles such as colleague, teacher or team member may now also be accompanied or surpassed by online identity roles such as forum moderator, blogger, social influencer, or gamer, and this enhancement has also increased opportunities for individuals to form additional social networks connecting with others who also share those online identity roles.

The rapid emergence of SNS use has also led to rapid growth in research interest in this area, including research interest comparing the outcomes of online support with traditional in-person support. In a study of college undergraduates (n=231) comparing online support experiences to in-person support, Cole (2016) found that for those who reported high in-person social support, online support provided no additional benefits; however, online support provided benefits for those experiencing peer victimization. Other research examining received and perceived online support has demonstrated that outcomes are similar to supportive face-to-face interactions: positive affect, sense of community and increased life satisfaction (Oh et al., 2014). In addition to research interest in elements that support social connectedness, research interest has also emerged in examining the relationship between online social network platforms and loneliness with mixed results (Matook et al., 2015). In a national panel survey in the USA (n= 20,096) examining loneliness's structural cognitive and behavioural characteristics, Bruce et al. (2019) found that social anxiety had the

strongest association with loneliness, followed by self-reported social media overuse and text-based social media use.

Given that individuals who experience social anxiety can engage with online networks in relative anonymity and that overuse of social media has an association with loneliness, Bruce et al. (2019) also reported that daily FB use led to a reduction in reported loneliness, suggesting that positive affect experiences associated with “Likes” resulting from online posts may underlie this result. Bruce et al.’s (2019) findings indicate that anonymity is not a barrier to engagement in social networks and that it is the type of engagement that is pertinent to loneliness, not simply engagement. There are indications that for lonely SNS users, a cycle may exist, where lonely or anxious users go online to salve their anxiety or loneliness but do not engage in SNS use that meets these needs, leading to increased distress and more ineffective online social network use (Moretta & Buodo, 2020; O’Day & Heimberg, 2021; Yao & Zhong, 2014). Other researchers have identified the link between the type of SNS use and outcomes associated with wellbeing (Stockdale & Coyne, 2020; Yoon et al., 2019). A meta-analysis of research examining the relationship between specific online behaviours and FB found that the time spent on FB and the frequency of checking FB had a small positive effect on reported depression symptoms (Yoon et al., 2019). Yoon (2019) also reported that users who engaged in general and upward social comparison on FB had small to medium effects on depression. In a 3-year study of adolescents 17-19 years, examining their motivations to use SNS, Stockdale and Coyne (2020) reported that the purpose of use moderated the outcomes of SNS use, finding no relationship between negative outcomes to wellbeing and engagement in SNS for information-seeking and social connection purposes.

In contrast, users who engaged in SNS to alleviate boredom were more likely to experience anxiety, engage in SNS use that interfered with other tasks, and engage in delinquent behaviour, with these outcomes being cumulative throughout the 3-year study (Stockdale & Coyne, 2020). The previous research suggests that the motivation/purpose of SNS use may moderate its outcomes

concerning factors associated with wellbeing. Individual differences have also impacted SNS use (Coyne et al., 2020). In an 8-year longitudinal study of adolescents (n=500, 13-20yrs) examining the relationship between anxiety and depression and SNS screen time, Coyne et al. (2020) found no association between SNS screen time and anxiety and depression when using a within-subject analysis. However, when using a between-subject analysis, a moderate association between SNS screen time and anxiety and depression was observed.

The previous discussion identified that both how people engage in SNS use, why they engage in SNS use, and how outcomes are analysed are all relevant to assessing social connectedness and wellbeing outcomes. The following section will continue examining factors that research has identified as relevant to SNS engagement and its outcomes.

What Influences Social Network Site Engagement?

Motivation

Syn and Oh (2015) make the critical point that regardless of network expansion and accessibility, SNSs could not thrive if users were not motivated to engage with them. Researchers have explored the motivations for users to engage in SNS, finding a wide range of motivations and desired outcomes from business-focused use to entertainment and status enhancement (Bulut & Doğan, 2017; Lin & Lu, 2011; Syn & Oh, 2015). Lin and Lu (2011) examined the motivations for using SNSs, finding that both intrinsic and extrinsic motivations were present for users, with enjoyment being the primary intrinsic purpose with utility for information sharing and connecting. Extrinsic motivation for use was related to the number of peers active on the SNS platform and the anticipated use by peers in the future. Lin and Lu (2011) reported that total platform size (number of members) did not affect reported enjoyment, but for women, the number of peers did, indicating that female SNS users may be seeking contact with those with whom they relate, in contrast to simply having an interaction with another individual. Whiting and Williams (2013) examined SNS use from a Uses and Gratifications Approach (Blumler & Katz, 1974), finding that social interaction and

information seeking were the two most common reasons research participants engaged in SNSs. Syn and Oh (2015) examined SNS use from a motivational perspective across five SNS platforms, finding that the main motivations for SNS use for FB users were for learning and social engagement, concluding that social media users who like to share information and social support were motivated by expectations they would learn and exchange information with others through SNS use. Morris et al. (2010) analysed the questions asked by a cohort of users on FB and Twitter, reporting that 68% of these questions were to seek knowledge from responsive, trusted sources, and the most common reason for answering questions was engagement in altruism. Knowledge sharing, social connection, altruism and reciprocity are motivations identified as having a strong positive relationship with SNS engagement with friends (Leider et al., 2009; Ma & Chan, 2014; Surma, 2016).

Identify Formation and Maintenance

Formation and maintenance of social identity have been linked to SNS engagement. Social Identity Theory (Tajfel, 1979) proposes that individuals define their sense of self according to interactions with their social groups. These interactions form feedback that shapes self-perception and how they interact with the world around them. In addition to a sense of self, groups provide a sense of belonging and norming feedback regarding what is valued and what is not. Social identity is proposed to be a powerful shaper of behaviour, as individuals behave in a manner that signals group membership, aligning their actions with group values (Jetten et al., 2012). In the case of SNSs, if a social network group values knowledge sharing, social connection, altruism and reciprocity, these values are likely to be enacted by its members with increasing opportunities for elements of social connectedness such as perceived and received support within the group (Leider et al., 2009; Ma & Chan, 2014). Other research has indicated that individual differences should also be considered when assessing SNS use.

Personality

The Five-Factor Model (McCrae & John, 1992), a widely adopted model that describes the construct of personality, consists of five personality dimensions: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Seidman (2013) examined the relationship between personality and FB use using the Five Factor Model, finding a strong positive relationship between FB use, agreeableness and belongingness. Belongingness is regularly considered when assessing social connectedness (Frieling et al., 2018; Lee & Robbins, 1995). Seidman (2013) found that agreeableness was positively associated with communication but not information seeking, proposing that individuals who scored high in agreeableness were more likely to use FB to seek acceptance and maintain connection. Individuals who scored highly on neuroticism were proposed to use FB as a safer way to meet their belongingness and self-presentation needs rather than seeking them in the physical world (Seidman, 2013). In contrast, individuals who scored highly in extroversion were more frequent users of FB (frequency of access, duration of access and production of content) and were thought to use FB as an adjunct to face-to-face relationships (Seidman, 2013). This result is well supported by other researchers (Blackwell et al., 2017; Bowden-Green et al., 2020; Pagani et al., 2013).

Given that SNS use offers users access to a wealth of new experiences, research demonstrating the positive relationship between SNS use and openness is unsurprising (Seidman, 2013). The relationship between Conscientiousness and SNS use is less clear. Ross et al. (2009) found no relationship, Seidman (2018) reported a negative relationship, and in a large study (n=21,314) examining the relationship between frequency of social media use, social interaction with others, and information seeking, Gil de Zúñiga et al. (2017) found that Conscientiousness positively correlated with all three variables. These findings demonstrate that the relationship between some dimensions of personality is yet to be fully explored, and further research in this area would be of value.

Age

As internet-capable technology, SNSs, and the Internet itself are all recent phenomena, it is unsurprising that age is related to SNS engagement. Age groups that fall into the Digital Native category (those who grew up with mobile internet access such as the smartphone, the internet and associated technology) report greater rates of SNS use than users in age groups that can be categorized as Digital Immigrants (those who adapted to the invention of smartphones, the internet and associated technology) (Prensky, 2001). In research examining social media use over ten years (n=1502), Auxier and Anderson (2021) reported 39% more SNS use by internet users aged 18-29 years than users aged 65+. Internet users 19-29 years consistently were the largest group of SNS users when compared to all age groups measured (30-49yr, 50-64yr, 65+) (Auxier & Anderson, 2021). However, compared to data from 2012, this research indicated a rapid adoption of SNS use by all age groups except the 18-29 age group, whose reported SNS use remained relatively stable (82-90%). Social network site use in other age groups grew significantly, 28% for 30-49 years, 36% for 50- 64 years, and 44% for 65+ years, indicating that older users increasingly engaged with SNS (Auxier & Anderson, 2021). This information is interesting for several reasons; research examining the relationship between social networks across the lifespan strongly indicates that individuals tend to increase the size of their social networks through to young adulthood, and then beyond young adulthood, social networks tend to decrease in size (Wrzus et al., 2013). The reduction in social network size is proposed to result from life events such as attrition of social network members through increasing mortality in age groups and other life events, such as divorce, relocation or retirement (Luong et al., 2011; Wrzus et al., 2013). However, interestingly, research findings indicate that despite decreasing network size, the satisfaction derived from social networks tends to increase with age (Luong et al., 2011; Wrzus et al., 2013). Given that older age groups are increasingly engaging in SNS use and that SNS networks can overcome the proximity and temporal challenges associated with relationship maintenance in face-to-face social networks. There is a need for

research examining how SNS use impacts social networks, and the benefits users receive from them as they age.

Culture and Ethnicity

Research examining the relationship between SNS engagement, culture, and ethnicity is limited, and researchers who have examined this relationship have found more similarities than differences in engagement with SNS platforms between ethnicities (Perrin, 2015). When SNS platforms were separated, differences in ethnic engagement were present (Hargittai & Hinnant, 2008). In research examining the relationship between a variety of SNS platform use among White, Asian American, Asian and Hispanic students, Hargittai and Hinnant (2008) found that Hispanic students were more likely to use MySpace than White students and Asian and Asian American students were more likely to use Xanga and Friendster then White students. In New Zealand, some researchers have suggested that SNS engagement may have added utility for indigenous users. In research examining Māori use of technology, Keegan and Sciascia (2018) have suggested that digital technology, SNS, and the internet can strengthen Māori culture, as the digital domain provides a non-traditional domain through which cultural concepts can be enacted and shared. Important cultural values such as whakawhanaungatanga (connection), Aroha (care) and Te Reo Māori (the Māori language) can all be enacted in the online domain and via SNS. Keegan and Sciascia (2018) note that for Māori who are geographically disconnected from important relationships and place such as their Turangawaiwai (the place they feel spiritually connected to, that empowers them, and promotes their wellbeing), connecting through the internet may be an invaluable bridge for the geographical gap. Keegan and Sciascia (2018) have also suggested that emerging technology-driven behaviours such as the use of FB streaming for Tangihanga (death ceremonies) and the use of online communication as a proxy for kanohi ke te kanohi (face-to-face) communication are being adopted by Māori to maintain a sense of cultural participation and enact cultural values. The rapid adoption of internet-based technology by Māori may also be influenced by factors such as the ability of Māori

to collaborate and share information with other indigenous groups and promote cultural knowledge. Keegan and Sciascia's (2018) work may indicate that Māori's use of SNS may have significant functional differences from that of non-Māori, and this area warrants investigation in the future.

Gender

Research regarding differences in SNS engagement related to gender has provided mixed results; although women tend to demonstrate slightly more overall engagement with SNSs, these results tend to vary when examining the relationship between gender and specific SNS engagement (Auxier & Anderson, 2021; Duggan et al., 2015; Gazit et al., 2020). Motivations of the SNS user and the differences in platform utility are likely a significant influence on gender differences in SNS engagement, as there is some researchers have reported that men are primarily motivated by information seeking and women by relational factors (Barker, 2009; Krasnova et al., 2017; Lin & Wang, 2020).

Household Income and Education

While household income appears not to be a significant factor in SNS use, it should be apparent that much of the research examining this relationship is conducted in countries with affordable access to the internet and internet-capable devices (Poushter et al., 2018). Research indicates that SNS use in developing countries is rapidly increasing; however, relative household wealth worldwide creates a digital divide between developed and developing countries. This divide is present not only for SNS use but for digitally related products, services and goods worldwide (Poushter et al., 2018).

Survey data published by Pew Research (Auxier & Anderson, 2021) on the demographics of SNS users in the USA indicates a weak relationship between household income and SNS engagement. The Pew Survey (Auxier & Anderson, 2021) reported that although households with the highest income ($75,000+) reported the most SNS use, 78%, the second highest use (76%) was reported in

the lowest income level surveyed (<$30,000). Before the 2021 survey (Auxier & Anderson, 2021), a 2019 survey reported that income earners in the $50,000-74,999 income bracket were the highest SNS users (86%), with the next highest users (78%) in the highest income bracket ($75,000+). Interestingly, for the $50,000-74,999 income bracket, SNS use fell from 86% to 65% between 2019 and 2021, while all other income levels increased or maintained their SNS use. Given the central role of SNS in significant cultural, political and functional changes that occurred in the USA and worldwide during this period (the Black Lives Matter movement, the USA 2020 general election and the COVID-19 Pandemic) (Anderson et al., 2020; Cinelli et al., 2020; Wong, 2020) and research from Pew Research (Auxier, 2020) that indicates that many users perceived SNS use as increasingly divisive in 2020 in the USA. Research examining the shift away from SNS use by users in the $50,000-74,999 income bracket could be of interest.

The relationship between educational achievement and SNS use appears to be limited. In research published by Pew Research (Sidoti, 2023) examining the level of formal education in relation to SNS use, SNS use was reported to be lower for those with a high school education or less. Beyond the high school level, no significant differences were present. Despite significant concern regarding the relationship between academic performance and SNS use, the research to this point is inconclusive, with several meta-analyses reporting both small positive and negative effects or statistically insignificant findings (Doleck et al., 2019; Huang, 2018; Liu et al., 2017; Marker et al., 2018).

To summarize, SNSs have significantly changed the way traditional social network's function. In addition, SNSs now provide those with internet access and access to a vast array of social networks, thereby providing opportunities to engage in social connectedness. Social network users engage in SNS sites for various reasons, such as information seeking/sharing, relationship maintenance, altruism, entertainment, and socialising. Personality, age, gender, culture, household income and education all influence how and why users engage in SNS use to varying degrees. Use of

SNSs can either enhance or detract from an individual's wellbeing, dependent on a wide variety of factors. Current research indicates that how users engage in SNSs, their motivations for engagement, and how this engagement is measured are relevant to determining the potential effects of SNS engagement.

Social Connectedness and the Police.

As discussed, the policing environment offers unique challenges and risks to its personnel. Factors such as conflicting work schedules with friends and family from shiftwork, formation of strong insider/outsider professional identity, exposure to higher rates of trauma, higher rates of reported mental health issues, and experiences of isolation from support networks are related to social connectedness. Research indicates that enhanced levels of social connectedness and social support benefit first responders, including police personnel. Enhanced levels of social connectedness and social support are positively related to lower levels of reported stress and increased levels of resilience (Graf, 1986; Hilbrink, 2022; Stephens et al., 1997). Social support appears to be relevant both before and after stressful events. Pietrzak et al. (2009) hypothesized that resilience and social support likely operate in unison and that resilient individuals may be adept at creating effective support networks and seeking appropriate support when needed. Social support is strongly linked to post-trauma recovery (Charuvastra & Cloitre, 2008). Charuvastra and Cloitre (2008) note that social support both before and after trauma may be the most influential factor in risk and recovery for the individual.

Social Networking Sites and the Police

There is limited research examining the relationship between SNSs and ex-police officers. An Initial search of Google Scholar (2 November, 2023) for research examining the relationship between SNS, Social connectedness and police, ex-police, or first responder populations returned no results relevant to this literature review. A wider search was undertaken for the relationship between SNS use, support, social connectedness, and isolation. Research from this search indicated the potential

for both beneficial and harmful effects on social connectedness and isolation from SNS engagement (Balki et al., 2022; Lee et al., 2013; Pittman & Reich, 2016; Ryan et al., 2017). Given the unique population characteristics identified for ex-police officers, such as the potential for reduced social support, increased risk of isolation and the preference for engagement with others who understand the policing experience, SNS networks can benefit this population.

In summary, social connectedness has no widely accepted definition. Instead, it is an umbrella term that describes a complex set of interrelated elements provided by the structural and functional domains of an individual's social support network (Frieling et al., 2018; Jetten et al., 2012; Umberson & Karas Montez, 2010). A substantial and growing body of evidence links the presence of social connectedness to a wide range of physical, psychological, and prosocial benefits for individuals and their social networks throughout their lifespan (Cohen, 2004; Haslam et al., 2016; Uchino, 2004). Loneliness is the antithesis of social connectedness and is thought to impact the individual negatively through denial of opportunities for social connectedness and directly via the physiological responses associated with anxiety (Cacioppo et al., 2002; Hawkley & Cacioppo, 2010). Individual differences and culture influence social connectedness (Hargittai & Hinnant, 2008; Seidman, 2013). Improving social connectedness through SNS use may be of particular benefit to the ex-policing population, which has an increased risk of experiencing isolation and a raft of mental and physical health challenges. The benefit of online social networks may be derived from removing the temporal and physical boundaries associated with face-to-face networks that online networks provide, and perhaps more importantly, the ability to provide ex-police officers with a readily accessible social support network that understands the experience of policing.

Research Hypotheses

To this point, the relationship between policing, wellbeing, social connectedness, and social networks has been discussed. This study aims to provide exploratory data regarding the relationships between the wellbeing of ex-police, social connectedness, and online social network use. With this purpose in mind, the hypotheses for this research are:

H1: The relationship between social connectedness and wellbeing will be positive and significant for ex-police officers.

H2: The relationship between social network site use and social connectedness will reflect an inverted U-shaped relationship, where social connectedness is positively related to SNS use when smartphone use is moderate.

H3: The relationship between SNS use and wellbeing will reflect an inverted U-shaped relationship, where wellbeing is positively related to SNS use when SNS use is moderate.

H4: Social connectedness will moderate the relationship between SNS use and wellbeing.

Chapter Four

Methodology

Research Method

This research aimed to conduct cross-sectional survey research with a sample of ex-New Zealand police officers to gather data regarding their use of SNS and explore the relationship between their SNS use, their online social support/social connectedness, and wellbeing. Research participants were recruited via three online social network groups, whose members are current and retired NZ police personnel. An invitation to participate in the research was provided to the FB page administrators, who posted the invitation on the Facebook pages for the groups. The invitation included a link to the information page for the research. The information page included information about the researcher and research supervisor, information about the purpose of the research, information detailing participant anonymity and how participant data would be protected, the expected outcomes of the research, identified ethical issues, details regarding the length of the survey and content, and details regarding potential compensation for research participation.

Power Analysis

Cohen (1992) provides guidelines on the relationship between, sample size, statistical power and the applicability of various statistical tests. These guidelines demonstrate that sample size is directly relevant to the ability of statistical tests to reliably detect effects of different magnitudes. G*Power statistical software (Faul et al., 2007) was used to calculate the exact number required for this study. For the moderation analysis proposed in this research a total sample size of 119 after data screening would provide an adequate power (.80), to detect medium effect at $\alpha = .05$.

Sample

The population of interest in this research was New Zealand ex-police officers who are

social network site users. In total the invitation was provided to 7900 SNS[2] members across three independent FB groups. The survey remained open for nine weeks and received fifty-five responses. After data screening, a final sample size of N = 38 was available for data analysis. Eighty-seven per cent of the participants were male, and 13% were female. As of 2022, females comprised 25% of the New Zealand Police force (Coster, 2022). Respondents were just over 92% Pakeha, over 5% chose not to report their ethnicity, and the remaining 2% were of Māori and Pacifica descent. Respondent ages ranged from 28 – 84 years, with a mean of 65.4 years. The length of service ranged from 22 years to 50 years, with a mean of 22 years. Ninety-four per cent of respondents identified that they had left the police force voluntarily, and 6% involuntarily. Seventy-eight per cent of respondents were married or in a de-facto relationship. Almost 60% of respondents reported that it had been 21 years or more since they had left the police force. This figure increased to 79% for respondents who had left the police force 16-20 years ago.

Procedure

Approval to conduct this research was provided by the Massey University Human Ethics Committee (approval number: 4000028452). The research received low-risk approval. A draft electronic survey was created using the psychometric measures outlined below and the Qualtrics online survey platform. A small group (n=13, aged 23-65) piloted the draft survey. This group was selected using convenience sampling. The pilot group provided feedback on the readability, comprehension, time taken, layout of the survey, and general impressions. This feedback was used to refine the draft survey to produce the final survey. As the survey invitation included the option of entering a draw to receive or donate a koha (gift) for partial compensation for the participant's time, two additional questions were included in the eligibility screening section of the survey to provide an additional barrier to discourage phishing attacks. A separate URL link to another page allowed participants to enter the prize draw to ensure that compensation data was

[2] The number of members in a Facebook group does not necessarily reflect the number of active users consistently engaging with the group.

separated from survey data.

On March 27, 2024, an invitation to engage in the research, including a URL link, was initially posted on three private FB groups. The first FB group (*n=7900*) was comprised of both current police officers and ex-police officers. The other groups (*n=1300*, *n=283)* were comprised of ex-police officers only. The intention was to initially gather data for a three-week period. By April 30 2024, the survey had received a limited response (*n = 45*) despite reminders being posted by the FB administrators. At this stage, it was decided to leave the survey open to obtain additional responses, and the survey link was pinned to the FB home page. Another FB group of ex-New Zealand Police officers was identified on May 12, 2024 (*n = 22*), and this group were invited to engage in the survey on the May 17, 2024. On the May 30, 2024, the survey had been open for 65 days. The decision was made to close the survey at this point, due to a period of ten days without additional responses, and the time constraints that were present for this study. The survey was closed with 55 responses, with the last response to the survey submitted on the May 20, 2024.

Statistical Analysis

Data from the Qualtrics online survey platform was downloaded, and the Statistical Package for Social Sciences (SPSS) version 29 was used for the statistical analysis. Due to the sample size and distribution testing results, parametric and nonparametric tests were used for the statistical analysis. Data screening processes were then used to identify valid data for the analysis. Descriptive statistics were then used to examine the data set. Mann-Whitney U Tests were used to identify differences between various sample subsets, such as differences in online support scores between participants according to median age and median years of service. These two categories were chosen due to the hypothesized relationship between wellbeing and police work and the research discussed in chapter two evidencing the negative relationship between age and SNS use (Auxier & Anderson, 2021). Kendall's Tau-b was used to examine correlations between the primary measures proposed in the research hypothesis, H1, H3 and H4. As this is exploratory research, further analysis was undertaken.

The TWTW is a non-validated New Zealand-specific model of wellbeing; therefore, its correlation with validated measures related to wellbeing, the PHI and DJGLS-6 was investigated. Participants were also asked to directly report on the impact of SNS use on their TWTW (TWTW-SNS) results from this scale will be reported.

Measures

Demographic Items

Participants completed a series of questions that canvassed critical demographic information, including age, gender, relationship status, ethnic group, years of service in New Zealand Police, and whether they left the police voluntarily or involuntarily. Due to the small sample size, some demographic factors have been withheld from the results to avoid compromising respondent confidentiality.

Social Connectedness

The Online Support Scale (OSSS1/OSSS2) (Nick et al., 2018). The Online Social Support Scale is a 50-item scale with five subscales designed to assess online social support. The first subscale measures total SNS use (OSSS1), and the following subscales (OSSS2) are designed to capture four types of online support: emotional support, social companionship, informational support, and instrumental support. It was developed initially via a literature review of theoretical and conceptual attempts to define the in-person support construct. This review identified twenty-one subtypes of social support, with four prevalent subtypes emerging: emotional support, social companionship, informational support and instrumental support. To follow, existing in-person support measures, ad hoc social support measures and published content analysis of online posts were examined to identify potential items representing the four prevalent subtypes. Factor analysis supported the relevance of the four-factor structure and in-person support subtypes to online support subtypes. Item response theory was then used to refine items for each subtype, in development both convergent and provide support for the OSSS2. The Online Support Scale was chosen as the

subscales of the OSSS2 align well with the factors identified in Chapter 2 that are commonly used to assess social connectedness, structural support, and functional support. Structural support aligns with social companionship and emotional support. Functional support aligns with emotional support, informational support and instrumental support. The Online Support Scale has a sound theoretical and conceptual basis (Nick et al., 2018). Most previous literature examining online social support has used adapted in-person social support measures that have not been validated to measure online social support (Nick et al., 2018). The Online Social Support Scale demonstrates strong psychometrics (Cronbach's alphas: Total Scale = .97; Esteem/Emotional Support = .97; Social Companionship = .95; Informational Support = .96; Instrumental Support = .90) with evidence of validity for both general and forensic populations and in cross-cultural settings (Masciantonio et al., 2021; Nick et al., 2018; Rabasco et al., 2021). In line with previous research, for this study the Online Support Scale demonstrated generally good reliability with the exception of the OSSS1: Chronbach's Alphas, Total Scale = .95, OSSS1 = .71, OSSS2 = .95, subscales Esteem/emotional support = .95, Social companionship = .89; Social Companionship = .90; and Informational Support = .87.

Loneliness

The 6-item DeJong Gierveld Loneliness Scale (DJGLS-6, Gierveld & Tilburg, 2006). The DJGLS-6 is designed to assess emotional and social loneliness and is an adaptation of the 11-item De Jong Gierveld Loneliness Scale (De Jong-Gierveld & Van Tilburg, 1999). The DJGLS-6 has been widely used cross-culturally to assess loneliness, demonstrates sound structural validity and internal consistency and has been used to assess loneliness in a diverse range of cultural settings, including New Zealand (Alsubheen et al., 2023; Leung et al., 2008; Rodríguez-Blázquez et al., 2021; Waldegrave et al., 2020). The DJGLS-6 was selected for this research due to its brevity, psychometrics, Chronbach's alphas between .70 - .76, and successful prior use in New Zealand (De Jong-Gierveld & Van Tilburg, 1999; De Jong Gierveld & Van Tilburg, 2006; Waldegrave et al., 2020). The DJGLS-6 reported a good Chronbach's alpha = .85 for this study.

Wellbeing

Two methods of assessing wellbeing were chosen for this research. The first measure was a composite assessment of wellbeing that captured both Subjective Wellbeing and Eudaimonic Wellbeing. This measure was chosen as it provided a comprehensive assessment of wellbeing from a Western psychology perspective. Secondly, wellbeing was assessed using a wellbeing assessment tool based on Indigenous Māori knowledge. This tool is commonly used in various contexts in New Zealand. The purpose of including a cultural measure of wellbeing was to ensure that any cultural nuances of wellbeing would also be reflected in the research data.

The Pemberton Happiness Index (PHI) (Hervás & Vázquez, 2013). The PHI (Hervás & Vázquez, 2013) is a three-scale, 21-item measure used as one measure of wellbeing for this research. The PHI was designed using a large (N=4407) demographically heterogeneous cross-cultural sample from nine countries in seven languages. The PHI is a composite measure of global wellbeing. Subscales of the PHI assess subjective wellbeing, eudemonic and social wellbeing, where social wellbeing is defined as living in a society that promotes optimal psychological functioning. Instruments commonly used to assess subject, eudaimonic, and social wellbeing were identified to create the PHI. Initially, commonly used wellbeing measures were identified, and items from these measures that represented experienced and remembered for each subscale were selected by subject matter experts. The initial pool of 37 items was then tested with a large group of participants (N=4052), and several other highly validated wellbeing measures were also included for validation. Final items were selected for the PHI using convergent validity with other well-validated measures as the main criterion for item selection. Items showing the highest mean correlation across countries were chosen for the final measure. The PHI demonstrates good psychometrics, Cronbach's alpha above .89 for eight countries (.82 for Turkey), mean inter-item correlations, .31-.56, and convergent validity with other validated wellbeing measures (Hervás & Vázquez, 2013). Other strengths of the PHI include that it canvasses both experienced and remembered wellbeing; these are related but

separate constructs (Kahneman & Riis, 2005) and separating them provides a broader measure of wellbeing. It appears the PHI has not been used in New Zealand, but it has been chosen for this research due to its sound psychometric properties, composite assessment of wellbeing, and the inclusion of cross-cultural considerations into its design. These factors increase its suitability for the diverse cultural make-up of the general population in New Zealand. For this study the Chronbach's alpha for the full scale was adequate rs = .75.

Te Whare Tapa Whā (TWTW) (Durie, 1985). As research participants will be from the New Zealand population, TWTW has been included as it is a culturally based, widely accepted measure of wellbeing in New Zealand. In TWTW, wellbeing dimensions are conceptualized as the four walls of a traditional Māori wharenui (meeting house). Each wall is required to support wellbeing. The theoretical basis for TWTW is in traditional Māori knowledge. The four dimensions are: Wairua – spirituality, a sense of connection to a higher order, Whānau - those whom the individual supports and is supported by, Hinengaro - thoughts and feelings, how individuals relate to others; and Tinana - physical health, nutrition, sleep, exercise, and hygiene are all part of Tinana. Ordinal scales have been used for each wellbeing dimension to allow for statistical analysis of this measure. There is some precedent for using TWTW in this way from the model's designer (Kingi & Durie, 2000). In the next chapter, the research results are presented. The TWTW returned an adequate Chronbach's alpha for this study rs = .75 warranting further investigation for its viability as a quantitative measure of wellbeing.

The final section of the survey asked participants to assess how their SNS use affected their TWTW (TWTW-SNS). A five-point Likert scale captured participant responses from mostly negative to mostly positive for each TWTW dimension. Following the recommendations of Sullivan and Artino (2013) for the analysis and interpretation of Likert scales, responses were converted to numbers from -2 (mostly negative) to 2 (mostly positive) and then treated ordinal data in order to capture the

positive and negative influences of SNS use on overall wellbeing and specific dimensions of TWTW. This allowed a range of negative eight to positive eight to be scored on this scale.

Chapter Five

Data Analysis

Results

This chapter presents the results of this study concerning the four proposed hypotheses. Data screening and the method used to prepare the data for analysis will be described. To follow the Descriptive statistics of the data will be outlined. Each hypothesis will then be considered, including the test procedures and findings. To complete this chapter, some of the exploratory analyses conducted in this research will be summarized.

Data Screening

Accurate data analysis is only possible when raw data has been appropriately prepared (Pallant, 2020). Initially, raw data was checked for incomplete data sets, potential outliers, and duplicates, and the normality of the data was assessed.

Incomplete Data

Twelve data sets were incomplete (<54%). Littles Missing Completely at Random (MCAR) (Little, 1988) was conducted to assess the missing data, and this test indicated that the missing data was independent of observed and unobserved values, c^2 = (1040, n = 38) = 380.208, p =*1.0.* Listwise deletion was used to remove the twelve data sets.

Duplicate Data Sets

Five data sets were identified as possible duplicate responses by the Qualtrics survey platform. All five were identified as duplicates as they had been received from the same device in short succession and removed after comparing these data sets with existing responses.

Outliers

Possible outliers were identified using the outlier labelling Rule (Tukey, 1977) using a multiplier of 2.2 (Hoaglin & Iglewicz, 1987). One outlier was identified for TWTW with a value of 2.0. The lower limit for TWTW was set at 4.04. This outlier was retained, as this data set showed a maximum score on the DJGLS-6 and was close (3.3) to the lower limit for the PHI (3.0) and was deemed to be a real-world value in the small data set. No other outliers were identified. From the remaining data set, 1% was missing. Missing data on all variables was replaced by the mean, resulting in *n = 38* data sets being available for analysis.

Data Normality

The normality of the data was assessed initially with histograms and then by using the Shapiro-Wilk test, as this is appropriate for small samples (Mishra et al., 2019). The OSSS1, PHI, DJGLS-6 and TWTW returned statistically significant results, see Table 1. Skewness and kurtosis were checked using the SPSS analyse-descriptive Statistics – Descriptives function. The DJGLS-6 and TWTW indicated kurtosis, with TWTW also negatively skewed, see Table 2. Histograms, the Shapiro-Wilk Test, Skewness and kurtosis results all indicate that distributions for the OSSS1, PHI, DJGLS-6, and TWTW violate the normality assumptions required for the use of parametric tests.

Table 1

Test of Normality Shapiro-Wilk Test (n=38)

Scale	Statistic	df	Sig.
OSSS1	.90	38	.002
OSSS2	.98	38	.828
PHI	.92	38	.008
DJGLS-6	.87	38	<.001
TWTW	.93	38	.024

Table 2

Test of Skewness and Kurtosis (n = 38)

Scale	Skewness	Kurtosis
OSSS1	.97	.37
PHI	.98	.35
DJGLS-6	.34	-1.44
OSSS2	-.17	.81
TWTW	1.01	2.37

Descriptive Statistics

Choices regarding which measures of central tendency to report are determined by the data set. In this case, OSSS2 is the only data set that indicates a normal distribution. Table 3 displays the median, Interquartile range, and minimum and maximum values for primary measures identified as non-parametric distributions. Mean, Standard deviation and minimum and maximum values are displayed for OSSS2. As factors related to police service are a central topic of interest for this research, the data set for OSSS1 and OSSS2 was split into two categories concerning the median years of police service, n=18.5. The low category represents ≤ 18 years of police service. The high category represents ≥ 19 years of police service.

Table 3

Descriptive Statistics

Scale	Median (IQR)	Median	Minimum	Maximum	Mean	Std Dev
OSSS1 Low	9	7	2	16	––	––
OSSS1 High	13	6	2	15	––	––
OSSS2 Low	––	––	38	117	69.5	19.7
OSSS2 High	––	––	6	92	59.7	21.9
PHI Low	2.5	7.2	3	9.3	––	––
PHI High	1.9	8	4.5	8.9	––	––
DJGLS - Low	6	1	0	6	––	––
DJGLS - High	6	3	0	6	––	––
TWTW - Low	8	28	8	40	––	––
TWTW - High	1.3	31	25	40	––	––
Age - Low	9	64	28	77	––	––
Age - High	9	68	63	84	––	––
Employment Years - Low	7	12	2	18	––	––
Employment Years - High	11	32	19	50	––	––

As OSSS1, PHI, DJGLS-6 and TWTW violate the assumption of data normality required for an independent sample t-test, a Mann-Whitney U test was considered for comparing the High and Low groups. The Mann-Whitney U test requires independent groups, independent observations, continuous or ordinal data and a similarly shaped data distribution (Mat Roni & Djajadikerta, 2021).

Histograms were used to compare data distributions between High and Low groups for OSSS1, PHI and DJGLS-6 for the abovementioned scales. TWTW did not meet the criteria for a similar-shaped distribution. A Mann-Whitney U test comparing medians was conducted between High and Low groups in relation to OSSS1, PHI and DJGLS-6. No significant statistical differences were found between the groups (OSSS1 $U\ (n_{High} = 19, n_{low} = 19) = 171.00$ $p = .80$, PHI $U\ (n_{High} = 19, n_{low} = 19) = 246.00$, $p = .06$, DJGLS-6 $U\ (n_{High} = 19, n_{low} = 19) = 167.50$ $p = 0.71$. Indicating that there were no statistically significant differences between the High years of service group and Low years of service group for SNS use (OSSS1), Wellbeing (PHI) and Loneliness (DJGLS-6). An Independent samples t-test was used to compare means for Low ($M = 69.47$, $SD = 19.67$) and High groups ($M = 59.73$, $SD = 21.86$) for OSSS2. Levene's test indicated equal variances between the two groups $F = .27$, $p = .61$. The t-test results showed no statistically significant differences for online social connectedness (OSSS2) between high years of service group and low years of service group, $t(36) = 1.44$, $p = .158$, 95% CI [-3.94, 23.42] when compared to years of service.

The data set for online social connectedness (OSSS2) was also divided by mean (m = 64.61) into $High_{SC}$ (> 64.61) and Low_{SC} (< 64.61) groups and compared to other primary scales using the Mann-Whitney U test. A statistically significant difference was reported for OSSS1 $U\ (n_{High\text{-}SC} = 19, n_{low\text{-}SC} = 19) = 100$, $z = -2.37$, $p = .02$, $r = -0.54$ and DJGLS-6 $U\ (n_{High\text{-}SC} = 19, n_{low\text{-}SC} = 19) = 134.50$, $z = -2.25$, $p = .06$, $r = -0.52$. These results indicate a medium to large effect (Cohen, 1992) of online social connectedness (OSSS2) on SNS use (OSSS1) and loneliness (DJGLS-6). No statistically significant difference was reported for PHI $U\ (n_{High\text{-}SC} = 19, n_{low\text{-}SC} = 19) = 134.50$, $p = O.18$.

Social Network Site Use

Social Network Site use was recorded using the OSSS1, N = 38, M = 7.92, R = 25. All respondents reported using at least one form of SNS sometimes, with users at the upper end of the scale reporting use of up to eight SNS sites Pretty Often to A Lot. The SNS site most used was Facebook, followed by YouTube, WhatsApp and Instagram.

Hypothesis Testing

Initially, correlations between primary scales were examined. As most of the data indicated it was non-parametric, the widely used Pearson product-moment correlation coefficient was ruled out as a suitable correlation test. Kendall's tau was considered; however, it was also ruled out due to its disadvantages in calculating confidence intervals when ties in data are present (Puth et al., 2015). As Spearman's rho does not assume a normal distribution, a linear relationship, is robust regarding outliers and is valid for ordinal data, it was selected as an appropriate correlation measure. Table 4 displays Spearman's correlations between primary scales.

Table 4

Spearman's Correlations for Primary Scales

Scale		OSSS1	OSSS2	PHI	DJGLS-6	TWTW
OSSS1	*rs*(36)					
	Sig (2-tailed)					
OSSS2	*rs*(36)	.42*				
	Sig (2-tailed)	.01				
PHI	*rs*(36)	.08	.13			
	Sig (2-tailed)	.62	.45			
DJGLS-6	*rs*(36)	-.81	-.27	.55*		
	Sig (2-tailed)	0.63	.103	<.001		
TWTW	*rs*(36)	.17	.27	.64*	-.57	
	Sig (2-tailed)	0.3	.11	<.001	<.001	

* Correlation is significant at the .01 level (2-tailed)

There was a positive and significant positive relationship between SNS use (OSSS1) and online social connectedness OSSS2 r_s =.42, *n* = 36, *p* = .01. There was a non-significant relationship between SNS use and both measures of wellbeing, PHI r_s =.08, *n* = 36, *p* = .617, TWTW r_s = .17, n=36, *p* = .30, DJGLS-6 r_s = -.08, n=36, *p* = .63. A significant negative relationship was reported between loneliness (DJGLS-6) and both measures of wellbeing PHI r_s = -.55, *n* = 36, *p* = <.001, TWTW r_s = -.57, n=36, *p* = < .001, and a significant relationship between both scales of wellbeing PHI r_s =.64, *n* = 36, *p* = <.001. No other significant relationships were reported.

Hypothesis 1 - The relationship between online social connectedness and wellbeing will be positive and significant for ex-police officers.

Scatter plots were initially examined to test this hypothesis, examining the relationship between online social connectedness, both measures of wellbeing (PHI and TWTW), and the measure of loneliness (DJGLS-6). A Spearman's correlation was conducted to examine these relationships. The relationship between OSSS2, both measures of wellbeing (PHI and TWTW), and the measure of loneliness (DJGLS-6) were found to be non-significant, indicating that online social connectedness has no statistically significant relationship with wellbeing, see Table 4. Hypothesis one is not supported.

Hypothesis 2 - Social network site use will moderate the relationship between online social connectedness and wellbeing.

As correlation testing identified no statistically significant relationship between online social connectedness and measures of wellbeing, and the sample size is insufficient, no moderation analysis was conducted. Hypothesis two is not supported

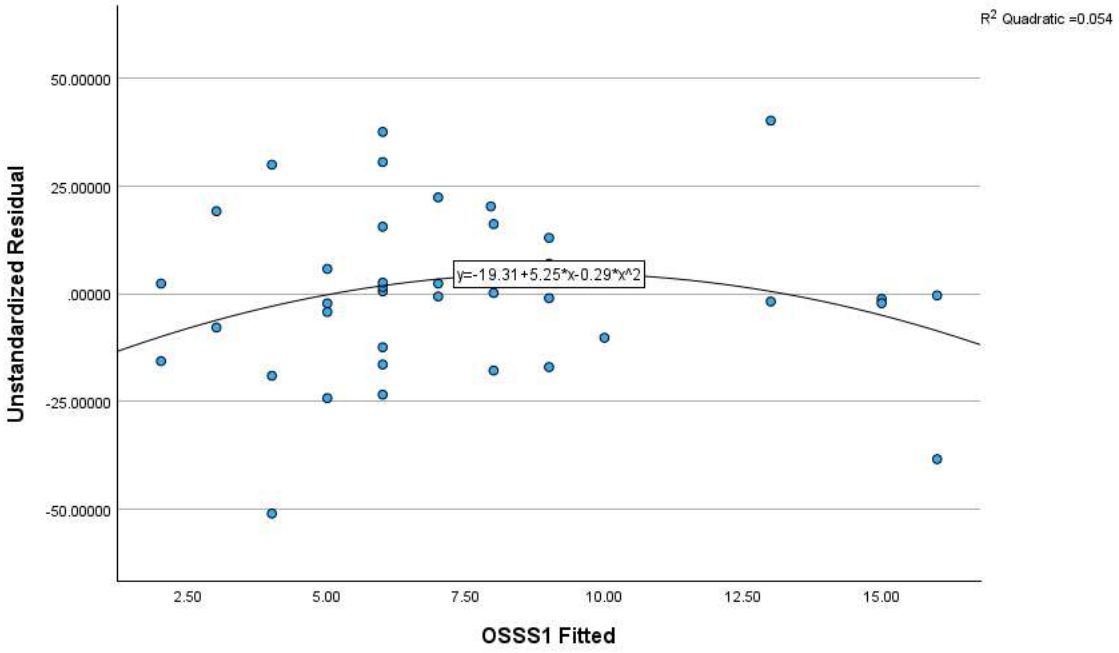
Hypothesis 3 - The relationship between SNS use (OSSS1) and online social connectedness (OSSS2) will reflect an inverted U-shaped relationship.

Initially, a simple linear regression was used to test whether OSSS1 significantly predicted OSSS2. A significant relationship was reported $F(1, 36) = 6.44$, $p = .016$. The R^2 *was .15,* indicating that OSSS1 explained approximately 15% of the variance in OSSS2. The regression equation was: OSSS2 = 2.97 + .07(OSSS1). Confidence intervals indicate 95% certainty that the slope to predict OSSS2 from OSSS1 is between .01 and .12.

To examine if a linear relationship was a suitable description of the relationship between OSSS1 and OSSS2, a residual analysis was conducted using unstandardized residuals to create a scatter plot examining the relationship between OSSS1 and unstandardized residuals. These results indicated heteroscedasticity, indicating that a non-linear relationship may be present. SPSS was then used to generate a quadratic fit line estimating the hypothesized quadratic relationship, Figure 2.

Figure 2

Unstandardized Residuals vs OSSS1



In order to further explore the presence of a quadratic relationship between OSSS1 and OSSS2, a polynomial regression analysis was conducted to explore if a quadratic or cubic relationship would provide a more accurate description for the relationship between OSSS1 and OSSS2. A regression analysis was run in SPSS using OSSS1, $OSSS1^{2,}$ and $OSSS1^{3}$ as predictor variables. Results are shown in Table 5.

A non-significant result was reported for $OSSS^{2}$ $F(2, 35) = 4.30, p = .17$. A non-significant result was reported for $OSSS^{3}$, $F(3, 34) = 0.22, p = .33$. These results indicate that a linear relationship best describes the relationship between OSSS1 and OSSS2. Hypothesis three is not supported.

Table 5.

Polynomial Regression OSSS1, $OSSS1^2$ & $OSSS1^3$

							Coefficients	
Equation	**R Square**	**Adjusted R Square**	**F**	**df1**	**df2**	**Sig**	**t**	**Sig**
$OSSS^1$	.15	.13	6.44	1	36	.02	2.5	.02
$OSSS^2$	.20	.15	4.3	1	35	.17	1.41	.17
$OSSS^3$	.12	.15	.22	1	34	.33	-.99	.33

Dependant Variable OSSS2 (n-38)

H4: The relationship between SNS use (OSSS1) and wellbeing (PHI, TWTW & DJGLS-6) will reflect an inverted U-shaped relationship.

Scatter plots were initially used to investigate this hypothesis, but no clear relationship was indicated. Spearman's rho correlation analysis indicated a non-significant relationship, PHI r_s =.08, n = 36, p = .627, TWTW r_s = .17, n=36, p = .302, DJGLS-6 r_s = -.08, n=36, p = .627. Hypothesis four is not supported

Exploratory Analysis.

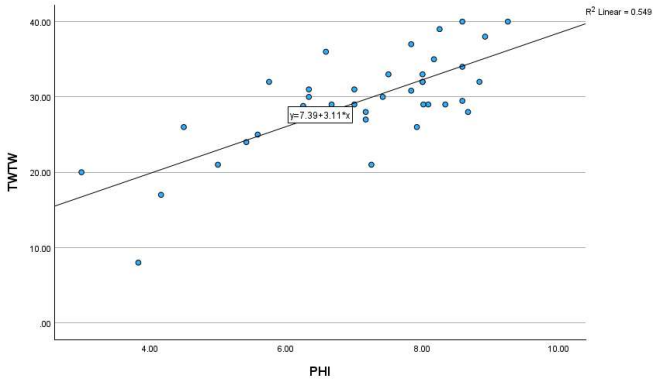
The author could not identify in current research literature where the TWTW wellbeing measure has been used to assess wellbeing in this format. Exploratory analysis was conducted to assess TWTW for its potential validity for assessing wellbeing. As an initial step toward assessing convergent and discriminate validity, scatter plots were mapped for TWTW against the validated measures, and PHI, DJGLS-6 and SPSS were used to fit regression lines. Scatter plots indicated a

positive linear relationship between the two wellbeing measures and a negative linear relationship between both wellbeing measures and the loneliness measure, Figure 3 (a-c).

Figure 3

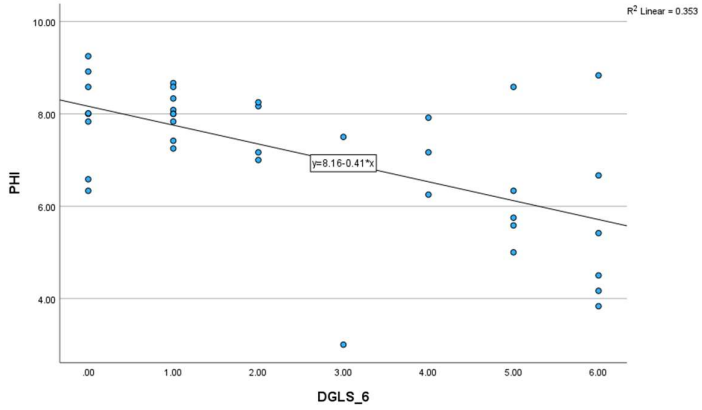
(a)

Scatter Plot for Wellbeing



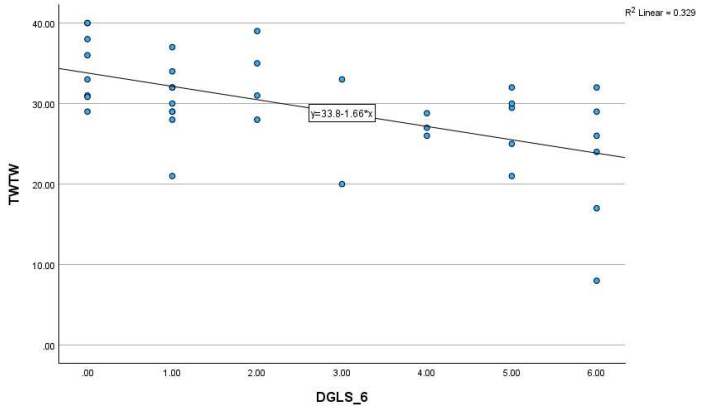
(b)

Scatter Plot for Pemberton Happiness Index and DeJong Gierveld Loneliness Scale



(c)

Scatter Plot for Te Whare Tapa Wha and DeJong Gierveld Loneliness Scale



Spearman's rho was then calculated to examine the correlation between measures. Results reported a positive statistically significant correlation between TWTW and PHI, and negative correlations for both measures of wellbeing with loneliness. Table 6

Table 6

Spearman's rho for PHI, TWTW, and DJGLS-6 (N=38)

Scale		PHI	DJGLS-6
DJGLS-6	*rs*(36)	-.58	
	Sig (2-tailed)	.77	
TWTW	*rs*(36)	.64*	-.57
	Sig (2-tailed)	<.001	<.001

*Correlation is Significant at the .001 level (2-tailed)

To explore the relationships further, a correlation analysis initially explored subscales of the PHI, experienced wellbeing (Exp $_{PHI}$) and remembered wellbeing (Rem $_{PHI}$) in relation to TWTW, Table 7. Results reported a statistically significant relationship between PHI experienced wellbeing and a

non-significant relationship for PHI remembered wellbeing and TWTW, Table 7 . These results indicate that the TWTW measure may capture elements of positive and negative affect, not life satisfaction. Correlation analysis was then used to explore subscales of PHI in relation to individual dimensions of TWTW, Wairua, Whanau, Hinengaro and Tinana. Statistically significant relationships were reported for experienced wellbeing and Hinengaro, and Tinana. The relationship between Wairua and remembered wellbeing was also significant. Whanau did not correlate with experienced or remembered wellbeing, Table 8. This result was unexpected given that whanau is an assessment of experienced support and will be discussed further in the next section.

Table 7

Spearman's rho for Experienced Wellbeing $_{PHI}$, Remembered Wellbeing $_{PHI}$ and TWTW (N=38)

Scale		**EXP $_{PHI}$**	**REM $_{PHI}$**
REM $_{PHI}$	*rs*(36)	.50	
	Sig (2-tailed)	.77	
TWTW	*rs*(36)	.39*	.23
	Sig (2-tailed)	.07	.18

* Correlation is Significant at the .001* level (2-tailed)

Table 8

Spearman's rho for Exp $_{PHI}$, Rem $_{PHI}$, Hinengaro, Wairua, Whanau and Tinana (N=38)

		Hinengaro	Wairua	Whanau	Tinana	REM PHI
Hinengaro	*rs*(36)					
	Sig (2-tailed)					
Wairua	*rs*(36)	.43**				
	Sig (2-tailed)	.01				
Whanau	*rs*(36)	.42**	.55**			
	Sig (2-tailed)	.01	<.001			
Tinana	*rs*(36)	.62**	.25	.43*		
	Sig (2-tailed)	<.001	.14	.01		
REM $_{PHI}$	*rs*(36)	.10	.36*	.10	.21	
	Sig (2-tailed)	.50	.03	.54	.20	
EXP $_{PHI}$	*rs*(36)	.52**	0.11	0.16	.50**	.05
	Sig (2-tailed)	<.001	0.5	.24	<.001	.77

**Correlation is Significant at the .001 level (2-tailed)

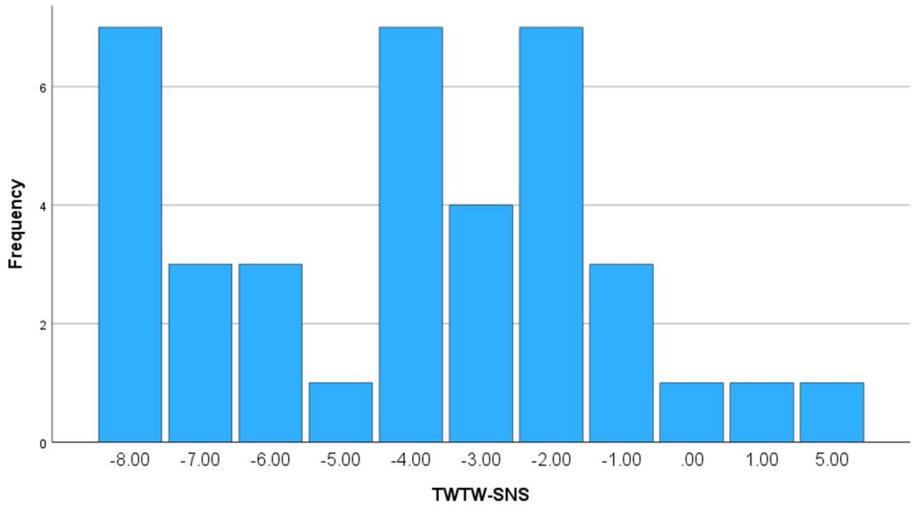
* Correlation is Significant at the .005 level (2-tailed)

Significant Intercorrelation was observed between all dimensions of TWTW except for Tinana and Wairua, Table 8. These results indicate that the dimensions of TWTW measure the same construct and provide exploratory evidence to support its validity as a measure of wellbeing. Confirmatory factor analysis would provide additional evidence to support TWTW as a valid measure of wellbeing, but the size and distribution of the data sets do not support this analysis (Brown & Moore, 2012).

Results from the TWTW-SNS scale showed that just over 92% of respondents reported their SNS use was detrimental to their wellbeing, TWTW-SNS (N=38), M = -3.97, SD = 3.00, Range = 13,

Figure 4

Frequency of TWTW-SNS Scores



This result contrasts with the previous analysis of the relationship between SNS use and wellbeing, which will be discussed further in the following chapter.

Chapter Six

Discussion

This research aimed to determine the relationships between SNS use, online social connectedness and wellbeing for a cohort of ex-police officers. The measures used to explore this relationship were: the Online Support Scale (Nick et al. 2018), the Pemberton Happiness Index (Hervás & Vázquez, 2013) and Te Whare Tapa Whā (Durie, 1985), and the DeJong Gierveld Loneliness Scale (Gierveld & Tilburg, 2006). Additionally, a single non-validated scale (a scaled version of Te Whare Tapa Whā) was used to investigate participant's perceptions of the effect of their SNS use on their wellbeing. In the following sections the research hypotheses and outcome will be outlined. To follow, factors that may have contributed to the research findings will be discussed.

Research Hypotheses

The hypotheses for this research were as follows:

H1: The relationship between online social connectedness and wellbeing will be positive and significant for ex-police officers.

H2: The relationship between social network site use and social connectedness will reflect an inverted U-shaped relationship, where social connectedness is positively related to SNS use when SNS use is moderate.

H3: The relationship between SNS use and wellbeing will reflect an inverted U-shaped relationship, where wellbeing is positively related to SNS use when SNS use is moderate.

H4: Social connectedness will moderate the relationship between SNS use and wellbeing

No statistically significant relationships supported the study's hypotheses. Hypotheses Four could not be tested as a moderation analysis was not supported by the sample size.

A range of factors have been identified that likely contributed to the lack of statistically significant findings for this study. These include: sample size, scales used, the use of social media as a recruitment platform, the use of an online survey with this cohort, and profile factors of the FB groups. These factors will now be discussed.

Sample Size

Oversampling can lead to issues such as unnecessary participant burden and resource waste, and under-sampling decreases the power of the research and can lead to validity issues (Burmeister

& Aitken, 2012). Undoubtedly the small sample size was the most significant factor that impacted the data analysis. Despite extending the data gathering period from 21 days to 65 days and expanding the invitation to include a third FB group in the survey, meaning that the survey had been offered to potentially over 9000 FB group members, only 55 responses were received. This resulted in 38 data sets once the raw data had been processed. Cohen (1992) provides guidelines for sample sizes for common statistical tests. According to Cohen (1992), a sample of 38 should have had adequate power (.80) to detect a large effect at $\alpha = .05$ for the difference between two independent means, correlation, Chi-square with one degree of freedom, and multiple and multiple partial correlations with up to three variables. However, the guidelines provided by Cohen (1992) indicate that the sample size for this study was not sufficient to detect moderate or small effects.

Examining the relationship between SNS use and wellbeing is challenging, as many factors influence wellbeing beyond social connectedness (Frieling et al., 2018; Hale et al., 2005; Verduyn et al., 2017). Studies examining the SNS-wellbeing relationship have generally reported at best small to modest effects (Doleck et al., 2019; Huang, 2018; Liu et al., 2017; Marker et al., 2018). This research's sample size did not support identifying small to moderate effects.

The following factors are related to the issue of sample size as they have been identified in this study as factors that may have impacted participant engagement.

The Use of Social Media as a Recruitment Tool

Research examining the use of social media as a recruitment platform has demonstrated that it is a cost-effective strategy that may have particular benefit for providing access to hard-to-reach populations (Darko et al., 2022; Whitaker et al., 2017). Factors that impact response rates for online surveys have been well-researched. In a meta-analysis of 1071 studies examining the online survey-response rate relationship, Wu et al. (2022) found that average response rates for online surveys were just over 44%. In an earlier meta-analysis of 37 studies, Shih and Fan (2008) reported an average response rate of 34%. The difference between Wu et al. (2022) findings and Shih and Fan (2008) findings may reflect the increase in internet adoption and accessibility that occurred between 2008 and 2022. Wu et al. (2022) found that a clearly communicated explanation of the benefit of the research was the most influential factor for participant response rate. Wu et al. (2022) and Shih and Fan (2008) also found that the other factors that improved online survey response rates included survey reminders, contact with potential participants outside of the surveys, and differences in population types. In related research, Sheridan et al. (2020) systematically reviewed the barriers and facilitators of research engagement. Sheridan et al. (2020) identified three primary facilitators of research engagement, personal benefit (health benefits), altruism and trust. Convenience and

incentives were identified as secondary facilitators. Sheridan et al. (2020) also identified fear, distrust and concern regarding confidentiality as barriers to research engagement.

In a meta-analysis of research that examined the survey response rates from the policing population, Nix et al. (2019) examined survey response rates in 497 studies undertaken with police. Nix et al. (2019) reported that the average response rate across all survey types was 64%, with face-to-face surveys having the highest response rate at 79%, internet-based surveys showing the lowest response rates at 25%, and a range of response rates from 5% - 100% for the research articles they examined. Nix et al. (2019) concluded that the lack of research examining police engagement was a significant barrier to assessing if factors that increase survey response with the general population applied to the policing population. Nix et al. (2019) also reported that survey response rates were significantly declining with this population over the twenty-year period they examined, citing survey burnout and increased SPAM requests as potential drivers of the decline.

Considering this research in relation to the findings of Wu et al. (2022), Shih and Fan (2008), Sheridan et al. (2020) and (Nix et al., 2019), several key considerations emerge. No feedback was received from either the test group or the research participants that indicated a lack of understanding regarding the benefits of the survey to the population surveyed. However, the lack of feedback does not necessarily mean that the benefits of this research were clearly communicated in the information page or the research invitation. Therefore, the clarity of the information sheet should be considered a possible barrier to engagement in this research.

This research invited participants to engage in altruism and wellbeing benefits that are directly related to the health benefits of the police population. However, the substantial information sheet may have obscured the benefits of the research. The lack of a commonly understood definition of wellbeing in conjunction with wellbeing's potential relationship to online social support may have also led to a lack of clarity regarding the benefits of the research.

The Use of an Online Survey to Sample an Ex-police Population

Social media has been identified as a potentially useful platform through which researchers may be able to access hard-to-reach populations (Darko et al., 2022; Whitaker et al., 2017). However, concerning the ex-police population, using social media to recruit participants may have aggravated barriers to engagement, such as trust and concerns regarding confidentiality (Nix et al., 2019). As discussed in Chapter One, the culture of policing is associated with distrust of outsiders. With this in mind, non-police researchers are encouraged to build positive functional relationships before engaging in research with the police population (Cockbain, 2014; Martin, 2023). Given this context, it

may have been prudent for this research to provide opportunities for potential participants to meet with the researcher for Q&A sessions before inviting participants to engage in the survey via an online meeting or offering the option to meet online to conduct face-to-face interviews. Nix et al. (2019) reported that there is currently a lack of research examining the barriers and facilitators to research engagement with the police population; it is apparent that research in this area is required.

Finally, throughout this work, the author assumed that the culture attached to policing endures with individuals into retirement. How well the policing culture endures once someone leaves the job should be considered by researchers in the future, in order to assess if the retired community of ex-police officers are a separate entity with unique characteristics both from the general public and their still-working ex-colleagues.

Survey Design

Although a universally accepted measure of excessive SNS use does not exist, time spent online, and time spent on SNS sites are common factors that consistently present in research assessing SNS use outcomes (Anderson et al., 2017; Boubeta et al., 2015) . In addition, time spent online and on SNSs are factors that are commonly used in scales designed to address problem SNS and problem internet use (Anderson et al., 2017; Boubeta et al., 2015; Shahnawaz & Rehman, 2020; Spada, 2014).

Hypotheses two and three of this research aimed to capture elements of the relationship between time spent on SNS sites, wellbeing and online social connectedness. Social Network Site use was estimated by participants in the first section of the Online Support Scale using a four-point Likert scale. Participants were asked to estimate their SNS use for various commonly used SNS sites. For this research, Likert scales, in combination with the low survey response rate, may have prevented patterns from emerging from the data set regarding total SNS use. A single question asking participants to estimate their total time on SNS sites would have reduced the survey length substantially (25 questions), reducing participant burden, and provided comparable accuracy to the Likert scale estimate in the Online Social Support Scale (Nick et al., 2018).

Additional Scales

The survey in this study did not assess active or passive SNS use or user personality. User personality type and type of SNS use have been identified in SNS literature as potential moderators

of SNS use outcomes (Seidman., 2013; Parry et al., 2022; Valkenburg, 2022). The inclusion of a measure for assessing the type of SNS use and a brief personality measure such as the Ten-Item Personality Inventory (Gosling, 2003) would provide a deeper understanding of this study's data.

Profile Factors of the Facebook Groups

This research was not specifically aimed at retirees but rather at ex-police. However, the average age of survey respondents was 65.4 years, with only six participants aged ≤ 60 years old and only one participant under the age of 40 years. The average length of service of a police officer is 13 years in 2024, and the average age range is 25 years to 34 years (Police, 2023/24). Given these figures, many ex-police officers were either not exposed to the survey invitation or did not engage in the survey. As discussed above, the opportunity to have the survey administered face-to-face may have increased the survey response rate.

The age profile of the Facebook groups surveyed may have also been a relevant factor to the age profile of survey respondents. As noted in Chapter Two, internet adoption rates are increasing in older age groups (Auxier & Anderson, 2021). However, older age groups still report significantly reduced levels of internet use than age groups ≤ 40 years old (Auxier & Anderson, 2021). The age profile of the FB group may have influenced the survey response; however, recent research by Sidoti (2023) reported that 59% of research participants over the age of 65 years reported that they used Facebook regularly.

The type of Facebook use may also be relevant to the response rate for this population. Like most social groups, varying levels of group activity are observed. Viswanath et al. (2009) examined activity across a large Facebook group (N = 90269), finding that a minority of members generated most of the online activity across the group, with only 30% interacting monthly. For the Facebook groups invited to participate in this study, the volume of online activity per user may have been informative regarding the potential sample of active users compared to the group membership size. Unfortunately, insights regarding the group activity were not available to the researcher.

Prospective Findings

Although the findings did not reveal statistically significant support for the research hypotheses, several notable findings emerged from this research. Notably, although 92% of respondents reported that their social network use was detrimental to their wellbeing, this perception was not reflected in the data examining the relationship between SNS use and wellbeing. The influence of the small sample size and proceeding data analysis may have failed to capture the detrimental effects of SNS use. However, this result may also reflect the lack of clear conclusions in

scientific research regarding the effects of social media use on wellbeing. Future research based on a qualitative approach or mixed method approach assessing the effects of wellbeing may provide a finer-grained analysis of the nuances of SNS effects that cross-sectional studies like this research may not uncover.

The second notable finding from this research was the moderate correlation between the Pemberton Happiness Index and the Te Whare Tapa Wha scale $r_s = .64$ and both scales in relation to the loneliness measure the DGLS-6, TWTW $r_s(38) = -.57$, $p = <.001$and PHI $r_s(38) = -.55$, $p = <.001$. Given that over 91% of the research sample identified as pakeha, this finding indicates that the Te Whare Tapa Wha scale may be a suitable quantitative indicator of wellbeing for a culturally diverse sample and warrants further investigation.

Generalizability and Practical Application

One of the goals of this study was to contribute exploratory data to the limited research examining wellbeing support for ex-police officers. This research took a novel approach, proposing that SNS use could be a viable support stream for the wellbeing of the ex-police population. However, the findings did not support a statistically significant relationship between wellbeing and SNS site use. As a result, no generalizable conclusions or practical applications can be drawn from this study's hypothesis. Concerning future research examining the relationship between SNS use and wellbeing, several recommendations have emerged from this study, which will be discussed later in this chapter. A significant finding of this research outside of the scope of the research hypotheses was the correlation between the validated measure of wellbeing, the Pemberton Happiness Index (Hervás & Vázquez, 2013) and Te Whare Tapa Wha (Durie, 1985), a model of wellbeing based in Māori knowledge ($r_s = .64$) and both scales in relation to the loneliness measure the DGLS-6, TWTW $r_s(38) = -.57$, $p = <.001$and PHI $r_s(38) = -.55$, $p = <.001$). While the use of TWTW is common in New Zealand to assess wellbeing qualitatively, the findings of this research indicate that scaling of the model may also provide valid quantitative data in future research. The evidence provided for using TWTW as a quantitative measure in this study is tentative but warrants further investigation. This study adds to the growing research interest in what constitutes Indigenous wellbeing by indicating that there may be significant similarities between Western wellbeing and Indigenous wellbeing as well as the differences that are well-researched (Gall et al., 2021; Le Grande et al., 2017)

Study Limitations

Several limitations of this research have been previously identified. The sample size for the research was insufficient to allow for the detection of the proposed effects. A larger sample size was required to detect the relationships proposed in the study hypothesis.

A cross-sectional design was employed for this study to maximize sample size. Cross-sectional study designs typically involve data collection at a single data point and do not assess changes in variables over time. Cross-sectional designs do not allow for the identification of cause-and-effect relationships and are prone to bias. Cross-sectional studies do not allow the change in the variables of interest to be assessed over time. A qualitative or mixed methods design may have improved study participation through an increased opportunity to address participant concerns or questions regarding the research and provide a more in-depth assessment of the participant's relationship to the study variables. However, resource constraints and participant accessibility did not allow for the integration of qualitative methods into this study.

Three forms of bias may have been present in this research: sampling bias, response bias, and recall bias. As this study involved inviting the ex-police population in three Facebook groups to participate, a non-probability sampling approach was used. Nonprobability samples are at risk of sampling bias. With the information available in this study, there is no way to ascertain whether the study participants are a representative sample of the ex-police SNS user population. The cultural make-up of the study participants, 92% Pakeha and 87% male, may indicate that this is not a representative sample of the New Zealand ex-police. As of 2023, 27% of the New Zealand police force were reported to be female, and just under 73% of the total police force identified as Pakeha (Los'e, 2023). However, given the study participants' age demographic, they may be a representative sample of the policing population when they were policing. Random sampling would have provided a more robust platform for conclusions drawn from participant data.

Response bias may also have been present in this study in the form of social desirability bias. Despite participant anonymity being maintained in this study, participants may have felt compelled to respond in a manner that reflected the ‘bulletproof’ culture associated with policing by answering questions about wellbeing in a generally positive manner. Measures to detect social desirability responses are available, such as the Marlowe – Crowne Scale (Crowne & Marlowe, 1960), but a social desirability bias measure was not included due to concerns regarding the survey length and participant burden. No patterns were identified in the survey data that would indicate social desirability bias from participants.

Recall bias refers to the difference between a participant’s recollection of events and what occurred during an event. Participants in this study were asked to recall their use of various SNS sites

in this study. Some researchers (Junco, 2013; Scharkow, 2016) have provided evidence that self-report data for SNS and general internet use can be unreliable. Methods such as the Experience Sampling Method (ESM) (Larson & Csikszentmihalyi, 1983) have been suggested to improve self-report accuracy for online use. However, the cross-sectional design of this study and resource constraints did not allow for the inclusion of ESM in the research design.

While the De Jong loneliness scale has been used with New Zealand populations, no validation studies exist for the other instruments used in this study. The validation of their use with this population would increase the validity of their use with this population in the future.

Recommendations for Future Research

Four key recommendations are suggested for future research in the area. The significant factor that overshadowed this study was the low level of participant engagement. Future researchers with this population are strongly encouraged to prioritize participant engagement in their research design. When considering strategies to enhance research engagement with the ex-policing population, prior to engaging in data collection, researchers should consider engaging with the population specifically to clarify the purpose and benefits of the research, addressing concerns regarding confidentiality and trust. Additionally, where feasible, researchers should also consider offering multiple administration options for any proposed survey.

Given the previously discussed concerns regarding the validity of self-report data for SNS and internet use, researchers should consider using digital logs to assess actual time spent on SNS sites to enhance data accuracy. Future researchers should also consider including the assessment of active and passive SNS use, which could also be insightful for future research in this area, given the current research evidencing differing effects from active and passive SNS use (Verduyn et al., 2017).

A mixed methods approach to future research in this area would be desirable. The limitations of the cross-sectional design of this study are apparent. For example, with the information gathered, the author cannot provide any insight regarding the discrepancy between the reported significant detrimental effect of SNS use on wellbeing and the lack of evidence in the correlation statistics. Increased accuracy in gathering SNS use data in conjunction with a qualitative interview would likely have clarified this discrepancy. Additionally, a qualitative component in this study may have offered insights into the potentially influential demographic factors such as the age and cultural composition of the study sample.

The final recommendation for future research is to further investigate the validity of the scaled model of wellbeing TWTW (Durie, 1985) for its validity as a quantitative measure. The

exploratory data from this study would indicate that the TWTW measure demonstrated a strong correlation to the Pemberton Happiness Index (Hervás & Vázquez, 2013), a validated Western wellbeing measure, with a sample population over 90% pakeha. This result may support using a scaled version of TWTW as a wellbeing measure for culturally diverse populations.

Conclusions

This study explored the relationship between SNS use and the wellbeing of the ex-police population. No statistically significant findings regarding this relationship were identified. The methodological issues regarding the research design are likely to have been a barrier to identifying the nature of the SNS-wellbeing relationship. Despite statistically insignificant findings concerning the research hypotheses, this research has identified that SNS use appears to prevalent among the New Zealand ex-police population and that there are indications that although a majority of this cohort indicate that their SNS use is detrimental to their wellbeing, many continue to use SNS. Given the significant research that indicates that the ex-police population is vulnerable (Parnaby & Broll, 2020; Pole et al., 2006), the use of SNSs by this population and its effects warrants further investigation. This exploratory study underscores the need for further research in this area and provides suggestions to support increasingly refined research with this population in the future.

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Appendix A

The Online Social Support Scale

The Online Social Support Scale (OSSS)
NOTES FOR RESEARCHERS

The OSSS is free to use for research purposes. Most importantly, the list of social media and Internet spaces on the first page of the measure is intended to be adjusted and updated by each research group using the measure as they see fit. Research groups should make their updates depending on the popularity/availability of platforms at the time of the research being conducted. Note that the platforms presented in the original measure below were popular in the years leading up to publication in 2018 but some (e.g., Vine) no longer exist.

For the social support items on the second page, the subscales are the following:

- • Esteem/Emotional online social support: sum of items 1-10
- • Social Companionship online social support: sum of items 11-20
- • Informational online social support: sum of items 21-30
- • Instrumental online social support: sum of items 31-40
- • Total online social support: sum of items 1-40

There are no “cutoffs” denoting “low,” “medium” or “high” levels for either the social media use items (page 1) or the online social support subscales or total scale (page 2). Because people’s online experiences are so varied and dependent on age and access, we believe scores from both sets of items should be considered continuously (e.g., within your sample, does relatively *greater* online social support correlate with greater levels of X, Y or Z).

Please refer to the following publication which describes the measure’s development, reliability, and convergent validity, discriminant validity:

Nick, E. A., Cole, D. A., Cho, S.-J., Smith, D. K., Carter, T. G., & Zelkowitz, R. L. (2018). The Online Social Support Scale: Measure development and validation. *Psychological Assessment, 30*(9), 1127–1143. https://doi.org/10.1037/pas0000558

Thanks for using our measure!

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The Online Social Support Scale (OSSS)

Most sites, apps, services, and games on the Internet can be used in lots of different ways and for different purposes. We're interested in how much you use these online spaces to **connect or interact with other people.**

- This means we **are** interested in how much you use these online spaces to talk with people, post, comment, like, send messages, game with others, etc.
- This means we are **not** interested in how much you use these online spaces to scroll through other people's posts, watch or read content, or just look up information.

How much do you use the following sites, apps, services, or games to **connect or interact with other people**?

0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Pretty Often, 4 = A Lot

Facebook	0	1	2	3	4
Instagram	0	1	2	3	4
Twitter	0	1	2	3	4
Snapchat	0	1	2	3	4
Tumblr	0	1	2	3	4
Vine	0	1	2	3	4
YouTube	0	1	2	3	4
Pinterest	0	1	2	3	4
Reddit	0	1	2	3	4
Yik Yak	0	1	2	3	4
Kik	0	1	2	3	4
LinkedIn	0	1	2	3	4
GroupMe	0	1	2	3	4
WhatsApp	0	1	2	3	4
Google+	0	1	2	3	4
Whatsgoodly	0	1	2	3	4
Chat services	0	1	2	3	4
E-mail	0	1	2	3	4
Texting	0	1	2	3	4
Dating sites/apps (e.g., Tinder)	0	1	2	3	4
First person shooter games (e.g., Call of Duty)	0	1	2	3	4
Battle arena games (MOBAs: e.g., League of Legends)	0	1	2	3	4
Sports/fighting/racing games (e.g., FIFA, Street Fighter, Mario Kart)	0	1	2	3	4
Role-playing games (RPGs: e.g., World of Warcraft)	0	1	2	3	4
If you interact with people using other sites, apps, services, or games, please write them in and rate how often you use them:	0	1	2	3	4
	0	1	2	3	4
	0	1	2	3	4
	0	1	2	3	4

Now, think about the online spaces you use above. Rate **how often** the following things have happened for you **while you interacted with others** online over the last two months. Use the following scale:

0 = Never, 1 = Rarely, 2 = Sometimes, 3 = Pretty Often, 4 = A Lot

1. People show that they care about me online.	0	1	2	3	4
2. Online, people say or do things that make me feel good about myself.	0	1	2	3	4
3. People encourage me when I'm online.	0	1	2	3	4
4. People pay attention to me online.	0	1	2	3	4
5. I get likes, favorites, upvotes, views, etc. online.	0	1	2	3	4
6. I get positive comments online.	0	1	2	3	4
7. When I'm online, people tell me they like the things I say or do.	0	1	2	3	4
8. Online, people are interested in me as a person.	0	1	2	3	4
9. People support me online.	0	1	2	3	4
10. When I'm online, people make me feel good about myself.	0	1	2	3	4
11. When I'm online, I talk or do things with other people.	0	1	2	3	4
12. People spend time with me online.	0	1	2	3	4
13. People hang out and do fun things with me online.	0	1	2	3	4
14. Online, I belong to groups of people with similar interests.	0	1	2	3	4
15. People talk with me online about things we have in common.	0	1	2	3	4
16. Online, I connect with people who like the same things I do.	0	1	2	3	4
17. I am part of groups online.	0	1	2	3	4
18. When I'm online, people joke and kid around with me.	0	1	2	3	4
19. People relate to me through things I say or do online.	0	1	2	3	4
20. Online, people make me feel like I belong.	0	1	2	3	4
21. When I'm online, people give me useful advice.	0	1	2	3	4
22. Online, people provide me with helpful information.	0	1	2	3	4
23. If I had a problem, people would help me online by saying what they would do.	0	1	2	3	4
24. Online, people would tell me where to find help if I needed it.	0	1	2	3	4
25. People help me learn new things when I'm online.	0	1	2	3	4
26. People offer suggestions to me online.	0	1	2	3	4
27. People tell me things I want to know online.	0	1	2	3	4
28. When I'm online, people help me understand my situation better.	0	1	2	3	4
29. If I had a problem, people would share their point of view online.	0	1	2	3	4
30. People help me see things in new ways when I'm online.	0	1	2	3	4
31. People online would help me with money or other things if I needed it.	0	1	2	3	4
32. When I'm online, people help me with school or work.	0	1	2	3	4
33. Online, people help me get things done.	0	1	2	3	4
34. If I needed a hand doing something, I go online to find people who will help out.	0	1	2	3	4
35. Online, people offer to do things for me.	0	1	2	3	4
36. Online, people help me with causes or events that I think are important.	0	1	2	3	4
37. When I'm online, people have offered me things I need.	0	1	2	3	4
38. When I need something, I go online to find someone who might lend it to me.	0	1	2	3	4
39. When I need a hand with school or work things, I get help from others online.	0	1	2	3	4
40. I contact people online to get help or raise money for things I think are important.	0	1	2	3	4

Appendix B.

The Pemberton Happiness Index

Using the following scale from 0 to 10, with 0 being total disagreement and 10 being total agreement, please rate the extent to which you agree with the following statements.

		Totally Disagree										Totally Agree
		0	1	2	3	4	5	6	7	8	9	10
1	I am very satisfied with my life.		1	2	3	4	5	6	7	8	9	10
2	I have the energy I need to accomplish my daily tasks	0	1	2	3	4	5	6	7	8	9	10
3	I think my life is useful and worthwhile	0	1	2	3	4	5	6	7	8	9	10
4	I am satisfied with myself	0	1	2	3	4	5	6	7	8	9	10
5	My life is full of learning experiences and challenges that make me grow	0	1	2	3	4	5	6	7	8	9	10
6	I feel very connected to the people around me	0	1	2	3	4	5	6	7	8	9	10
7	I feel able to solve a majority of my daily problems	0	1	2	3	4	5	6	7	8	9	10
8	I think I can be myself on the important things	0	1	2	3	4	5	6	7	8	9	10
9	I enjoy a lot of little things every day	0	1	2	3	4	5	6	7	8	9	10
10	I have a lot of bad moments in my daily life	0	1	2	3	4	5	6	7	8	9	10
11	I think I live in a society that lets me fully realize my potential	0	1	2	3	4	5	6	7	8	9	10

Please mark which of the following happened to you yesterday (YES / NO):

		Yes	No
1	Something I did made me proud		
2	At times I felt overwhelmed		
3	I did something fun with someone		
4	I was bored a lot of the time		
5	I did something really enjoyed doing		
6	I was worried about personal matters		
7	I learned something interesting		
8	I gave myself a treat		
9	Things happened that made me really angry		
10	I felt disrespected by someone		

The PHI is free to use for research purposes.

Appendix C.

De Jong Gilvard Loneliness Scale

Please indicate for each of the 6 statements, the extent to which they apply to your situation, and the way you feel now. Please, mark the appropriate answer.

		None of the time	Rarely	Some of the time	Often	All of the time
1.	I experience a general sense of emptiness					
2.	There are plenty of people I can rely on when I have problems					
3.	There are many people I can trust completely					
4.	I miss having people around me					
5.	There are enough people I feel close to					
6.	I often feel rejected					

The DJGLS-6 is free to use for research purposes.

Appendix D.

Scaled Version of Te Whare Tapa Wha developed for this study

Te Whare Tapa Wha

The Four Cornerstones of Wellbeing

Te Whare Tapa Wha is a Māori model used to assess wellbeing.

Each of the Taha (Hinengaro, Tinana, Wairua and Whanau) represents a cornerstone of wellbeing.

Please rate yourself on how much you agree with the following statements

Taha Hinengaro / Your Mind - How you manage your thoughts and feelings, how you relate to others how you handle stress, how motivated you feel are all part of Hinengaro

		Totally Disagree										Totally Agree
1.	My Hinengoro taha is usually strong	0	1	2	3	4	5	6	7	8	9	10

Taha Wairua / Spirit and spirituality - A sense of connection to something bigger than yourself. For some this is faith for some it can be a special place or group of people. Wairua provides connection and belonging.

		Totally Disagree										Totally Agree
2.	My Wairua taha is usually strong	0	1	2	3	4	5	6	7	8	9	10

Taha Whanau/ Those who you support and who support you - How you care for and are cared for by those who are important to you.

		Totally Disagree										Totally Agree
3.	My Whanau taha is usually strong	0	1	2	3	4	5	6	7	8	9	10

Taha Tinana / Your Body - How you look after yourself physically and your physical environment – nutrition, sleep, exercise, and hygiene are all part of Tinana it also includes having order in your environment.

		Totally Disagree										Totally Agree
4.	My Tinana taha is usually strong	0	1	2	3	4	5	6	7	8	9	10

Appendix E

Scaled Version of Te Whare Tapa Wha Assessing the Relationship Between Social Network Use and Wellbeing

Looking at Online Social Network Use and Wellbeing

Now think about how your online social network use impacts each of your taha.

Choose the option that best reflects how your online social network use effects each taha.

Taha Hinengaro / Your Mind - How you manage your thoughts and feelings, how you relate to others, how you handle stress, how motivated you feel are all a part of Hinengaro.

		Mostly Positive	Sometimes Positive	Neutral	Sometimes Negative	Mostly Negative
1.	The effect of my online social network use on my Hinengaro is…					

Taha Wairua / Spirit and spirituality - A sense of connection to something bigger than yourself. For some this i faith for some it can be a special place or group of people. Wairua provides connection and belonging.

		Mostly Positive	Sometimes Positive	Neutral	Sometimes Negative	Mostly Negative
2.	The effect of my online social network use on my Wairua is…					

Taha Whanau/ Those who you support and who support you - How you care for and are cared for by those wh are important to you.

		Mostly Positive	Sometimes Positive	Neutral	Sometimes Negative	Mostly Negative
3.	The effect of my online social network use on my Whanau is…					

Taha Tinana / Your Body - How you look after yourself physically and your physical environment – nutrition, sleep, exercise, and hygiene are all part of Tinana it also includes having order in your environment.

		Mostly Positive	Sometimes Positive	Neutral	Sometimes Negative	Mostly Negative
4.	The effect of my online social network use on my Tinana is…					

Appendix F

Research Invitation

Are you an ex-member of the New Zealand Police who is interested in sharing your experiences of Wellbeing?

Kia ora,

I am a Masters student at Massey university who is conducting research on the wellbeing of ex-members of the New Zealand police. Currently there is significant research on the wellbeing of active police officers, but limited research that has examined the wellbeing of ex-police officers. This is despite research evidence indicating that a career in policing may have lasting effects.

The link or QR code below will allow you to access an information sheet that provides further details regarding this research. The research survey can be completed online, participants are anonymous, it takes about 15-20mins to answer, and all participants are eligible will enter a draw to win one of *30 x $25 online vouchers.*

If you are an ex-member of the New Zealand Police and interested in contributing to the scientific knowledge regarding wellbeing, please consider contributing to this research.

Link:

Survey Information Page

Appendix G. Research Information Sheet

A survey examining the relationship between online social networks, social connectedness and with ex-New Zealand police officers.

Participant Information Sheet

Greetings / Tēnā koutou katoa.

This sheet is part of an invitation for you to take part in this research survey. This information is provided so that you know the purpose of this research, who the researcher is, how your confidentiality will be protected, and what will happen once the survey is completed.

Who am I? / Ko wai au.

My name is David Neilson, I'm am a Masters degree student within the School of Psychology at Massey University, Te Kunenga ki Pūrehuroa.

I'm a NZ born Pacific Islander who grew up in Wellington where I now study and work but also spent 20 years working in Auckland. – "I came to study late in my career, starting with counselling, and now have moved to psychology". I'm looking forward to working with you. I have family members who currently and previously have worked for the New Zealand Police on the frontline, and I'm hoping this research will provide increased clarity regarding the policing role in New Zealand.

The research we are inviting you to take part in will be overseen by Dr. Ian de Terte, he is a senior lecturer and research supervisor at Massey.

What is the aim of the project/He aha te whāinga mō tēnei rangahau?

This project specifically focusses on the experiences of ex-New Zealand police officer's.

It is aimed at:

- *Looking at the relationship between online social network use and how connected people feel to others.*
- *Looking at how online social network use is connected to wellbeing.*

How can you help and why might you help/Ka pēhea tō āwhina mai?

This invitation is being distributed via two social network groups on Facebook. Participation in this research survey is voluntary. By participating in this survey, you will be adding to the research knowledge capturing the experiences of ex-New Zealand police officers. Policing in New Zealand is a unique experience, and past international research involving ex-police personnel has indicated that the policing role can have effects that may endure even after people have left the profession.

Research with the general population has shown that online social networks may have both costs and benefits for network members, regarding how connected they feel to others, and how they feel about themselves, their lives, and their future. This research hopes to capture the unique perspective of ex-New Zealand police. It is hoped that this research will be used to both prompt future research with ex-New Zealand police and that the results from this research will support decisions regarding improving the wellbeing of both ex and current police. Without research that gathers your unique perspective it is difficult to know for certain if support for ex-police officers is beneficial, targeted, and effective.

As partial compensation for your time and effort, some additional incentives are available. There will be a draw of 30 x $25 online gift vouchers for all survey participants who choose to enter the draw. A link at the end of the research will take you to a separate webpage where you can indicate your interest in entry to the draw or you may wish to nominate a charity if you would like them to receive your voucher if you are drawn.

If you agree to take part in the survey, you will complete an anonymous online survey that has eight sections and should take no more than 15-20mins to complete.

How is my identity protected? / Me pehea e noho haumaru ai toku tuakiri?

The research survey is designed to gather data anonymously. This means that there is no way to identify your responses from the responses of other participants. You will not be asked to provide any identifying details within the survey, and we request that you do not provide any personal details that would allow you to be identified. Anonymous research data will be kept by the research supervisor and destroyed after five years. Any future requests to access the data will be administered by the research supervisor.

What will I need to do? / Me pehea taku whai waahi?

If you click on the URL link below it will take you to the consent page of the survey. Before you start the survey, you will be asked to consent to your responses being used for this research. By completing the survey, you are giving consent for us to use your responses. Because you will remain unidentifiable, once you complete the survey, we are no longer able to remove your

answers from the research data. The survey is eight sections long and should take no more than 15-20mins to complete. If your connection is interrupted during the survey, you will be able to return to the same page on the survey within 48hrs if you are using the same device and browser.

Are there any risks? / He aha nga raruraru?

It is not anticipated that participation will cause you harm or future harm however if you experience any distress or discomfort during your participation in this research, you are encouraged to access the support that you think best fits your needs. At the end of this information sheet, you will find contact details for several support agencies

What will the project produce? / He aha ngā hua o te rangahau?

The results will be analysed, interpreted, and used to create a summary of the findings. I will write a thesis from this research. A copy of that thesis will be added to the Massey University library. You may request an electronic copy of the completed research from the researcher. The research may be published in future academic journals. As there is limited research in this area and research participants responses remain anonymous, data from this research may be used for future research or used in related research for up to five years, at that point it will be destroyed.

I have questions and/or concerns. Who can I contact? / ko wai me whakapa atu ahau mo nga patai

Researcher:

David Neilson, email: David.Neilson.4@uni.massey.ac.nz

Research Supervisor:

Dr Ian de Terte email i.deTerte@massey.ac.nz

Committee Approval Statement

This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named above are responsible for the ethical conduct of this research. If you have any concerns about the ethical conduct of this research that you want to raise with someone other than the researcher(s), please contact Massey University Human Ethics by email: humanethics@massey.ac.nz.