Driving Anxiety and Young Older Adults:
The Impact on Health and Well-being

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Megan Hempel
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Abstract

The purpose of the current study was to examine the impact of driving anxiety on young older adults' health and well-being, and determine if driving anxiety had a detrimental effect on health and well-being over and above the effect of socio-demographic factors. Research into this topic was needed because the effects of driving anxiety on functioning has not been widely researched, and the literature is sparse and limited to specific samples of the population. A small amount of research in New Zealand has shown that young older adults' functioning may be affected by driving anxiety, but what is unknown is whether health and well-being are affected. Therefore, the current study used data from the *Health, Work and Retirement Study (2008)* to determine the impact of driving anxiety on 2,473 young older adults aged 55-72 years in New Zealand, and to identify if there was a relationship between driving anxiety and health and well-being. Hierarchical multiple regression analyses were used to analyse the relationships between driving anxiety and mental health, physical health and quality of life, while controlling for socio-demographic variables. The results demonstrated that driving anxiety was associated with poorer scores on the three aspects of health and well-being, and this effect was still present when socio-demographic variables were controlled for. In order to preserve good health and well-being for older adults, further research on the relationship between driving anxiety and health and well-being is needed to better understand the experience of driving anxiety, develop healthy and effective ways to promote continued driving, and maintain driving ability where possible and appropriate.

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Chapter One: Introduction

Overview

Driving anxiety is a diverse and complex experience that can range from a reluctance to drive to a strong fear of driving (Taylor, Deane & Podd, 2002). Not only has driving anxiety been relatively neglected in research, but clinicians have also underestimated the distressing nature and the potential life-altering impact of driving anxiety (Taylor & Koch, 1995). The limited research has shown that the majority of participants in samples of adults and older adults have reported no experience of driving anxiety (Taylor, Alpass, Stephens & Towers, 2011; Taylor & Paki, 2008). However, it is also clear from this research that driving anxiety severely affects a small but significant proportion of individuals, whereby some driving situations are avoided to the detriment of everyday functioning (Taylor et al., 2011; Taylor & Paki, 2008). Even though it is evident that driving anxiety can produce negative outcomes (Taylor, 2011), which may have resulted in the subject area of driving anxiety being overlooked and under-researched, research has concentrated on driving cessation, avoidance and endurance.

Due to the generation of the baby boomers, in the next few decades a number of older adults will experience the process of stopping driving after spending their lives relying on driving for independence and mobility (Ragland, Satariano & MacLeod, 2005). Driving anxiety may be a part of this process, whereby individuals do not drive or stop driving due to anxiety, or experience reduced confidence and anxiety about competence. The challenge is how to avoid or limit this process of stopping driving and enable ex-drivers to maintain and/or reclaim their independence and mobility or to self-regulate their driving. The reason for this is that stopping driving, due to driving anxiety or other age-related factors, is a significant impediment to continued mobility for older adults. Furthermore, it is frequently the triggering factor for adverse consequences, such as depression and isolation (Marottoli et al., 1997). In addition, studies have found that there are negative health and social consequences related to stopping driving for older adults (Edwards, Lunsman, Perkins, Rebok & Roth, 2009), however this research has not considered the effect of driving anxiety on health and well-being.

Driving is an important part of everyday life that is fundamental to maintaining older adults' health and well-being (Freeman, Gange, Munoz & West, 2006). Therefore, it is

important to investigate driving anxiety and the consequential effects that it has on older adults' lives. Furthermore, driving that is reduced or stopped due to driving anxiety is preventable and does not have to result in significant avoidance or cessation. Even though only a small number of people are affected (Taylor et al., 2011; Taylor & Paki, 2008), driving anxiety can be highly disruptive to the everyday functioning of the individual and their health and well-being. Fonda, Wallace and Herzog (2001) found that when older adults are no longer able to drive, due to driving anxiety or other age-related factors, they have a greater risk for depressive symptoms. Therefore, further research on the relationship between driving anxiety and health and well-being is needed in order to better understand the experience of driving anxiety for older adults and develop effective interventions that maintain driving ability wherever possible and appropriate.

This chapter is organised into three main sections and discusses driving anxiety, driving anxiety and older adults, and the relationship between driving anxiety and health and well-being. First, the section regarding driving anxiety will describe what driving anxiety is and discuss the limited amount of information that is known about driving anxiety. Second, the section concerning the link between driving anxiety and the older population will describe the context of the current study (young older adults in New Zealand) and discuss the importance of driving, and the impact of driving anxiety, for this population. The final section on the relationship between driving anxiety and health and well-being for older adults will address how driving anxiety might affect health and well-being and why this is important for older adults. The chapter will end with a summary of the literature leading to the rationale and aim of the current study.

Driving Anxiety

The limited research on driving anxiety has been complicated by the wide range of terms, conceptualisations and definitions that different researchers have used (Taylor, 2011). Some research has referred to driving anxiety as a phobia, while others have used a variety of anxiety, fear and confidence related terms (Taylor et al., 2002). Additionally, researchers define driving anxiety based on different inclusion and exclusion criteria. This may be because research has also shown that those who present with driving anxiety often describe symptoms that are consistent with a variety of anxiety disorders, including panic disorder, agoraphobia, specific phobia, and social phobia (Taylor, Deane & Podd, 2000). Therefore, it is no surprise that previous research has contributed to a confusing picture of the prevalence and clinical presentation of driving anxiety.

Taylor et al. (2002) discussed three studies which had differing definitions of driving anxiety, which caused a significant variation in the prevalence of driving anxiety across the studies. First, Kuch, Swinson and Kirby (1985) reported a prevalence rate of 77% within their sample, and they used "an avoidance of or reduction in driving, or the endurance of driving with marked discomfort" (p.426) to define driving anxiety. Second, Mayou, Bryant and Duthie (1993) reported a prevalence rate of 15-18% within a motor vehicle accident sample, where they defined driving anxiety using DSM-III-R and DSM-IV criteria, which did not maintain that complete avoidance was required. Finally, Blanchard and Hickling (1997) found a much lower prevalence rate of 2-6% within their sample of those who had survived a motor vehicle accident, and they included "complete elimination of all driving or severe restriction of all driving" (p.87) in their significantly more restrictive definition of driving anxiety.

Evidently, the prevalence of driving anxiety depends on the stringency of the criteria that is used to define the anxiety, for example by incorporating complete avoidance, prevalence rates dropped significantly (Blanchard & Hickling, 1997). Therefore, an important and obvious difference in the inclusion criteria for driving anxiety within the research is whether complete avoidance of driving is necessary (Taylor et al., 2002). Marks (1969) argued that avoidance is an important difference between extreme anxiety and normative anxiety and that extreme anxiety always involves an element of avoidance of the anxiety-provoking situation. Blanchard, Hickling, Taylor and Loos

(1995), however, argued that complete avoidance of driving stimuli is not necessary. This may be because complete driving avoidance is rare (Blanchard et al., 1995; Kuch, Cox & Direnfeld, 1995) due to the fact that driving is so central to participating in modern society. Therefore, in the current study all experiences of driving anxiety were investigated and the sample was not confined to individuals who met criteria for a disorder, and complete avoidance was not considered necessary or important.

Ehlers, Hofmann, Herda and Roth (1994) found that individuals who experience driving anxiety often present with a combination of a fear of anxiety and its symptoms, a fear of external situations, and a fear of embarrassment. These overlapping symptoms mean that more than one diagnostic category of anxiety can capture experiences of driving anxiety. Ehlers et al. (1994) further confirmed this by arguing that individuals with driving anxiety can present with the symptoms of simple phobia (specific phobia in the DSM-5, American Psychiatric Association; APA, 2013) and panic disorder with agoraphobia, without meeting the full criteria for either disorder. Furthermore, Taylor, Deane and Podd (2007) found that out of their 50 driving-fearful participants, 23 met criteria for a current anxiety disorder, and of that group, 15 met criteria for specific phobia, six met criteria for social phobia, five met criteria for panic disorder (with two meeting criteria for agoraphobia), four met criteria for generalised anxiety disorder and one met criteria for post-traumatic stress disorder (and these data include participants meeting criteria for multiple disorders). Therefore, due to the varied presentation of driving anxiety, a differential diagnosis can be helpful to distinguish between driving anxiety and anxiety disorders (APA, 2013).

Driving anxiety can be distinguished from other anxiety disorders in several ways. First, if only one agoraphobic situation is feared then a classification of agoraphobia is appropriate. Second, if negative evaluation while driving is feared then a classification of social anxiety is appropriate. Third, if the fear is precipitated by a traumatic event then a classification of post-traumatic stress disorder is appropriate. Finally, if the onset of a panic attack is feared then a classification of panic disorder is appropriate (APA, 2013). However, it is possible for all the different types of fear content to present at the same time and for a comorbid disorder to be developed in conjunction with driving anxiety. It could be argued that driving anxiety is most similar to specific phobia situational type (APA, 2013). This is because the DSM5 criteria encompass almost all

non-specific anxiety responses associated with driving, and it does not specify the focus of the anxiety aside from a fear of driving stimuli.

The characteristics of driving anxiety range from simple to complex presentations and have a number of factors that make up their underlying nature. Therefore, Marks (1970) argued that the most appropriate conceptualisation of driving anxiety needs to take into account the specifics and the extent of the anxiety. Blanchard and Hickling (2004) classified less severe types of driving anxiety as driving reluctance, which is where the individual is able to drive if the trip is essential but either avoids or tolerates other reasons for travel. Blanchard et al. (1995) also used driving reluctance to describe lesser degrees of avoidance, characterised by avoidance of 'driving for pleasure' and/or certain driving situations (p.500). However, driving reluctance is still disruptive to the individuals' daily activities but these individuals do not engage in complete avoidance behaviour, and instead experience strong discomfort in relation to driving (Taylor & Paki, 2008).

Driving reluctance occurs when an individual avoids areas that produce an anxiety response, or specific aspects of driving (Blanchard & Hickling, 2004), however the outcome of this avoidance does not cause significant impairment to the person's everyday functioning or satisfy DSM criteria. Blanchard, Hickling, Taylor, Loos and Gerardi (1994) examined 50 participants who had suffered a motor vehicle accident, 1-4 months after the motor vehicle accident. They found that none of their participants experienced symptoms serious enough to warrant a conceptualisation of driving anxiety, however all demonstrated driving reluctance (Blanchard et al., 1994). Therefore, these individuals were considered to be reluctant drivers who merely tolerate their anxiety symptoms while driving in order to continue with everyday functioning (Blanchard & Hickling, 1997).

Key Features

Taylor (2011) argued that more severe driving anxiety is best thought of as a situational type of specific phobia characterised by the following criteria; a marked and persistent fear of a stimuli or situation, the feared stimuli triggers an immediate anxiety response, the feared stimuli is avoided or endured with significant anxiety, the fear is out of proportion to the actual danger the stimuli poses and/or out of proportion to the

sociocultural context, the fear is persistent, the fear causes extreme distress, and has a clinically significant impact on functioning in more than one aspect of daily life (APA, 2013). Specifically related to driving anxiety, the main characteristics are a marked and persistent fear of one or more modes of travel (for example, a car, bus or motorbike), the exposure to travel elicits an immediate anxiety response, fear of driving is out of proportion to the sociocultural context, and due to the above conditions travel is either avoided or endured with significant distress (Koch, Knight, Payne & Thorns, 2011).

Given that anxiety is experienced through thoughts and physical sensations, additional key features of driving anxiety are anxious thinking, anxious feeling or emotions and avoidance behaviour. Anxious thinking involves repetitive thoughts concerning threat or harm either before or during travel, when the prediction of risk is inflated (Koch et al., 2011). Anxious feeling or emotions concerns the physiological sensations that characterise anxiety, such as breathlessness, sweating and crying (Koch et al., 2011). Furthermore, anxious emotions can range from irritation to anguish. Avoidance behaviour is in relation to the feared stimuli and can range from reluctance to complete avoidance (Koch et al., 2011). Additionally, avoidance in relation to driving anxiety is observed when the individual expresses excessive caution while driving, particular driving situations are avoided, and distraction techniques are employed (Taylor & Koch, 1995).

Anxious Behaviour

When driving anxiety is more severe, research has shown that anxious drivers engage in fear-related behaviours that can be considered inappropriate or dangerous (Taylor et al., 2007). da Costa, de Carvalho, Cantini, da Rocha Freire and Nardi (2014) also recognised that individuals who experience driving anxiety frequently employ safety behaviours, such as driving unnecessarily carefully or slowly, in order to try and safeguard themselves from any unanticipated dangers while driving. Additionally, Clapp et al. (2011) argued that there are three main areas of anxious driving behaviour that can occur: exaggerated safety/caution behaviours (such as driving excessively slowly) anxiety-based performance deficits (such as misjudging distance), and hostile/aggressive driving behaviours (such as tailgating another driver). These behaviours are thought to significantly contribute to negative outcomes (Clapp et al., 2011), such as a motor vehicle accident or a traffic violation. As well as the increased

potential for such negative driving outcomes, there is also the potential for the development of behaviours that perpetuate driving anxiety (Clapp et al., 2011).

The first main area of anxious driving behaviour involves exaggerated safety and/or excessively cautious behaviour. Previous research has shown that these behaviours (such as driving far below the speed limit) are often viewed as a coping response that serves to decrease anxiety symptoms, by increasing a sense of safety and control (Taylor & Koch, 1995). Although this is an effective method for reducing immediate anxiety symptoms, theoretical models predict that safety/caution behaviours will eventually serve to maintain anxious responses by disrupting the processes that are associated with natural fear elimination, such as exposure-based conditioning (Clark, 1999). Furthermore, excessive safety/caution behaviours can also be detrimental as they may break accepted and long-standing traffic norms (Clapp et al., 2011).

The second main area of anxious driving behaviour involves performance deficits. This is problematic because research regarding traffic safety literature demonstrates that driving anxiety can interfere with immediate, task-related demands which could contribute to impaired driving performance and a reduction in safety (Matthews et al., 1998). Taylor et al. (2007) reported that anxious drivers committed a larger number of performance errors while driving. Furthermore, Matthews et al. (1998) found that participants who had reduced control and more frequent errors while in a driving simulation task were more likely to report an aversion to driving prior to the task. The third main area of anxious driving behaviour involves hostility and overt aggression. Participants who classified themselves as anxious aggressive drivers demonstrated low ratings of perceived driving skill, a greater propensity for risky driving behaviour, and high levels of accident involvement (Clapp et al., 2011).

Prevalence

Research has demonstrated that driving anxiety does occur within the general population (Ehlers et al., 1994, 2007; Koch et al., 2011; Munjack, 1984; Taylor, 2002; Taylor & Deane, 2000; Taylor et al., 2000, 2002, 2007). Koch et al. (2011), however, that the degree of anxiety only permitted a diagnosis for approximately 1-2% of cases. Similarly, Taylor et al. (2007) argued that a small proportion of their community sample with driving anxiety had symptoms that were severe enough to permit a diagnosis of an

anxiety disorder. Parker, MacDonald, Sutcliffe and Rabbitt (2001) also suggested that few individuals, who continued to drive, faced high levels of anxiety while on the road. Furthermore, over 60% of their sample reported that they did not often feel anxious at any point while driving (Parker et al., 2001). Therefore, it is evident that driving anxiety does occur in research samples but that the majority of participants do not experience any form of driving anxiety.

In regards to the prevalence of driving anxiety in the general population of New Zealand, two studies are important to note. Both studies found that the majority of their samples reported no driving anxiety, but that a small minority experienced severe driving anxiety. First, Taylor and Paki (2008) examined the prevalence, frequency and features of driving anxiety in a small community sample. The results demonstrated that there was a small but significant minority (7-8%) of the sample who reported moderate to extreme driving anxiety (Taylor & Paki, 2008). Due to the low levels of driving anxiety, there was subsequently low levels of avoidance behaviour and negative driving related thoughts (Taylor & Paki, 2008). Furthermore, Taylor and Paki (2008) found that men reported lower levels of driving anxiety, avoidance and negative thoughts when compared to women.

Second, Taylor et al. (2011) examined the prevalence of self-reported driving anxiety and fear in a sample of 2491 young older adults aged 55-72 years from New Zealand. Taylor et al. (2011) asked participants to rate their level of driving anxiety on a scale ranging from 0 (no driving anxiety) to 10 (extreme driving anxiety). They discovered that the majority of their sample (69.40%) did not report any driving anxiety (rating of 0), however, 20% reported a mild level of driving anxiety (rating of 1-4) and 5.50% reported a moderate to severe level of driving anxiety (rating of 5-10) (Taylor et al., 2011). Furthermore, of the participants who reported driving anxiety, 2.40% reported that their anxiety had had a significant impact on their everyday activities or work for a minimum of one day in the previous month (Taylor et al., 2011). An additional 10 participants reported that their usual activities or work had been affected due to driving anxiety for 20 days or more in the previous month (Taylor et al., 2011). Therefore, this demonstrated that driving anxiety is a significant problem for a small proportion of young older adults in New Zealand and that it is likely to affect their health and well-being.

Other notable findings by Taylor et al. (2011) were that the duration and persistence of driving anxiety was highly variable, women reported higher levels of driving anxiety and fear than men, and there were no age differences in regards to level of driving anxiety. In regards to persistence, studies examining populations with clinical disorders have found that driving anxiety may persist for years (Hickling, Blanchard, Silverman & Schwarz, 1992; Koch & Taylor, 1995; Kuch, Cox, Evans & Shulman, 1994; Kuch, Evans, Watson, Bubela & Cox, 1991). Koch and Taylor (1995) assessed motor vehicle accident sufferers 2.50 years (on average) after their accidents and found that driving anxiety was persistent. Furthermore, they found that 47% could still be considered as experiencing driving anxiety, while the rest of the sample experienced lesser forms of driving anxiety (Koch & Taylor, 1995). Regarding onset, Ehlers et al. (1994) demonstrated that, on average, those with driving anxiety reported that their driving anxiety arose at age 29, and that avoidance behaviours began at around age 35. Furthermore, at age 39 participants' anxiety had progressed to a stage where they felt as though their daily functioning was affected (Ehlers et al., 1994).

Gender Differences

The previous literature examining the link between driving anxiety and gender has looked at samples of adults and older adults, and it is clear that gender differences do exist. However, it is unclear why these differences occur and more research is needed to examine this phenomenon more closely. Mathew, Weinman, Semchuk and Levin (1982) found a higher prevalence of driving anxiety among women in their adult sample, but they considered that this could have been due to sampling error. Similarly, Taylor and Paki (2008) found that in their sample of adults, women reported more driving anxiety and avoidance than men, and women had higher anxiety scores than men. Furthermore, gender explained 5% of the variance in driving anxiety. Garrity and Demick (2001) also found a gender difference in their sample of adults and older adults. They found that women experienced higher tension-anxiety than men while driving, and therefore suggested that tension-anxiety may be a greater factor of driving anxiety and performance for women than it was for men (Garrity & Demick, 2001).

In regards to older adults, Hakamies-Blomqvist and Wahlstrom (1998) reported that both male and female ex-drivers experienced more feelings of anxiety in traffic and more frequent avoidance of specific traffic situations than current drivers. However,

women reported more frequent driving anxiety and avoidance than men who were both drivers and ex-drivers (Hakamies-Blomqvist & Wahlstrom, 1998). Additionally, Hakamies-Blomqvist and Wahlstrom (1998) found that the main reasons for stopping diving were different for men and women, whereby women frequently attributed a loss in driving confidence (anxiety) as the reason for stopping driving, while men cited declining health. Furthermore, Hakamies-Blomqvist and Wahlstrom (1998) and Gallo, Rebok and Lesikar (1999) also argued that women were more likely than men to report driving anxiety and the desire to avoid difficult driving situations as contributing factors to driving cessation. In support of this, Taylor et al. (2011) reported that women experienced higher levels of driving anxiety and fear than men. However, due to these gender differences, it is possible that because women are more likely to experience driving anxiety they are more likely to participate in (or be recruited for) research in this area. Gender differences may also be influenced by an over representation of males in the elderly driving population who may view the use of a car as more of a necessity than women (Hakamies-Blomqvist & Wahlstrom, 1998).

Driving Anxiety and Older Adults

It is a well-known fact that the world's population is ageing. Population projections predict that by 2050, 22% of the population will be 60 years or older (United Nations, 2007). More specifically, in New Zealand by 2026, 20% of the population will be aged 65 years or older, furthermore this percentage is expected to increase significantly by 2051 (Alpass et al., 2007). Therefore, it is evident that as the years go by, the need for services and professionals who are able to and are experienced in working with older adults and anxiety will continue to grow. Especially as anxiety is one of the most prevalent disorders among older adults, affecting up to 10% of adults aged 60 and over, yet it is one of the least researched (Nordhus & Pallesen, 2003). Anxiety is important to research because it has a negative impact on the functioning of older adults and has been associated with increased disability and diminished well-being (de Beurs et al., 1999). Moreover, as individuals age the prevalence and severity of physical illnesses increases, which can consequently cause anxiety to become more prevalent (de Beurs et al., 1999).

An important area of anxiety for researchers to examine in older adults is driving anxiety, which more recent research is beginning to look at. This is an important area of research because among older adults, more than 80% of travel occurs in a car (private vehicle) as a driver or a passenger (Rosenbloom, 1993). Furthermore, Bull and Raffle (1992) argued that a large proportion of the increasing ageing population will hold a driver's licence in the future. It also needs to be noted that the population of very old elderly (over 80 years of age) will form an increasingly larger proportion of the population (Bull & Raffle, 1992). This is important to consider because driving skills and abilities are dependent on cognitive functioning, psychomotor functioning and perceptual functioning, all of which are affected by age-related changes in the body (Neutel, 1998). Therefore, due to the increasing number of older adults, there is the potential for these adults to experience changes in their driving skills and ability. The resulting consequences may be a reduction in or avoidance of driving which may be due to driving anxiety or may be due to health-related changes, vision loss or other age-related factors precipitating reduced driving or avoidance. This is problematic because driving anxiety can result in decreases in mobility and independence for older adults, which has a high chance of negatively affecting health and well-being (Marottoli et al., 2000).

In New Zealand, older adults (aged 75 years and older) made up 4.6% of licensed drivers in 2007 (Statistics New Zealand, 2007). Kosnick, Winslow, Kline, Rasinski and Sekuler (1988) conducted a survey that suggested that those over the age of 65 years used a car for up to 80% of their daily errands and activities. Furthermore, Foley, Heimovitz, Guralnik and Brock (2002) reported estimates that demonstrated that the average 70 year old driver had a 'driving life expectancy' of approximately 11 years. Therefore, if older adults are going to continue to rely on a personal vehicle and drive in their eighties and nineties, they will have driven, and continue to drive, significantly further than other age groups. This puts them at a greater risk for motor vehicle accidents due to more time spent on the road. As the older population is so reliant on personal transport, it is therefore necessary to help the older adult population maintain a sense that even though they are ageing, they are still able to be independent and mobile as much as possible (Persson, 1993).

There is also a greater risk with increasing age for impairments to vital driving skills, due to normative age-related changes as well as age-related health issues (Insurance Institute for Highway Safety, 2012). Murray (1997) argued that the normal processes of ageing also affect driving ability. Normative slowing of reflexes and declines in motor strength can cause increased reaction times, and has been referred to as a 'hardware effect' whereby the cognitive processes are unaffected but information takes longer to go through these cognitive processes (Murray, 1997). Schlag (1993) argued that this may be because older adults need more information before they make decisions when driving and that they require more time to make decisions. Furthermore, this is particularly true when older adults are in driving conditions that are complex or cause them to feel nervous (Schlag, 1993).

Retaining the Ability to Drive

There is a high probability that those aged 60-65 years have developed habitual patterns in regards to driving, as they have most likely been driving for all of their adult life (Musselwhite & Haddad, 2007). Additionally, Strecher, DeVellis, Becker and Rosenstock (1986) argued that individuals' perceived capabilities influence their behaviour, as opposed to their true capabilities. Therefore, it is important to take into consideration the older adults who still have the ability and skills to drive (even with restrictions), but who stop driving due to driving anxiety. With this in mind, it is

becoming increasingly important to promote safe transport for older adults while still enabling them to retain their ability to drive.

Jette and Branch (1992) found that continued self-reliance in regards to driving was significantly related to health, and that many older drivers continued to drive for as long as they possibly could. Furthermore, Gustafsson et al. (2012) reported that older adults who were no longer driving were more likely to worry about the ability to continue with activities that were considered important to them for meeting responsibilities and maintaining indepdence. Older adults who were still currently driving, however, were less aware and concerned about meeting responsibilities and maintaining indepdence (Gustafsson et al., 2012). This may have been because these individuals had not been forced to consider alternatives to driving.

Schultheis and Manning (2011) argued that the presence of anxiety does not mean that the individual is unfit to drive. Furthermore, Monterde i Bort (2004) argued that due to the increase in the ageing population who are in good psychological and physical condition, and the social demands and changes around mobility, there has been an increase in the need for older adults to be able to drive. Therefore, it is important for older adults and the wider community that they still drive if they are able to do so. Safety is still of concern however, Cox, Fox and Irwin (1988) argued that safety should not be prioritised to the detriment of maintaining the older adult's ability to function and participate in everyday society, in regards to driving. The majority of older adults have been driving for their whole lives and stopping driving due to driving anxiety could be extremely detrimental to their independence and self-worth, especially if they still possess the skills and ability to drive effectively. Additionally, Mann, McCarthy, Wu and Tomita (2005) found that individuals who were current drivers had better physical and mental health, and functional status when compared to those who had ceased driving or had never driven.

Changes in Driving Behaviour

Naturally, there will be individual differences regarding the decision to change driving behaviour, but research has suggested that older adults have the tendency to limit their driving to times and places where they perceive their safety risk as low (Hennessy, 1995). Therefore, Marottoli et al. (1997) argued that changes in driving patterns is an

early indicator that an individual is experiencing reduced mobility in relation to driving, which may lead to negative consequences, such as isolation. Furthermore, Murray (1997) argued that the decision to stop driving is plagued with personal and social consequences. In addition, little is known and understood about why older adults stop or even reduce driving. Ragland, Satariano and MacLeod (2004) reported that a number of older adults continued to drive, however, many did report one or more reasons for them to limit or avoid driving.

Hakamies-Blomqvist and Wahlstrom (1998) argued that reducing driving was frequently used as a compensatory strategy to avoid some traffic situations. Similarly, Johnson (1995) also argued that research has found that anxiety and insecurity regarding driving often influences older adults to limit or avoid driving. Tuokko, Rhodes and Dean (2007) also cited a lack of confidence as being significantly associated with stopping driving in older adults, along with issues with health. Schlag (1993) agreed and found that elderly drivers often avoid difficult or stressful traffic situations and may drive less overall when compared to the general population, due to a fear of harm. Additionally, Chu (1994) found that, compared to adults under the age of 65, older drivers avoided the highway more frequently, made fewer trips and travelled fewer miles. However, it is unclear whether this is due to driving anxiety, as the majority of the research has focused on physical reasons for driving cessation such as disability.

Hakamies-Blomqvist (1994) also found that individuals who recognised that their driving capacity has lessened frequently reduced their risk of harm by reducing their exposure and limiting themselves to driving conditions in which they felt confident. Furthermore, some older adults compensate for anxiety by driving less, avoiding traffic, and not driving at night or in bad weather (Baltes & Carstensen, 1996; Murray, 1997; Schlag, 1993). Baldock, Mathias, McLean and Berndt (2006) argued that older drivers do seem to self-regulate consistent with their driving ability, but only in some specific situations where the drivers experienced low confidence (high anxiety) and were easily able to avoid a particular situation. Insight and self-regulation are important skills for older adults because they promote safe driving, and a loss of these skills may facilitate adverse situations such as driving at night when vision is poor (Pachana & Petriwskyj, 2006).

Persson (1993) noted that 37% of the elderly who had stopped driving in the last five years held valid licences, with the most common reasons cited for stopping driving being advice from their doctor (27%), increased nervousness behind the wheel (driving anxiety) (20%), trouble seeing pedestrians and cars (20%) and medical conditions (18%). Additionally, those who voluntarily stopped driving attributed external factors to their decision, such as financial strain, driving anxiety and lack of access to a car (Choi, Mezuk & Rebok, 2012). Furthermore, McNamara, Chen, George, Walker and Ratcliffe (2013) found that older adults were more likely to stop driving due to increased old age, low confidence, and when their local doctor advised them. McNamara et al. (2013) also concluded that individual factors affecting the individual (increased old age and low confidence) may be more influential than environmental factors (availability of other transport options and the associated cost) in an older adult's decision to stop driving. It needs to be noted that diving anxiety is one of the potentially modifiable factors that impact on the decision to stop driving for older adults (Choi, Adams & Mezuk, 2012). Therefore, if driving anxiety is related to health and well-being, the consequences may be remedied.

Hakamies-Blomqvist and Wahlstrom (1998) examined different nationalities and found that in the Finnish and German samples, 62% of active drivers reported that they had reduced their driving. In an Italian sample, 44% of active drivers reported that they had reduced their driving (Hakamies-Blomqvist & Wahlstrom, 1998). Furthermore, Hakamies-Blomqvist and Wahlstrom (1998) reported that these individuals drove fewer kilometres, less often and avoided more situations in traffic than others. Dellinger, Sehgal, Sleet and Barrett-Connor (2001) reported that reasons for stopping driving included low confidence (driving anxiety), disliking driving, not feeling safe and slowed reactions. Lyman, McGwin Jr and Sims (2001) agreed and found that older adults' most common reasons behind stopping driving were discomfort while driving, a loss of confidence in driving abilities, vision problems, or health problems.

Ragland et al. (2004), however, argued that it is important to determine whether stopping driving has an association with other factors associated with ageing more-so than with changes related to mobility. This is because self-reported driving anxiety may be subsequent to changes in functional status or physical and cognitive ability (McNamara et al., 2013). For example it is common for older adults to develop age-

related difficulties associated with the demands of driving, which can lead to driving anxiety and a loss of confidence in their driving skills and abilities (Wiederhold & Wiederhold, 2005). Therefore, McNamara et al. (2013) concluded that age and confidence in driving ability (driving anxiety) are significantly related to older adults' decisions to stop driving. This indicates that it is important to examine other variables in conjunction with driving anxiety and health and well-being, to determine whether poor health and well-being can be attributed to driving anxiety or other factors such as age or gender.

Driving Anxiety and Health and Well-being

The World Health Organisation defines health as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Official Records of the World Health Organization, 1946, p.100). Quality of life is defined as "an individual's perception of their position in life in the context of the culture and values systems in which they live, and in relation to their goals, expectations, standards and concerns" (WHOQOL Group, 1994). It is becoming recognised that these concepts of health and well-being do not simply mean an absence of poor physical and mental health, but demonstrate how the individual evaluates their life in regards to their future, present and past situations, including their future aspirations and concerns, and past achievements and disappointments (Nordhus, 2008). Musselwhite and Haddad (2010) reported that the older adults in their study argued that good quality of life included simpler features of life, such as scenery, new experiences and spontaneous encounters. Therefore, the often taken for granted ability to drive can significantly affect the health and well-being of older adults, in that it impacts on their quality of life as well as their physical and mental health, and maintaining the ability to drive is an important concern for older adults.

Physical and Mental Health

Obvious differences between older and younger drivers are that older drivers are more likely to have cognitive, motor and perceptual deficits and age-related declines that have an effect on their driving ability and skills (Morgan & King, 1995). Furthermore, older adults are more likely to have a chronic illness and to be on medication that can have a negative effect on driving (Morgan & King, 1995). This means that older adults are more likely to have disabilities that will impact on their ability to drive and to access public transport, significantly restricting their mobility and consequently reducing their health and well-being (Morgan & King, 1995). Eberhard (2001) also found that isolation due to restricted mobility may accelerate additional health declines and psychosocial functioning.

de Beurs et al. (1999) found that anxiety disorders and symptoms were associated with poorer perceived health, chronic physical illness, functional limitations, and poorer life satisfaction. Driving anxiety, therefore, is problematic for health and well-being in itself and when it results in older adults stopping driving. However, it needs to be kept in

mind that the relationship between health and driving anxiety may be the opposite as well, in that poor health may precede driving anxiety. O'Neill, Bruce, Kirby and Lawlor (2000) argued that health problems significantly impacted on continued driving in older adults. The reason for this may be that when older adults experience health problems they feel less safe and more anxious when driving due to perceived deficits in health. For example if an individual is experiencing vision problems they may become more anxious when driving because they are concerned that their driving skills are impaired. Therefore, health may influence driving anxiety and driving anxiety may influence health. Additionally, the same health problems that make driving uncomfortable may also make access to public transport difficult and/or dangerous (Liddle, Turpin, Carlson & McKenna, 2008).

Freeman et al. (2006) argued that their analyses demonstrated that older adults who were no longer able to drive experienced substantial declines in physical and social functioning. Therefore, they argued that older adults who no longer drive are more likely to experience associated (increased) limitations and difficulties in regards to physical performance (Freeman et al., 2006). Furthermore, navigating everyday activities and participating in social events will become more difficult due to physical health problems (Freeman et al., 2006). Similarly, Siren, Hakamies-Blomqvist and Lindeman (2004) found that ex-drivers had poorer overall health status than current drivers, however, the health conditions that were related to stopping driving were not severe enough to impair driving ability but instead decreased overall well-being and mobility. Furthermore, those who did not drive were older, had poorer health and were more likely to be cognitively and visually impaired (Marottoli et al., 1993).

When recruiting participants, Mathew et al. (1982) asked individuals if they experienced 'some degree of anxiety while driving under normal conditions'. They did not find any significant differences between their participants with anxiety and their control participants in regards to physical health (Mathew et al., 1982). However, they did find that their participants with anxiety reported more mental health problems that they had sought treatment for, in that ten participants had been treated for anxiety and three participants had been treated for depression (Mathew et al., 1982). In regards to limitations, however, the sample had severe gender bias (77% female) and the study had a relatively young mean age of 42.08 years (with a standard deviation of 9.2 years).

Driving status has also been associated with health. Edwards, Perkins, Ross and Reynolds (2009) found that non-drivers were four to six times more likely to die than current drivers during a three year period. Furthermore, non-drivers tended to be older, were more likely to be female, had more medical conditions, poorer self-rated health, greater cognitive decline, and more functional problems (Edwards et al., 2009). Additionally, O'Connor, Edwards, Waters, Hudak and Valdes (2013) found that, overall, mortality risk was 1.68 times higher for non-drivers than for drivers. Furthermore, the relationship between driving status and mortality risk remained significant even when baseline physical function, health, psychological well-being, and cognitive abilities were considered (Edwards et al., 2009). Freeman et al. (2006) found that when compared to current drivers, former and never drivers had a higher chance of entering into long term care after controlling for socio-demographic and health variables. Furthermore, some older adults may have to enter into long-term care due to transportation issues (such as not driving even when they are still able to do so), even though they are otherwise able to function independently (Freeman et al., 2006).

Quality of Life

In general, Wetherell et al. (2004) reported that the occurrence of symptoms of anxiety or depression were significantly related to impairment in every aspect of quality of life. Furthermore, their results suggested that later life anxiety is associated with substantial diminishment in quality of life (Wetherell et al., 2004). In regards to driving, Fonda et al. (2001) found that driving limitations had negative consequences, such as depression and limited access to health care, for older adult's health and well-being. This may be because, as Webster et al. (2002) argued, that mobility and accessibility are vital in order for older adults to maintain adequate health and well-being. Similarly, Bauer, Rottunda and Adler (2003) argued that mobility is regularly regarded as an essential factor of the quality of life for older adults, and that older adults rely on their personal vehicles more so than other age groups to meet their transportation needs.

Mobility and accessibility are also associated with objective and subjective conceptions of quality of life (Fonda et al., 2001). Therefore, the ability to drive is particularly important for older adults to maintain their sense of independence and mobility, as well as connecting them to wider society and the activities and services that are available (Gilhotra, Mitchell, Ivers & Cumming, 2001). This is particularly true for those from

smaller towns and rural areas, where there may be fewer alternative transportation options (O'Connor et al., 2013). Many older adults also consider driving as a symbol of independence and freedom (Gillins, 1990; Morgan & King, 1995). Bauer et al. (2003) agreed and argued that in modern society, independence and driving are frequently one and the same, and for many older adults freedom and independence are achieved through the ability to get from one place to another independently (Bauer et al., 2003).

da Costa et al. (2014) used structured interviews, semi-structured questionnaires, scales and inventories to compare the clinical characteristics (socio-demographics, physical and mental health) and quality of life of Brazilian women between the age of 18 and 60 with driving anxiety and without driving anxiety. They found that their control group (participants without driving anxiety) had slightly higher scores on all of their quality of life subscales when compared to participants with driving anxiety, indicating higher quality of life (da Costa et al., 2014). Significant differences were only found on three scales, which were functional capacity, social aspects and mental health (da Costa et al., 2014). da Costa et al. (2014), however, limited their findings because their sample only contained Brazilian women and had a maximum age limit of 60 years. Furthermore, the researchers based their inclusion criteria on the DSM criteria for phobia and excluded those with physical and psychological problems.

Consequences

Maintained driving mobility is increasingly being recognised as important to the health and well-being of older adults (Oxley & Whelan, 2008). Older adults who have the ability to drive often have better health and cognitive functioning, a higher quality of life, more satisfaction with their lives, and less depression when compared with older adults who are no longer driving or have never driven at all (Mann et al., 2005). Furthermore, Owsley (2002) argued that maintaining driving mobility is instrumental to actively participating in daily living for many older adults as well as being associated with the individual's physical and psychological well-being. Additionally, for older adults, a driver's licence can be of significant importance as it may be viewed as a symbol of the freedom to be independent and self-sufficient (Waller, 1991). Therefore, there can be significant negative consequences for older adults who give up driving and are unable to maintain their previous lifestyle.

da Costa et al. (2014) argued that driving anxiety can lead to significant consequences for older adults such as a loss or restriction of freedom, functional and occupational impairment, and social embarrassment. Individuals are also at an increased risk of isolation, depression and associated functional impairment (Gilhotra et al., 2001). Furthermore, Marottoli et al. (1997) reported that during a six year interval, individuals who were not driving experienced increased depressive symptoms, even when changes in other factors were considered. As Marottoli et al. (1997) expected, current drivers at baseline who were no longer driving during the three year follow up period, reported higher levels of depressive symptoms when compared to those who continued to drive. Siren et al. (2004) reported similar results that indicated that ex-drivers suffered from more illnesses than current drivers. Marottoli et al. (2000) also found that older adults who have relinquished their licenses have expressed regret, social isolation, and loss of self-worth.

When older adults are no longer able to drive due to driving anxiety, amongst other possible precipitators, they have a greater risk for depressive symptoms (Fonda et al., 2001) which is also related to a loss of mobility and independence. A loss of mobility can potentially reduce or limit older adult's access to resources and services within the community, such as church services, volunteer work, friends and health care, which can compromise their quality of life (Cutler, 1974; Marottoli et al., 2000). Furthermore, there is evidence that a loss of the ability to perform everyday independent tasks increases depressive symptoms and the risk of clinical depression (Bruce, Seeman, Merrill, & Blazer, 1994; Gurland, Wilder, & Berkman, 1988; Phifer & Murrell, 1986). Finally, changes in driving and depressive symptoms may be linked through the fact that the transition from driver to ex-driver causes significant changes to older adult's lifestyle and identity (Rothe, 1994), which could also be a risk factor for worsening depressive symptoms.

Summary

Most aspects of health tend to deteriorate as people get older. Therefore, it is important that researchers and psychologists promote healthy and effective ways for older adults to adapt to a changing and modern society, especially in regards to driving. One such way is extending fitness, capacity, and well-being so that normative age-related decline is limited (Stephens & Noone, 2008). This is particularly challenging because declining health may result in reduced driving regardless of the ability and capacity to drive. de Beurs et al. (1999) argued that better management of anxiety in later life is needed, even if criteria for an anxiety disorder has not been met. This is because, even if there is no diagnosis of anxiety, anxiety still causes significant disruption and has a negative effect on quality of life (de Beurs et al., 1999).

The key research that has looked into the effects of driving anxiety on functioning has been sparse and severely limited in regards to generalisability. First, a study conducted by Mathew et al. (1982) had a severe gender bias, a relatively young mean age and was mainly concerned with the effect on mental health. Furthermore, this study was carried out 30 years ago, therefore the results may not be applicable in 2015. Second, a recent study by da Costa et al. (2014) only examined Brazilian women with driving anxiety, had a maximum age limit of 60 years, based their inclusion criteria on the DSM criteria for phobia, and excluded those with physical and psychological problems. In New Zealand, the limited research on the subject of driving anxiety in older adults has shown that driving anxiety was evident in a small sample of the population, and that functioning was affected in some way (Taylor & Paki, 2008; Taylor et al., 2011). What is unknown is how functioning and health and well-being might be affected by driving anxiety specifically, as opposed to factors such as driving cessation or a motor vehicle accident.

A study that has sought to examine how the functioning and health and well-being of older adults is affected by various variables is the *New Zealand Longitudinal Study of Ageing (NZLSA: 2010-2012)* formerly *The Health, Work and Retirement Study (HWR: 2006-2008).* The current study was a part of the HWR study (2008, wave 2 data). The data on driving anxiety was collected in order to determine the extent of driving anxiety for young older adults in New Zealand and to examine if there was a relationship between driving anxiety and health and well-being.

Aim

The aim of the current study was to address the weaknesses in previous research by investigating the relationships between driving anxiety and multiple aspects of health and well-being in young older adults in New Zealand, specifically, physical health, mental health and quality of life. Furthermore, the current study examined if such relationships were still evident when socio-demographic variables were controlled for. The purpose of this was to examine the impact that driving anxiety had on young older adults' health and well-being, and if driving anxiety had a detrimental impact on young older adults over and above the effect of other socio-demographic factors. However, due to the lack of theoretical work in this area, the current research was considered exploratory.

Research Questions

1. What is the impact of driving anxiety on health and well-being for young older adults in New Zealand, once socio-demographic variables are controlled for?

2. Does gender moderate the relationships between driving anxiety and health and well-being?

Hypotheses

1. Driving anxiety will have a negative impact on the three dependent variables when the socio-demographic variables of age, gender, education, driving status, marital status, ethnicity and economic living standard are controlled for.

2. Gender will moderate the impact of driving anxiety on the three dependent variables, in that the relationships will be stronger for women than men.

Chapter Two: Method

This chapter discusses the research design, participants, measures, procedure and data analysis methods that were used in the current study.

Research Design

The current study was a secondary analysis of the data from the second wave (2008) of the HWR study, a large scale longitudinal study conducted in New Zealand (Towers, 2006). The HWR study conducted a two-wave national survey of New Zealanders aged 55-70 in 2006 and 2008. Data from the HWR study was used because it encompasses a representative sample of the New Zealand general population, as well as a sub-sample comprising New Zealanders of Māori descent, the primary ethnic minority population in New Zealand (Towers & Noone, 2007). As the current study was only concerned with data from the second wave, a cross-sectional design was used. Ethical approval for the HWR study was obtained from the Massey University Human Ethics Committee (HEC: PN application number 05/90).

Sample

In 2006, the HWR study used equal probability sampling procedures and random selection in order to select two independent nationally representative subsamples (a general population subsample inclusive of Māori and an exclusively Māori population sub-sample) aged 55-70 years from the New Zealand electoral roll (Towers, 2006). The electoral roll was used because it is compulsory for all citizens eligible to vote (18 years and over) to be registered on the roll. Approximately 96% of all New Zealanders eligible to vote were registered on the electoral roll from the end of March 2007, which provided a sample that is representative of the adult population in New Zealand (Towers, 2006; Towers & Stevenson, 2014). Individuals who were in institutions at the time of the survey were excluded from the population (this includes individuals in prison, nursing homes or dependent care).

Population estimates from Statistics New Zealand have shown that there are approximately 609,000 New Zealanders aged 55-70, of whom 47,400 identify as Māori (Towers, 2006). Therefore, in order to collect representative data, two subsamples were used to reflect these populations of interest. Individuals who were of Māori descent

were oversampled in order to maximise participation rate, as they only accounted for 12.8% of the general population aged 55 to 70 (Towers, 2006). This was done because statistics predicted that, out of the estimated 1,420 people in the general population willing to take part in the study, only 101 of these participants would be Māori, and less than 76 would be likely to remain in the final wave of the study (Towers, 2006). Therefore, there was a high chance that there would be a significantly reduced Māori participation rate. In order to rectify this sampling issue, 7,781 Māori adults aged 55-70 were randomly selected from the New Zealand electoral roll (once again excluding those in institutions).

The postal questionnaire for the first wave of data collection in 2006 was sent to 13,045 prospective participants, with 5,264 making up the general subsample and 7,781 making up the Māori subsample. 518 participants were excluded because they were unable to complete the questionnaire. The completion of the first wave questionnaire drew a sample of 6,662, with 3,108 making up the general subsample and 3,554 making up the Māori subsample (53% response rate). Of these 6,662 participants from the first wave, 3,071 consented to participating in the second wave of data collection in 2008. The completion of the second wave questionnaire drew a sample of 2,473 (sample of interest), with 1,274 making up the general subsample and 1,199 making up the Māori subsample (81% response rate).

The Māori descent indicator was used to randomly select the Māori population subsample because census categorisations do not always represent those who self-identify as Māori (Te Hoe Nuku Roa, 2002). Therefore, the use of the Māori descent indicator allowed individuals who have specifically identified as Māori to be selected to participate in the study (Towers, 2006). Furthermore, over-sampling resulted in the over-representation of Māori and the under-representation of New Zealand Europeans in this study, compared to the general population in New Zealand (Towers, 2006). Therefore, a post-stratified weighting variable was calculated in order to account for the known discrepancies between the sample and the population (Towers, 2006). The variable was computed based on population estimates from the 55-70 year old population, provided by Statistics New Zealand and each participant was allocated a sample weight according to their primary ethnicity (Towers, 2006).

Measures

In the current study, driving anxiety was the independent variable of interest. Quality of life, mental health and physical health were the dependent variables. The socio-demographic variables of age, gender, ethnicity, driving status, highest educational qualification, marital status, and economic living standard were used as control variables/independent variables. Even though the HWR study had many sections and various measures, only the following were of interest in the current study (full questionnaire and measures provided in Appendix A).

Socio-demographic Variables

The socio-demographic variables of age, gender, current driving status, highest educational qualification, marital status and ethnicity were modelled on the 2006 New Zealand Census of Population and Dwellings (Statistics New Zealand, 2007).

Age – Participants' age was recorded as the number of years at the time that wave two of the HWR study was collected (2008).

Gender – Participants' responses were recorded as: 1 = male and 2 = female.

Current Driving Status – Participants' responses for whether or not they were currently driving were recorded as: 1 = current driver, 2 = past driver, and 3 = never been a driver.

Highest Educational Qualification – Participants' responses were recorded as: 1 = no school qualifications, 2 = secondary school qualifications, 3 = post-school qualifications, and 4 = tertiary qualifications.

Marital Status – Participants' responses were recorded as: 1 = legally married, 2 = civil union/de facto/partnered, 3 = permanently separated, 4 = divorced/marriage dissolved, 5 = widower/widow, and 6 = never legally married. The marital status variable was then collapsed and simplified from six response categories to the following three: 1 = married (legally married, civil union, de facto, and partnered), 2 = previously married (permanently separated, divorced, marriage dissolved, widower/widow), and 3 = single (never legally married).

Ethnicity - For the purposes of comparison to national data in the HWR study, Ministry of Health guidelines (Ministry of Health, 1999) were used to assign participants a single ethnic categorisation based on prioritised ethnicity rules (when more than one ethnicity was indicated). Participants' responses were recorded as: 1 = New Zealand European, 2 = Māori, 3 = Pacific Islander, 4 = Asian, 5 = Middle Eastern, Latin American or African (MELAA), and 6 = other. Responses were prioritised by recording subsequent responses if the previous response(s) had not been selected. Responses were prioritised in the following way. First, if Māori was selected the participant was recorded as Māori. Second, if Pacific Islander was selected the participant was recorded as Pacific Islander. Third, if Asian was selected the participant was recorded as Asian. Fourth, if MEELA was selected the participant was recorded as MEELA. Fifth, if New Zealand European was selected the participant was recorded as New Zealand European. Finally, if other was selected the participant was recorded as MEELA.

Economic Living Standard - The Economic Living Standard Index – Short Form (ELSI-SF) was used to measure economic living standard, as represented by a person's consumption and personal possessions (Jensen, Krishnan, Spittal & Sathiyandra, 2003; Jensen, Spittal, Crichton, Sathiyandra & Krishnan, 2002; Jensen, Spittal & Krishnan, 2005). The Economic Living Standards Index (ELSI) is a New Zealand specific self-rated measure that was developed by the Ministry of Social Development (2005) and the development of the ELSI-SF was based on this measure. The scale of the ELSI-SF ranges from 0 (lowest) to 31 (highest) and contains 25 items that examine ownership, social participation restrictions and parsimony (Ministry of Social Development, 2005). However, the ELSI-SF can only be used to represent the financial aspect of an individuals' well-being (Jensen et al., 2005). Therefore, the ELSI-SF was used in conjunction with the other socio-demographic variables to represent an individual's overall well-being and quality of life, as opposed to being used as a dependent variable.

A scoring algorithm can be used to allocate individuals into seven response categories. However, in the current study the overall score was used as a continuous indicator of economic living standard. Jensen et al. (2005) demonstrated construct validity for the ELSI-SF in the following ways. First, scores generated by the ELSI-SF were highly correlated with scores generated by the ELSI (Jensen et al., 2005). Second, the ELSI-SF was associated with variables that are expected to be associated with living standards

(Jensen et al., 2005). Third, the ELSI-SF was associated with these living standards variables to the same extent as the ELSI (Jensen et al., 2005). Therefore, this demonstrated that the ELSI-SF was a valid an appropriate measure for assessing economic living standards. Furthermore, Jensen et al. (2005) found that the ELSI-SF had a Cronbach alpha score of 0.88 indicating good internal consistency. Cronbach alpha for the current study was 0.87.

Independent Variable

Driving Anxiety - One question asked how anxious participants were about their driving, with anxiety being described as an "unpleasant feeling of nervousness or distress that may have no explanation". Participants' responses ranged from 0 = not at all anxious to 10 = extremely anxious. The rationale for using one driving anxiety item is that it was used in previous studies by Taylor and Deane (1999, 2000), and Taylor et al. (2007), and there are no other brief measures of driving anxiety. Furthermore, only one item was used because there were limitations on the length of the items due to the scope of the full postal survey.

Dependent Variables

Physical and Mental Health

The Medical Outcomes Study Short Form (12) Version Two Health Survey (SF-12v2), one of the most well-known and well used health surveys in the United States (Ware, Kosinski & Keller, 1996; Ware, Kosinski, Turner-Bowker & Gandek, 2002), was used to measure physical and mental health. The SF-12v2 is the most recent sub-scale of the Medical Outcomes Study Short Form (36) Health Survey (SF-36). The SF-12v2 contains 12 items that measure eight areas (scales) of health. The scores from all items were integrated using principal components extracted coefficients to generate two component scores, the Physical Component Summary Score (PCS) and the Mental Component Summary Score (MCS) (Cheak-Zamora, Wyrwich & McBride, 2009). Furthermore, the eight scales were standardised based on means and standard deviations from the HWR 2006 study of older New Zealanders (Stephens, Alpass, Baars, Towers & Stevenson, 2010) and the two primary scales were generated using the New Zealand Health Survey Factor Coefficients. The range of scores for both components is from 0 (representing the worst health) to 100 (representing the best health).

The PCS contains items that assess general health, mobility activity, amount accomplished because of physical problems, limited ability to climb stairs, work limits because of physical problems, and work limits because of pain (Cheak-Zamora et al., 2009; Ware et al., 2002). The MCS contain items that assess feelings of depression and anxiety, social activity, amount accomplished and carelessness (Cheak-Zamora et al., 2009; Ware et al., 2002). Due to usefulness and an inability to accurately predict the previous factors from a single item, the scales of physical functioning (PCS), role physical (PCS), role emotional (MCS) and mental health (MCS) were reproduced in the SF-12v2 using two items each (McHorney, Ware, Rogers, Raczek & Lu, 1992). The scales of bodily pain, general health, vitality and social functioning were estimated from one item each (Ware et al., 1996).

Construct validity was demonstrated by examining the ability of the MCS and the PCS to discriminate between groups and comparing this with the SF-36 summary measures and eight scales (Ware et al., 1996). Cross-validation correlations between the SF-12 and the SF-36 scores of PCS and MCS were 0.95 and 0.97, respectively (Ware et al., 1996). Furthermore, group means were consistently within one point. Test-retest scores were estimated using product-moment correlations between scores and were 0.76 and 0.89 for MCS-12 and PCS-12, respectively (Ware et al., 1996). These scores were marginally lower than MCS-36 and PCS-36 and marginally higher than those for the SF-12 eight scale scores. However, these scores were still comparable with those for the SF-36 eight scale scores (Ware et al., 1996). Internal consistency was high with Mosier alpha at 0.88 for PCS and 0.82 for MCS (Cheak-Zamora et al., 2009), and New Zealand studies using the SF12 have reported Cronbach alpha values ranging between 0.8 and 0.84, demonstrating good internal reliability (Scott, Sarfati, Tobias & Haslett, 2000). Cronbach alpha for the current study was 0.96 for the whole measure.

Quality of Life

The World Health Organisation's WHOQOL-BREF person-centred and cross-cultural assessment was used to measure quality of life. The WHOQOL-100 is a valid and cross-cultural measure of well-being that was developed by the World Health Organisation, the WHOQOL-BREF is a shortened version of the WHOQOL-100 (Skevington, Lotfy & O'Connell, 2004). Possible total scores for the WHOQOL-BREF range from 0 (low quality of life) to 30 (high quality of life) and the measure contains 26 items that

examine four domains: physical, psychological, social and environment. Additional versions of the WHOQOL-100 have been developed to assess quality of life in areas of special research interest (Billington, n. d.). Such a version is the WHOQOL-8, an eight item version of the WHOQOL-100 that is primarily used in census type surveys (Billington, n. d.). In the current study, the WHOQOL-BREF was used to calculate the WHOQOL-8, however the items concerning energy and money were missing. Therefore these items were estimated using items from other quality of life scales; the SF12v2, the remaining WHOQOL-BREF items and the ELSI-SF self-ratings. The total score for WHOQOL-8 ranges from 0 (low quality of life) to 40 (high quality of life).

Skevington et al. (2004) demonstrated the internal consistency of the WHOQOL-BREF by reporting a Cronbach alpha score of above 0.70, and by establishing that all 26 items significantly contributed to the variance in scores. Cronbach alpha was not able to be calculated for the current study due to the WHOQOL-8 variable being estimated. Skevington et al. (2004) found that discriminant validity was demonstrated in all domains (best in the physical domain). Construct validity was demonstrated by analyses of correlations that showed that only seven items had strong correlations (above 0.50) with domains that were not their intended domain (Skevington et al., 2004). Furthermore, none of the items correlated more strongly with a different domain over their own. Face validity was demonstrated by domain scores that were comparable to general single-item quality of life measures (Skevington et al., 2004). Finally, the WHOQOL-BREF demonstrated good overall validity because all item-total correlations showed good results and summary Pearson correlations between the domains were strong, positive and significant (Skevington, et al., 2004).

Procedure

In 2004, the Health and Ageing Research Team (HART) was established in the School of Psychology at Massey University. In 2005, researchers from HART and the Research Centre for Māori Health and Development, in association with researchers from the New Zealand Institute for Research on Ageing at Victoria University, were given three years funding from the Health Research Council of New Zealand in order to set up and carry out the HWR study (Towers & Stevenson, 2014). The purpose of the HWR study was to examine how the transition from work to retirement impacted on older people's independence and well-being in their retirement years. (Towers, 2006). The HWR study

collected longitudinal data on physical and mental health, psychosocial factors, work and retirement status, work and retirement attitudes, and socioeconomic and socio-demographic factors as older adults transitioned from work to retirement (Towers, 2006). The aim of the HWR study was to test hypotheses that psychosocial variables predict health, and to identify the factors associated with health and well-being in older age (Towers, 2006).

In 2006, initial data collection was carried out by employing a five-stage posting schedule based on the Tailored Design Method (Dillman, 2000) in order to increase and maximise return rates. Dillman's (2000) approach incorporated multiple contact points between the researchers and the study's participants in order to increase their level of response. At first point of contact, a brief letter was sent to a random selection of New Zealanders aged 50 and over, informing them of the study and that a postal survey would be sent to them soon. At second point of contact, the postal questionnaires were accompanied by a cover letter and consent form, which described the rights and expectations of the participants and asked if they would be willing to take part in a face-to-face interview. At third point of contact, a post card was then sent to all those who chose to participate in the survey thanking them, and a reminder was sent to those who had not yet returned their questionnaire. At fourth point of contact, replacement questionnaires were sent to non-respondents in attempt to encourage them to take part. At the final contact, a second reminder postcard was sent to non-respondents, again to encourage participation.

The postal survey for the 2006 data wave included sections asking about health and well-being (physical and mental health, chronic health conditions, alcohol use, health service utilisation, tobacco use, physical activity, physical functioning and impairment, prescription drug use, and quality of life), social support and context (social supports, networks and interaction, volunteerism and trust, and provided and received care giving), work and retirement (work status, preferred work status, current and past work context, retirement planning, and retirement reasons and expectations), income and assets (personal and household income, sources of income, key assets and liabilities, superannuation, and economic living standard) and general socio-demographics (date of birth, age, sex, marital status, education, ethnicity, driving status, household composition, migration, and cultural identification) (Towers & Stevenson, 2014).

In 2008, the second wave of data collection was conducted. The postal survey for the 2008 data wave was similar to that used for the 2006 data wave. The difference between the 2006 survey and the 2008 survey was that the 2008 survey had some additional items on physical functioning and impairment, prescriptions and drug use, quality of life, driving status, driving anxiety and migration (Towers & Stevenson, 2014). Therefore, the 2008 data was used in the current study due to the addition of the driving status, driving anxiety and quality of life items. Only participants from the 2006 wave of the HWR study were recruited for the 2008 wave, and data collection in 2008 was completed in the same way as data collection in 2006 (Towers, 2006).

Data Analysis

The data was analysed using descriptive statistics, correlations, univariate profiling, bivariate regression, standard multiple regression and hierarchical multiple regression. Descriptive statistics and correlations were used to assess the composition of the sample and to check the univariate assumptions underpinning hierarchical multiple regression. Bivariate regression and multiple regression were also used to assess the bivariate and multivariate assumptions underpinning hierarchical multiple regression. Finally, three separate hierarchical regression analyses were performed as the primary form of analysis and were used to examine the relationship between driving anxiety and each of the dependent variables while controlling for the socio-demographic variables. The data was analysed using IBM SPSS Statistics for Windows Version 21.

The main form of data analysis was multiple regression. Multiple regression is a refined extension of correlation that is used to assess the predictive ability of a set of independent variables on one continuous dependent measure (Pallant, 2013). Multiple regression aims to predict changes in the dependent variable in response to changes in the independent variables (Hair, Black, Babin & Anderson, 2010). However, multiple regression analyses merely indicate relationships among the variables but do not suggest that the relationships are causal. (Tabachnick & Fidell, 2013). There are different types of multiple regression that allow the independent variables to be entered into the regression equation in different ways, in order to find the independent variables that best predict the dependent variable (Pallant, 2013). The method that was used in the current study was hierarchical multiple regression.

Hierarchical multiple regression is a manual multivariate technique that can be used to analyse the relationship between one dependent variable and several independent variables, while controlling for other variables (Hair et al., 2010). Additionally, this type of analysis can also be used when the researcher wants to employ statistical control to assess the contributions of the independent variables above and beyond the previously entered control or socio-demographic variables (Spicer, 2005). In hierarchical regression, the independent variables are entered into the equation in the order specified by the researcher, as opposed to being computed by the statistical programme (Pallant, 2013). This allows the researcher to control the order that the independent variables are entered into the regression equation, and to account for the variance of each independent variable after the variances of the other independent variables have been accounted for (Tabachnick & Fidell, 2013). The independent variables are entered in steps (in sets or individually) and at each step the independent variable(s) is assessed for the ability to predict the dependent variable, after the previous variables have been controlled for (Pallant, 2013).

The current study examined the relationship between driving anxiety (the independent variable) and mental health, physical health and quality of life (the dependent variables) while controlling for the socio-demographic variables. Hierarchical multiple regression was used to examine if there was a relationship between driving anxiety and health and well-being above and beyond the relationship with the socio-demographic variables. The independent variables were entered in three steps. At the first step, the independent variables that need to be controlled for were entered, which were the socio-demographic variables of age, gender, current driving status, education, marital status, ethnicity and economic living standard. At the second step, the independent variable of interest (driving anxiety) was entered. At the third step, an interaction effect was entered so that the main effects could be tested in a controlled way while separately assessing the interaction effect (Hair et al., 2010).

When compared to other methods of multiple regression, hierarchical regression was the most appropriate choice for the current research because "the research problem and the theory behind the problem should determine the order of entry of variables" (Kerlinger, 1986, p. 545). Furthermore, entering the less important set of independent variables first (the socio-demographic variables) allowed the variable of interest (driving anxiety) to

be assessed for what it added to the variance over and above the less important set (Tabachnick & Fidell, 2013). However, in order to successfully use hierarchical multiple regression some underlying assumptions had to be met. Chapter Three discusses issues missing data and restriction of range. Additionally, the univariate, bivariate and multivariate assumptions of linearity, independence, variance of the error terms (homoscedasticity), normality, multicollinearity, outliers and influential observations are also discussed.

Non-metric Independent Variables

For the purposes of the multiple regression analyses, all categorical (grouped) dependent variables had to be recoded and collapsed into dichotomous variables (Tabachnick & Fidell, 2013). Gender was recoded into 0 = male and 1 = female. Current Driving Status was collapsed into two groups, with 0 = not currently driving (past driver and never been a driver) and 1 = currently driving (current driver). Highest Educational Qualification was collapsed into two groups, with 0 = no qualification (no school qualifications) and 1 = at least one qualification (secondary school qualifications, post-school qualifications, and tertiary qualifications). Marital Status was further collapsed into two groups, with 0 = single (previously married and single) and 1 = partner (married). Ethnicity was collapsed into two groups, with 0 = Non-Māori (New Zealand European, Pacific Islander, Asian, Middle Eastern, Latin American or African (MELAA), and other) and 1 = Māori (Māori).

Power, Effect Size and Statistical Significance

Power signifies the probability that actual effect sizes have a chance of producing statistically significant results (Tabachnick & Fidell, 2013), which is determined by effect size, alpha and sample size. As the data for the current study was secondary data, calculating power for the planned analyses was not truly a priori but was still checked using a G*Power analysis (Faul, Erdfelder, Buchner & Lang, 2009; Faul, Erdfelder, Lang & Buchner, 2007). With alpha set at a minimum of 0.80 and a sample size of 2473, the current study had sufficient power to detect very small statistically significant effect sizes.

In order to avoid overly powerful research that produces statistically significant but practically meaningless results, the size of the expected effect must depend on the

context of the research, is the expected effect size meaningful to the research? (Tabachnick & Fidell, 2013). In the current study, due to the large sample size, minimal effects may be found statistically significant and should be treated with caution. Therefore, adjusted R^2 values were presented as an indicator of overall model predictive accuracy (as recommended by Hair et al., 2010) alongside total R^2 values and their associated effect size (f^2) and statistical significance (p). As Cohen (1988) recommended, $f^2 < 0.10$ was considered a small effect size, $f^2 < 0.25$ was considered a medium effect size and $f^2 < 0.40$ was considered a large effect size.

Sample Size and the Ratio of Observations to Variables

When conducting multiple regression analyses the two most basic requirements that need to be met are having a sufficient sample size and an acceptable ratio of observations to variables. First, in order to maintain 80% power, the minimum recommended sample size when conducting multivariate analyses is 100 (Hair et al., 2010). The HWR study 2008 wave had a total of 2473 respondents, therefore it met the minimum sample size requirements. However, large sample sizes produce greater power for statistical analyses, and as the sample size increases smaller effects will be found statistically significant (Hair et al., 2010). Therefore, small statistically significant effects need to be examined within this context. Second, the recommended minimum ratio of observations to variables is 20:1 (Hair et al., 2010). The current study met this requirement with 2473 observations to eight variables. If the ratio is not substantial, the results will be faultless and meaningless (Tabachnick & Fidell, 2013). However, it is also possible to have too many observations. As the number of observations increases, most multiple correlations will deviate significantly from zero, even correlations that predict minor variance in the dependent variable (Hair et al., 2010).

Chapter Three: Results

This chapter discusses initial data screening, the univariate, bivariate and multivariate assumptions of multiple regression, required transformations of the data, descriptive statistics, and the three main hierarchical multiple regression analyses. Un-weighted data was used in the descriptive analyses, and a weighted ethnicity variable (derived from population-based distributions of ethnicity) was used in the inferential data analyses to adjust for the over-sampling of Māori in the study.

Data Screening

All variables were initially screened to assess errors with the data and the assumptions of multivariate analyses as recommended by Hair et al. (2010), Pallant (2013), Spicer (2005) and Tabachnick and Fidell (2013). Any anomalies were then addressed and remedied by the appropriate data transformations.

Missing data

Missing data needs to be identified so that it can be remedied to ensure that the remaining data best represents the original distribution of values (Hair et al., 2010). Often, if missing data is occurring in a random fashion, it can be ignored as it is expected and part of the research design (Hair et al., 2010). For example missing data may be due to the design of the research survey whereby participants are required to skip sections of questions that are not applicable to them (Hair et al., 2010). Additionally, Hair et al. (2010) recommended that if missing data is under ten percent, occurring randomly, and the amount of remaining data is sufficient for the analyses, missing data may be ignored.

In the current research, missing data on the majority of the variables was less than 6.3%, aside from economic living standard and quality of life which had 12.5% missing data. However, a missing value analysis procedure was conducted and examination of the distribution of the missing data showed that the pattern was random. Furthermore, due to the large sample size of 2473, the sample was still of a sufficient size required for the inferential analyses after missing data had been excluded. Therefore, the 'exclude cases pairwise' option was used in SPSS to account for missing data. This is when a case is excluded if the participant is missing data needed for the specific analysis, but they are

still included in analyses where they have the required data (Pallant, 2013). This option was used in order to preserve the sample size as much as possible.

Restricted Range

In the current study, the independent variable of interest (driving anxiety) had a limited range of 0-10. Pallant (2013) pointed out that interpreting correlation coefficients that come from a small subset of the possible range of scores should be done with care. This is because the failure to find an expected relationship may be due to restricted variance as opposed to the lack of a true relationship (Spicer, 2005). Therefore, unstandardised slopes were presented along with betas and R^2 because unstandardised slopes do not rely on standard deviations for their standardised form (Spicer, 2005).

Statistical Assumptions

Testing the univariate, bivariate and multivariate assumptions of multiple regression satisfied the recommendations of Hair et al. (2010) to test for each dependent and independent variable, as well as for the variate.

Univariate Assumptions

The continuous variables of age, economic living standard, driving anxiety, mental health, physical health and quality of life were assessed against the univariate assumptions of multiple regression. Skewness and kurtosis scores were examined along with a histogram to determine univariate normality and the effect of outliers. However, with large sample sizes of 200 plus (as in the current study), Tabachnick and Fidell (2013) argued that skewness and kurtosis will not 'make a substantive difference in the analysis' (pp. 80). The effect of outliers can be examined by looking at the five percent trimmed mean and comparing it with the original mean to see whether outliers are having a significant influence on the mean (Pallant, 2013). In the current study, the range of scores on the dependent variables did not indicate that any of the scores were outliers. For example the range for the mental health was 0-100 and the maximum score was 69, which is not an extreme value. Additionally, the range for driving anxiety was 0-10, therefore due to the restricted range a score of 10 should not be considered an outlier. Therefore, extreme scores which are still related to the other cases are expected to be a genuine part of the sample (Tabachnick & Fidell, 2013).

Independent Variables

The age variable had a skewness score of 0.20 and a kurtosis score of -1.10. This means that the scores were slightly clustered towards lower age and the distribution was relatively flat, suggesting outliers. However, examination of the histogram revealed a relatively normal distribution with no significant tails or outliers. The mean age was 63.24 and the five percent trimmed mean was 63.18. Economic living standard had a skewness score of -1.17 and a kurtosis score of 1.14. This means that the scores were clustered towards a higher economic living standard and the distribution was relatively peaked. Examination of the histogram revealed skew, however this was not substantial. The mean economic living standard score was 22.83 and the five percent trimmed mean was 23.32. Therefore outliers were not having a significant effect on either of these variables and there was no need to perform transformations.

The driving anxiety variable had a skewness score of 3.07 and a kurtosis score of 9.95. This means that the scores were significantly clustered towards low driving anxiety and that the distribution was significantly peaked with long thin tails. Examination of the histogram confirmed this and revealed substantial skew. The mean driving anxiety score was 0.81 and the five percent trimmed mean was 0.49, suggesting that outliers were having an effect. Therefore, as the driving anxiety variable was both crucial to analysis and significantly violated the univariate normality assumption, the variable was transformed in order to improve the distribution and to pull the univariate outliers closer to the centre of the distribution.

A variety of transformations were used to examine whether the distribution of the driving anxiety variable was improved, and a logarithm transformation produced the most normally distributed results. A constant of one was included in the transformation equation because the scale of the variable contained a value less than one, therefore this was done to prevent taking the log of zero (Pallant, 2013). The transformed driving anxiety variable had a skewness score of 1.76 and a kurtosis score of 2.04, which demonstrated significant improvement when compared to the untransformed variable. The mean transformed driving anxiety score was 0.14 and the five percent trimmed mean was 0.11, suggesting that the effect of outliers was substantially reduced. The untransformed driving anxiety variable was used for all descriptive statistics and preliminary statistical checks, while the transformed driving anxiety variable was

exclusively used for the hierarchical multiple regression analyses. Transformation of the driving anxiety variable did not affect the interpretation of the variable because Tabachnick and Fidell (2013) argued that when the scale of the variable is fairly arbitrary, interpretation does not become more difficult.

Dependent Variables

Mental health had a skewness score of -1.16 and a kurtosis score of 1.16. This means that the scores were clustered towards high mental health scores and that the distribution was relatively peaked. Examination of the histogram revealed a peaked and reasonably normal distribution. The mean mental health score was 49.35 and the five percent trimmed mean was 50.07, suggesting that outliers were not having a substantial effect. Physical health had a skewness score of -0.88 and a kurtosis score of 0.27. This means that the scores were minimally clustered towards high physical health scores and that the distribution was slightly peaked. Examination of the histogram revealed a slightly peaked and moderately normal distribution. The mean physical health score was 48.08 and the five percent trimmed mean was 48.70, suggesting that outliers were not having an effect. Quality of life had a skewness score of -1.01 and a kurtosis score of 1.25. This means that the scores were clustered towards high quality of life scores and that the distribution was slightly peaked. Examination of the histogram revealed a minimally peaked and moderately normal distribution. The mean quality of life score was 32.72 and the five percent trimmed mean was 33.08, suggesting that outliers were not having an effect. Therefore, the dependent variables did not require transformation.

Bivariate Assumptions

The dependent variables of mental health, physical health and quality of life were entered into three separate bivariate regression analyses with driving anxiety as the independent variable to assess the bivariate assumptions of multiple regression.

Normality

As discussed in regards to univariate normality, as the sample size is large, there is less of a concern about the variables slightly violating the normality assumption (Hair et al., 2010). However, significant deviation from normality is still a problem as it might lead to violations of the other bivariate assumptions, which will impact the analyses in other ways (Hair et al., 2010). Normality was assessed by examining the normal probability

plot (in conjunction with the histogram of standardised residuals) and the scatterplot of the residuals. The normal probability plots for mental health, physical health and quality of life showed that the points were in a reasonably straight diagonal line.

The histogram of standardised residuals for physical health and quality of life demonstrated that the frequencies were skewed to the right and reasonably normally distributed, while the histogram of standardised residuals for mental health demonstrated that the frequencies were symmetrical and reasonably normally distributed. The scatterplots of residuals for mental health and physical health indicated that the points were slightly clustered to the right, while the scatterplot of residuals for quality of life demonstrated that the points were distributed in a reasonably random way. Therefore, the bivariate assumption of normality was satisfied due to the large sample size and the absence of any significant deviations from normality.

Linearity

Hair et al. (2010) argued that linearity is indicated by the absence of a curvilinear pattern in the data points around the regression line. It is important to meet the linearity assumption because Pearson's *r* is only appropriate for linear relationships among variables, if the relationship is nonlinear the relationship is ignored (Tabachnick & Fidell, 2013). The scatterplots of the residuals for mental health, physical health and quality of life did not demonstrate a curvilinear pattern around the regression line, which satisfied the bivariate assumption of linearity.

Homoscedasticity (variance of the error term)

Homoscedasticity is the assumption that the dependent variables display equal levels of variance across the range of independent variables, and that the variance of the dependent variable being explained is not determined by a limited range of the independent values (Hair et al., 2010). Homoscedasticity is related to both normality and linearity, because often heteroscedascity is the result of non-normality in at least one of the variables (Hair et al., 2010) and often when the assumption of normality is met, there is homoscedasticity (Tabachnick & Fidell, 2013). The scatterplots of the residuals for mental health, physical health and quality of life showed that the residuals were roughly distributed in a rectangular pattern with the majority of the scores

concentrated along the regression line, which satisfied the bivariate assumption of homoscedasticity.

Independence

Independence is the assumption that the errors of the dependent variable are independent (Tabachnick & Fidell, 2013). When the data is independent, the Durbin-Watson statistic has a value of two and the more that this value deviates above or below two indicates a violation of the independence assumption (Hair et al., 2010). Mental health had a Durbin-Watson statistic of 1.993, physical health had a Durbin-Watson statistic of 1.861, and quality of life had a Durbin-Watson statistic of 1.921. All of these values indicated that the cases were independent.

Outliers

Outliers are cases that have large residual values (Hair et al., 2010). However, the degree of the outlier depends on the size of the sample, for example, with large sample sizes a few standardised scores larger than 3.29 will be expected (Tabachnick & Fidell, 2013). Hair et al. (2010) recommends that outliers should be retained unless it can be demonstrated that they are not representative of any possible observation in the population. Furthermore, when an outlier is deleted, it may result in the generation of further outliers (Coakes, 2012). Outliers can be identified and examined by assessing the Mahalanobis and Cook's distances. A critical value of Chi Square is used in conjunction with Mahalanobis distance to determine the number of bivariate outliers in the sample, values above 10.83 were considered outliers (Tabachnick & Fidell, 2013).

Cook's distance can be used to measure the change in regression coefficients when a case is deleted, and a score larger than one indicates a potential outlier (Tabachnick & Fidell, 2013). Mental health, physical health and quality of life were identified as having 31 bivariate outliers each. All identified cases were examined and found to be correctly entered and to have come from the intended population. The decision was made retain the outliers because of the large sample size and because it appeared that these values represented the general population. Furthermore, none of the Cook's distances were greater than one, which suggests that the extreme values should not be considered as outliers (Tabachnick & Fidell, 2013).

Multivariate Assumptions

The dependent variables of mental health, physical health and quality of life were entered into three separate standard multiple regression analyses with the independent variables all in to assess the multivariate assumptions of multiple regression.

Normality, Linearity and Homoscedasticity

The normal probability plots for mental health, physical health and quality of life showed that the points were in a reasonably straight diagonal line. The histogram of standardised residuals for mental health, physical health and quality of life demonstrated that the frequencies were symmetrical and fairly normally distributed. The scatterplots of residuals for mental health, physical health and quality of life indicated that there were some outliers but the majority of the points were clustered together. Furthermore, none of the scatterplots of the residuals demonstrated a curvilinear pattern around the regression line, and the residuals were roughly distributed in a rectangular pattern with the majority of the scores concentrated along the regression line. Therefore, the multivariate assumptions of normality, linearity and homoscedasticity were satisfied due to the large sample size and the absence of any significant deviations.

Independence

Mental health had a Durbin-Watson statistic of 1.998, physical health had a Durbin-Watson statistic of 2.062, and quality of life had a Durbin-Watson statistic of 1.989. All of these values indicated that the cases were independent.

Multicollinearity and Singularity

Multicollinearity occurs when correlations between the independent variables are too high, which consequently reduces an independent variable's predictive power to the extent that is related to the other independent variables (Pallant, 2013). Singularity occurs when one independent variable is a combination of other independent variables (Pallant, 2013), for example an interaction term. When conducting statistical analyses, singular variables are considered redundant (Tabachnick & Fidell, 2013). Therefore, as interaction terms were included in the current study, the variables were centred before the interaction term was computed. Centring is the process whereby the variables are converted to deviation scores in order to have a mean of zero (Aiken & West, 1991).

After the relevant variables were centred, the interaction terms were created by computing cross-product terms between the variables (Hair et al., 2010).

The impact of multicollinearity can be examined by looking at the variance inflation factor (VIF) and the tolerance value. The VIF measures the extent to which variance is inflated by multicollinearity problems, with a score of zero indicating no correlation between the independent measures and a score of one indicating some relationship but not enough to cause significant problems (Hair et al., 2010). The maximum tolerable VIF value recommended by Hair et al. (2010) is 10. The maximum VIF score between any of the variables was 1.119, indicating no multicollinearity. Tolerance measures the amount of variance in one independent variable that is not explained by the other independent variables, and is the opposite of the VIF (Hair et al., 2010). Tolerance values smaller than 0.1 indicate a problem with multicollinearity (Hair et al., 2010). The minimum Tolerance score between any of the variables was 0.893, indicating no multicollinearity. Additionally, the correlations between each of the dependent variables and all the other variables were very small, also indicating no multicollinearity.

Outliers

When using Mahalanobis distance to detect multivariate outliers, eight degrees of freedom was used with alpha set at 0.001, which produced a critical value of 26.13 (Tabachnick & Fidell, 2013). Mental health and quality of life were identified as having 73 multivariate outliers each, and physical health was identified as having 72 multivariate outliers. All identified multivariate outliers were examined and found to be correctly entered and to have come from the intended population, however they were considered outliers because their values were more extreme than that of the normal distribution (Tabachnick & Fidell, 2013). The decision was made not to delete or modify the outliers because of the large sample size and it was believed that these values represented cases that would be found in the general population.

Descriptive Statistics

Table 1 displays the means and standard deviations of the continuous variables in the study and the proportion of participants at each level of the dichotomous socio-demographic variables. The age range of the participants was 55 – 72 years of age, 46.70% of the sample was male and 53.30% was female. The mean driving anxiety score for the entire sample was 0.81 (which indicated little to no driving anxiety), the mean driving anxiety score for women was 0.97 and 0.63 for men. The majority of the sample (69.50%) did not report any driving anxiety (rating of 0), 20% reported a mild level of driving anxiety (rating of 1-4), and 5.50% reported a moderate to severe level of driving anxiety (rating of 5-10). The sample had a mean economic living standard score of 22.83 (indicated that overall the sample had a high economic living standard. Finally, the majority of the sample (90%) were current drivers, while only 7.50% were no longer driving. In regards to the dependent variables, the sample had a mean mental health score of 49.35, a mean physical health score of 48.08 and a mean quality of life score of 32.72. This indicated that overall the sample had a high quality of life and moderate mental and physical health.

Table 2 shows the correlations between all of the variables in the study. Due to the large sample size in the current study, many of the correlations were small but statistically significant. Therefore they indicated that the measures were related but not to a degree that could cause problems with multicollinearity. The correlations of note were: economic living standard and mental health, economic living standard and physical health, economic living standard and quality of life, mental health and quality of life, and physical health and quality of life, which were all moderately positively correlated. This was to be expected because these measures assessed similar constructs. In regards to the relationships between the three dependent variables and driving anxiety, all of the correlations were small and slightly negative, indicating that, as an individual's driving anxiety score increased, their scores on the three dependent variables decreased.

Table 1. *Descriptive summary of variables for the sample (N = 2473)*

Categorical Variables	*N*	%
Gender		
Male	1155	46.70
Female	1318	53.30
Driving status[a]		
Driving	2225	90.00
Not-driving	184	7.50
Education[b]		
Qualification(s)	1665	67.30
No qualification	777	31.40
Marital status[c]		
Partner	1696	68.60
No partner	652	26.40
Enthicity[d]		
Māori	1034	41.80
Non-Māori	1396	56.50

Continuous Variables	Mean	*SD*
Age	63.24	4.53
Driving anxiety[e]	0.81	1.86
ELSI-SF[f]	22.83	6.34
SF12 MCS[g]	49.35	9.97
SF12 PCS[h]	48.08	10.44
WHOQOL-8[i]	32.72	4.97

[a]Driving status - 2.6% (64) missing
[b]Education - 1.3% (31) missing
[c]Marital status - 5.1% (125) missing
[d]Ethnicity - 1.7% (43) missing
[e]Driving anxiety - 5% (124) missing, possible score range 0-10
[f]ELSI-SF - 12.6% (312) missing, possible score range 0-31
[g]SF12 MCS - 6.3% (157) missing, possible score range 0-100
[h]SF12 PCS - 6.3% (157) missing, possible score range 0-100
[i]WHOQOL-8 - 12.5% (310) missing, possible score range 0-40

Table 2. *Correlation matrix for all variables*

	Gender	Age	Driving anxiety	WHOQOL-8	ELSI-SF	Driving status	Education	Marital status	Ethnicity	SF12 MCS	SF12 PCS
Gender	1										
Age	- 0.02	1									
Driving anxiety	0.09**	0.03	1								
WHOQOL-8	0	0.03	- 0.19**	1							
ELSI-SF	- 0.10**	0.03	- 0.13**	0.58**	1						
Driving status	0.16**	0.08**	0.17**	- 0.19**	- 0.11**	1					
Education	- 0.04*	- 0.08**	- 0.03	0.11**	0.20**	- 0.14**	1				
Marital status	0.17**	0.03	0.05*	- 0.15**	- 0.22**	0.12**	- 0.06**	1			
Ethnicity	0.05*	- 0.02	0.05**	- 0.07**	- 0.10**	0.06**	- 0.02	0.07**	1		
SF12 MCS	- 0.04	0.04	- 0.21**	0.66**	0.43**	- 0.11**	.112**	- 0.12**	- 0.08**	1	
SF12 PCS	- 0.02	- 0.14**	- 0.15**	0.52**	0.33**	- 0.19**	.181**	- 0.11**	- 0.06**	0.25**	1

* $p < 0.05$, ** $p < 0.001$

Hierarchical Multiple Regression Analyses

The current study examined the relationship between driving anxiety (the independent variable) and mental health, physical health and quality of life (the dependent variables) while controlling for the socio-demographic variables. Hierarchical multiple regression was used to examine if there was a relationship between driving anxiety and the measures of health and well-being above and beyond the relationship with the socio-demographic variables. The independent variables were entered in three steps. At the first step, the independent variables to be controlled for were entered and were the socio-demographic variables of age, gender, current driving status, education, marital status, ethnicity and economic living standard. At the second step, the independent variable of interest was entered (driving anxiety). At the third step, the interaction effect of driving anxiety x gender was entered in order to address the hypothesised moderation effect and so that the main effects could be tested in a controlled way while separately assessing the interaction effect (Hair et al., 2010).

The main emphasis in hierarchical analysis is on how the relative contribution of each set of variables changes from step to step (Hair et al., 2010). Do additional independent variables produce an increase in explained variance? Do any of the independent variables have an independent effect on the dependent variables? Statistical control was achieved by calculating the change in R^2 at each step of the analysis, and accounting for the increase in variance after each variable (or group of variables) was entered (Pedhazur, 1997; Spicer, 2005). Furthermore, by examining the beta coefficients at each step it is possible to assess the contribution of each independent variable to the dependent variable, within each block of variables, as well as the extent that the additional independent variables in the subsequent steps alter these effects (Tabachnick & Fidell, 2013).

Mental Health (SF12 MCS)

Table 3 displays the results of the hierarchical regression analysis with mental health as the dependent variable. At step one, the socio-demographic variables explained 18.40% of the variance (R^2) in mental health scores, $f^2 = 0.23$, $p < 0.001$. After step two, with the addition of the transformed driving anxiety variable, the total explained variance in mental health scores increased to 20.70%, $f^2 = 0.26$, $p < 0.001$. Therefore, the driving anxiety variable accounted for 2.30% unique variance in the mental health scores when the socio-demographic variables were controlled for. Furthermore, after the inclusion of the driving anxiety variable, R^2 change was significant, $f^2 = 0.03$, $p < 0.001$. After step three, with the gender x driving anxiety interaction effect entered, the total explained variance in the mental health scores increased to 21.10%, $f^2 = 0.27$, $p < 0.001$. Therefore, the gender x driving anxiety interaction effect accounted for 0.40% unique variance in the mental health scores when the socio-demographic variables and the driving anxiety variables were controlled for. Furthermore, after the inclusion of the gender x driving anxiety interaction effect, R^2 change was significant, $f^2 = 0.01$, $p < 0.001$.

When all of the variables were included at step three, age, driving status and economic living standard remained significant from the first step and significantly contributed to the final regression equation. Economic living standard contributed the most to the variance explained in the final model ($\beta = 0.388$, $p < 0.001$), while gender contributed the least ($\beta = 0.044$, $p < 0.05$). Age ($\beta = 0.069$, $p < 0.001$) and driving status ($\beta = 0.060$, $p < 0.01$) also contributed to the variance explained in the final model. The contribution of driving status diminished after the addition of the driving anxiety variable and the interaction effect, suggesting that driving status may be moderated by these variables. Similarly, the contribution of age increased after the addition of the driving anxiety variable and the interaction effect, also suggesting that age may be moderated by these variables. Finally, the contribution of gender became significant after the driving anxiety variable was included, which may indicate that gender contributes significantly to the regression equation when combined with driving anxiety. Driving anxiety from the second step ($\beta = -0.165$, $p < 0.001$) made a statistically significant contribution to the final model, demonstrating that those who had higher driving anxiety scores had poorer mental health scores. The interaction effect from the third step ($\beta = 0.067$, $p < 0.001$) also made a statistically significant contribution to the final model.

Table 3. *Hierarchical multiple regression analyses of socio-demographic variables, driving anxiety and interaction effects on mental health (N = 2539)*

	Standardised Coefficients			Unstandardised Coefficients		
Variables	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Socio-demographic Variables						
Age	0.058**	0.067***	0.069***	0.122**	0.140***	0.144***
Gender	0.032	0.042*	0.044*	0.601	0.787*	0.827*
Ethnicity	-0.006	-0.007	-0.007	-0.216	-0.259	-0.254
Marital Status	0.022	0.028	0.028	0.498	0.614	0.615
Education	-0.004	0.003	0.002	-0.089	0.066	0.041
Driving Status	0.086***	0.057**	0.060**	3.622***	2.379**	2.508**
ELSI-SF	0.406***	0.389***	0.388***	0.656***	0.628***	0.626***
Independent Variable						
Driving Anxiety		-0.156***	-0.165***		-5.846***	-6.191***
Interaction Effect						
Gender x driving anxiety			0.067***			5.098***
R	0.429	0.455	0.460			
Total R^2	0.184	0.207	0.211			
Adjusted R^2	0.181	0.204	0.208			
R^2 Change	0.184	0.023	0.004			

*$p < 0.05$, **$p < 0.01$,***$p < 0.001$

The regression analyses in Table 3 demonstrated that the gender x driving anxiety interaction was statistically significant ($\beta = 0.067$, $p < 0.001$), therefore a simple slopes analysis was performed to further examine the interaction effect and determine whether the gradient of the two regression slopes differed from zero (Aiken & West, 1991). As can be seen in Table 4, when predicting mental health scores, driving anxiety ($\beta = -8.54$, $p < 0.001$) and the gender x driving anxiety interaction ($\beta = 6.53$, $p < 0.001$) were statistically significant, while gender was not ($\beta = -0.29$, $p = 0.49$). Furthermore, there was a significant negative relationship between driving anxiety and mental health for both men ($\beta = -12.04$, $p < 0.001$) and women ($\beta = -5.51$, $p < 0.001$). Figure 1 shows that women had lower mean mental health scores when compared to men. However, as the mean driving anxiety score increased, both men and women were more likely to have a lower mental health score, but women were more likely to have a higher mental health score when compared to men. Additionally as mean driving anxiety score increased, mental health scores decreased more rapidly for men than women.

Table 4. *Linear model of predictors of mental health*

Variables	*β*	*SE β*	*t*	*p*
Driving anxiety	-8.54	0.94	-9.10	0.00
Gender	-0.29	0.42	-0.69	0.49
Driving anxiety x gender	6.53	1.92	3.41	0.00

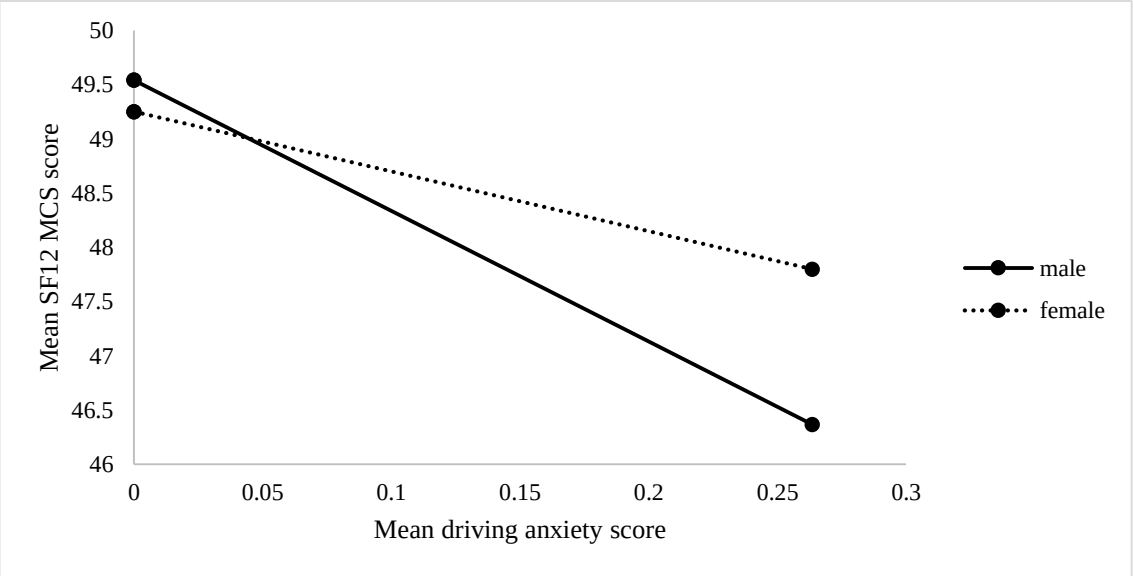

Figure 1. Interaction of gender x driving anxiety on mental health scores

Physical Health (SF12 PCS)

Table 5 displays the results of the hierarchical regression analysis performed with physical health as the dependent variable. At step one, the socio-demographic variables explained 14.70% of the variance in physical health scores, $f^2 = 0.17$, $p < 0.001$. After step two, with the addition of the transformed driving anxiety variable, the total explained variance in physical health scores increased to 15.10%, $f^2 = 0.18$, $p < 0.001$. Therefore, the driving anxiety variable accounted for 0.40% unique variance in the physical health scores when the socio-demographic variables were controlled for. Furthermore, after the inclusion of the driving anxiety variable, R^2 change was significant, $f^2 = 0.01$, $p < 0.001$. After step three, with the gender x driving anxiety interaction effect entered, the total explained variance in the physical health scores remained at 15.10%, $f^2 = 0.18$, $p < 0.001$. Therefore, the gender x driving anxiety interaction effect did not explain any additional variance in the physical health scores above and beyond what the socio-demographic variables and the driving anxiety variable explained. Furthermore, after the inclusion of the gender x driving anxiety interaction effect, R^2 change was not significant, $p = 0.925$.

When all of the variables were included at step three, age, gender, education, driving status and economic living standard remained significant from the first step and significantly contributed to the final regression equation. Economic living standard contributed the most to the variance explained in the final model ($\beta = 0.272$, $p < 0.001$), while age contributed the least ($\beta = -0.1.36$, $p < 0.001$). Gender ($\beta = 0.052$, $p < 0.01$), education ($\beta = 0.076$, $p < 0.001$), and driving status ($\beta = 0.144$, $p < 0.001$) also contributed to the variance explained in the final model. The contribution of gender increased after the addition of the interaction effect, suggesting that gender may be moderated by the interaction effect. Driving anxiety from the second step ($\beta = -0.067$, $p < 0.001$) made a statistically significant contribution to the final model, demonstrating that those who had higher driving anxiety scores had poorer physical health scores. However, the interaction of gender x driving anxiety did not make a significant contribution to the final model ($\beta = 0.002$, $p < 0.05$).

Table 5. *Hierarchical multiple regression analyses of socio-demographic variables, driving anxiety and interaction effects on physical health (N = 2539)*

	Standardised Coefficients			Unstandardised Coefficients		
Variables	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Socio-demographic Variables						
Age	-0.140***	-0.136***	-0.136***	-0.311***	-0.303***	-0.303***
Gender	0.048*	0.052*	0.052**	0.959*	1.044*	1.045**
Ethnicity	-0.031	-0.031	-0.031	-1.270	-1.290	-1.290
Marital Status	0.002	0.005	0.005	0.056	0.110	0.110
Education	0.073***	0.076***	0.076***	1.697***	1.768***	1.767***
Driving Status	0.157***	0.144***	0.144***	7.050***	6.480***	6.484***
ELSI-SF	0.279***	0.272***	0.272***	0.482***	0.469***	0.469***
Independent Variable						
Driving Anxiety		-0.067***	-0.067***		-2.681***	-2.692***
Interaction Effect						
Gender x driving anxiety			0.002			0.153
R	0.383	0.389	0.389			
Total R^2	0.147	0.151	0.151			
Adjusted R^2	0.144	0.148	0.148			
R^2 Change	0.147	0.004	0.000			

*$p < 0.05$, **$p < 0.01$,***$p < 0.001$

Quality of Life (WHOQOL-8)

Table 6 displays the results of the hierarchical regression analysis performed with quality of life as the dependent variable. At step one, the socio-demographic variables explained 35.10% of the variance in quality of life scores, $f^2 = 0.54$, $p < 0.001$. After step two, with the addition of the transformed driving anxiety variable, the total explained variance in quality of life scores increased to 36.3%, $f^2 = 0.57$, $p < 0.001$. Therefore, the driving anxiety variable accounted for 1.12% unique variance in the quality of life scores when the socio-demographic variables were controlled for. Furthermore, after the inclusion of the driving anxiety variable, R^2 change was significant, $f^2 = 0.02$, $p < 0.001$. After step three, with the gender x driving anxiety interaction effect entered, the total explained variance in the quality of life scores increased to 36.50%, $f^2 = 0.57$, $p < 0.001$. Therefore, the gender x driving anxiety interaction effect accounted for 0.20% unique variance in the quality of life scores when the socio-demographic variables and the driving anxiety variables was controlled for. Furthermore, after the inclusion of the gender x driving anxiety interaction effect, R^2 change was significant, $f^2 = 0.01$, $p < 0.005$.

When all of the variables were included at step three, gender, ethnicity, marital status, driving status and economic living standard remained significant from the first step, and significantly contributed to the final regression equation. Economic living standard contributed the most to the variance explained in the final model ($\beta = 0.565$, $p < 0.001$), while ethnicity contributed the least ($\beta = 0.036$, $p < 0.05$). Gender ($\beta = 0.092$, $p < 0.001$), marital status ($\beta = 0.043$, $p < 0.05$), and driving status ($\beta = 0.057$, $p < 0.001$) also contributed to the variance explained in the final model. The contribution of driving status diminished after the addition of the driving anxiety variable and increased after the addition of the interaction effect, suggesting that driving status may be moderated by these variables. Driving anxiety from the second step ($\beta = -0.119$, $p < 0.001$) made a statistically significant contribution to the final model, demonstrating that those who had higher driving anxiety scores had poorer quality of life scores. The interaction effect from the third step ($\beta = 0.050$, $p < 0.001$) also made a statistically significant contribution to the final model.

Table 6. *Hierarchical multiple regression analyses of socio-demographic variables, driving anxiety and interaction effects on quality of life (N = 2539)*

	Standardised Coefficients			Unstandardised Coefficients		
Variables	Step 1	Step 2	Step 3	Step 1	Step 2	Step 3
Socio-demographic Variables						
Age	0.005	0.011	0.013	0.005	0.012	0.013
Gender	0.084***	0.091***	0.092***	0.790***	0.857***	0.872***
Ethnicity	0.036*	0.036*	0.036*	0.706*	0.690*	0.692*
Marital Status	0.039*	0.043*	0.043*	0.437*	0.479*	0.479*
Education	0	0.005	0.004	0	0.056	0.047
Driving Status	0.076***	0.054**	0.057***	1.599***	1.151**	1.199***
ELSI-SF	0.579***	0.566***	0.565***	0.470***	0.459***	0.459***
Independent Variable						
Driving Anxiety		-0.112***	-0.119***		-2.108***	-2.238***
Interaction Effect						
Gender x driving anxiety			0.050**			1.910**
R	0.593	0.602	0.604			
Total R^2	0.351	0.363	0.365			
Adjusted R^2	0.349	0.360	0.363			
R^2 Change	0.351	0.012	0.002			

*$p < 0.05$, **$p < 0.01$,***$p < 0.001$

The regression analyses in Table 6 demonstrated that the gender x driving anxiety interaction was statistically significant ($\beta = 0.050$, $p < 0.01$), therefore a simple slopes analysis was performed to further examine the interaction effect (Aiken & West, 1991). As can be seen in Table 7, when predicting quality of life scores, driving anxiety ($\beta = -3.83$, $p < 0.001$) and the gender x driving anxiety interaction ($\beta = 2.95$, $p < 0.001$) were statistically significant, while gender was not ($\beta = 0.22$, $p = 0.31$). Furthermore, there was a significant negative relationship between driving anxiety and quality of life for both men ($\beta = -15.41$, $p < 0.001$) and women ($\beta = -2.46$, $p < 0.001$). Figure 2 shows that women had lower mean quality of life scores when compared to men. However, as the mean driving anxiety score increased, both men and women were more likely to have a lower quality of life score, but women were more likely to have a higher quality of life score when compared to men. Additionally as mean driving anxiety score increased, quality of life scores decreased more rapidly for men than women.

Table 7. *Linear model of predictors of quality of life*

Variables	*β*	*SE β*	*t*	*p*
Driving anxiety	-3.83	0.49	-7.87	0.00
Gender	0.22	0.22	-1.02	0.31
Driving anxiety x gender	2.95	1.00	2.95	0.00

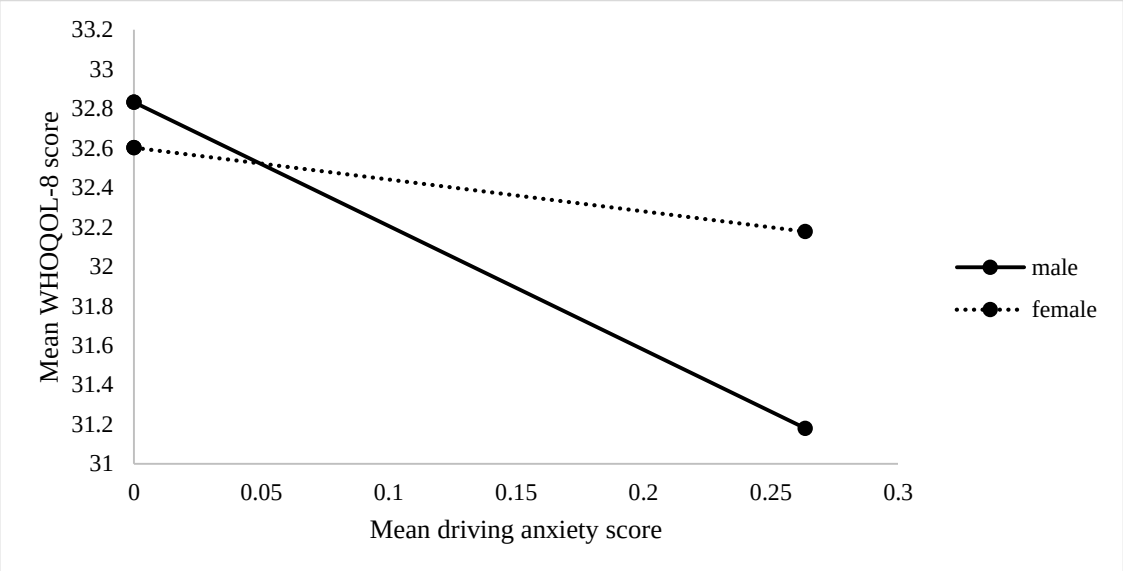

Figure 2. Interaction of gender x driving anxiety on quality of life scores

Chapter Four: Discussion and Conclusion

Previous research on the effects of driving anxiety on individuals' health and well-being has been limited, even though some research has shown that older adults' functioning may be affected (da Costa et al., 2014; Mathew et al., 1982; Taylor et al., 2011). Therefore, the current study extended previous research conducted by Taylor et al. (2011) by using the same data set and expanding the focus to examine the relationships between driving anxiety and health and well-being in young older adults, specifically, physical health, mental health and quality of life. This was achieved by using hierarchical regression analyses to examine the impact that driving anxiety had on older adults' health and well-being, and if driving anxiety had an impact on these variables over and above the effect of other socio-demographic factors. The results showed that driving anxiety was associated with poorer scores on the three aspects of health and well-being, and this effect was still present when socio-demographic variables were controlled for. This chapter includes a summary of results, a discussion of the results, and limitations and suggestions for future research.

Summary of the Results

Hypothesis 1 – Driving anxiety will have a negative impact on the three dependent variables when the socio-demographic variables of age, gender, education, driving status, marital status, ethnicity and economic living standard are controlled for.

The results showed that driving anxiety predicted mental health and quality of life scores better than all of the other socio-demographic variables except for economic living standard which best predicted mental health and quality of life scores. Even though driving anxiety had an effect on mental health (β = -0.156) and quality of life scores (β = -0.112) when economic living standard was controlled for, economic living standard had a larger effect on mental health (β = 0.389) and quality of life scores (β = 0.566). This indicated that participants who had a higher economic living standard were predicted to have better mental health and higher quality of life. However, when the driving anxiety variable was added at step two of the regression, the effect of economic living standard decreased from the first step, but was still more influential than driving anxiety. Furthermore, when the interaction of gender x driving anxiety was added at step three of the regression (β = 0.067 and β = 0.050 respectively), the effect of

economic living standard decreased further (β = 0.388 and β = 0.565 respectively), but was still more influential than driving anxiety which increased (β = -0.165 and β = -0.119).

In regards to physical health, driving anxiety predicted physical health scores better than all of the other socio-demographic variables except for economic living standard, age and educational level which predicted physical health scores better. Even though driving anxiety had an effect on physical health scores when the socio-demographic variables were controlled for (β = -0.067), economic living standard (β = 0.272), age (β = -0.136) and educational level (β = 0.076) had a larger effect on physical health scores. This indicated that participants who had a higher economic living standard, were younger in age, and had a higher level of education were predicted to have better physical health. However, when driving anxiety was added at step two of the regression, the effect of economic living standard decreased, the effect of age decreased, and the effect of educational level increased, but these variables were still more influential than driving anxiety. Furthermore, when the interaction of gender x driving anxiety was added at step three of the regression (β = 0.002), the effect of economic living standard, age, educational level and driving anxiety remained the same, but once again there variables were still more influential than driving anxiety.

Additionally, an increase in driving anxiety was associated with a decrease in mental health, physical health and quality of life. In other words, participants who had higher driving anxiety scores were predicted to have lower mental health scores (indicating poorer mental health), lower physical health scores (indicating poorer physical health) and lower quality of life scores (indicating reduced quality of life). Even though this effect was statistically significant, it was still small for all dependent variables. Furthermore, this effect was evident when socio-demographic variables were controlled for at step one of the regression analyses (for all three dependent variables), and when the interaction of gender x driving anxiety was entered at step three of the regression analyses (for mental health and quality of life only).

There were also some differences between the explained variance for each of the dependent variables. The entire model explained the most variance in quality of life scores (36.30%), a moderate amount in mental health scores (21.10%) and the least in

physical health scores (15.10%). Therefore, when all of the variables were included in the model the strongest association was with quality of life (large effect size), followed by mental health (medium effect size) and then physical health (small effect size). Further differences were that when the socio-demographic variables were controlled for, driving anxiety explained the most additional variance in mental health scores (2.30%), a moderate amount in quality of life scores (1.20%) and the least in physical health scores (0.40%), suggesting that driving anxiety is most related to mental health (which would be expected as anxiety is a mental health concern), moderately related to quality of life (which would also be expected due to the literature that shows that driving anxiety is associated with poorer quality of life) and the least related to physical health.

Therefore these results partially supported hypothesis 1, in that driving anxiety had a negative impact on the three indicators of health and well-being when the socio-demographic variables of age, gender, education, driving status, marital status, ethnicity and economic living standard were controlled for. However, an unanticipated finding was that economic living standard predicted the three dependent variables better than driving anxiety.

Hypothesis 2 – Gender will moderate the impact of driving anxiety on the three dependent variables, in that the relationships will be stronger for women than men.

The results showed that gender moderated the effect of driving anxiety on mental health and quality of life, but not physical health. However, after the interaction of gender x driving anxiety was entered into the regression equation, the additional explained variance was minimal for both mental health (0.40%) and quality of life (0.20%) and both contributions each had extremely small effect sizes. In regards to physical health, when the interaction of gender x driving anxiety was entered into the regression model the interaction was not significant. Therefore, it appears that gender may be moderating the relationship between mental health and quality of life, but not physical health.

In regards to mental health, the contribution of gender to the variance explained became significant after the driving anxiety variable was included, which may indicate that gender contributes significantly to the explained variance in mental health when combined with driving anxiety. Furthermore, even though women reported a higher

mean driving anxiety score and lower mean mental health and quality of life scores, as driving anxiety increased mental health and quality of life scores decreased more rapidly for men than women. Therefore hypothesis 3 was not supported as gender only moderated the relationship between driving anxiety and two of the dependent variables. Additionally, the relationship between driving and mental health and quality of life appeared to be stronger for men than women. Whereby men's mental health and quality of life scores declined more rapidly than women's as driving anxiety scores increased, which was the opposite to what was hypothesised.

Discussion of the Results

It is increasingly being recognised that good health and well-being does not simply mean an absence of poor physical and mental health, but demonstrates how the individual evaluates their life (Nordhus, 2008). For example older adults have reported that good health and well-being need to include simpler aspects of life, such as scenery, new experiences and spontaneous encounters (Musselwhite & Haddad, 2010). Therefore, as driving anxiety impacts on older adults ability to maintain and improve their health and well-being (whether by encountering new situations or accessing necessary healthcare), maintaining the ability to drive is an important concern for older adults.

Previous research has shown that the majority of participants in samples of adults and older adults have reported no experience of driving anxiety (Parker et al., 2001; Taylor et al., 2011; Taylor & Paki, 2008). The current research also found that the majority of the sample (69.40%) reported no driving anxiety. The same previous research also demonstrated that driving anxiety severely affected a small but significant proportion of individuals (Parker et al., 2001; Taylor et al., 2011; Taylor & Paki, 2008), which the current research also reported (5.50% of the sample). It is problematic that there is a small amount of the population that experiences severe driving anxiety for a number of reasons. First, research has shown that anxious drivers engage in fear-related behaviours that can be considered dysfunctional or dangerous (da Costa et al., 2014; Taylor et al., 2007), as well as the increased potential for negative driving outcomes. Clapp et al. (2011) argued that these anxiety-related behaviours may perpetuate driving anxiety as older adults have the tendency to limit their driving to where they feel the least anxious

(Hakamies-Blomqvist, 1994; Hakamies-Blomqvist & Wahlstrom, 1998; Hennessy, 1995; Johnson, 1995; Tuokko et al., 2007; Schlag, 1993).

Second, the consequences of limiting driving due to driving anxiety, for older adults, can be serious. Such consequences include reduced mobility and isolation (Gilhotra et al., 2001; Marottoli et al., 1997), increased disability, diminished well-being, poorer perceived health, chronic physical illness, functional limitations, and poorer life satisfaction (de Beurs et al., 1999; Edwards et al., 2009; Freeman et al., 2006), depressive symptoms (Bruce et al., 1994; Fonda et al., 2001; Gilhotra et al., 2001; Gurland et al., 1988; Marottoli et al., 1997; Phifer & Murrell, 1986), impaired quality of life (Wetherell et al., 2004), and a loss or restriction of freedom, functional and occupational impairment and social embarrassment (da Costa et al., 2014; Gilhotra et al., 2001).

Finally, the experience of driving anxiety is problematic because, as Choi et al. (2012) argued, driving anxiety may be modifiable and rectified so that older adults can continue to drive. Furthermore, individuals' perceived capabilities influence their behaviour instead of their true capabilities (Strecher et al., 1986). This means that there may be some individuals who still have the ability and skills to drive (with or without restrictions), but who stop driving due to driving anxiety. Therefore, as driving anxiety has been shown to have a negative impact on health and well-being for older adults, it is vital that professionals preserve older adults' ability to drive (and address their driving anxiety) so that health and well-being are not compromised, especially since the presence of anxiety does not mean that the individual is unfit to drive (Schultheis & Manning, 2011). It is therefore becoming more important for professionals to promote safe transport and self-regulation for older adults while still enabling them to retain their ability to drive, particularly as older adults want to be able to drive and continue to driving for as long as possible (Jette & Branch, 1992). Therefore, driving anxiety affects the often taken for granted ability to drive and consequently significantly affects the health and well-being of older adults.

It was expected that driving anxiety would have a negative impact on physical health, which may be for reasons such as, reduced visits to medical services, reduced mobility outside the home, and reduced access to essential services (for example the

supermarket). However, in the current study an interesting finding was that while there was a negative relationship between driving anxiety and physical health, driving anxiety had the least impact on physical health when compared to the other dependent variables. A comparable result was found by Mathew et al. (1982) who reported that there were no significant differences between their participants with anxiety and their control participants in regards to physical health.

A poorer association between driving anxiety and physical health may have occurred for a range of reasons, one explanation is that it is highly likely that older drivers experience some form of physical disability and/or chronic illness as they age, and are also likely to be taking medication (Insurance Institute for Highway Safety, 2012; Morgan & King, 1995), which may affect their confidence in driving (driving anxiety). It could be argued that, when driving anxiety is related to physical health, the cause of the anxiety may be easier to identify, easier to remedy, and more expected due to age-related physical changes. For example if an older adult is experiencing deteriorating vision and associated anxiety when driving, they may feel less anxious because they will know why they may be experiencing anxiety, it is relatively simple to see a physician and treat vision problems, and age-related vision changes are expected and normative.

The results in the current study demonstrated that driving anxiety had a negative impact on mental health. Previous research by Mathew et al. (1982) and de Beurs et al. (1999) found comparable results whereby individuals with anxiety (in general) reported more mental health problems that they had sought treatment for than those without anxiety. Furthermore, anxiety disorders and related symptoms have been associated with poorer health and well-being (de Beurs et al., 1999). It was expected that driving anxiety would have a negative impact on mental health, first and foremost, because anxiety is a psychological disorder and therefore will obviously have an impact on mental health. A further explanation is that because those who experience driving anxiety often present with symptoms that overlap with other mental disorders, they may experience comorbid diagnoses which may be exacerbating the effect that driving anxiety had on mental health.

While it was shown that driving had a negative impact on quality of life, results also demonstrated that, when compared to the other dependent variables, driving anxiety had the greatest impact on quality of life. Previous research by da Costa et al. (2014) and Wetherell et al. (2004) found similar results whereby, when compared to participants with driving anxiety, participants without driving anxiety had higher scores on quality of life subscales, which demonstrated that poorer quality of life was associated with driving anxiety (da Costa et al., 2014). Furthermore, later life anxiety was associated with substantial diminishment in quality of life (Wetherell et al., 2004). A stronger relationship between driving anxiety and quality of life may have occurred for the following reasons.

When driving anxiety results in a reduction or cessation of driving, older adults may experience limited access to important and enjoyable daily activities which may affect their quality of life. For example these activities may be visiting friends, helping in the community, and satisfying basic needs such as going to the supermarket or accessing health care. Diving anxiety may also result in a reduction in mobility which consequently affects older adults' quality of life in terms of freedom and indepdence because they are forced to rely on others for transportation, take public transport, or change their current routines in order to carry out daily activities. In relation to the previous point, if individuals are unable to be mobile and independent, they may have to make changes to occupational demands and responsibilities (such as retiring or reducing work hours) which may result in a reduced income and financial strain on quality of life.

Previous literature examining the relationship between driving anxiety and gender has found that gender differences exist (Gallo et al., 1999; Garrity & Demick, 2001; Hakamies-Blomqvist & Wahlstrom, 1998; Mathew et al., 1982; Taylor et al., 2011; Taylor & Paki, 2008), which is consistent with the results of the current study that showed that women reported higher driving anxiety scores, but inconsistent with the results that showed that the gender difference was in the opposite direction whereby men had poorer mental health and quality of life scores as driving anxiety scores increased than women. A gender difference may have been observed in mean driving anxiety scores because women generally have higher tension-anxiety scores than men while driving (Garrity & Demick, 2001) and women report more frequent driving

anxiety and avoidance than men (Gallo et al., 1999; Hakamies-Blomqvist & Wahlstrom, 1998).

Furthermore, as women are more likely to experience driving anxiety they may be more likely to participate in research in this area. Gender differences may also be influenced by an over representation of males in the elderly driving population (Hakamies-Blomqvist & Wahlstrom, 1998) who may view the use of a personal car as more important than women and therefore tolerate driving anxiety. Furthermore, the finding that, as driving anxiety scores increased, men had poorer mental health and quality of life scores than women may have occurred because the main reasons for stopping diving may be different for men and women. For example Hakamies-Blomqvist and Wahlstrom (1998) found that women often attributed a loss in driving confidence (driving anxiety) while men reported declining health. However this does not support the finding that there was no interaction effect between driving anxiety and gender for physical health.

The results also demonstrated that economic living standard played a significant role in predicting all three of the dependent variables, more so than any of the other independent variables (including driving anxiety), indicating that participants who had a higher economic living standard were predicted to have better health and well-being scores. This may have occurred because those with a higher economic living standard may be able to avoid the negative consequences of driving anxiety and stopping driving, therefore preserving their health and well-being. For example those with a higher economic living standard may be able to maintain their mobility and independence through other modes of transport (such as using a taxi), which may not be possible for those with a lower economic living standard. Therefore, economic living standard may be a better explanation for poor health and well-being than driving anxiety when it comes to stopping driving and the associated consequences.

Limitations and Suggestions for Future Research

The following limitations of the current study need to be taken into account when interpreting the results. First, the age range of participants was limited to 55-72 years of age, which means that the sample was relatively young and adults over the age of 72 years were not included. After the age of 72 years, due to normative changes in driving

skills, the normal processes of ageing may begin to affect driving ability and anxiety. Furthermore, due to the proportion of adults over 80 years of age forming an increasingly larger portion of the population (Bull & Raffle, 1992), by excluding adults over the age of 72 years from the study, an increasing population of those who may experience more severe driving anxiety were unable to be researched. This is problematic because expected increases in the elderly population mean that there will be an increase in the need for older adults to be able to drive (Monterde i Bort, 2004) and a need for driving anxiety to be prevented. Future research could address this by examining the effect of driving anxiety for individuals over this age and if the effect of driving anxiety on health and well-being increased exponentially as age increased.

A second limitation was that, due to the cross-sectional design of the study, it could not be determined whether poor health and well-being was the cause of driving anxiety or whether driving anxiety was the cause of poor health and well-being. Previous research has demonstrated that driving skills and abilities are affected by age-related changes in the body (Neutel, 1998; O'Neill et al., 2000). Therefore it is unknown whether poor health and well-being precedes driving anxiety or whether driving anxiety precedes poor health and well-being. A possible reason that poor health and well-being may result in driving anxiety is that when older adults experience health problems they feel less safe and more anxious when driving. Contrastingly, driving anxiety and the associated consequences (such as reduced mobility and access to health services) may result in poor health and well-being. As the current study demonstrated that driving anxiety impacts negatively on health and well-being, future research could examine this longitudinally and use this data to assess causality and develop ways to keep older adults driving for longer if they are able to do so. Furthermore longitudinal examination is possible as the NZLSA is an ongoing study and there is currently data available and there will be more data available in the future.

A third limitation was that the data was collected by a third party (HART) and therefore there was a loss of control over the data collection process and a sense of separation from the data. This means that some detailed aspect of the data were unknown, such as why there was missing data on some of the variables. However, anomalies with the data were dealt with in the most appropriate way and according to well substantiated literature. Furthermore, Taylor (2008) found that there was a stigma associated with

driving anxiety and that individuals were often self-conscious regarding their anxiety. Therefore, the current study was unable to address this within the questionnaire and the prevalence and true effect of driving anxiety may have been underreported due to social desirability bias. However, compromises have to be made when working with a large participant base and data set, especially with longitudinal data. Furthermore social desirability bias was unlikely in the current study because the process of data collection ensured anonymity and privacy for the participants.

Associated with the previous limitation, as the research questionnaire was developed by a third party the current study had to rely on questions that were not exclusively designed to examine driving anxiety. For example only one item was used to measure driving anxiety. Furthermore, as previous research has found, the overlapping symptoms of driving anxiety has meant that more than one diagnostic category of anxiety can capture the different experiences of driving anxiety (Ehlers et al., 1994; Taylor et al., 2007). Therefore, more substantial measures of driving anxiety (such as a clinical interview or more specific measures of anxiety like the State Trait Anxiety Inventory) would help future research to examine driving anxiety specifically and more closely for older adults. Another approach to specifically examine the relationship between driving anxiety and health and well-being would be to assess a clinical sample of older adults. For example some studies have found that participants with clinical disorders have experienced persistent driving anxiety (Hickling et al., 1992; Koch & Taylor, 1995; Kuch et al., 1994; Kuch et al., 1991) which may have a negative impact on health and well-being for older adults.

A fourth limitation was that the current research did not examine if the participants had comorbid physical or other mental health conditions which may interact with driving anxiety or mask symptoms, such as depression or a physical disability. Older drivers often attribute driving anxiety to physical conditions (Persson, 1993) which may affect cognitive, motor and perceptual skills and therefore affect driving ability and skills (Morgan & King, 1995) and may exacerbate driving anxiety. Therefore, instead of driving anxiety being due to a true fear of driving stimuli, some individuals may have experienced health conditions (for example dementia or stroke) which may have affected their driving confidence and consequently presented as driving anxiety, and masking a true relationship between driving anxiety and health and well-being.

In relation to the socio-demographic variables in the current study, another limitation is that, as it can be seen from the results, economic living standard played a significant part in the prediction of health and well-being for older adults, which was not expected or hypothesised. Therefore, future research needs to examine driving anxiety and economic living standard separately to determine more closely which is most related to health and well-being and if those who have low economic living standards are more likely to experience driving anxiety. Furthermore, the grouping of the independent variables constrained the results and meant that there was an inability to identify potentially unique relationships between the different levels of the socio-demographic independent variables (for example, for different ethnicities and educational levels). Future research could address this by using another statistical technique (for example MANOVA) to examine the interactions between different levels of the independent variables and the dependent variables.

Final limitations, in relation to the unexpected findings in the current study, were that women reported lower mean mental health and quality of life scores but men's mental health and quality of life scores decreased more rapidly than women's as driving anxiety scores increased, demonstrating that more research is needed in this area. This is because previous research has indicated that women report more driving anxiety than men, therefore future research needs to address the relationship with health and well-being and examine why physical health is not moderated and why men experience a more rapid decline in health and well-being when compared to women. Additionally, gender moderated the relationship with mental health and quality of life but not physical health. Therefore this also needs further examination because this finding may suggest that it may be more difficult to apply interventions for driving anxiety that is related to mental health and quality of life, as opposed to driving anxiety in relation to physical health which may be remedied medically.

Conclusion

The aim of the current study was to investigate the relationships between driving anxiety and physical health, mental health and quality of life in young older adults in New Zealand. Research into this topic was necessary because the effects of driving anxiety on functioning has not been widely researched and a small amount of research in New Zealand has shown that older adults' functioning may be affected by driving anxiety. Therefore, the current study used hierarchical multiple regression analyses to examine the impact of driving anxiety on 2,473 young older adults aged 55-70 years in New Zealand and identify if there was a relationship between driving anxiety and health and well-being. The results demonstrated that driving anxiety had a negative impact on health and well-being for young older adults in New Zealand, even when socio-demographic variables were controlled for and driving anxiety was associated with poorer scores on all three aspects of health and well-being.

Additionally, the results showed that gender moderated the relationships between driving anxiety and mental health and quality of life. However, the results also showed that physical health was not moderated by gender and that men experienced a more rapid decline in health and well-being when compared to women. Therefore the results of the current study demonstrated that future research needs to focus more on the area of driving anxiety and further address the relationships with health and well-being. Future research should examine longitudinal data to assess causation, different samples of participants to explore the interactions between comorbid mental and physical health diagnoses, an older age range of participants, and the potentially moderating factors of economic living standard and gender. This is needed so that psychologists and researchers can promote healthy and effective ways for older adults to continue to safely drive in a changing and modern society, to develop effective interventions if necessary, to self-regulate driving where appropriate, and to preserve good health and well-being.

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How to complete this survey

Instructions:

- Use a blue/black pen or pencil to complete this survey
- Try to mark your response clearly with a tick
- When asked to write a response, please print clearly.
- If you make a mistake, please put a cross over the incorrect response and place a tick in the box that best reflects your answer

Example:

At this time do you consider yourself partly retired, completely retired, or not retired at all (Please tick one box)

Completely retired	1
Partly retired	✓
Not retired at all	3
Not applicable (e.g., have not or do not work for pay)	4

Example:

During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting with friends, relatives etc.) (Please tick one box)

All of the time	Most of the time	Some of the time	A little of the time	None of the time
1	✓	3	4	5

Please read the following carefully:

- All the information you give us is in confidence and will be used only for the purposes of this study.
- There are no right or wrong answers; we want the response that is best for you.
- It is important that you give your own answers to the questions. Please do not discuss your answers with others.
- Do not linger too long over each question; usually your first response is best.
- Completion and return of this survey implies consent to take part in the study
- We are sorry that some questions appear repetitive, but please answer all questions that apply to you.

Thank you for taking the time to complete this survey

If you need help to answer any questions please contact us either by toll-free phone or via email at:

Phone: *0800 100 134* ***Email:*** *hwr@massey.ac.nz*

Firstly, we would like to ask you some questions about your health and things related to your health. This information will help us keep track of how you feel and how well you are able to do your usual activities. For each of the following questions, please tick the box that best describes your answer.

Q 1 **In general, would you say your health is:**
(Please tick one box)

Excellent	Very good	Good	Fair	Poor
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Q 2 **Compared to one year ago, how would you rate your health in general now?**
(Please tick one box)

Much better than one year ago	Somewhat better than one year ago	About the same as one year ago	Somewhat worse than one year ago	Much worse than one year ago
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Q 3 **The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?**
(Please tick one box on each line)

	Activities	Yes, limited a lot	Yes, limited a little	Not limited at all
(a)	*Vigorous activities*, such as running, lifting heavy objects, participating in strenuous sports	☐ 1	☐ 2	☐ 3
(b)	*Moderate activities*, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	☐ 1	☐ 2	☐ 3
(c)	Lifting or carrying groceries	☐ 1	☐ 2	☐ 3
(d)	Climbing *several* flights of stairs	☐ 1	☐ 2	☐ 3
(e)	Climbing *one* flight of stairs	☐ 1	☐ 2	☐ 3
(f)	Bending, kneeling, or stooping	☐ 1	☐ 2	☐ 3
(g)	Walking *more than one* kilometre	☐ 1	☐ 2	☐ 3
(h)	Walking *several blocks*	☐ 1	☐ 2	☐ 3
(i)	Walking *one block*	☐ 1	☐ 2	☐ 3
(j)	Bathing or dressing yourself	☐ 1	☐ 2	☐ 3

Q 4 **During the past 4 weeks, to what extent has your physical health or emotional problems interfered with your normal social activities with family, friends, neighbours, or groups?** (Please tick one box)

Not at all	Slightly	Moderately	Quite a bit	Extremely
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Q 5 **During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work OR other regular daily activities <u>as a result of your physical health</u>?**
(Please tick <u>one</u> box on each line)

		All of the time	Most of the time	Some of the time	A little of the time	None of the time
(a)	Cut down on the *amount of time* you spent on work or other activities	1	2	3	4	5
(b)	Accomplished less than you would like	1	2	3	4	5
(c)	Were *limited* in the *kind* of work or other activities	1	2	3	4	5
(d)	Had *difficulty* performing the work or other activities (for example, it took *extra* effort)	1	2	3	4	5

Q 6 **How much <u>bodily</u> pain have you had during the <u>past 4 weeks</u>?**
(Please tick <u>one</u> box)

None	Very mild	Mild	Moderate	Severe	Very severe
1	2	3	4	5	6

Q 7 **During the <u>past 4 weeks</u>, how much of the time have you had any of the following problems with your work OR other regular daily activities <u>as a result of any emotional problems</u> (e.g. feeling depressed or anxious)?**
(Please tick <u>one</u> box on each line)

		All of the time	Most of the time	Some of the time	A little of the time	None of the time
(a)	Cut down on the *amount of time* you spent on work or other activities	1	2	3	4	5
(b)	Accomplished less than you would like	1	2	3	4	5
(c)	Didn't do work or other activities as *carefully* as usual	1	2	3	4	5

Q 8 **During the <u>past 4 weeks</u>, how much did <u>pain</u> interfere with your normal work (including both work outside the home and housework)?** (Please tick <u>one</u> box)

Not at all	Slightly	Moderately	Quite a bit	Extremely
1	2	3	4	5

Q 9 **During the <u>past 4 weeks</u>, how much of the time has your <u>physical health or emotional problems</u> interfered with your social activities (like visiting with friends, relatives etc.)** (Please tick <u>one</u> box)

All of the time	Most of the time	Some of the time	A little of the time	None of the time
1	2	3	4	5

Q 10 **These questions are about how you feel and how things have been with you <u>during the past 4 weeks</u>. For each question, please give the one answer that is closest to the way you have been feeling. How much of the time during the <u>past 4 weeks</u>…**
(Please tick <u>one</u> box on each line)

		All of the time	Most of the time	A good bit of the time	Some of the time	A little of the time	None of the time
(a)	Did you feel full of life?	1	2	3	4	5	6
(b)	Have you been very nervous?	1	2	3	4	5	6
(c)	Have you felt so down in the dumps that nothing could cheer you up?	1	2	3	4	5	6
(d)	Have you felt calm and peaceful?	1	2	3	4	5	6
(e)	Did you have a lot of energy?	1	2	3	4	5	6
(f)	Have you felt downhearted and blue?	1	2	3	4	5	6
(g)	Did you feel worn out?	1	2	3	4	5	6
(h)	Have you been happy?	1	2	3	4	5	6
(i)	Did you feel tired?	1	2	3	4	5	6

Q 11 **How *TRUE* or *FALSE* is <u>each</u> of the following statements for you?**
(Please tick <u>one</u> box on each line)

		Definitely true	Mostly true	Don't know	Mostly false	Definitely false
(a)	I seem to get sick a little easier than other people	1	2	3	4	5
(b)	I am as healthy as anybody I know	1	2	3	4	5
(c)	I expect my health to get worse	1	2	3	4	5
(d)	My health is excellent	1	2	3	4	5

Q 12 **Can you see ordinary newsprint, with glasses or contact lenses if you usually wear them; easily, with difficulty or not at all?** (Please tick <u>one</u> box)

	Easily	With difficulty	Not at all
(a)	1	2	2

Are you a registered member of the Royal New Zealand Foundation of the Blind?
(Please tick <u>one</u> box)

(b) Yes 1 No 2

Q 13 **What is your height?** Feet ☐ Inches ☐☐ OR Centimetres ☐☐☐

Q 14 **What is your weight?** Stones ☐☐ Ounces ☐☐ OR Kilograms ☐☐☐

Q 15 The following questions focus on <u>health problems</u> you may have. Please tick the box(s) marked 'Yes' to indicate if a doctor, nurse or other health care worker has told you that you have any of the following health problems. Please also indicate the year in which each health problem (if applicable) was diagnosed

	(Tick all that apply)	Yes	Year Diagnosed
(a)	Diabetes?	1	
(b)	Epilepsy?	1	
(c)	High blood pressure or hypertension?	1	
(d)	Heart trouble (e.g., angina or myocardial infarction)?	1	
(e)	Asthma?	1	
(f)	Other respiratory conditions (e.g., bronchitis)?	1	
(g)	Stomach ulcer or duodenal ulcer?	1	
(h)	Chronic liver trouble (e.g., cirrhosis)?	1	
(i)	Bowel disorders (e.g., colitis or polyps)?	1	
(j)	Hernia or rupture?	1	
(k)	Chronic kidney or urinary tract conditions?	1	
(l)	Chronic skin conditions (e.g., dermatitis or psoriasis)?	1	
(m)	Arthritis or rheumatism?	1	
(n)	Hepatitis?	1	
(o)	Sight impairment (that cannot be corrected by glasses)?	1	
(p)	Hearing impairment?	1	
(q)	Stroke?	1	
(r)	Depression?	1	
(s)	Leg ulcers?	1	
(t)	Anaemia (low iron)?	1	
(u)	HIV/AIDS?	1	
(v)	Chronic fatigue syndrome?	1	
(w)	Fibromyalgia?	1	
(x)	Sleep disorder?	1	
(y)	Cancer?	1	
	Please specify type (e.g. lung, leukaemia, melanoma): _____		
(z)	Secondary cancer?	1	
	Please specify type: _____		

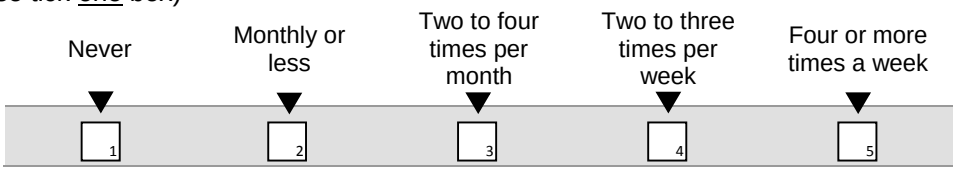
Q 16 If you have been diagnosed with cancer, what is your current treatment status?
(Excluding long term hormone therapy)

Currently being treated 1 Finished treatment 2 → Year treatment finished

The following questions concern alcohol and cigarette use. For each question, please tick the answer that is correct for you.

Q 17

(a) How often do you have a drink containing alcohol?
(Please tick one box)

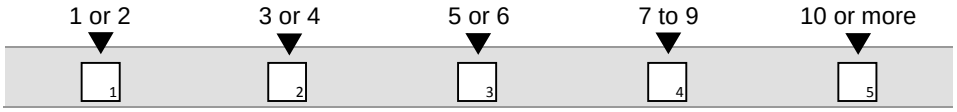


If you answered "Never" please answer Q 17 (b) below. All others skip to Q 17 (c) below.

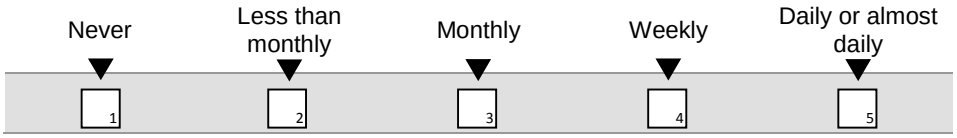
(b) Have you ever drunk alcohol in the past?

Yes (Tick and go to **Q 18**)	1
No (Tick and go to **Q 18**)	2

(c) How many drinks containing alcohol do you have on a typical day when drinking?
(Please tick one box)



(d) How often do you have six or more drinks on one occasion?
(Please tick one box)



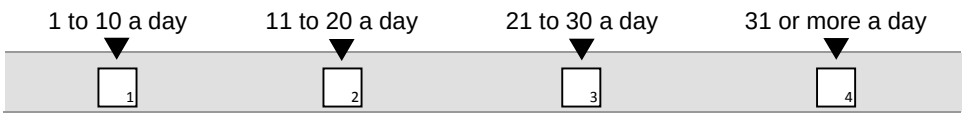
Q 18 Would you currently consider yourself a *regular* tobacco smoker?
(Please tick one box)

(a)

Yes (Tick and go to **Q 18 b**)	1
No (Tick and go to **Q 18 c**)	2

IF YOU CONSIDER YOURSELF A *REGULAR* SMOKER: How many do you think you would smoke on an average day?
(Please tick one box)

(b)



IF YOU DO NOT CONSIDER YOURSELF A *REGULAR* SMOKER: Have you, at any stage of your life, ever been a *regular* smoker?
(Please tick one box)

(c)

Yes	1
No	2

The following questions concern your use of health services (such as doctors or hospitals) and prescription drugs. For each question please tick the answer that is correct for you.

Q 19 **In the last 12 months, have you seen a doctor or been visited by a doctor <u>about your own health</u>? By 'doctor' we mean any GP or family doctor, but not a specialist.**
(Please tick <u>one</u> box)

- Yes ☐ 1
- No (Tick and go down to **Q 21**) ☐ 2
- Don't know (Tick and go down to **Q 21**) ☐ 3

Q 20 **How many times?**
(Please tick <u>one</u> box)

1 time ☐ 1 | 2 Times ☐ 2 | 3 to 5 times ☐ 3 | 6 to 11 times ☐ 4 | 12 times or more ☐ 5

Q 21 **In the last 12 months, have you yourself used a service at, or been admitted to, a hospital (either public or private)?**
(Please tick <u>one</u> box)

- Yes ☐ 1
- No (Tick and go down to **Q 23**) ☐ 2
- Don't know (Tick and go down to **Q 23**) ☐ 3

Q 22 **In the last 12 months, how many times were you admitted for one night or longer?**
(Please tick <u>one</u> box)

Never admitted over-night ☐ 1 | 1 or 2 times ☐ 2 | 3 or 4 times ☐ 3 | 5 or more times ☐ 4

Q 23 **In the last 12 months, how many times did you go to a hospital *emergency* department as a patient?**
(Please tick <u>one</u> box)

Never ☐ 1 | 1 or 2 times ☐ 2 | 3 or 4 times ☐ 3 | 5 or more times ☐ 4

Q 24

(a)	Is there a doctor or place that is most responsible for your health care?	Yes ☐ 1	No ☐ 2
(b)	How long have you been going there?	Years: ☐☐	Months: ☐☐
(c)	When you go to the doctor, are you taken care of by the *same* person each time?	Yes ☐ 1	No ☐ 2
(d)	Do you have personal health insurance?	Yes ☐ 1	No ☐ 2

Q 25 **Please indicate how many prescription drugs you are currently taking:**

(a) Number of prescription drugs: ☐☐

Please list the names of the prescription drugs you are currently taking:

(b)

1.	2.	3.
4.	5.	6.
7.	8.	9.
10.	11.	12.
13.	14.	15.

The following questions ask about different aspects of your quality of life.

Q 26 **For each of the following statements and/or questions, please tick the box that you feel is most appropriate in describing you.** (Please tick one box on each line)

(a) In general I consider myself:

Not a very happy person ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 A very happy person

(b) Compared to most of my peers, I consider myself:

Less happy ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 More happy

Q 27

(a) How would you rate your quality of life?

Very poor ☐1 Poor ☐2 Neither poor nor good ☐3 Good ☐4 Very good ☐5

(b) How well are you able to get around?

Very poorly ☐1 Poorly ☐2 Neither poorly nor well ☐3 Well ☐4 Very well ☐5

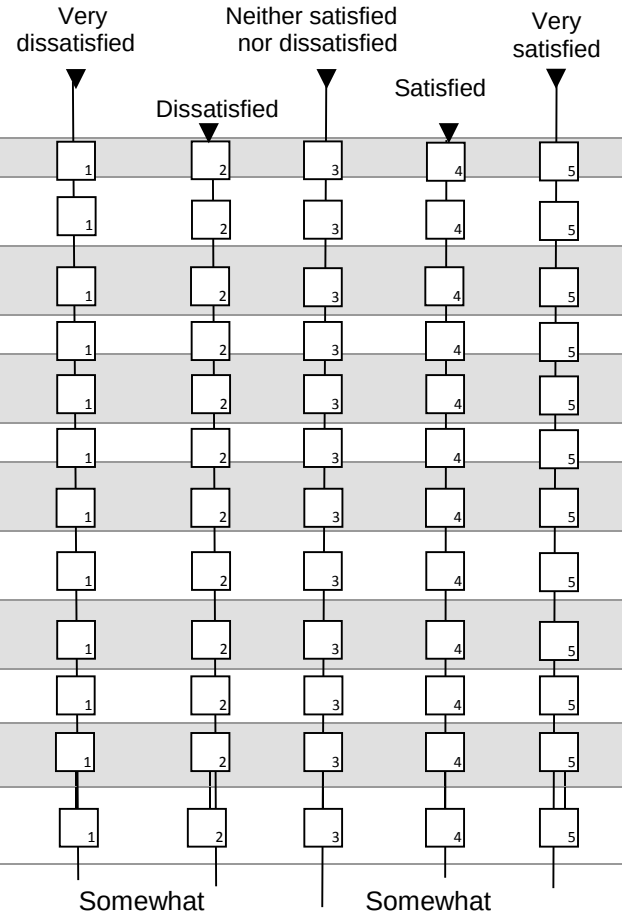
(c) **To what extent do you feel your life to be meaningful?**

Not at all ☐1 A little ☐2 A moderate amount ☐3 Very much ☐4 An extreme amount ☐5

(d) **How important is religious faith to you?**

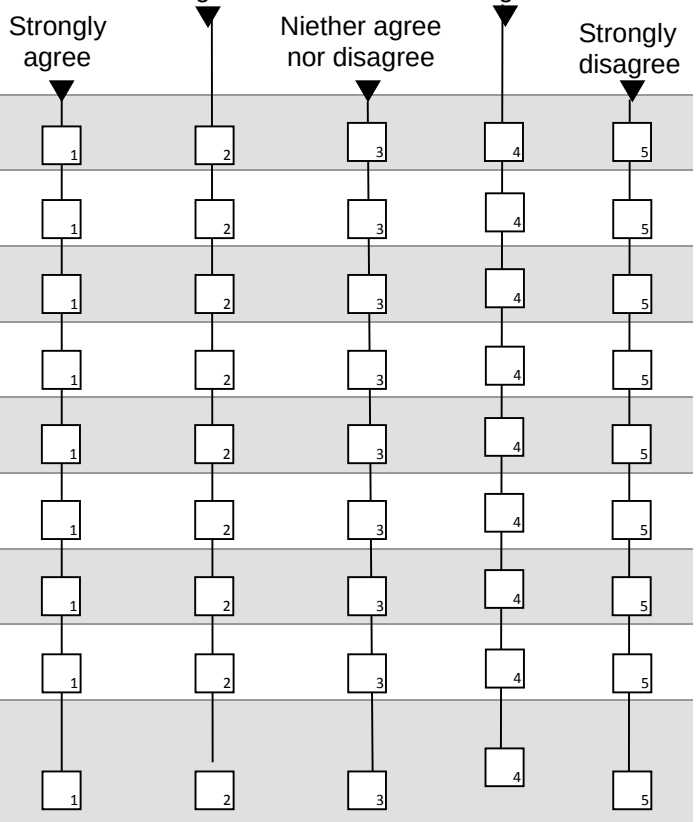
Not important at all ☐1 Slightly important ☐2 Moderately important ☐3 Very important ☐4 Extremely important ☐5

Q 28



(a)	How satisfied are you with your sleep?
(b)	How satisfied are you with your ability to perform your daily living activities?
(c)	How satisfied are you with your capacity to work?
(d)	How satisfied are you with yourself?
(e)	How satisfied are you with your personal relationships?
(f)	How satisfied are you with your sex life?
(g)	How satisfied are you with the support you get from friends?
(h)	How satisfied are you with the conditions of your living space?
(i)	How satisfied are you with your access to health services?
(j)	How satisfied are you with your transport?
(k)	How satisfied are you with your health?
(k)	How satisfied are you with your life at present?

Q 29



(a)	My life is determined by my own actions.
(b)	To a great extent, my life is controlled by accidental happenings.
(c)	My life is chiefly controlled by powerful others.
(d)	I am usually able to protect my personal interests.
(e)	I feel like what happens in my life is mostly determined by powerful people.
(f)	When I get what I want, it's usually because I'm lucky.
(g)	I can pretty much determine what will happen in my life.
(h)	Often there is no chance of protecting my personal interest from bad luck.
(i)	People like myself have very little chance of protecting our personal interests where they conflict with those of strong pressure groups.

HEALTH WORK AND RETIREMENT LONGITUDINAL STUDY

E tū te huru mā, haramai e noho

Activities

The following questions concern the kinds of physical activities that people do as part of their everyday lives. Please answer each question even if you do not consider yourself to be an active person.

Q 30 **If you add up all the times you spent on each of the following activities in the LAST 7 DAYS, how much time did you spend ALTOGETHER doing each activity? Please think about the activities you do at work, as part of your house and garden work, to get from place to place or in your spare time for recreation, exercise or sport.**
(If you **did not** do an activity, please write '0' in the box)

(a) *Briskly walking* (at a pace where you are breathing harder than normal, but only a little harder; e.g., for recreation or exercise, or to get from place to place) ☐☐ Hours

(b) *Moderate physical activity* (which makes you breath harder than normal, but only moderately harder; e.g., carrying light loads, gardening, bicycling at a regular pace, recreational swimming) ☐☐ Hours

(c) *Vigorous physical activity* (that makes you breathe a lot harder than normal or huff and puff; e.g., heavy lifting, fast bicycling, aerobics, running) ☐☐ Hours

Q 31 **Thinking about all your physical activities (brisk walking, moderate or vigorous) on how many of the LAST 7 DAYS were you active?**
('Active' means doing 15 minutes or more of vigorous activity, OR 30 minutes or more of moderate activity or brisk walking).
(Please tick one box)

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7
0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days

Q 32 **What is your current driving status?**

(a)

Current driver	Past driver	Never been a driver
☐ 1	☐ 2	☐ 3

How often do you currently drive?

(b)

Daily	Weekly	Monthly	Less than monthly	Never
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

How anxious are you about driving?
(Anxiety is an unpleasant feeling of nervousness or distress that may have no explanation)

(c) Not at all anxious ⟷ Extremely anxious

☐ 0	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7	☐ 8	☐ 9	☐ 10

If you answered "Not at all anxious", please skip to Question 33 on the next page

Because of driving anxiety, do you use any of the following forms of transport? (Tick as many as apply)

(d)

Transport by family or friends ☐ 1	Taxi ☐ 2	Public transport (bus train) ☐ 3
Walking ☐ 4	Cycling ☐ 5	Community services (e.g RSA) ☐ 6

How long have you been anxious about driving?

(e) Years: ☐☐

In the past month, for how many days were your usual activities or work affected because of driving anxiety?

(f) Days: ☐☐

Q 33 **How fearful are you about driving?**
(Fear is a stronger anxiety feeling related to a specific event, object, or situation)

Not at all fearful ⟷ Extremely fearful

☐0 ☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7 ☐8 ☐9 ☐10

Q 34 **Here is a list of activities people often engage in to enhance their happiness. Please indicate how important you find each activity for increasing or maintaining your level of happiness, and how often you engage in each activity.** (Please tick two boxes for each activity: one regarding importance and the other regarding frequency)

	Activity	**Importance**					**Frequency**				
		Extremely important	Very important	Moderately important	Slightly important	Not important at all	Daily or more often	Several times a week	Several times a month	Several times a year or less	*Never/not applicable*
(a)	Spending time on hobbies or interests (e.g., gardening, reading, following sports)	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(b)	Exercising or doing some other form of physical activity (e.g., walking, cycling)	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(c)	Spending quality time with your partner	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(d)	Speaking to or doing something with family (e.g., children, grandchildren)	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(e)	Speaking to or doing something with good friends	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(f)	Spending time with a pet animal/animals	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5
(g)	Meeting with others who share something in common (e.g., interest groups, support groups, faith-related)	☐1	☐2	☐3	☐4	☐5	☐1	☐2	☐3	☐4	☐5

	Activity	***Importance***					***Frequency***				
		Extremely important	Very important	Moderately important	Slightly important	Not important at all	Daily or more often	Several times a week	Several times a month	Several times a year or less	*Never/not applicable*
(h)	Going on outings (e.g., going out for a meal or function, time out in nature)	1	2	3	4	5	1	2	3	4	5
(i)	Going on trips (e.g., visiting family or friends, day trips, holidays away)	1	2	3	4	5	1	2	3	4	5
(j)	Spending time helping others (e.g., providing expertise, money, time, effort)	1	2	3	4	5	1	2	3	4	5
(k)	Spending quality time alone doing your own thing (e.g., relaxing, watching something, treating yourself)	1	2	3	4	5	1	2	3	4	5
(l)	Spiritual activities (e.g., praying, meditating, worshipping)	1	2	3	4	5	1	2	3	4	5
(m)	Working in a role that you enjoy (either paid or unpaid)	1	2	3	4	5	1	2	3	4	5
(n)	Doing something you find mentally challenging	1	2	3	4	5	1	2	3	4	5
(o)	Counting your blessings	1	2	3	4	5	1	2	3	4	5
(p)	Framing things in a more positive light	1	2	3	4	5	1	2	3	4	5
(q)	Doing something you find amusing (e.g., winding someone up, watching a comedy)	1	2	3	4	5	1	2	3	4	5
(r)	Doing something that uses your particular strengths and skills	1	2	3	4	5	1	2	3	4	5
(s)	Working on something you get a sense of achievement from	1	2	3	4	5	1	2	3	4	5
(t)	Devoting time to an important personal goal (e.g., a relationship, health, holiday)	1	2	3	4	5	1	2	3	4	5
(u)	Working towards achieving a property goal (e.g., grounds, new house, vehicle)	1	2	3	4	5	1	2	3	4	5
(v)	Devoting effort to a work goal (e.g., cutting back workload, reaching a target)	1	2	3	4	5	1	2	3	4	5

Q 35 **Overall, thinking about the above activities, please indicate how satisfied or dissatisfied you are with the amount of time you spend on the activities you consider important for your happiness. Answer by ticking the box that best reflects how you feel.** (Please tick one box)

Amount of time spent on activities:						
Extremely satisfied	Very satisfied	Moderately satisfied	I'm not sure	Moderately unsatisfied	Very unsatisfied	Extremely unsatisfied
1	2	3	4	5	6	7

HEALTH WORK AND RETIREMENT LONGITUDINAL STUDY

E tū te huru mā, haramai e noho

Support

The following section of the survey focuses on your volunteer activities, social networks, family, and caregiving.

I contribute my time and/or labour to volunteer activities:

Q 36 (Please tick one box)

(a)

Very often	Often	Sometimes	Rarely	Never
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

If you answered "Never", please skip to Q 37

How many hours do you contribute per week?

(b) **Hours:** ☐☐

What volunteer activities do you undertake? (please tick all that apply)

(c)

Sports organisation: (E.g. Rugby, cricket etc) ☐ 1	Religious organisation: (E.g. Salvation Army, Church) ☐ 1	Civic organisation: (E.g. Lions, Rotary, Meals on Wheels) ☐ 1	Health organisation: (E.g. Cancer Society, Heart Foundation) ☐ 1
Ethnic associations: ☐ 1	Local Marae: ☐ 1	Parks and recreation organisation: ☐ 1	Other: (please specify) _____ ☐ 1

Q 37 **How far away, in distance, does your nearest:**
(Please tick one box on each line)

	Same house / within 1 kilometre	1-5 kilometres	6-15 kilometres	16-50 kilometres	50+ kilometres/ overseas	*Not applicable or none living*
(a) relative live (not including your spouse/child/siblings)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
(b) child live?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
(c) brother or sister live?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9

Q 38 **How often do you speak to or do something with:**
(Please tick one box on each line)

	Daily	2-3 times a week	At least weekly	At least monthly	Less often	Never / I have none
(a) any of your children or other relatives?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
(b) any friends in your community/neighbourhood?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6
(c) any of your neighbours?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

Q 39 Please answer the following questions about your contact with family and friends.
(Please tick one box on each line)

		Yes	No
(a)	Do you feel you have regular contact with your family?	1	2
(b)	Do you feel you have regular contact with your friends?	1	2
(c)	Do you regularly participate in family (whanau) activities?	1	2
(d)	Do you have family or friends over for a meal at least once a month?	1	2

Q 40 Which of the following statements, about people in general, do you agree with the most?
(Please tick one box)

People can almost always be trusted	People can usually be trusted	You usually can't be too careful	You almost always can't be too careful
1	2	3	4

Q 41 Some people tell us that they feel lonely or isolated while others say that they don't. In the last 12 months how often have you felt lonely or isolated?
(Please tick one box)

Always	Most of the time	Sometimes	Rarely	Never
1	2	3	3	4

Q 42 Do you attend any of the following:
(Please tick one box on each line)

		Yes, regularly	Yes, on occasion	No
(a)	Religious meetings	1	2	3
(b)	Meetings of any community/neighbourhood or social groups, such as clubs, lectures or anything like that	2	2	3

Q 43 Which of the following statements best applies to you?
(Please tick one box)

(a)	I currently care for someone with a long-term illness, disability, or frailty	1
(b)	I have been caring for someone with a long-term illness, disability or frailty who has passed away or moved into a nursing home or hospital in the last 12 months	2
(c)	I used to care for someone with a long-term illness, diasability, or frailty more than 12 months ago but do not actively care for them now.	3
(d)	I have not cared for someone with a long-term illness, disability, or frailty.	4
(e)	I currently care for someone as part of my paid work	5

Please go to question 44 on the next page

Please skip to question 46 on page 16

Q 44 **Do you regularly provide <u>care or assistance</u> (e.g., personal care, transport) to any of the following people because of their <u>long-term illness, disability or frailty?</u>**
(Please tick <u>one</u> box on each line)

		Yes	No
(a)	Someone who lives with you	1	2
(b)	Someone who lives privately elsewhere	1	2
(b)	Someone who is now in a nursing home or hospital	1	2

(c) How many people with a long-term illness, disability or frailty do you regularly provide care for?
(Please tick <u>one</u> box)

One person 1 Two people 2 More than two people 3

Please select the person you have cared for the longest and complete the following questions about that person.

Is the person you care for your:

(d)

Mother or father? 1	Mother-in-law or father-in-law? 2	Spouse or partner? 3	Brother or sister? 4
Son or daughter? 5	Other relative? 6	Friend? 7	Other? (specify) _____ 8

Does the person you care for:

(e)

Live with you? 1	Live alone? 2	Live with their family? 3
Live with their friends? 4	Live in a nursing home or care facility? 5	Other (please specify) _____ 6

(f) **How old is the person you care for?** ☐☐ Years old.

(g) **How long have you been caring for that person?** ☐☐ Years ☐☐ Months

How often in total do you provide this care or assistance?
(Please tick <u>one</u> box)

(h)

Every day	Several times per week	Once a week	Once every few weeks	Less often
1	2	3	4	5

How much time do you usually spend providing such care or assistance on each occasion?
(Please tick <u>one</u> box)

(i)

All day and night	All day	All night	Several hours	About an hour
1	2	3	4	5

Q 45 **Does the person you care for have any of the following major medical conditions or disabilities?** (please tick all that apply)

(a)	Alzheimer's disease / dementia	☐ 1
(b)	Autism spectrum disorder	☐ 1
(c)	Autoimmune disorder	☐ 1
(d)	Cancer	☐ 1
(e)	Cerebral palsy	☐ 1
(f)	Down's syndrome	☐ 1
(g)	Frailty in old age	☐ 1
(h)	Head injury	☐ 1
(i)	Infectious disease	☐ 1
(j)	Mental health problem (e.g. depression, anxiety)	☐ 1
(k)	Musculoskeletal condition (e.g. break / fracture)	☐ 1
(l)	Severe arthritis / rheumatism	☐ 1
(m)	Visual impairment	☐ 1
(n)	Paralysis	☐ 1
(o)	Respiratory condition (e.g. asthma, emphysema)	☐ 1
(p)	Spinal cord injury	☐ 1
(q)	Stroke	☐ 1
(r)	Substance abuse / addiction	☐ 1
(s)	Other neurological disorder (eg multiple sclerosis, motor neuron disease)	☐ 1
(t)	Other (please specify)	☐ 1

_____

Q 46 **Do you provide unpaid care for your grandchildren?**
(Please tick <u>one</u> box)

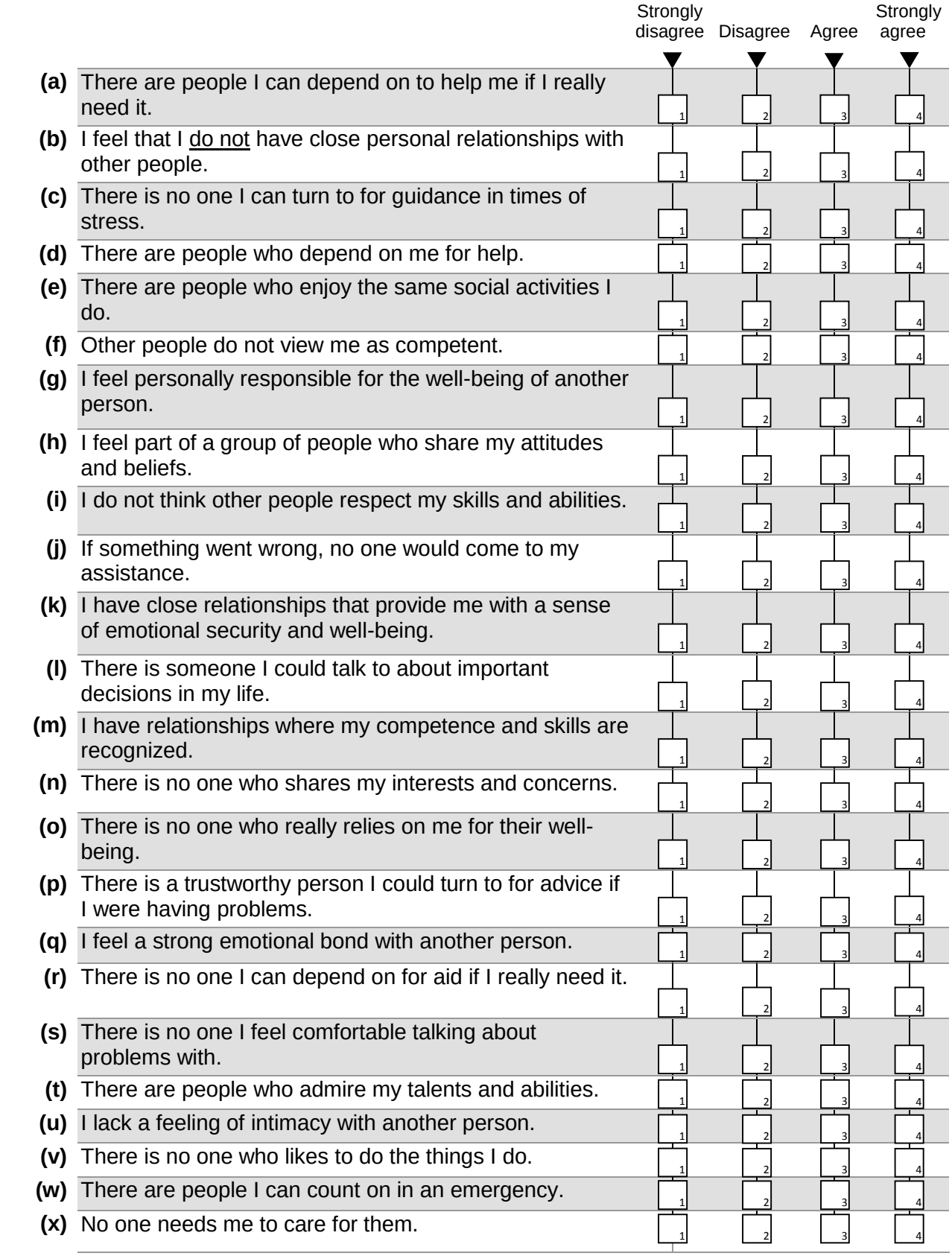
	Yes, daily	Yes, weekly	Yes, occasionally	No, never	No, don't have grandchildren
(a)	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Do you provide unpaid care for other people's children?
(Please tick one box)

	Yes, daily	Yes, weekly	Yes, occasionally	No, never
(b)	☐ 1	☐ 2	☐ 3	☐ 4

Q 47 To what extent do you agree that each statement describes your current relationships with other people?

(Please tick one box on each line)



The following questions are for all participants. Where questions are not applicable to you, you will be asked to skip forward in the survey.

Q 48 In the following table:

- **Please tick in column 1 next to the best description of your current situation.**
- **Please tick in column 2 next to the best description of your preferred situation.**
- **Please tick in column 3 next to the best description of your spouse or partner's current situation (if applicable).**

Employment Status	① Your *current* situation	② Your *preferred* situation	③ Your *spouse's* situation (If applicable)
Full-time paid employment, including self employment (35 or more hours per week)	☐ 1	☐ 1	☐ 1
Part-time paid work, including self employment (less than 35 hours per week)	☐ 2	☐ 2	☐ 2
Retired, no paid work	☐ 3	☐ 3	☐ 3
Full-time homemaker	☐ 4	☐ 4	☐ 4
Full-time student	☐ 5	☐ 5	☐ 5
Unable to work due to health or disability issue	☐ 6	☐ 6	☐ 6
Unemployed and seeking work	☐ 7	☐ 7	☐ 7
Other (please specify)	☐ 8 _____	☐ 8	☐ 8 _____

Q 49

(a) Approximately, how many part-time and full-time (paid) jobs have you held since age 18?

None	1 to 10	11 to 20	21 to 30	30 or more
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

(b) Approximately, how many years have you spent in the paid workforce (part-time and full time) since age 18? ☐☐

(c) Approximately, what is the greatest number of years you have spent in one (paid) job? ☐☐ Not applicable ☐ 0

(d) If you have spent more than 1 year out of the paid workforce since age 18, please indicate the <u>main</u> reason(s) why and the approximate number of years for each reason.

Homemaker or child rearing ☐ 1 Years: ☐☐	Retirement ☐ 1 Years: ☐☐	Caregiving for a relative or friend ☐ 1 Years: ☐☐	Study ☐ 1 Years: ☐☐
Poor health or disability ☐ 1 Years: ☐☐	Made redundant ☐ 1 Years: ☐☐	Other: Please specify _____ ☐ 1 Years: ☐☐	

If you are currently working for pay either full-time or part-time, please continue to Q 50

If you are completely retired or otherwise not working for pay, please skip to Q 58 on page 23.

Q 50 How many hours do you work in paid employment per week?

(a) ☐☐☐ Hours per week

Do you regularly perform shift work?

(b) Yes ☐ 1 No ☐ 2

Q 51 Please indicate how much you agree or disagree with the following statements. Answer by ticking the box that best reflects how you feel.
(Please tick <u>one</u> box on each line)

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
(a)	My work schedule often conflicts with my family life.	1	2	3	4	5
(b)	After work, I come home too tired to do some of the things I'd like to do.	1	2	3	4	5
(c)	On the job I have so much work to do that it takes away from my personal interests.	1	2	3	4	5
(d)	My family dislikes how often I am preoccupied with my work while I am home.	1	2	3	4	5
(e)	Because my work is demanding, at times I am irritable at home.	1	2	3	4	5
(f)	The demands of my job make it difficult to be relaxed all the time at home.	1	2	3	4	5
(g)	My work takes up time that I'd like to spend with my family.	1	2	3	4	5
(h)	My job makes it difficult to be the kind of spouse or parent I'd like to be.	1	2	3	4	5

Q 52 Please indicate how much you agree or disagree with the following statements. Answer by ticking the box that best reflects how you feel.

(Please tick one box on each line)

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
(a)	There are some conditions regarding my job that could be improved	1	2	3	4	5
(b)	My job is like a hobby to me	1	2	3	4	5
(c)	My job is usually interesting enough to stop me getting bored	1	2	3	4	5
(d)	It seems that my friends are more interested in their jobs	1	2	3	4	5
(e)	I consider my job rather unpleasant	1	2	3	4	5
(f)	I enjoy my work more than my leisure time	1	2	3	4	5
(g)	I am often bored with my job	1	2	3	4	5
(h)	I feel fairly well satisfied with my present job	1	2	3	4	5
(i)	Most of the time I have to force myself to go to work	1	2	3	4	5
(j)	I am satisfied with my job for the time being	1	2	3	4	5
(k)	I feel that my job is just as interesting as any others I could get	1	2	3	4	5
(l)	I definitely dislike my work	1	2	3	4	5
(m)	I feel like I am happier in my work than most people.	1	2	3	4	5
(n)	Most days I am enthusiastic about work	1	2	3	4	5
(o)	Each day of work feels like it will never end	1	2	3	4	5
(p)	I like my job better than the average worker does	1	2	3	4	5
(q)	My job is pretty uninteresting	1	2	3	4	5
(r)	I find real enjoyment in my work	1	2	3	4	5
(s)	I am disappointed that I ever took this job	1	2	3	4	5

Q

		Never	Rarely	Sometimes	Often
(a)	Do you have a choice in deciding how you do your work?	1	2	3	4
(b)	Do you have a choice in deciding what you do at work?	1	2	3	4
(c)	Do you have to work very fast?	1	2	3	4
(d)	Do you have to work very intensively?	1	2	3	4
(e)	Does your work demand too much effort?	1	2	3	4
(f)	Do you have enough time to do everything?	1	2	3	4
(g)	Does your work often involve conflicting demands?	1	2	3	4

Q 54

		Strongly disagree	Somewhat disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Somewhat agree	Strongly agree
(a)	I can financially afford to retire now	1	2	3	4	5	6	7
(b)	One reason I continue to work is because I cannot afford to retire	1	2	3	4	5	6	7
(c)	When I imagine what retirement will be like, I feel depressed	1	2	3	4	5	6	7

Q 55

IF YOU ARE *WORKING FULL-TIME* (35 or more hours per week) **: At what age do you think you will retire completely?**

(a) I think I will retire at age: ☐☐

IF YOU ARE *WORKING PART-TIME* (less than 35 hours per week) **: At what age do you think you will retire completely?**

(b) I think I will retire at age: ☐☐

If you are working part-time, at what age did you stop working full-time?

(c) Age: ☐☐ Not applicable ☐ 0

Do you expect your spouse/partner to retire at about the same time as you?
(Please tick <u>one</u> box)

(d) Yes ☐ 1 No ☐ 2 Spouse not working ☐ 3 *Not applicable (no spouse/partner)* ☐ 4

Q 56 The following are statements that some people make about their planning for life in retirement. Please indicate how true these statements are for you.

	Not true for me at all				Definitely true for me
I often speak to retired people about their experiences of retirement	1	2	3	4	5
I am separating myself from my work	1	2	3	4	5
I plan to undertake some other kind of job before I retire	1	2	3	4	5
I am reducing or will soon reduce my work hours	1	2	3	4	5
I am actively developing ways to spend my time when or if I retire	1	2	3	4	5
There are many things I could do with my time if I was forced to retire today	1	2	3	4	5
I have recently taken up new interests, activities, or hobbies	1	2	3	4	5
I only eat foods that will benefit my long-term health	1	2	3	4	5
I never get medical screening for diseases such as cancer, diabetes, and heart disease	1	2	3	4	5
I never have general medical check-ups	1	2	3	4	5
I try to keep physically active. (e.g. by taking regular walks, playing sport, or doing yoga etc)	1	2	3	4	5
I undertake many healthy behaviours such as regular exercise and keeping a healthy diet	1	2	3	4	5
I avoid unhealthy behaviours such as excessive drinking and cigarette smoking	1	2	3	4	5
By the time I retire I will have sufficient income, investments, and/or superannuation to ensure the standard of living I want in retirement	1	2	3	4	5
By the time I retire I will own a house without a mortgage	1	2	3	4	5
There are <u>other</u> things I am doing to prepare for retirement	1	2	3	4	5

If there are <u>other</u> things you are doing to prepare for retirement, please list them here:

Q 57 Some people want to stop paid work entirely when they retire, while others would like to continue doing <u>some</u> paid work – what about you?

(Please tick <u>one</u> box)

(a)

Stop paid work entirely	1
Continue some paid work	2
Don't know	3

		A lot	Some	A little	Hardly at all	Not applicable
(b)	How much have you thought about retirement?	1	2	3	4	
(c)	How much have you discussed retirement with your spouse or partner?	1	2	3	4	0
(d)	How much have you discussed retirement with your friends or co-workers?	1	2	3	4	

Q 58

		Strongly disagree	Somewhat disagree	Neither agree nor disgaree	Somewhat agree	Strongly agree
(a)	I feel uncertain about how economic trends will affect my life in retirement	1	2	3	4	5
(b)	I feel secure that the government will financially support me in retirement	1	2	3	4	5
(c)	I feel/felt pressure to retire	1	2	3	4	5
(d)	I worry about the standard of living I will have in retirement	1	2	3	4	5
(e)	I worry about having enough income in retirement	1	2	3	4	5
(f)	I am satisfied with what my family income will be in retirement	1	2	3	4	5
(g)	I am confident that I will easily adjust to retirement	1	2	3	4	5
(h)	I don't think I will have any trouble handling retirement	1	2	3	4	5
(i)	I expect to enjoy retirement	1	2	3	4	5

Q 59

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
(a)	The most important things that happen in life involve work	1	2	3	4	5
(b)	Work is something people should get involved in most of the time	1	2	3	4	5
(c)	Work should be only a small part of one's life	1	2	3	4	5
(d)	Work should be considered central to life	1	2	3	4	5
(e)	In my view, an individual's personal life goals should be work-oriented	1	2	3	4	5
(f)	Life is worth living only when people get absorbed in work	1	2	3	4	5

Q 60 **Below is a list of things that some people like about retirement. Please indicate how important you think they are or will be during your retirement. We would like you to respond even if you are not currently retired.**
(Please tick one box on each line)

		Very important	Moderately important	Somewhat important	Not important at all	*Not applicable*
(a)	Being your own boss	1	2	3	4	
(b)	Lack of pressure	1	2	3	4	
(c)	Being able to take it easy	1	2	3	4	
(d)	Having more time with husband/wife/partner	1	2	3	4	9
(e)	Spending more time with grand/children	1	2	3	4	9
(f)	Spending more time on hobbies or sports	1	2	3	4	
(g)	Having more time for volunteer work (church, civic organisation etc)	1	2	3	4	
(h)	Having the chance to travel	1	2	3	4	

Q 61 **Below is a list of things that some people don't like about retirement. Please indicate how bothersome you think they will be during your retirement. We would like you to respond even if you are not currently retired.**
(Please tick one box on each line)

		Bothered a lot	Bothered somewhat	Bothered a little	Not at all bothered	*Not applicable*
(a)	Being bored, having too much time on your hands	1	2	3	4	
(b)	Not doing anything productive or useful	1	2	3	4	
(c)	Missing people you work(ed) with	1	2	3	4	9
(d)	Illness or disability	1	2	3	4	
(e)	Not having enough income to get by	1	2	3	4	
(f)	Inflation and the cost of living	1	2	3	4	

If you are completely retired or partly retired, please go onto Q 62 on the next page

All others please skip to Q 64 on page 26

Q 62 What was your reason(s) for stopping or reducing work? (Tick all that apply)

Forced due to poor health ☐ 1	Forced due to disablement or injury ☐ 1	Employer forced Retirement ☐ 1	Lacked skills to continue ☐ 1
Became eligible for New Zealand Superannuation ☐ 1	Wanted to do other things ☐ 1	Don't need to work ☐ 1	Felt it was time to retire ☐ 1
Caregiving responsibilities ☐ 1	Unhappy at work ☐ 1	Other: Please specify ☐ 1 _____	

Q 63

If you consider yourself completely retired, how long have you been retired?

(a) ☐☐ Years ☐☐ Months Not completely retired yet ☐ 1

If you consider yourself <u>completely retired</u>, how satisfying did you find your previous work? (Please tick one box).

(b)

Extremely unsatisfying	Unsatisfying	Somewhat unsatisfying	Neither satisfying nor unsatisfying	Somewhat satisfying	Satisfying	Extremely satisfying
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7

How long did it take you to get used to retirement?

(c)

Less than one month	Six months	Nine months	One year	Two years	I'm not used to retirement yet
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

How difficult has it been for you to adjust to retirement?

(d)

Very difficult ←				→ Not difficult at all
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

"It took quite some time for me to adjust to retirement"

(e)

Completely agree	Agree	Neither agree nor disagree	Disagree	Completely disagree
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

All in all, would you say that your retirement has turned out to be:

(f) Very satisfying ☐ 1 Somewhat satisfying ☐ 2 Not at all satisfying ☐ 3

HEALTH WORK AND RETIREMENT LONGITUDINAL STUDY

E tū te huru mā, haramai e noho

Background Information

We would like to ask you for some general background information. Please place a tick next to the answer that you believe gives an accurate indication of your CURRENT situation, or write details in the spaces provided.

Q 64 When were you born?

D	D		M	M	1 9	Y	Y
Day			Month		Year		

Q 65 Which one of these statements is true about your legal marital status?
(If you have been married more than once, answer for your most recent marriage)

I am legally married	1
I am in a civil union/de facto/partnered relationship	2
I am permanently separated from my legal husband or wife	3
I am divorced or my marriage has been dissolved	4
I am a widow or widower	5
I have never been legally married	6

Q 66 Which ethnic group do you belong to?
(Please tick all the boxes that apply to you)

Pakeha / New Zealander of European descent 1	Māori 1	Samoan 1
Cook Island Māori 1	Tongan 1	Niuean 1
Chinese 1	Indian 1	Other 1 Please specify: _____

Q 67 Do you have a post-secondary or tertiary qualification? (Please tick one box)

Yes (Tick and go down to Q 68)	1
No (Tick and go to Q 69)	2

Q 68 If yes, please specify your highest tertiary qualification below
(Please tick one box only)

Level 1, 2, 3 or 4 post-secondary certificate (E.g. City and Guilds –Catering/Baking/Cooking, City and Guilds – Steel making. Registered Surveyor, Enrolled nurse) 1		**Level 5 and 6 diploma** (E.g. Advanced Trade Cert, Engineer First Class, City & Guilds - Advanced Trained Teacher, Nursing Diploma.) 2	
Bachelor degree (E.g. BBS, BSc, BA.) 3	**Post-graduate or honours degree** (E.g. LLB Hons, BA Hons.) 4	**Masters degree** (E.g. MSc, MBA, Physician, surgeon.) 5	**Doctoral degree** (E.g. PhD, DPhil.) 6
Other post-secondary or tertiary qualification (please specify): _____			

Q 69 **If in paid employment, what is your occupation in your main job?**
(Try to be as specific as you can. For example: Primary School Teacher, Clothing Machinist, Motel Manager, Word Processor Operator).

_____

Q 70 **In what year did you move to your current location of residence?**

(a) Year: ☐☐☐☐

(b) **What was your <u>main reason</u> for moving to your current home?** (Please tick <u>one</u> box)

To be near or with children ☐1	Larger home ☐2	Smaller home ☐3	Climate or weather ☐4	Leisure activities ☐5
Health problems or to be closer to health services ☐6	To be near or with other relatives or friends ☐7	Work or retirement related ☐8	Easier maintainence of house and/or gardens ☐9	Returning to family lands ☐10
Change in marital status ☐11	To free up equity ☐12	Other: (Please specify) ☐0		

Q 71 **Excluding yourself, please give the total number of people that live in the same household as you.**

(a) Total number of people ☐☐

How many people, excluding yourself, are dependent on you for their financial support?

(b) Total number of people ☐☐

Tick as many boxes as you need to show all the people who live in the same household as you.

(c)

My legal husband or wife ☐1	My partner or de facto, boyfriend or girlfriend ☐1
My son(s) and/or daughter(s) ☐1	My sister(s) and/or brother(s) ☐1
My mother and/or father ☐1	My flatmate(s) ☐1
Other (Please state: e.g. my grandmother, my mother-in-law, caregiver etc). ☐1 _____	None of the above – I live alone ☐1

If you indicated above that you live with some of your children, please indicate below how many children live in the same household as you and their ages:

Number of children ☐☐

(d) Ages: ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐ ☐☐

Q 72 Which of the following best describes the area where you live?

(Please tick one box)

Main Urban Area	⇨	A city with population of 30,000 or more	⇨	☐ 1
Secondary Urban Area	⇨	A town / city with a population of between 10,000 & 29,999	⇨	☐ 2
Minor Urban Area	⇨	A town with a population of between 1,000 & 10,000	⇨	☐ 3
Rural Centre	⇨	A town with a population of between 300 & 1,000	⇨	☐ 4
Rural Area	⇨	Outside a town / city boundaries	⇨	☐ 5

Q 73 For the following questions, please indicate whether or not you have (or have access to) the item by ticking one of the boxes.

1. Tick the first box if you have the item or have access to it

2. Tick the second box if you don't have the item because you don't want it

3. Tick the third box if you don't have the item because of its cost

4. Tick the forth box if you don't have the item because of some other reason.

		Yes I have it	No because I don't want it	No because of the cost	No for some other reason
(a)	Telephone	1	2	3	4
(b)	Washing machine	1	2	3	4
(c)	Heating available in all main rooms	1	2	3	4
(d)	A good pair of shoes	1	2	3	4
(e)	A best outfit for special occasions	1	2	3	4
(f)	Personal computer	1	2	3	4
(g)	Home contents insurance	1	2	3	4
(h)	Enough room for family to stay the night	1	2	3	4

Q 74 For the following questions, please indicate whether or not you do the activity by ticking one of the boxes.

		Yes I do it	No because I don't want to	No because of the cost	No for some other reason
(a)	Give presents to family or friends on birthdays, Christmas or other special occasions.	1	2	3	4
(b)	Visit the hairdresser at least once every three months	1	2	3	4
(c)	Have holidays away from home every year	1	2	3	4
(d)	Have a holiday overseas at least every three years	1	2	3	4
(e)	Have a night out at least once a month	1	2	3	4
(f)	Have family or friends over for a meal at least once a month	1	2	3	4

Q 75 **The following questions are about your material standard of living – the things that money can buy** (this does not include your health or capacity to enjoy life)**. Tick the answer that best applies to you.**

(a) Generally, how would you rate your material standard of living?

High	☐ 1
Fairly high	☐ 2
Medium	☐ 3
Fairly low	☐ 4
Low	☐ 5

(b) Generally, how satisfied are you with your current material standard of living?

Very satisfied	☐ 1
Satisfied	☐ 2
Neither satisfied nor dissatisfied	☐ 3
Dissatisfied	☐ 4
Very dissatisfied	☐ 5

(c) How well does your total income meet your everyday needs for such things as accommodation, food, clothing and other necessities?

My income is not enough	☐ 1
My income is *just* enough	☐ 2
My income is enough	☐ 3
My income is more than enough	☐ 4

Q 76 **The following are a list of things some people do to help keep costs down. In the last 12 months, how often have you done any of these things? Tick the box that best applies to you.**

		Not at all	A little	A lot
(a)	Gone without fresh fruit and vegetables to keep down costs	☐ 1	☐ 2	☐ 3
(b)	Continued wearing clothing that was worn out because you couldn't afford a replacement	☐ 1	☐ 2	☐ 3
(c)	Put off buying clothes for as long as possible to help keep down costs	☐ 1	☐ 2	☐ 3
(d)	Stayed in bed longer to save on heating costs	☐ 1	☐ 2	☐ 3
(e)	Postponed or put off visits to the doctor to help keep down costs	☐ 1	☐ 2	☐ 3
(f)	NOT picked up a prescription to help keep down costs	☐ 1	☐ 2	☐ 3
(g)	Spent less on hobbies than you would like to keep down costs	☐ 1	☐ 2	☐ 3
(h)	Done without or cut back on trips to the shops or other local places to help keep down costs	☐ 1	☐ 2	☐ 3
(i)	Done without or cut back on dairy products (e.g. milk and cheese)	☐ 1	☐ 2	☐ 3

Q 77 **Tick as many boxes as you need to show all the ways you received income in the 12 months ending today.**

NOTE: Please DON'T count loans because they are not income.

(a)	Wages, salary, commissions, bonuses…etc, paid by my employer	☐ 1
(b)	Self-employment, or business I own and work in	☐ 1
(c)	Interest, dividends, rent, other investments	☐ 1
(d)	Regular payments from ACC or a private work accident insurer	☐ 1
(e)	New Zealand Superannuation or Veterans Pension	☐ 1
(f)	Other superannuation, pensions, annuities (other than NZ Superannuation, Veterans Pension or War Pension)	☐ 1
(g)	Unemployment Benefit	☐ 1
(h)	Domestic Purposes Benefit	☐ 1
(i)	Invalids Benefit	☐ 1
(j)	Student Allowance	☐ 1
(k)	Other government benefits, income support payments, or war pensions	☐ 1
(l)	Other sources of income, counting support payments from people who do not live in my household	☐ 1
(m)	No source of income during that time	☐ 1

Q 78 **From all the sources of income you marked in question 77, what would the total income be that you yourself received BEFORE tax in the last 12 months?**

(Please tick one box below)

Loss	Zero income	$1 - $5,000	$5,001 - $10,000	$10,001 - $15,000	$15,001 - $20,000	$20,001 - $25,000
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7
$25,001 - $30,000	$35,001 - $40,000	$40,001 - $50,000	$50,001 - $70,000	$70,001 - $100,000	$100,001 or more	
☐ 8	☐ 9	☐ 10	☐ 11	☐ 12	☐ 13	

Q 79 **What would be the combined income that *every other member* of your household received BEFORE tax in the last 12 months?**

(Please tick one box below.)

Loss	Zero income	$1 - $5,000	$5,001 - $10,000	$10,001 - $15,000	$15,001 - $20,000	$20,001 - $25,000
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6	☐ 7
$25,001 - $30,000	$35,001 - $40,000	$40,001 - $50,000	$50,001 - $70,000	$70,001 - $100,000	$100,001 or more	
☐ 8	☐ 9	☐ 10	☐ 11	☐ 12	☐ 13	

Q 80 **Do you own any of the following? Please provide the approximate value.**
(Please tick all that apply)

	Yes	Value
(a) The property where you live?	1	$
A farm or farms?	1	$
A business or businesses?	1	$
A holiday house?	1	$
A rental property or properties?	1	$
Any shares?	1	$
Any managed funds?	1	$
Any banks deposits or savings?	1	$
A motor vehicle or vehicles?	1	$
Other major assets? (Please specify below)	1	$

_____

(b) **Is the property where you live owned by a trust?**

Yes 1 No 2

Q 81 **Do you have any of the following? Please provide the approximate value.**
(Please tick all that apply).

	Yes	Value
A mortgage or mortgages?	1	$
A loan from a bank, finance company, family member or friend?	1	$
Unpaid bills which you are not able to pay?	1	$

Q 82

(a) **Aside from New Zealand Super, do you belong to a superannuation or pension programme?**
(Please tick one box)

Yes 1
No 2

(b) **If yes, tick all that apply:**

Kiwisaver	Other employer sponsored superannuation	Overseas superannuation or pension	Other pension or superannuation
1	2	3	4

(c) Aside from New Zealand Super, does your <u>spouse or partner</u> belong to a superannuation or pension programme?
(Please tick <u>one</u> box)

Yes 1
No 2
Not applicable (no spouse/partner) 3

(d) If yes, tick all that apply:

Kiwisaver 1 | Other employer sponsored superannuation 2 | Overseas superannuation or pension 3 | Other pension or superannuation 4

Q 83 In the last 12 months have you been able to save any money?

Yes 1 No 2

Q 84 Have you received or do you expect to receive an inheritance?

(a)

Yes 1 No 2

If yes, please indicate the amount

(b)

Less than $10,000 1 | $10,000 to $50,000 2 | More than $50,000 3

Q 85 In the last 12 months would you say that total spending in your household was:

Less than total income 1 | About the same as total income 2 | More than total income 3

Q 86 Over the past year has the amount your household manages to save:

Gone up 1 | Stayed the same 2 | Gone down 3

Q 87 How would you rate the income you now have in retirement or expect to receive when you retire?

Totally inadequate 1 | Inadequate 2 | Enough to maintain living standards 3 | Satisfactory 4 | Very satisfactory 5

Q 88 How do you rate the chances that you will live to be 85 or more?

Absolutely no chance ⟷ Absolutely certain

0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10

If you have Māori ancestry, please continue to Q 89 below. If you do not have Māori ancestry, please turn to page 35.

Q 89 **Do you identify as Māori?**
(Please tick one box)

Yes	1
No	2

Q 90 **How many generations of your Māori ancestry can you name?**
(Please tick one box)

I generation (parents)	1
2 generations (grandparents)	2
3 generations (great-grandparents)	3
More than 3 generations	4

Q 91 **Have you ever been to a marae; and if yes – how often over the past 12 months?**
(Please tick one box)

Not at all	1
Once	2
A few times	3
Several times	4
More than once a month	5

Q 92 **In terms of your involvement with your whanau, would you say that your whanau plays…**
(Please tick one box)

A very large part in your life	1
A large part in your life	2
A small part in your life	3
A very small part in your life	4

Q 93 **Do you have a financial interest in Māori land (i.e. as an owner, part/potential owner or beneficiary)?**
(Please tick one box)

Yes	1
No	2
Not sure/don't know	3

Q 94 **This question considers your contacts with people. In general, would you say that your contacts are with…**
(Please tick one box)

Mainly Māori	1
Some Māori	2
Few Māori	3
No Māori	4

Q 95 **How would you rate your overall ability with Māori language?**
(Please tick one box)

Excellent	1
Very good	2
Good	3
Fair	4
Poor	5
Not applicable	6

Thank you for taking the time to complete this survey

Please go to the next page

HEALTH WORK AND RETIREMENT E tū te huru mā, haramai e noho LONGITUDINAL STUDY

Contact Details and Invitation

This is a longitudinal survey and it is important that we are able to get hold of you to complete further surveys. We would like you to nominate three people whom we can contact in the event that we lose track of you. This is very important for the success of this study. Please make sure you inform the people you have nominated.

Contact Person Number 1		
Surname	First Name	
Address:		Phone:
		Email:
Contact Person Number 2		
Surname	First Name	
Address:		Phone:
		Email:
Contact Person Number 3		
Surname	First Name	
Address:		Phone:
		Email:

If you have changed your address recently, or are planning to shift, please call us on 0800 100 134 to provide us with your new address. Alternatively, you may change your address online via our website: http://hwr.massey.ac.nz/participants.htm

We are still interested in interviewing a small number of people regarding the topics covered in this survey. If you are interested in being interviewed please tick the box below

"Yes, I am interested in being interviewed" ☐

(If you tick this box you will receive more information about the interview).

Before you place the completed survey in the addressed, FREEPOST envelope, please check to see that you have NOT skipped any pages and that you have answered all the questions.

Thank you for completing this survey ☺