Longitudinal study: The Impact of COVID-19 on Older New Zealander's Psychological Wellbeing

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Abstract

Background: Coronavirus disease (COVID-19) was identified in December 2019 and rapidly spread across the globe. Lockdowns, social isolation and distancing, and mask mandates were among the responses introduced to prevent the spread of the virus. Extensive global research has demonstrated that the implementation of protective measures had a significant adverse psychological effect on older adults, who are widely seen as a particularly vulnerable demographic group susceptible to the disease. Consequently, this population was subjected to more stringent and lengthier restrictions. The short and medium psychological impact of COVID-19 and its response have been well documented in academic literature. However, little is known about the enduring effects over an extended period of time.

Aim: To explore the long-term psychological impact of COVID-19 on older New Zealander. In addition, explore changes in psychological wellbeing indicators across the three years and the variations linked to socio-demographic characteristics.

Method: Participants (*M*= 69 years) were drawn from the longitudinal study of older adults (*N*=6,454 [*n* = 1,963 Māori]). Data from three waves (2020, 2021 and 2022) were used. Psychological wellbeing was assessed with measures of Loneliness (using the de Jong Gierveld Loneliness Scale), Depression (using the 10-item Center for Epidemiologic Studies Depression Scale), Anxiety (using the General Anxiety Inventory), Mental Health (using the Short Form Health Survey), and Quality of Life (using the World Health Organisation Quality of Life measure and the Control, Autonomy, Self-realisation, Pleasure scale). Repeated measures analysis of variance (ANOVA) were conducted, followed by a Spearman's rho correlation, direct regression analyses and a series of repeated measures Analysis of Covariance (ANCOVA) were conducted to address the research questions.

Results: In 2021, a comparative decline was observed in all measures, followed by an improvement in 2022, with the exception of Anxiety which was similar across all three years. Bivariate correlations demonstrated significant associations between psychological wellbeing indicators and socio-demographic variables. Logistic Regression revealed Age, Employment, and SES as key predictors of psychological wellbeing among older New Zealanders. However, when considering the subsequent ANCOVA results across Time, Age, and Socioeconomic status emerged as the most salient predictors. The interaction effects between Time and Age, as well as Time and Socioeconomic status , indicated that the relationship between psychological wellbeing outcomes and Time varied with different Ages and based on their level of

Socioeconomic status. These interactions showed that those with lower Socioeconomic status in 2022, and who were younger consistently experienced the highest levels of Loneliness, Depression and Anxiety and lowest levels of Mental Health and Quality of Life across Time. Furthermore, those aged 75 and above, and those with low Socioeconomic status, did not recovery as quickly as the other groups in 2022.

Conclusion: This study offers insights into the psychological wellbeing of older adults in New Zealand. Collectively, it highlights their resilience, with Age being recognised as a protective factor; though, those 75+ did not recover as quickly as the other groups in 2022. However, as this demographic is not a single homogenous group, other socio-demographic factors greatly influenced their outcomes. The study illustrated that being employed can function as a safeguard during disruptive events such as a worldwide pandemic, highlighting the need for policy measures focused on enhancing job prospects for older adults. Furthermore, the study revealed that the COVID-19 pandemic exacerbated the existing disparity across socioeconomic categories. It is important that policymakers and healthcare organisations prioritise support and resources for those in disadvantaged communities to ensure equitable access to mental health services to reduce their vulnerability to adverse outcomes, especially during a crisis such as a pandemic.

Key words: COVID-19, Pandemic, Older Adults, Loneliness, Psychological Distress, Mental Health, Quality of Life, Socioeconomic Status.

1. Chapter I - Introduction

Older adults have been identified as one of the highest-risk populations during this pandemic. According to research, the mortality risk of COVID-19 increases with age, and those with pre-existing chronic conditions are at greater risk (Lloyd-Sherlock et al., 2020; Mueller et al., 2020). Whilst aging may be a natural developmental process, it causes a variety of changes in body, including immunosenescence and inflammaging, two significant alterations to the immune system. These immune dysfunctions are significant contributors to the level of severity and high death rates among older adults with COVID-19 (Fuentes et al., 2017; Mueller et al., 2020). In New Zealand, older adults have had higher rates of severe symptoms of COVID-19, hospitalisations (including in the Intensive Care Unit), and mortality compared to any other age group (Ministry of Health, 2023). Thus, due to their susceptibility to COVID-19, older adults were faced with more restrictions during the pandemic compared to other populations (Cheung et al., 2020).

Under New Zealand's Alert Level system, older adults were advised to maintain strict isolation and remain at home when their city moved up in alert levels (Cheung et al., 2020). This resulted in being in isolation for much longer than the general population. While such extra measures were taken by the government to keep older adults safe, research shows that these measures also had adverse short-term effects on their psychological wellbeing; that they perpetuated older adults' sense of alienation and increased their vulnerability to the myriad of other negative psychological effects (Barber, & Kim, 2020; Every-Palmer et al., 2020). In addition, the general effects of the pandemic, such as prolonged lockdowns, disruptions to trading, the closing of the borders, social isolation and distancing, financial instability, and many other factors, contributed to the rise in psychological difficulties observed across New Zealand (Every-Palmer et al., 2020; Officer et al., 2022). In contrast, some studies have also shown that the pandemic has made older adults more resilient, and that their psychological wellbeing has improved during this period (Richmond, 2021; Allen et al., 2022c). One explanation is that older adults may have previously experienced a global crisis or national disaster, thus making them more resilient in future disasters (Brown et al., 2020). Other explanations highlight the diversity of older people and different circumstances that shape disaster experiences (e.g., Bui et al., 2020; Webb & Chen, 2021; Lay-Yee et al., 2022). Although some studies have examined the short-to-mid-term psychological impact on older adults, these may have changed as the pandemic evolved. Therefore, the aim of this study was to examine the longer term psychological impact of COVID-19 on older New Zealanders.

1.1 Overview of COVID

Coronavirus disease (COVID-19) is a highly infectious disease that was first identified in Wuhan, China, in December 2019 and has rapidly spread to other countries across the world (Sharma et al., 2020). By January 2020, World Health Organisation (WHO) had classified COVID-19 as a global public health crisis, and by March 2020, declared it a pandemic (WHO, 2020; Cucinotta & Vanelli, 2020). COVID-19 was brought on by the potentially fatal Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2) and is typically transmitted through respiratory droplets created when an infected person spoke, coughed, or sneezed (Dhand & Li, 2020). The symptoms of COVID-19 ranged from moderate to severe and included fever, cough, exhaustion, muscular pains, loss of smell or taste, and shortness of breath: and in some cases, individuals may not exhibit any symptoms at all (Shi et al., 2020). COVID-19 was responsible for over six million deaths globally, and there have been more than 756 million confirmed cases at the time of this writing (WHO, 2023). However, if governments had not immediately implemented strict steps to slow the pace of COVID-19 transmission, these data would have been significantly worse, as shown by the sharp rise in case numbers once these measures were eased. In the first year of the pandemic, when control measures were implemented, there were over 83 million cases worldwide; by December 2021 this increased to more than 288 million; and by December 2022, when the restrictions eased, more than 660 million cases reported globally (WHO, 2023).

Although the manner in which the virus was contained differed from country to country, there were many similarities. As the first nation to experience the outbreak, China instituted conventional methods such as community containment, isolation and strict lockdowns, quarantine, aggressive social distancing, extensive testing and contact tracing (Burki, 2020; Wu & McGoogan, 2020). The manner in which China responded to the pandemic was widely praised for its ability to effectively slow down the spread of the virus (Joseph & Thielking, 2020). Other nations such as South Korea, the United States, Uganda, Australia, and New Zealand employed similar measures including stay-at-home orders, mask mandates, and immunisations once they became available (Anom, 2022; Nguyen et al., 2021; Haseltine, 2022; Bergquist et al., 2020). However, the implementation and execution of these measures varied by country; for instance, the United States has been criticised for its tardy and inconsistent response to the pandemic (Bergquist et al., 2020; Science Insider, 2020), whereas, New Zealand has been widely praised as one of the best in the world (Economist Intelligence Unit, 2021).

Aotearoa New Zealand implemented a unique and effective approach of 'go hard and early'. In the first year, the country launched a Four-level Alert System, with Level 1 being the least restrictive and Level 4 the most. By March 2020, the nation moved to Level 4 and government proclaimed a national state of emergency (Ministry of Health, 2020). At this level, law enforcement imposed the lockdowns, and residents were only permitted to leave their home for necessities such as purchasing food or obtaining medical care; all non-essential businesses were closed; and restrictions were placed on domestic and international travel (Ministry of Health, 2020; Beattie & Priestley, 2021; Patterson, 2021). New Zealand shifted between alert levels based on the number of cases in the community until early December 2021. During this time, Auckland, New Zealand's largest city, experienced one of the world's longest lockdowns that lasted approximately 107 days and subsequent lockdowns totalling 188 days in isolation (Ministry of Health, 2020). Although challenging, New Zealand's infection rates were relatively low during this period.

In December 2021, as the nation prepared for its third year of the pandemic, lockdown restrictions and social isolation measures eased, and New Zealand moved to the Protection Framework's 'traffic light' system; this required residents to be fully vaccinated and hold a vaccination pass (New Zealand Government, 2022). The traffic light system incorporated three color-coded levels, red orange and green. Life at red allowed for the protection of vulnerable communities and the New Zealand health system. Areas were restricted to those with vaccination passes, except for access to basic needs such as food and healthcare. In addition, restrictions were placed on cafes and bars, gatherings and events, gyms, and hairdressers; these were eased at orange and removed entirely at green. The Protection Framework 'traffic light' system ended in mid-September 2022, along with the requirement for people to wear masks in public and vaccination mandates (New Zealand Government, 2022). Since the implementation of the traffic light system, the country experienced a surge in COVID-19 cases, with numbers doubling every two to four days due to the Delta and Omicron variants. By mid-March 2022, there had been 206,405 reported cases, and by mid-March 2023, it had increased to 2,239,800 cases. In addition, the number of COVID-19-related deaths increased from 25 in the first year to 2,560 by mid-March 2023, with 2,435 of those being older adults (Ministry of Health, 2022a; New Zealand Government, 2022). From its onset, older adults were identified as one of the most vulnerable groups to COVID-19.

1.2 Short term Psychological Impact

The first year of the pandemic (2020) was a large adjustment from normal life. Although the initial concerns were primarily related to the effect on physical health, there were concerns of the psychological impact that the COVID-19 responses would have on the public (Brooke & Jackson, 2020; Hoffman et al., 2020). In particular, during the first year of the pandemic, the majority of the world's population had to deal with uncertainty, fear, and disruptions to their daily lives, which presented other psychological difficulties. Previous research, for example, has shown that an increase in social isolation (defined as the absence of social relationships [Smith & Christakis, 2008]), increases the risk of loneliness (Anderson & Thayer, 2018). As social beings, the quality (benefits and costs) and quantity (size and diversity) of social relationships can have a great impact on one's wellbeing (Umberson & Karas Montez, 2010). As such, social isolation can have a detrimental effect on psychological wellbeing.

Prior to COVID-19, social isolation among older adults was a significant public health concern that had gained worldwide recognition for its negative effects on quality of life and early mortality (Aknin et al., 2022). To illustrate its impact, social isolation is a brutal method used by captors to torture prisoners of war, as it eventually causes mental and physical deterioration, and in some instances, death, in otherwise healthy and functional people (Umberson & Karas Montez, 2010). Social support has a significant positive impact on wellbeing that should not be understated as it improves psychological wellbeing by lessening the effects of stress or by encouraging a sense of purpose and meaning in life (Cohen, 2004). Therefore, removing social support or isolating oneself, can have harmful effects.

This section explores the loneliness and psychological distress experienced by older adults during the first year of the pandemic, as they were subject to lengthier periods of isolation compared to the general public. Research has postulated that due to the pandemic's social isolation response, people who were already lonely and isolated would suffer more, and others prompted to engage in less social interaction would begin to experience loneliness (Miller, 2020). Overall, the global COVID-19 pandemic and its responses have presented a multitude of challenges, which can manifest in psychological issues, discontentment with life and increased loneliness (Lorber et al., 2023).

1.2.1 Loneliness

Loneliness has become a worldwide phenomenon since the outbreak of the COVID-19 pandemic. It has been defined as a state of distress denoting that a person's fundamental need for social connection is not being met (Weiss, 1973; Inagaki et al., 2015). It is also commonly regarded as the psychological response to social isolation, that reflects a person's discontentment with the frequency and closeness of their social contacts, or the gap between their current relationships and desired relationships (Yanguas et al., 2018). Loneliness can be emotional (e.g., unpleasant feelings due to a lack of companionship or emotional support) or social (e.g., negative sentiments due to a perceived absence of a larger social network) (Weiss, 1973; Killgore et al., 2020). Loneliness was recognised as a public health issue prior to the COVID-19 pandemic as it was associated with a number of negative health outcomes, for example, an increased risk of morbidity, such as depression; geriatric syndromes, such as functional deterioration and frailty; and mortality (Herrera-Badilla et al., 2015; Yanguas et al., 2018). Furthermore, this recognition, along with the increasing suicide rates associated with loneliness, led to the appointment of a 'Minister of Loneliness' in the United Kingdom in 2018, and in Japan a year after the outbreak of COVID-19 (Barron, 2018; Rodney et al., 2021). Loneliness is a serious yet underrated health risk that impacts a substantial proportion of older adults (Rodney et al., 2021). It is linked to a significant decline in life expectancy equal to smoking 15 cigarettes per day and estimated to be greater than the decline in life expectancy linked to obesity (Murthy, 2017). Prior to COVID-19, the escalation of loneliness among older adults was attributed in part to the growing prevalence of living alone, widowhood, or mobility limitations (Perissinotto et al., 2012; Hajek & Konig, 2020; Arpino et al., 2022). More recently, it was attributed to social distancing and isolation (Clay, 2020; Brooke & Jackson, 2020; Rodney et al., 2021), as a result of the COVID-19 protective measures which, on the one hand, was implemented to protect older adults from the virus, but on the other, cut them off from an essential aspect of their psychological wellbeing.

As the responses to the pandemic have varied, some countries have experienced social isolation to a lesser degree than others; consequently, experiences of loneliness have also varied. For example, according to a Japanese study, loneliness among older and younger adults significantly intensified during the pandemic compared to its pre-pandemic levels (Khan & Kadoya, 2021). However, the magnitude of increase was higher for older adults. The older adults are regarded with high respect in Japanese families, who tend to take care of them. However, during the pandemic, the prophylactic measures, including quarantines and social

isolation significantly disrupted the factors that provided older adults with social connection. Furthermore, living under stress, not having access to adequate long-term care services, and worrying about their health all contributed to the dramatic increase in loneliness. Similarly, during Austria's seven-week lockdown, older adults reported significantly higher levels of loneliness compared to the years preceding the pandemic (Stolz et al., 2020). In addition, levels were greater during the lockdown period compared to the subsequent re-opening phase, especially among those who lived alone. However, as the lockdown was short-lived, a decline in loneliness levels was observed post-lockdown. Thus, the authors did not predict long-term effects on this population. In this study, it is uncertain if the sample and results were representative of the older adult population, as those living in facilitated care residents who were disproportionately affected by the pandemic through the banning of visitors were not included in this sample. Similarly, a study in Switzerland reported increased loneliness among older adults following the government's adoption of social distancing measures; this decreased after measures were lifted (Seifert & Hassler, 2020). In Netherlands, where a longer lockdown period was imposed (approximately six months), significant increases in emotional loneliness among older Dutch adults were reported (van Tilburg et al., 2020). Authors expressed great concern regarding the longer term effects of social isolation on this population. In contrast, German and Swedish studies (Rohr et al., 2020; Kivi et al., 2020) with similar lockdown periods to Austria reported little to no discernible difference between estimates of loneliness before the pandemic and post-lockdown and attributed this to older adults' resilience.

In the United States, studies have produced contradictory findings. For example, Emerson (2020) reported that COVID-19 preventative measures exacerbated symptoms of loneliness. In this study of 833 participants, 43% reported increased loneliness. Significantly higher levels were observed among those living on their own (59.4%), indicating that those who lived alone were a particularly vulnerable group during lockdowns or social isolation. However, their study also found relatively high levels of loneliness among those living with others (41.7%); this confirms the findings of Klinenberg (2016) that the potential of loneliness is not eliminated by living with others. Similarly, Krendl and Perry's (2020) study reported higher levels of loneliness (and depression) during the pandemic than before it. This study established a link between loneliness and relationship strength (the perceived closeness to social contacts), rather than its relation to reduced social activities; however, due to its small sample size (93 participants) and the homogeneity (White and well-educated), the ability to generalise these findings is limited. In contrast, a study by Luchetti et al. (2020) found no significant changes in loneliness levels among older Americans. This study, which assessed variances in

loneliness across all ages prior to and during the lockdown period, reported that younger adults were more affected. According to this study, older adults experienced an increase in loneliness during the outbreak's acute phase (late March 2020) but levelled off by late April. Overall, it reported remarkable resilience in the face of COVID-19 among older Americans. Similar findings were reported by Wickens et al. (2021) of higher loneliness trends among younger adults and lower among older adults.

In New Zealand, Government organisations such as Toi Hau Tangata Social Wellbeing Agency, and Loneliness New Zealand Charitable Trust (LNZCT) predicted that the COVID-19 pandemic would exacerbate loneliness (and pre-existing inequities) among New Zealanders (Toi Hau Tangata, 2020; LNZCT, 2020). However, data has shown this has been largely true for younger adults. In older New Zealanders, studies indicate little change in levels of loneliness compared to before the pandemic. For example, Scoular (2020) reported that after lockdown, the incidence of prolonged loneliness in youth aged 18-24 was 17%, which was 4.4 times higher than the incidence of prolonged loneliness in older adults aged 65+ (3.9 %) – a group that has traditionally been perceived as lonely. Similarly, Allen et al.'s (2022c) longitudinal study of 4,351 older adults, reported minimal to no short-term impact on loneliness as a result of the pandemic or its responses. Although 40% reported experiencing loneliness, similar levels were reported before the pandemic. The minimal impact was credited in part to the increased support and regular contact that participants received from relatives, friends, community groups and government agencies. These findings were consistent with other studies (e.g., Gasteiger et al., 2021; Toi Hau Tangata, 2020; LNZCT, 2020). In the qualitative study conducted by Richmond (2020), eating alone was identified as one of the predictors of loneliness (and psychological distress symptoms) among older adults. The requirement to remain in one's 'bubble' dramatically reduced social interactions, and older adults found themselves eating alone more frequently than usual, which was especially difficult for those living alone. While this study highlighted some of the distressing experiences of the pandemic on older New Zealanders, the sample size of six was small compared to the total number of older adults who were actively practicing social isolation and distancing at the time, that is, over 791,000 (Ministry of Health, 2021). Therefore, the outcomes relative to the wider population should be interpreted with caution. Overall, current Zealand research indicates that COVID-19 responses were not a significant predictor of loneliness in older adults in 2020.

Overall, when comparing studies from New Zealand to those from other countries, the findings on loneliness among older adults during the first year of COVID-19 were largely

consistent. This is surprising given New Zealand's go-hard strategy throughout the year resulted in longer periods of social isolation and lockdowns compared to most countries, particularly for older adults. Despite substantial evidence of the strong correlations between social isolation and loneliness, New Zealand data for this demographic have contradicted these conclusions. Therefore, it is important to recognise that the relationship between the two is complex, and that contextual factors may mitigate this relationship. Wilson (2020) argued that New Zealand's 'unite approach' influenced collective effort and coping during this time. In addition, frequently used phrases such as 'team of five million' and 'be kind' contributed to a sense of security and social cohesion (Morgan et al., 2022), thereby helping to reduce feelings of loneliness in older New Zealanders.

1.2.2 Psychological Distress

The term psychological distress encompasses symptoms of depression, anxiety, and stress (Viertio et al., 2021). As numerous studies combine these, they have been grouped here as well. The current pandemic provides an ideal opportunity to evaluate variations in psychological distress among older adults in response to a severe life stressor. Concerns were expressed that the prevalence of stress-related psychological disorders would increase among older adults because of their vulnerability to the COVID-19 virus (Vahia et al., 2020). For example, studies showed that social isolation, quarantine, wearing personal protection equipment, and being unable to contact loved ones, exacerbated anxiety, and depressive symptoms in older adults, and had the potential to function as triggers for suicide episodes; nursing home residents were found to be particularly vulnerable (Santini et al., 2020; De Leo & Trabucchi, 2020). Furthermore, the initial studies show that older adults experienced psychological distress, but to a significantly lesser degree than their younger counterparts (Beam & Kim, 2020; Lebrasseur et al., 2021; Al-Hanawi et al., 2020; Bruine de Bruin, 2020; Płomecka et al., 2020). Some rationalised that COVID-19 caused less disruption to older adults' daily routines compared to younger adults (Lebrasseur et al., 2021). Others suggested that older adults, in general, have lower stress reactivity, better emotional regulation, and are less likely to openly report mental health symptoms (Lee et al., 2018; Vahia et al., 2020; Płomecka et al., 2020); or that younger people were more likely to experience mental distress from COVID-19 due to their high levels of social media exposure (Al-Hanawi et al., 2020). In contrast to studies that demonstrate age as a protective factor, the prevalence of psychological distress was significantly higher among those aged 70+ years in an Egyptian study (Fadila et al., 2021),

indicating that age can also be a risk factor. Nevertheless, to determine whether the pandemic has exacerbated psychological distress symptoms among older adults, this section compares reports from different countries.

Studies in China reported increased levels of psychological distress during the pandemic among older adults. In a longitudinal study by Wang et al. (2021), psychological distress had significantly increased during the pandemic (August 2020) compared to pre-pandemic levels (May 2019); this was linked to their increased vulnerability. Higher levels psychological distress were reported in those who were frail or had transitioned into a frail state, and those with multimorbidity. Their sample, however, was limited to older adults in rural arears, and may not necessarily be applicable to those in urban areas. Likewise, Li et al. (2022) reported an elevation from 23.54% before the pandemic to 31.36% during the pandemic, or a 7.82% increase. Higher levels were observed in older adults that had transitioned from not being isolated to being socially isolated. Finally, Meng et al.'s (2020) study reported an alarming 37.1% of their sample had experienced increased depression and anxiety symptoms in relation to the pandemic. These studies shed light on the increased levels of psychological distress experienced by older Chinese during the pandemic, emphasising their vulnerability.

In the United Kingdom, a study of 142 adults aged 75+ reported that the majority experienced low levels of anxiety and depression, and less than 10% met the diagnostic criteria for depression or generalised anxiety disorder. Over half of the participants were able to identify positive aspects of lockdown, suggesting that they may be better equipped than anticipated to deal with the responses to COVID-19 (Brown et al., 2020). However, as the survey was conducted via telephone, those with profound hearing loss, who may have encountered different difficulties, were excluded. In a larger study of 3,281 participants aged 55 to 96, the proportion of people with mild depressive symptoms increased from 13.2% in 2019 to 19% in 2020, and the proportion of people with mild anxiety symptoms increased from 9.3% to 12.6%. Those with mild-to-severe symptoms were comparable (Creese et al., 2021), indicating that older adults were impacted by the pandemic. In this study, however, there was an overrepresentation of women (80%), White British people (98%) and those with a higher level of education (88%), which suggests that their results may not be generalisable. In the United States, a study observed elevated levels of anxiety and depression among older adults with insufficient knowledge of the pandemic, who had never encountered a similar outbreak, and who believed that family relationships were negatively affected (Yildirim et al., 2021). In contrast, Bruine de Bruin (2020) study reported that with the exception of fear of contracting the coronavirus, older Americans

had a more optimistic outlook and reported lower depression and anxiety levels compared to the general population, during the early stages of the pandemic. Similarly, a Netherlands study found no significant difference between age groups in terms of psychological distress levels, and these levels remained relatively stable during the first year of the pandemic (van der Velden et al., 2020). It is worth noting, however, that when exposed to a real-life stressor, it is uncommon to find no differences in psychological distress across all age groups. Overall, international comparisons on psychological distress among older adults in the short term ranged from minimal to significant impact.

In New Zealand, Allen et al. (2022c) reported a small linear increase in depressive symptoms among older adults between 2014 and 2020. Although 21% reported clinically significant levels of depressive symptoms, the analysis across the six years indicated levels did not deviate from pre-pandemic trends. In addition, the snapshot of older adults in the year 2020 revealed that symptoms were associated with demographic inequalities that predated the pandemic period. Thus, this study demonstrated that older New Zealanders' mental health was generally good and stable over time, despite predictions of negative effects of the pandemic. Every-Palmer et al.'s (2020) study across different age groups reported 47.3% of adults between the ages of 18 and 24 scored high for moderate to severe psychological distress, while less than 10% of adults 65 and older scored the same level of psychological distress. This was partly attributed to older adult's resilience as a result of having weathered past challenges and experienced fewer daily disruptions and economic impact. Similarly, Stephens and Breheny's (2021) study found that, although some anxiety was experienced among older New Zealanders, lockdowns were mostly very enjoyable for retirees, those who worked from home, and received wage subsidies. Reduced psychological distress was attributed to a sense of feeling supported. However, this is not to say that older New Zealanders were unaffected; according to the findings of Richmond (2021), older adults lost their independence and felt like a burden on their families exhibited high levels of anxiety and stress. In addition, feelings of hopelessness, and depression were associated with a loss of freedom to perform routine activities such as grocery shopping. Findings from this study imply greater levels of psychological distress among older New Zealanders as a result of the pandemic. Overall, national comparisons on psychological distress among older adults in the short term ranged from minimal to moderate impact.

Comparing New Zealand studies to those from other nations, the findings on psychological distress among older adults in the first year of COVID-19 indicate that older New Zealanders did not fare as well as some countries but did better than others. It is possible that

strong government direction and assistance contributed to mitigating the incidence of psychological distress. For example, Yildirim et al. (2021) found that older Americans with less-than-adequate knowledge or understanding of the pandemic experienced greater increases in anxiety, distress, and depression as a result of it. In New Zealand, information was communicated clearly and regularly with the public which built confidence and ensured that people understood the steps taken to keep all New Zealanders safe (Baker et al., 2020; Barnett-Howell et al., 2021), thereby reducing distress levels. Further, the low number of cases in New Zealand compared to other countries like China may have made older New Zealanders feel safer in their own country, thus, lowering their levels of stress and anxiety about the pandemic. However, there is a great deal to be learned from nations that experienced lower rates of psychological distress under comparable conditions, as the consequences can be devasting. For example, depressed older adults are more likely to experience functional impairment, medical conditions, and suicide (Webb & Chen, 2021; Reynolds & Kupfer, 1999), as well as lengthier hospitalisations compared to non-depressed older adults (Bressi et al., 2006). These findings emphasise the importance of managing psychological distress during times of crisis.

1.2.3 Mental Health and Quality of Life

Mental health encompasses more than just the absence of mental illness; it is also a state of psychological wellbeing that enables one to deal with life's challenges, develop abilities, learn, and work effectively, and make a meaningful contribution to one's community (WHO, n.d.). Quality of life (QoL) refers to the wellbeing of a population or an individual in terms of both positive and negative aspects of their existence at a given time (Teoli & Bhardwa, 2022). Similar to loneliness and psychological distress, there is a lack of consistency in the international data regarding mental health and QoL among older adults during the first year.

Within the literature, increased or similar levels of QoL and mental health were primarily attributed to resilience, while a decrease was associated with pre-existing sociodemographic factors. For example, according to a study conducted in Finland, the QoL of older people was found to be relatively unaffected by the pandemic. When comparing data from 2018 and 2020, they found an improvement in QoL, except for those who experienced economic hardships (Siltanen et al., 2022). Relatively stable QoL in the early phase of the pandemic is consistent with other studies, for example, in Sweden (Kivi et al., 2020), Mexico (Hernández-Ruiz et al., 2021), and Finland (Rantanen et al., 2020). The resilience of older

adults in the face of adversity and the ability to deal with stressful situations was echoed. One definition of resilience is the process and result of being able to successfully adapt mentally, emotionally, and behaviourally to adverse life events (American Psychological Association, n.d.); another is the capacity to cope with difficult situations (Pearlin & Schooler, 1978), or more simply, increased social support (Gonzalez et al., 2021). These findings are similar regarding mental health. A United Kingdom study attributed greater mental health to life experiences such as having lived through the Second World War and exposure to earlier pandemics (for example, the influenza pandemics of 1957 and 1968) (Brown et al., 2020) which increased their resilience. It explained that older people, on average, were resilient against disruptive life events because they learned how to handle crises throughout their lives. Similarly, an Italian study attributed higher levels of mental health observed in older adults to a greater wealth of experience that would enable them to overcome adversities more easily (Rossi et al., 2021). That is, older people drew on their life experience to deal with such unusual circumstances despite their own vulnerabilities. This is consistent with other research indicating good mental health among older adults in 2020 (e.g., Płomecka et al., 2020; Herron et al., 2022). These results are to be expected given how well older adults fared in terms of loneliness and psychological distress. In contrast, other studies reported a decrease in QoL (and other psychological outcomes) among older adults in Portugal (Ferreira et al., 2021), China (Zhang & Ma, 2020), and Vietnam (Nguyen et al., 2020). The results consistently demonstrated a correlation between socio-demographic characteristics and the experience of older adults during the pandemic. Much like the variations observed in loneliness and psychological distress, international data on the mental health and QoL of older adults during the first year of the pandemic is also inconsistent, but with recurring patterns.

New Zealand studies showed good mental health among older adults during COVID-19 (Allen et al., 2022a; Stephens & Breheny, 2021). Richmond (2021) reported that older adults demonstrated an ability to handle adversity with initiative and acceptance, which was mostly attributed to resilience. Although social isolation was mandatory for older adults, they were proactive and adaptive in finding ways to stay in touch with family and friends. Some mentioned using email and internet, while others mentioned talking to their neighbours over the fence or while taking a walk. Participants assumed responsibility for maintaining social contact in some form, which provided a sense of control and served to maintain psychological and physical wellbeing. This resilience and adaptability demonstrated by older adults during a challenging time contributed to better mental health. Allen et al. (2022c) reported that, overall, the mental health of older adults was good and stable over a six-year-period including during

COVID-19. It did note, however, that because of pre-existing social determinants of health, resilience was not evenly distributed during the early stage of the pandemic. Thus, those with pre-existing health conditions or living in disadvantaged communities, for example, were more vulnerable and less resilient. This implies a detrimental effect on the QoL of these older adults, although there is a lack of research to fully assess the impact of the pandemic on the QoL experienced by older New Zealanders during this period.

Overall, in some countries including New Zealand, older age has been found to be a protective factor against the impact of COVID-19 and disproves the stereotype of older adults as 'weak and vulnerable'. The current pandemic has illuminated the remarkable adaption and resilience of older adults resulting in better mental health and QoL. However, in countries with decreased mental health and QoL, the findings suggest that different socio-demographic factors may moderate its impact on this population. Therefore, it is important to acknowledge individual factors such as socioeconomic and health status, and social support networks can all impact an individual's ability to cope with challenging situations.

1.3 Mid-term Psychological Impact

As the world entered the second year (2021) of the COVID-19 pandemic, there was widespread concern that older adults' psychological wellbeing would deteriorate (Stolz et al., 2020; Murayama et al., 2021). This is line with earlier research that age-related benefits appear to be compromised when under continuous and unavoidable stress (Charles, 2010). The concern was that, if restriction measures were used repeatedly or for longer periods, the effects on mental health problems would be both more severe and longer lasting. For instance, an Austrian study found that the COVID-19 restrictions led to an increase in loneliness in 2020; the study also found that the loneliness in 2020 led to an increase in depression and anxiety in 2021 (Mayerl et al., 2021). This research drew attention to the potential long-term negative psychological effects of COVID-19. A term found in the literature that explains this effect more specifically is 'COVID-19 psychological fatigue' (Ruiz et al., 2022). This term refers to the prolonged effects of the pandemic that deteriorate a population's psychological wellbeing and ability to cope. Thus, while older adults may have fared relatively well during the first year, prolonged exposure can result in psychological fatigue, which is analogous to physical fatigue brought on by high demands (Ruiz et al., 2022). However, it is also possible that older adults may adjust to a new norm as a result of habituation; this is when a stimulus first evokes a

reaction, but after repeated exposure, the response gradually decreases (Thompson & Spencer, 1966). This theory is consistent with the findings of the 2002–2003 SARS outbreak in Hong Kong, where Wu et al. (2009) reported that mental health symptoms decreased over time as people were exposed to repeated stressors associated with the outbreak. The authors suggested that habituation may be a result of increased familiarity with the stressors and improved coping mechanisms over time. Some researchers predicted that older adults who had previously adapted well to the pandemic will continue to do well during the pandemic, but those who, for example, were already lonely, depressed, or anxious may be more susceptible to intensified loneliness and psychological distress as the pandemic continues (Best et al., 2023). This section explores how older adults fared during the second year of the pandemic, as well as whether there are any changes compared to the first year.

1.3.1 Loneliness and Psychological Distress

As the majority of studies evaluating loneliness have also investigated psychological distress symptoms, both are discussed in this section. The findings have been inconsistent. For example, Best et al.'s (2023) study found that older adults fared better than younger adults at any time point before and during the pandemic. However, the extent to which they fared better varied, and possibly with the stressors they faced. This is consistent with Scheibe et al.'s (2022) findings and Sugaya et al.'s (2021) study that reported little to no significant difference in loneliness across both years in older adults. These findings were primarily attributed to enduring resilience, but they can also be interpreted as a result of habituation. A study from Spain reported that depression had remained relatively stable over the pandemic waves, whereas the prevalence of anxiety and stress continued to rise (Ruiz et al., 2022). Reports indicated that in 2020, younger adults (18-24 years) experienced greater increases in psychological distress. However, in 2021, that trend changed, as younger adults experienced a decline in depression and stress, while the older adults experienced a dramatic increase; that is, anxiety and stress in older men increased by 664.5% and 786% and in older women by 273.5% and 431.4% respectively. This increase was attributed to COVID-19 psychological fatigue and where the term was developed. Similarly, a Denmark study that examined changes in loneliness between March 2020 and July 2021, using a large national sample reported that COVID-19 related worry and loneliness levels had increased during lockdown periods (Pedersen et al., 2022). The first lockdown (March to April 2020) saw the highest levels of COVID-19-related anxiety, while the second lockdown (December to February 2021) saw the highest levels of loneliness. Across

both years of the pandemic, younger adults (and women) fared the worst; however, a notable exception was that older adults fared much worse for COVID-19-related worries in the second year. In 2020, the largest discrepancies in psychological distress were found between those with and without pre-existing chronic diseases; however, in the second year, they were between age groups and gender. These findings were linked to COVID-19-related psychological fatigue. Using data from 43 timepoints over 16 months of the COVID-19 pandemic is a strength of Pedersen et al.'s (2022) study. Nevertheless, as the survey was conducted online, it is probable that those who were less adversely affected were more likely to respond; hence, the average levels of mental health indicators were likely higher than indicated. Similar results were found in a Japanese study by Murayama et al. (2023).

In New Zealand, the scarcity of studies on the mid-term effects of the pandemic on older adults means there is limited understanding of how older adults fared. According to the Ministry of Social Development's (MSD) (2020) prediction, depending on whether the New Zealand population was exposed to continued social restrictions or an economic downturn, the mid-term impacts were expected to be an extension or intensification of the short-term impacts (Anderson et al., 2020). Some examples included increases in demographic inequalities, leading to further deterioration of mental health; prolonged stress (including financial) related to pandemic restrictions; and increased rates of family violence, which have longer term effects on mental health. According to Anderson et al. (2020), the amount of time Aotearoa New Zealand was subject to COVID-19 restrictions, affected the severity of the mid to long term effects. In 2021, Te Hiringa Mahara-Mental Health and Wellbeing Commission, reported that older adults were, in some ways, faring worse than in 2020. Communities and advocacy organisations reported that older adults still did not feel as free as most people even though the majority of safety precautions were removed. Reports of feeling anxious about leaving the house and being reluctant to socialise or be around others for fear of catching COVID-19 were recorded with some voluntarily isolating themselves due to pre-existing health conditions. Advocacy organisations expressed concerns about the mental health of older people, citing rises in anxiety, fear voluntary isolation, alcohol abuse and addiction. In addition, Mental Health and Wellbeing Commission (2021) reported that older adults experienced a range of difficulties, including a lack of access to food and essentials, support health services and disruption of home-based care services during lockdowns; these only worsened during the second year as a result of the prolonged strain on the healthcare system. According to Allen et al.'s (2022c) study of 4,075 participants, those that experienced increased loneliness and depression across 2020 and 2021 had three or more chronic health issues and little social support. Those with a slightly lesser

increase had one-two chronic issues and medium support. Those with no significant impact had no chronic health issues and high social support. In addition, contrary to assumptions regarding the impacts of the pandemic on older adults, those living alone were consistently less likely to report substantial changes in the majority of wellbeing markers. Compared to those who lived alone, those who lived with others were more likely to report declines in mental and physical health, as well as increases in depression. The only significant association between living alone and markers of wellbeing was an increase in loneliness, which was slightly highly than the increase among those who lived with others. This finding indicates that living with others may not always be beneficial for one's wellbeing, and that social support and companionship may not necessarily lead to better mental health outcomes.

Overall, the data indicates that older adults may have developed better coping mechanisms over time, which allowed them to navigate the pandemic more effectively. On the other hand, other studies highlight the need for continued support and interventions to address the impact of the pandemic on older adults' mental health, even as social isolation and other COVID-19 measures are relaxed. As the pandemic continues, it is important to assess whether there have been longer term impacts on older adults' mental health. The mid-term impacts indicate that older adults are not faring as well as compared to 2020. They also underscore the importance of addressing loneliness and psychological distress as a public health concern beyond the pandemic.

1.3.2 Mental Health and QoL

Based on the findings of the previous section, it is evident that mental health and QoL subsequently varied, with some older adults faring better than others. Nevertheless, most studies examining mental health and QoL indicate that older adults fared relatively well during the second year of the pandemic. For example, a Spanish study of three different time points (March 2020, July 2020, and May 2021) reported stable mental health and QoL levels across time (López et al., 2022). They attributed this to psychological wellbeing characteristics, including resilience and gratitude, (as well as some demographic factors). This study, however, only considered those living in the community without cognitive difficulties. For generalisability, older adults living in nursing or retirement homes and those with cognitive impairments should be included (López et al., 2022). Their findings are consistent with other studies (e.g., Hayden et al., 2022; Fristedt et al., 2021). These studies showed that strategies that allowed older adults to focus on activities that brought them joy and fulfilment, led to a greater sense of mental

health and QoL during the pandemic. For example, Karmann et al. (2023) reported that older adults felt as though their sense of time was distorted; therefore, in an effort to reclaim time, they developed new daily routines. This study reported that older adults used their time to reflect and revise their priorities, maximising their opportunity for personal growth. These strategies, led to better mental health and QoL. A Canadian study reported QoL remained stable among older adults during the pandemic. The research identified positive links between QoL and socio-demographic factors (such as higher SES), daily social interactions with 10 to 19 people, and active social engagement (Briere et al., 2023). The decline in mental health in this study was associated with increased loneliness. In addition, a study conducted within the Finnish population looked at the alterations in QoL between 2018 and the initial phase of the pandemic. The findings revealed a marginal increase in QoL from 2018 to 2020, except for those who reported economic hardship (Siltanen et al., 2022). In a contrasting but similar vein, a poll conducted by the Institute for Healthcare Policy and Innovation in the United States revealed that nearly one in five older adults aged 50 to 80 reported a decline in their mental health since the onset of the pandemic in March 2020. The importance of ensuring sufficient access to mental healthcare as older adults transitioned into a new phase of the pandemic was emphasised, especially for those with lower incomes (University of Michigan, n.d.). Overall, the data shows similar patterns in QoL and mental health during the second year of the pandemic.

In New Zealand, the data is also varied. For example, although the Mental Health and Wellbeing Commission (2021) reported that older adults were faring worse during the second year of the pandemic, it also stated that they were more likely to report higher levels of wellbeing, social connectedness, and lower levels of loneliness and psychological distress than the general population (Te Hiringa Mahara-Mental Health and Wellbeing Commission, 2021); this suggests higher levels of mental health compared to the general population. It reported that older people still had faith in the government and felt supported and safe because of the COVID-19 preventative measures implemented; thus, contributing to good mental health. Allen et al.'s (2022c) study reported that the majority (50.4%) experienced no impact on their mental health, 35.2% reported some negative impact, and 14.4% reported moderate to extreme negative impact on their mental health. Mental health decreased marginally in 2021 compared to 2020, and low social support was listed as one of the predictors. Overall, however, the data suggests that most older New Zealanders' mental health was not adversely impacted by the pandemic during the second year.

A recurring theme in the second year relating to mental health is social support. For example, a United States study involving LGBTQ older adults found that continual care and

support from the LGBTQ community increased emotional resilience and aided in coping with chronic stressors such as social isolation (Gonzalez et al., 2021). Inadequate social support can result in diminished mental health as demonstrated in a cross-sectional study conducted in Slovenia with 664 adults, and loneliness accounted for 48% of the total variance in mental health. In this study, lower levels of mental health and social support resulted in higher levels of loneliness (Lorber et al., 2023). Similarly, Allen et al. (2022c) found that between 2020 and 2021, older adults in New Zealand, who lacked social support experienced declines in their mental (and physical) health, and life satisfaction, along with increases in depression and loneliness compared to those with high social support.

Overall, the findings of older adults during the second year of the pandemic were mostly positive. Their good mental health and QoL was largely attributed to factors such as resilience, engaging in activities that provided a distraction from the negative impacts of the pandemic, and the presence of social support. Nevertheless, it is important to exercise caution when interpreting these findings because of the large body of research indicating that this demographic experienced negative psychological effects (as mentioned in the previous section), which could affect mental health and QoL, even if those specific outcomes were not measured. In addition, these findings do not imply that the mental health and QoL of older adults can be overgeneralised or overestimated, while socio-demographic inequalities that confront older adults are underestimated. Hence, examining mental health and QoL and understanding how individual, social, and economic factors interact will enhance the understanding of the psychological impact of the pandemic on this demographic.

1.4 Impact by Demographic Group

The anomalies in the data presented in the preceding sections indicate that older adults are not a single homogenous group. This population is diverse and so are their responses to disasters such as pandemics; it is not age itself that differentiates older adults, but rather their unique social and practical situations (Allen et al., 2022c). As such, the variances may be explained by demographic factors, such as gender, ethnicity, and socio-economic status. Therefore, it is important to take these into consideration in order to have a more comprehensive understanding of why some older adults fared better than others during the pandemic. This section explores the psychological wellbeing of older adults by demographic.

1.4.1 Gender

Older women appear to have been more vulnerable to poor psychological wellbeing than older men throughout the pandemic. A Chinese study by Meng et al. (2020) reported that 37% of 1,556 participants (of all ages) experienced depressive or anxious symptoms during the COVID-19 pandemic; however, this proportion was higher among older women. Similarly, VoPham et al. (2022) reported that older women experienced very high levels of anxiety related to catching COVID-19; thus, they actively participated in preventive measures. In contrast, older men, reported less psychological distress, (including when compared to younger men), possibly due to better emotional coping skills (White, 2020; Barber & Kim, 2020), or a diminished perception of the risk, as they were less likely to adopt preventative measures, believing that COVID-19 was similar to the flu (Nolsoe, 2020). In the United States, Wilson-Genderson et al. (2021) reported that loneliness levels for both older men and women before and during the pandemic shifted based on living arrangements. Older men that lived with others reported a decrease in loneliness during the pandemic compared to prior, whereas older women experienced higher levels of loneliness regardless of whether they lived alone or with others. An increase in loneliness was observed among older men that lived alone before the pandemic and a slight increase during the pandemic. This study showed how gender and living situations can have an impact on loneliness, which is consistent with global research on loneliness during the pandemic (Wenham et al., 2020). However, these findings conflict with a meta-analysis of the relationship between gender and loneliness over the course of a person's life, which showed minimal evidence of gender differences (Maes et al., 2019). Therefore, the disparity in findings was attributed to the unusual challenges relating to COVID-19.

In New Zealand, there is limited research on the impact of gender among older adults during the pandemic; although the studies that have acknowledged gender differences are consistent with the conclusions of Maes et al. (2019). According to Allen et al. (2022c) gender did not have a significant influence on the immediate outcomes of psychological wellbeing, experienced in older adults. Similarly, Every-Palmer et al.'s (2020) findings indicated little difference in terms of increased loneliness across genders. However, Allen et al.'s (2022c) study did emphasise the need for additional research on the indirect effects of the pandemic on the psychological wellbeing of older women. For instance, international studies indicate a rise in domestic violence against women during lockdowns. Therefore, while initial data suggests a smaller gender gap in terms of psychological wellbeing compared to international data, there is

a need for further research to fully understand the impact of the pandemic on women's psychological wellbeing, particularly for older women who may be more vulnerable to indirect impacts such as increased violence.

1.4.2 Ethnicity

Psychological wellbeing also varied across different ethnicities. For example, an American study reported higher levels of psychological distress among older Hispanic adults (33%) and Black adults (26%) when compared to White adults (23%) (Webb & Chen, 2021). Likewise, Bui et al. (2020) reported that the levels of psychological distress were higher among non-White than White older adults. In this study, older Latino adults reported significantly higher levels of psychological distress than older White adults which was attributed to having more at-risk family members living together and fewer resources to combat the pandemic; a conclusion based on older Latinos reporting the highest proportion of living in multigenerational families and the second highest proportion of having a low annual household income. The Latino and Black group combined showed greater psychological distress compared to the White group. However, individual group comparisons showed that older Black people experienced less psychological distress than their White counterparts. This was attributed to the resilience they developed by facing and overcoming adversities throughout their lives, many of which were the result of racism, discrimination, and unequal access to resources (Bui et al., 2020). This is consistent with pre-pandemic research that showed Black Americans experiencing significantly higher levels of depression than White older Americans (Barry et al., 2014). Additionally, according to Briere et al. (2023), older Canadians identifying as Asian or Pacific Islander was linked to a reduction in QoL.

In New Zealand, Lay-Yee et al. (2022) reported higher levels of loneliness in Māori compared to non-Māori. Māori are the Indigenous people of New Zealand and make up approximately 16.5% of the total population of New Zealand according to the 2018 New Zealand Census (Statistics New Zealand, 2018). Differences in loneliness between Māori and non-Māori were mostly attributed to a higher disadvantage resulting from the colonisation and alienation of Māori (Reid et al., 2019); and the unmet expectations of social connection brought on by the contradiction between traditional, collective and modern, individualistic values (Brougham & Haar, 2012). In contrast, Cheung et al.'s (2021) study of older adults which comprised of 538 Māori, 276 Pacifica and 11,322 New Zealand Europeans (Pākehā) found that Pākehā residents in aged residential care facilities reported higher levels of loneliness compared

to Māori and Pacific older adults and reported more severe depression. One reason for this may be cultural differences. For example, Māori culture places a strong emphasis on whānau (family) and community connections, which may provide a sense of social support and reduce feelings of loneliness. On the other hand, Pākehā may prioritise individualism and independence, which could lead to less emphasis on social connections and a greater likelihood of experiencing loneliness (Brougham & Haar, 2012). However, in Cheung et al.'s (2021) study, the sample sizes of Māori and Pacific people were underrepresented compared to Pākehā that were overrepresented; therefore, it is possible that the results are not generalisable. In addition, the Asian population (the third-largest ethnic group), was not represented in this study; to generalise these findings for New Zealand, Asian older adults should be included. Another research project conducted on behalf of the Auckland Council during the pandemic identified several challenges affecting the QoL of older Māori individuals. These challenges encompassed feelings of isolation stemming from a lack of recognition and active listening, financial instability, instances of mistreatment and abuse, and experiences of everyday racism. The study suggested that programs designed to assist isolated older Māori individuals could not only benefit their own QoL but also enhance the well-being of those who interact with them (Cram, 2022).

1.4.3 Socio-economic Status

A person's socioeconomic status (SES) is determined by their relative standing in the economic and social hierarchy as well as by objective measures of their access to resources (Duncan et al., 2002). Pre-pandemic research has shown older adult's economic standard of living was strongly associated with loneliness; that as a person's SES increases, the likelihood of experiencing loneliness decreases (Statistics New Zealand, 2013). In addition, the economic standard of living has a stronger correlation with loneliness in older people than in younger adults. The Statistics New Zealand (2013) report stated that older adults were more likely to experience loneliness during times of financial hardship than younger age groups experiencing comparable levels of financial hardship. Particularly for older adults, the risk of experiencing loneliness decreases when their economic standards of living. Living in communities that are low SES put older adults at risk of COVID-19 due to high housing density, restricted access to healthy foods, and inadequate healthcare. Additionally, low SES communities typically have fewer grocery stores and farmer's markets, resulting in less access to healthy foods (Story et al., 2008; Treuhaft & Karpyn, 2010). It is often that individuals who come from a low SES backgrounds have intersecting identities, which is likely to increase the burden and risk of

adverse mental health outcomes. Thus, the impact of SES on older adults during COVID-19 is discussed in conjunction with intersecting identities.

Researchers in a number of countries have found that the pandemic has had negative psychological effects on those with lower SES. For example, in the United States (Sams et al., 2021), older adults with lower SES and pre-existing health issues were found to be at greatest risk of psychological distress, and loneliness; the authors recommended those with fewer financial resources should receive special attention during this difficult period. A United Kingdom study also found that during the pandemic, economically vulnerable people were more isolated, experienced greater loneliness and poorer mental health (Jaspal & Breakwell, 2022). Similar results were found in studies from the Middle East (Alhalaseh et al., 2022), Parkistan (Flesia et al., 2023) and Singapore (Tadai et al., 2023). Even one's perception of relationships can be adversely affected by low SES. For example, a Hong Kong study, showed that low SES significantly contributed to negative judgments of family connections, mental health, and family income during the pandemic (Wong et al., 2021). However, Tadai et al. (2023) concluded that higher SES did not necessarily result in higher psychological wellbeing, rather, their higher resilience may be a result of access to resources which SES affords and facilitates. Conversely, another England study found that those from high SES reported a steep decline in quality of life and rise in loneliness (Zaninotto et al., 2022). This was attributed to the notion that those with a higher SES felt more affected by the discontinuation of social and cultural events as a result of social restrictions, than those in lower SES groups.

In New Zealand, Mental Health and Wellbeing Commission (2021) reported that communities that were already struggling before the pandemic, (for example, Māori and Pacific communities), experienced increased anxiety and depression as a result of socioeconomic hardship during the pandemic. Research shows that poor housing conditions have led to overcrowding and reduced sanitisation, both of which increase the likelihood of COVID-19 transmission (Rollston & Galea, 2020). In addition, the high cost of housing keeps families in a cycle of poverty, as they are unable to afford other fundamental necessities, such as nutritious food, medical care, and education, due to insufficient income (Habitat for Humanity New Zealand, 2019). Additionally, the lack of food choices was exacerbated by the pandemic as the government placed limitations on grocery shopping and food shortages drastically decreased. For example, Richmond (2021) reported that the national shortage or unavailability of certain foods due to panic buying or food chain disruptions made it difficult to acquire certain foods including essential items, which significantly contributed to older adults elevated anxiety levels. Lastly, a Ministry of Health (2022b) analysis revealed that the Māori and Pacific populations

had a 2.0 and 2.5 times greater risk of COVID-19 illness or mortality than New Zealand European and other ethnic groups. Low SES, discrimination and language barriers have all contributed to the increased health vulnerability of these groups. In addition, Wiki et al.'s (2020) study emphasised how older people in rural communities were more vulnerable to COVID-19 because of poor healthcare systems and inadequate resources. Furthermore, according to Allen et al. (2021c), greater loneliness and other mental health issues observed in some older New Zealanders were associated with low SES, unemployment, home ownership or renting, and rural-urban inequalities. This is also consistent with previous research (Morrison, 2017; Wright-St Clair et al., 2017). Therefore, with all these predictors of low SES, it is not surprising that those who reside in such communities experienced greater psychological distress during the pandemic.

Research highlights the important role that SES plays in older adults' wellbeing; for example, increased loneliness may be a result of limited resources. Lockdowns and social isolation made it difficult for older adults to keep in touch with friends and family. Instead, they relied exclusively on virtual means of communication. Before the pandemic, the use of computers and the internet had become ubiquitous due to the many cognitive and psychosocial benefits associated with it (Yoon et al., 2018). During the pandemic, especially at its onset, it became a new way of social interaction. However, the significant socioeconomic divide in who has access to such technology meant that such benefits are not available to all older populations. As owning technological devices such as laptops, desktop computers and tablets is a precursor to their use, individuals of lower SES, are less likely to be able to afford them. As found in Yoon et al.'s (2018) study that older people from low-income backgrounds had low trends of technology utilisation. In addition, that older adults from low SES had less opportunity to learn how to utilise technology, which would have made it difficult to keep in touch with family and friends in times of social isolation; thereby increasing loneliness. Overall, various international and New Zealand research show that the COVID-19 pandemic has exacerbated experiences in low SES communities. The predictors of low SES are universal and place older adults with poor housing conditions, low income, limited access to nutritious foods and adequate healthcare at increased risk of psychological distress.

1.4.4 Employment

A person's SES and financial wellbeing are frequently reliant on their ability to maintain employment, losing a job frequently results in a decline in psychological wellbeing (and self-

confidence) (Panchal et al., 2021). Gaggero et al. (2022) conducted a study with a total sample size of 36,115 older adults and found that job loss was the strongest predictor of underlying psychological wellbeing issues during the pandemic. In this United Kingdom study, 22% were in paid work, 67% had retired, and 11% either unemployed or in self-employment. In addition, the study discovered that retired people had the second-worst mental health outcomes, despite the fact that they were typically in a more secure financial position during the pandemic. Finally, it showed that older women had experienced greater depression (18% more) than older men. This was attributed to women being more likely to take on unpaid responsibilities which can provoke increased stress (Gaggero et al., 2022). For example, Alpass et al. (2017), reported that unpaid work is common among older adults, as they provide care for family members including children, grandchildren, spouses, parents, and other relatives. Other international studies reported similar findings that the those who were unemployed during the pandemic reported higher levels of psychological distress (Banks & Xu, 2020; Foremny et al., 2020; Levy & Cohen-Louck, 2021). These findings are consistent with New Zealand studies; according to Allen et al. (2022c), older age and paid employment were associated with better mental health in the early months of the pandemic, while being a caregiver and having a mortgage or rental housing tenure were associated with poorer mental health. Older New Zealanders who lost their jobs, cared for an elderly, or disabled relative during the initial lockdown in 2020 reported the highest levels of distress (Allen et al., 2022a; Stephens & Breheny, 2021). However, Levy and Cohen-Louck (2021) also reported that older adults, who may already have a pension and higher economic security, may be less vulnerable to the direct effects, (for example, unemployment), of COVID-19. Moreover, a study from Australia revealed a significant connection between employment status (and income levels) in older adults and poorer mental health, particularly among those with lower SES (Sperandei et al., 2021). This underscores the complex relationship between psychological well-being, employment status, and SES.

1.4.5 Location

In rural areas, where distance to neighbours is frequently greater and social interaction opportunities may be scarcer, health outcomes on a variety of measures are worse. Additionally, social isolation presents special difficulties in rural areas due to transportation issues, limited access to broadband Internet, and other practical barriers to fostering relationships between those who live farther apart (Smith et al., 2019). Research on the impact of the pandemic on those who live in rural/urban areas is limited. According to the aforementioned study by Li et

al., 2022, psychological distress among older people living in communities in rural China increased significantly compared to before the pandemic, particularly among those who went from not being socially isolated before the pandemic to being isolated during the pandemic. Similar to this, a study conducted in the United States found that the COVID-19 pandemic has had a significant negative impact on overall mental health (and unemployment) in rural populations, affecting people of all ages, ethnicities, and genders (Mueller et al., 2020). These were attributed to the vulnerabilities of rural areas, such as worse access to hospitals, more fragile labour markets, and higher levels of material hardship in comparison to urban areas. Likewise, in New Zealand, Allen et al. (2022c) found that among other socio-demographic factors, rural-urban inequality was associated with worse mental (and physical) health, more depressive symptoms, and greater loneliness in Māori and non-Māori participants. However, as was already mentioned, there was little evidence that these had altered after the initial pandemic response period. On the other hand, a study conducted in the United States that aimed to determine differences in older adults' mental health and social wellbeing in the early months of the COVID-19 pandemic by location (rural vs. urban) found no differences (Smith et al., 2022). This was attributed to the diversity of older adults and the value of research that reveals complexity beyond straightforward rural/urban dichotomies.

In conclusion, the data presented in this section clearly demonstrate that older adults cannot be considered as a homogeneous group; instead, their distinct social and practical circumstances play a pivotal role. The observed variances in the psychological wellbeing data may find their explanations in demographic factors like gender, ethnicity, and socio-economic status. Hence, it becomes imperative to consider these factors to gain a comprehensive understanding of the differential experiences of older adults during the pandemic.

1.5 Justification for this Research

There is little empirical research on how older adults have fared during the third year of the pandemic and identifying the longer term impact on their psychological wellbeing. Early indications suggest that after three years of pandemic living, older adults have begun to experience a decline in social isolation, loneliness, and lack of social contact (Kullgren et al., 2023). In contrast, a New Zealand study of 1,150 older Chinese adults reported that during the third year of the COVID-19 pandemic, 42% experienced depression, 36% anxiety and 76% loneliness (Yeung et al., 2022). This is much higher than previous studies on the general

population of older New Zealanders. The first year of the COVID-19 pandemic appears to have highlighted pre-existing inequalities and vulnerabilities among older adults; the second indicates these were exacerbated; but how are older adults faring in the third year? The long-term impact is still largely unknown. New Zealand's Protection Framework's 'Traffic Light' strategy implemented in 2022 was distinct from the Alert Level System utilised in 2020 and 2021. This strategy transitioned from preventative measures such as lockdowns and towards relying more on pharmacological interventions such as vaccinations (New Zealand Government, 2022). What impact has this response, and the overall pandemic had on the population of older New Zealanders? Understanding this is essential in order to manage any detrimental long-term psychological impacts in the aftermath, especially for individuals identified to be at risk due to socio-demographic factors.

1.5.1 Aim of Study

The aim of this study is to assess the impact of the COVID-19 pandemic and its response on indicators of psychological wellbeing among older New Zealanders in the later phase of the pandemic, namely: 1) loneliness, 2) psychological distress (depression and anxiety), 3) mental health, and 4) quality of life. This study will compare 2020, 2021, and 2022 data to characterise changes in psychological wellbeing across the duration of the pandemic. A better understanding of older adults' needs can help improve psychological wellbeing in future pandemics or national disasters. The intention is to raise awareness about the psychological impact of the prolonged exposure to the COVID-19 pandemic and its responses; in order to better support the older-adult community and associated health sectors in the aftermath. The advantage of comparing the changes in psychological wellbeing over a period of three years is that it allows the capturing of potentially significant shifts that might have otherwise gone undetected. To the best of our knowledge, there are no studies investigating the longitudinal effects of the pandemic on older adults' psychological wellbeing in New Zealand. Moreover, considering that older adults form a diverse and non-homogeneous group, this study seeks to investigate the socio-demographic disparities in psychological wellbeing outcomes. By doing so, it aims to identify predictors and risk factors within this population. The significance of this research is underscored by the disproportionate impact of COVID-19 on certain populations. By pinpointing areas of inequality, it provides valuable insights into the potential adjustments that can be made during or after a national disaster to address these disparities.

1.5.2 Research Questions

Based on the existing literature examining the short to mid-term effects of COVID-19 and the limited research on its longer-term impacts, this study does not propose a specific hypothesis. Instead, it employs research questions to direct the investigation and ascertain whether there will be significant changes in the psychological wellbeing of older New Zealanders after enduring three years of the pandemic. Furthermore, the study acknowledges the influence of socio-demographic characteristics, such as age, gender, ethnicity, and SES, which have been found to be associated with the psychological wellbeing of older adults. These factors are taken into consideration in this research.

The research questions of this study include:

(1) Do older New Zealanders report a change in indicators of Loneliness, Anxiety, Depression, Mental Health, and Quality of Life across 3 years of the pandemic?

(2) Are Age, Gender, Ethnicity, SES, Employment, and Location related to Loneliness, Anxiety, Depression, Mental Health, and Quality of Life in 2022?

(3) Do older New Zealanders report a change in indicators of loneliness, anxiety, depression, mental health, and quality of life across 3 years of the pandemic when controlling for significant socio-demographic factors?

2. Chapter II - Methods

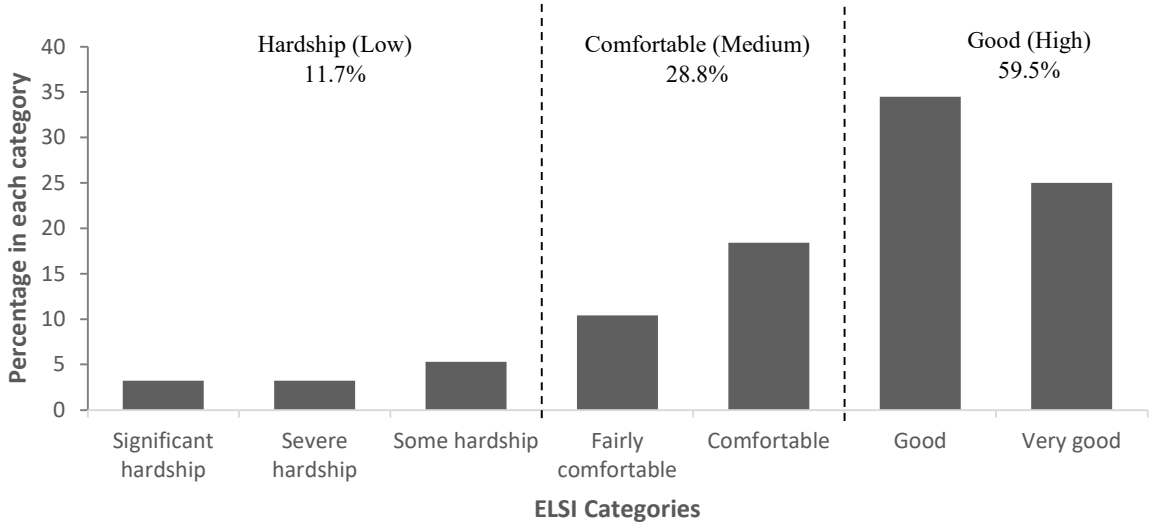
2.1 Participants

The first and third research questions and hypotheses were tested with a sample of *N* = 3,401 (*n* = 1,013 Māori). Participants were included in this sample if they responded to all three surveys (2022, 2021 and 2020). This was 52.7% of the full 2022 sample. Within this cohort, the ages ranged between 56–93 years (*M* = 69.13, standard deviation (*SD*) = 7.1). Of this, 56.9% were female, and 43.1% were male. The sample included 63.6% New Zealand Europeans, 30.3% Māori, 8% Pasifika, 1.0% Asian, and 4.2% from other ethnic backgrounds.

The second research question was tested using the full 2022 sample of *N* = 6,454 (*n* = 1,963 Māori). *N* = 941 were excluded due to missing data. The participants' ages ranged between 53–93 years (*M* = 66.22, *SD* = 7.2). Within this sample, 56.7% were female, and 43.3% were male. Of this, 56.9% were New Zealand Europeans, 36.2% Māori, 1% Pasifika, 1.2% were Asian, and 4.6% from other ethnic backgrounds. Geographically, 55.8% reported living in urban areas, while 44.2% lived in rural areas. The overall sample included 57.4% in paid employment and 42.6% in unpaid employment. Regarding SES, see Figure 1 below; responses indicate that most older New Zealanders were within the mid to high SES range in 2022.

Figure 1

Socio-economic status of older New Zealanders in 2022 (n = 5,358)



2.2 Measures

Psychological wellbeing indicators (outcome variables)

2.2.1 Loneliness

Loneliness was measured using the de Jong Gierveld Loneliness Scale (Gierveld & Tilburg, 2006). The instrument presents six statements answered on a three-point Likert scale (1=yes, 2=more or less, 3=no) reflecting experiences of loneliness. Items were recoded to provide a binary item score (the answer "more or less" always indicates loneliness) and summed. A score of 0 indicated the absence of loneliness. A score of 6 indicated extreme loneliness. Scores ≥ 2 were considered to indicate loneliness (reported as sample %). Studies by Rodríguez-Blázquez et al. (2021) and Wong et al. (2022) confirmed the validity and reliability of this scale. The Cronbach's alpha coefficient in the present study of .75 indicated acceptable internal consistency.

2.2.2 Depression

The 10-item Center for Epidemiologic Studies Depression Scale (CES-D10: Andresen et al., 1994) was used to measure depression. The scale presents ten symptoms of depression on a Likert scale (0 = Rarely or None of the Time, 1 = Some or Little of the Time, 2 = Moderately or Much of the time, 3 = Most or Almost All the Time) indicating the frequency with which the respondent experienced each item in the past seven days. Items were recoded and totalled so that higher scores indicated greater frequency of depression symptoms (range 1- 30). Scores ≥ 10 are considered to indicate clinically significant symptoms of depression (Allen et al., 2022c). This measure has shown good psychometric properties and has been validated in studies by Lewinsohn et al. (1997) and Pinquart & Sorensen, (2006). The Cronbach's alpha in the present study of .85 indicated very good internal consistency.

2.2.3 Anxiety

Anxiety was measured using the General Anxiety Inventory (GAI) which was designed specifically for older adults (Pachana et al., 2007). The GAI presents five statements on a Likert scale that are intended to measure the severity of anxiety symptoms. Each statement was rated according to the degree of agreement or disagreement by the respondents (1=agree, 0=disagree).

Items are totalled so that higher scores indicated greater experiences of anxiety (range 0-5). For optimal diagnosis of DSM Generalized Anxiety Disorder (GAD), a score of ≥ 3 was required (Byrne & Pachana, 2011). According to Byrne and Pachana (2011), the GAI scale has good internal consistency, with a Cronbach's alpha coefficient reported of .81. Other studies have reported similar findings, for example, Rozzini et al. (2009), Byrne et al. (2010), and Matheson et al. (2012). In the current study, the Cronbach's alpha coefficient was .84.

2.2.4 Mental health

Mental health was assessed using The Short Form Health Survey (SF-12; Ware et al., 2002). Data from the New Zealand Health Survey was used to norm the scores to the Aotearoa New Zealand population (Frieling et al., 2013). Mental health component scores were transformed into a single mental functioning score, resulting in a continuous scale ranging from 0 = low functioning to 100 = high functioning, where 50 corresponds with the population mean (*SD* = 10). Higher scores indicate better mental health. The internal consistency of the scale has been confirmed in previous research (e.g., Gill et al., 2007; Stephens et al., 2020).

2.2.5 Quality of life

Quality of life across the three waves was measured using the World Health Organisation Quality of Life measure, the WHOQOL-BREF (The WHOQOL Group, 1998). The WHOQoL-8 is a single item "…rate your quality of life" using a five-point response scale from 1 = very poor, to 5 = very good, with a higher score indicating a better quality of life.

The CASP-12 (Control, Autonomy, Self-realisation, Pleasure) scale also measured quality of life during the third year. It is a subjective instrument that evaluates a wide range of life domains (Wiggins et al., 2008). This scale presents 12 items on a Likert scale (3 = Often, 2 = Sometimes, 1 = Not often, 0 = Never) with scores ranging from 0 – 36; a higher score indicates a better quality of life. CASP-12 has been utilised in studies conducted in North and South America, Africa and Portugal (Hyde et al., 2015; Rodríguez-Blázquez et al., 2020). The Cronbach's alpha in the present study of .87, indicated very good internal consistency.

2.2.6 Socio-demographic Factors (Controlled Variables)

Age, gender, self-reported ethnicity(s) were assessed. The 2022 survey also asked about older New Zealanders' personal circumstances, which may influence their psychological wellbeing, such as SES, employment status and location. Responses for employment were categorised as "paid employment fulltime; paid employment parttime; unemployed/retired; and unpaid other". Responses for location were categorised as "rural; urban; and unknown". SES was determined using the multidimensional Economic Living Standards Index (ELSI) (Jensen et al., 2005) which presents 25 items that measures the degree to which respondents are constrained in their ability to own household items, constrained in their ability to participate in social activities, economised to reduce living expenses, and are satisfied with their own standard of living. Scores range from 0-31, with higher scores indicating higher SES. Were divided into seven categories (based on MSD [2005] categorisations) and then subdivided into three: "hardship (low); comfortable (medium); and good (high)". The reliability of this self-reported assessment has been attested to in other New Zealand studies (e.g., Foulds et al., 2014; Carver & Grimes, 2016). In the current study, the Cronbach's alpha coefficient was .82, indicated very good internal consistency.

2.3 Procedure

The data were collected as part of the Health, Work and Retirement (HWR) study, which was initiated in 2006 to investigate the effects of ageing in Aotearoa New Zealand. Data from three waves (2020, 2021 and 2022) of the longitudinal survey were used in this study. Random samples from the national electoral roll were used to select survey participants in the following years: 2006 (age range: 55-70, born between 1936 and 1952); 2009 (age range: 49-89, born between 1920 and 1960); 2014 (age range: 55-65, born between 1949 and 1959); 2016 (age range: 55-65, born between 1951 and 1960); 2018 (age range: 55-57, born between 1961 and 1963); 2020 (age range: 55-65, born between 1954 and 1965); and 2021 (age range: 53-93, born between 1929 and1969). Since then, new cohorts of participants have been recruited to ensure younger adults are adequately represented as older cohorts are replaced, and to mitigate the effects of attrition on the study's estimates. Cohorts of participants include approximately 97.6% of eligible older adults on the New Zealand electoral roll. The 2022 data is from participants who were already existing within the study, as well as a refresh cohort which was recruited from the electoral roll. Sampled adults were sent a postal survey on 12 September 2022.

Standard survey interval is every two years, but surveys have also been carried out in off-wave years, such as, in 2021. The 2022 survey was used to assess the long-term effects of the COVID-19 pandemic and response. Data collected in 2020 and 2021 were used to examine levels and rates of change in indices of psychological wellbeing. The HWR surveys, technical reports and related materials are available on the HART website (https://hart.massey.ac.nz). Ethical approval was granted by the Massey University Human Research Ethics Committee, Southern A Application – 22/23; Health, Work and Retirement Study 2022.

2.4 Data Analysis

All analyses were conducted using the software SPSS. All data were verified and cleaned prior to analysis. The preliminary analysis of normality indicated the data was not normally distributed, with the Shapiro Wilk and Kolmogorov-Smirnov both $p = <.001$ (based on an alpha value of .05). Thus, non-parametric statistics were used where relevant where relevant. Cronbach's alpha was used to calculate internal consistency of scales. The socio-demographic variables (Age, Gender, Ethnicity, SES, Employment, and Location) were characterised using descriptive statistics.

Repeated measures analysis of variance (ANOVA) with within-subject factors were conducted to determine whether significant differences exist in psychological wellbeing indicators (Loneliness, Depression, Anxiety, Mental Health, and Quality of Life) in the third year of the pandemic (2022) when compared to the first two years (2020-2021). In addition, the Friedman's test, a non-parametric alternative to ANOVA, was used to assess the robustness of the ANOVA results given the non-normal distribution of the data. The consistency between the results obtained from Friedman's test and the ANOVA strengthens the validity of the findings and provides evidence that any deviations from normality did not significantly impact the overall conclusions. The addition of Friedman's test as a robustness check reinforced the confidence in the results obtained from the ANOVA analyses.

Determining how socio-demographic factors relate to differences in experiences of psychological wellbeing was done in two parts, part one: a Spearman's rho correlation analysis was conducted and measured the strength of association between these variables. These were examined using the Bonferroni adjustment to account for multiple comparisons based on an alpha value of .05. The Cohen's (1998) standard was used to evaluate the strength of the relationship. Part two: direct regression analyses were conducted to determine which socio-

demographic factors predicted the likelihood that respondents would report Loneliness, Depression, Anxiety, overall Mental Health and Quality Of Life in 2022. These analyses controlled for the inter-relationships between independent variables. All scale scores underwent binary recoding, wherein the following constructs were dichotomised: Loneliness (lonely [3-6] and not lonely [0-2]), Depression (depressed [11-30] and not depressed [0-10]), Anxiety (anxious [2-5] and not anxious [0-1]), Mental Health (good mental health [50-100] and not good mental health [0-49]), CASP-QoL (good quality of life [18-36] and not good quality of life [0-17]), and SES (high SES [15.5-31] and low SES [0-15.4]). In these analyses psychological wellbeing indicators were the dependent variables, and socio-demographic factors were the independent variables. The assumption of absence of multicollinearity was examined in each analysis as shown in Table 1. According to Menard (2009), variance inflation factors (VIF) greater than 5 should be viewed as a cause for concern. However, in the regression models used in this study, all predictors exhibited VIFs less than 5, indicating the absence of multicollinearity among the predictors.

Table 1

Variance Inflation Factors for Socio-demographic Variables

	Loneliness	Depression	Anxiety	Mental Health	CASP-QoL
Age	1.35	1.36	1.32	1.39	1.27
Gender	1.01	1.01	1.01	1.01	1.01
Ethnicity	1.03	1.02	1.04	1.02	1.06
Employment	1.34	1.33	1.31	1.38	1.22
Location	1.00	1.00	1.00	1.00	1.00
SES	1.04	1.02	1.05	1.02	1.07

Finally, a series of repeated measures Analysis of Covariance (ANCOVA) tests were conducted to determine whether older New Zealanders reported a change in indicators of Loneliness, Anxiety, Depression, Mental Health, and Quality of Life across 3 years of the pandemic when controlling for significant socio-demographic factors. Only those who participated in the longitudinal survey were used. Mauchly's test was used to assess the assumption of sphericity, the results showed that the variances of difference scores between repeated measurements were significantly different from one another, indicating the sphericity assumption was violated. The p-values for the within-subjects factor and the interactions with the within-subjects factor were calculated using the Greenhouse-Geisser (1959) correction to adjust for the violation of the sphericity assumption.

3. Chapter III - Results

3.1 Descriptive Statistics

A summary of the mean responses for each scale in the 2022 wave is provided in Table 2. These findings indicate that participants reported low levels of loneliness, depression, and anxiety. The mental health average was slightly below the population mean of 50 but can be considered to be within mid-range which is in line with the population norm (Frieling et al., 2013). Quality of life mean scores for both scales were within the high range, indicating that, on average, a good quality of life was experienced during 2022. Approximately 73.5% reported no loneliness symptoms, 19% reported moderate range loneliness symptoms and 7.5% extreme range loneliness symptoms. About 80.5% reported no symptoms of depression, 17.8% reported moderate range symptoms and 1.6% extreme range. Approximately 78.0% of respondents reported no anxiety symptoms, 13.1% reported moderate range and 8.8% extreme range. Within mental health, 42.9% reported within the low to mid-range and 57.1% mid to high range. Lastly, about 7.3% reported within the low to mid-range of CASP-12 and 92.71% within the mid to high range; 4.8% reported in the low range of WHO-QoL, while 95.2% reported in the mid to high range during 2022.

Table 2

Descriptives Statistics of Psychological wellbeing Scales in 2022

	M	*SD*	Range			
Negative psychological wellbeing variables				Absence range	Moderate range	Extreme range
Loneliness	1.56	1.68	0 – 6	0 – 2	3 – 4	5 – 6
Depression	6.48	5.07	0 – 30	0 – 10	11 – 20	21 – 30
Anxiety	.81	1.45	0 – 5	0 – 1	2 – 3	4 – 5
Positive psychological wellbeing variables				Low range	Mid-range	High range
Mental health	49.18	10.44	0 – 100	0	50	100
Quality of life (CASP-QoL)	28.28	5.72	0 – 36	0	18	36
Quality of life (WHO-QoL)	4.22	.85	1 – 5	1 – 2	3	4 – 5
Socio-demographic variable				Low range	Mid-range	High range
Socio-economic status (ELSI)	24.07	6.20	0 – 31	0	15.5	31

3.2 Question 1. Changes across three years

To address the first research question, a summary of the changes in mean scores across the three waves is depicted in Figure 2. The 2020 wave showed the highest means of positive psychological wellbeing indicators and the 2021 wave showed the highest means of negative psychological wellbeing indicators; however, these decreased in 2022. Table 3 shows the percentages of how participants rated their QoL across the three waves. The category "very good" was reported the most frequently, followed by "good," while "poor" quality of life was reported by less than one percent of participants across all three waves.

Figure 2

Differences in Mean Scores Between 2020, 2021 and 2022 (N = 3,401)

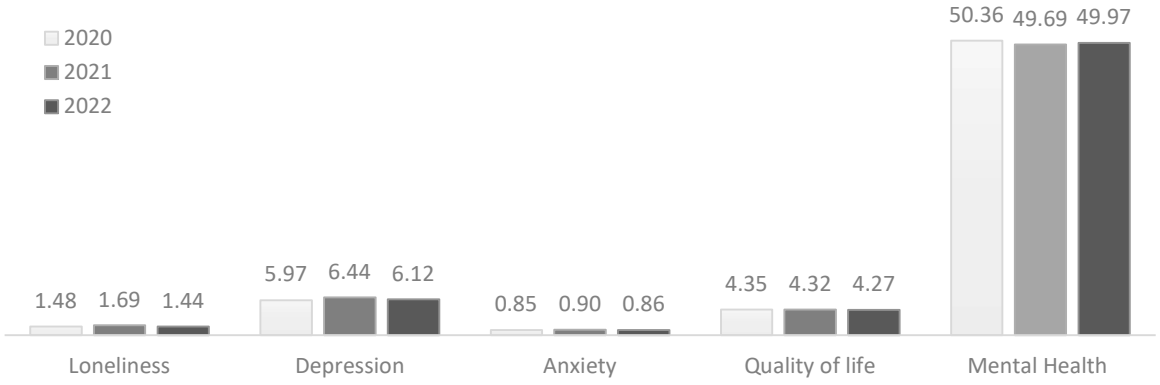


Table 3

Frequency and Percentage of How Older New Zealanders Rated Quality of Life

	WHO-QoL 2020 survey		WHO-QoL 2021 survey		WHO-QoL 2022 survey	
	n	*%*	*n*	*%*	*n*	*%*
Very poor	7	0.2	7	0.2	21	0.6
Poor	56	1.7	66	1.9	115	3.4
Neither good nor poor	244	7.2	297	8.8	351	10
Good	1499	44	1487	44	1360	40
Very good	1571	47	1529	45	1550	46

The mean differences observed across the three time points captures the changes in scores of psychological wellbeing indicators. To investigate the significance of these variations, one-way repeated measures analysis of variance (ANOVA) were conducted. Significant differences across the three time points included: Loneliness (Wilks' Lambda = .96, $F(2, 3{,}296) = 65.89$, $p < .001$, multivariate partial eta squared =.04), Depression (Wilks' Lambda = .99, $F(2, 3{,}312) = 24.77$, $p < .001$, multivariate partial eta squared =.02), Mental Health (Wilks' Lambda = .99, $F(2, 2{,}779) = 9.51$, $p < .001$, multivariate partial eta squared = .01) and WHO-QoL (Wilks' Lambda = .98, $F(2, 3{,}357) = 26.56$, $p < .001$, multivariate partial eta squared =.02). Conversely, the main effect for Anxiety was not significant, indicating that anxiety scores remained consistent across the three time points.

Post-hoc tests, employing the Bonferroni correction for multiple tests, were conducted to investigate pairwise differences. Table 4 presents the marginal means contrasts for the repeated measures ANOVA. These analyses revealed significant differences in Loneliness, Depression, and Mental Health scores between the years 2020 and 2021, as well as between 2021 and 2022. However, no significant difference was found between the scores of 2020 and 2022. The Quality of Life scores exhibited significant differences between 2020 and 2021, 2020 and 2022, and 2021 and 2022. Overall, the analysis of the mean values revealed that with the exception of Anxiety, the scores were comparatively worse in 2021 and showed improvement in 2022. Quality of Life scores, however, displayed a downward trend over time.

Table 4

The Marginal Means Contrasts for Each Combination of Within Subject Variables

Contrast	Difference	*SE*	*p*
LONE_total20 - LONE_total21	-.20	.02	< .001
LONE_total20 - LONE_total22	.04	.02	.21
LONE_total21 - LONE_total22	0.25	.02	< .001
CESD_total20 - CESD_total21	-.44	.06	< .001
CESD_total20 - CESD_total22	-.14	.07	.09
CESD_total21 - CESD_total22	.30	.06	< .001
GAI_total20 - GAI_total21	-.05	.02	0.09
GAI_total20 - GAI_total22	.00	.02	1.00
GAI_total21 - GAI_total22	.04	.02	.12
SF12MCS_total20 - SF12MCS_total21	.70	.16	< .001
SF12MCS_total20 - SF12MCS_total22	.30	.17	.20
SF12MCS_total21 - SF12MCS_total22	-.40	.16	< .05
WHO-QoL_total20 – WHO-QoL_total21	.04	.01	< .05
WHO-QoL_total20 – WHO-QoL_total22	.09	.01	<.001
WHO-QoL_total21 – WHO-QoL_total22	.05	.01	<.001

3.3 Question 2. Relationships Between Wellbeing and Demographic Factors

3.3.1 Part One: Bivariate Relationships

The second research question was addressed in two parts. First, Spearman's rho correlation analysis was conducted to see if there were statistically significant relationships between socio-demographic variables and psychological wellbeing variables in 2022 (see Table 5). Age demonstrated weak negative correlations with loneliness, depression, and anxiety, while displaying a weak positive correlation with mental health. Gender exhibited weak negative correlations with loneliness and mental health, and weak positive correlations with depression, anxiety, and WHO-QoL. Ethnicity displayed weak negative correlations with loneliness, depression, and anxiety, while displaying weak positive correlations with mental health, CASP-QoL, and WHO-QoL. Employment had weak negative correlations with CASP-QoL and WHO-QoL, while displaying weak positive correlations with loneliness, depression, and anxiety. Location demonstrated weak negative correlations with loneliness, depression, and anxiety, while demonstrating weak positive correlations with mental health and WHO-QoL. Overall, these findings indicate that age, gender, ethnicity, employment, and location are associated with various dimensions of psychological wellbeing, albeit weakly.

SES exhibited a weak negative correlation with anxiety and a moderate negative correlation with loneliness and depression, indicating that higher SES levels were associated with lower levels of anxiety, loneliness and depression. A moderate positive correlation was observed between SES and mental health. Among the demographic variables, SES was the sole factor demonstrating a strong correlation with both CASP-QoL and WHO-QoL. These findings indicate that higher SES is strongly associated with greater levels of quality of life.

Table 5

Correlations Between Socio-Demographic Factors and Psychological wellbeing Indicators in 2022

	1		2		3		4		5		6		7		8		9		10		11		12
1. Age	—																						
2. Ethnicity	.13	***	—																				
3. Gender	- .04	**	- .01		—																		
4. Employment	.49	***	.06	***	.06	***	—																
5. Location	.02		- .03		.01		.02		—														
6. SES	.10	***	.17	***	- .05	***	- .06	***	.00		—												
7. Loneliness	- .08	***	- .05	***	- .04	**	.03	*	- .04	**	- .36	***	—										
8. Depression	- .05	***	- .10	***	.05	***	.09	***	- .02		- .44	***	.50	***	—								
9. Anxiety	- .10	***	- .03	*	.09	***	.03	*	- .16	***	- .29	***	.36	***	.56	***	—						
10. Mental Health	.11	***	.09	***	- .07	***	- .03		.04	**	.36	***	- .41	***	- .70	***	- .50	***	—				
11. CASP-QOL	.01		.06	***	.00		- .09	***	.01		.55	***	- .51	***	- .72	***	- .47	***	.62	***	—		
12. WHO-QOL	.01		.11	***	.05	***	- .11	***	.04	*	.51	***	- .40	***	- .59	***	- .34	***	.53	***	.65	***	—

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

3.3.2 Part Two: Logistic Regressions

Direct logistic regression was employed to identify the socio-demographic category that best predicted Loneliness, Anxiety, Depression, Mental Health, and Quality of Life within this population. Each model contained one dependent variable (a wellbeing indictor) and six independent variables (Age, Gender, Ethnicity, Employment, Location, and SES).

The results for Loneliness were significant, $\chi^2(6, N = 4{,}349) = 294.78$, $p < .001$, indicating that the model was able to differentiate between those respondents who reported versus did not report loneliness. The model as a whole correctly classified 75.8% of cases. As shown in Table 6, the effect of Age was significant, indicating that as Age increased, the odds of Loneliness decreased by 3%. For the effect of Employment, the unpaid employment category increased the odds of Loneliness by approximately 24%. Living in a rural location decreased the odds of Loneliness by approximately 27%. Lastly, higher SES was associated with approximately 78% lower odds of Loneliness. Gender and ethnicity did not contribute significantly to the model, suggesting that they were unable to effectively differentiate between respondents who reported Loneliness and those who did not.

Table 6

Logistic Regression Predicting Likelihood of Reporting Loneliness

						Odds Ratio	95% C.I. for Odds Ratio	
	B	*S.E.*	Wald	*df*	*p*	(OR)	Lower	Upper
Age	**-.03**	.01	20.68	1	<.001	.97	.96	.98
Gender (female)	-.12	.07	2.86	1	.09	.88	.77	1.02
Ethnicity (non-Māori)	.09	.08	1.32	1	.25	1.09	.94	1.27
Employment (unpaid)	**.22**	.08	6.60	1	.01	1.24	1.05	1.47
Location (rural)	**-.32**	.08	16.56	1	<.001	.73	.62	.85
SES (high)	**-1.54**	.10	224.74	1	<.001	.22	.18	.26
Constant	**2.16**	.40	29.96	1	<.001	8.68		

Note. Bold indicates significance.

The Depression model, $\chi^2(6) = 521.16$, $p < .001$ correctly classified 81.0% of cases. As shown in Table 7, Age was significant, indicating a one year increase in Age decreased the odds of Depression by approximately 2%; the non-Māori category, rural location and high SES also decreased the odds by approximately 19%, 24% and 87% respectively. The unpaid employment category increased the odds of reporting Depression by approximately 86%. Gender did not make a significant contribution to this model.

Table 7

Logistic Regression Predicting Likelihood of Reporting Depression

							95% C.I. for OR	
	B	*S.E.*	Wald	*df*	*p*	OR	Lower	Upper
Age	**-.02**	.01	11.00	1	<.001	.98	.97	.99
Ethnicity (non-Māori)	**-.27**	.08	10.66	1	.001	.76	.65	.90
Gender (female)	.05	.08	.36	1	.55	1.05	.90	1.23
Employment (unpaid)	**.62**	.09	46.24	1	<.001	1.86	1.56	2.22
Location (rural)	**-.21**	.09	6.13	1	.01	.81	.68	.96
SES (high)	**-2.06**	.11	373.79	1	<.001	.13	.10	.16
Constant	**1.88**	.43	19.53	1	<.001	6.54		

The model for Anxiety, $\chi^2(6) = 195.39$, $p < .001$, correctly classified 83.5% of cases. As shown in Table 8, Age, Gender (being female) and Employment (unpaid) were significant predictors of Anxiety. High SES decreased the odds of Anxiety by approximately 71%.

Table 8

Logistic Regression Predicting Likelihood of Reporting Anxiety

							95% C.I. for OR	
	B	*S.E.*	Wald	*df*	*p*	OR	Lower	Upper
Age	**-.03**	.01	20.79	1	<.001	.97	.95	.98
Gender (female)	**.38**	.09	19.04	1	<.001	1.46	1.23	1.74
Ethnicity(non-Māori)	.06	.09	.52	1	.47	1.07	.90	1.27
Employment (unpaid)	**.30**	.10	9.38	1	.00	1.34	1.11	1.62
Location (rural)	-.09	.09	.89	1	.35	.92	.77	1.10
SES (high)	**-1.24**	.11	132.44	1	<.001	.29	.23	.36
Constant	1.26	.46	7.41	1	.007	3.51		

The model for Mental Health was significant, $\chi^2(6) = 283.25$, $p < .001$ and correctly classified 63.4% of cases. As shown in Table 8, for every one-unit increase in Age, the odds of reporting good Mental Health increased by approximately 3%. Likewise, the non-Māori category of Ethnicity increased the odds by approximately 24% and the rural category of Location by 20%. High SES increased the odds of good Mental Health by approximately 364% compared to low the SES category. Lower odds were observed in the female category of Gender by approximately 20% and the unpaid category of Employment by 20%.

Table 9

Logistic Regression Predicting Likelihood of Reporting Good Mental Health

							95% C.I. for OR	
	B	*S.E.*	Wald	*df*	*p*	OR	Lower	Upper
Age	**.02**	.01	18.68	1	<.001	1.03	1.01	1.04
Ethnicity (non-Māori)	**.22**	.07	9.75	1	.00	1.24	1.08	1.43
Gender (female)	**-.22**	.07	10.74	1	.00	.80	.71	.92
Employment (unpaid)	**-.22**	.08	7.99	1	.01	.80	.69	.93
Location (rural)	**.19**	.07	6.94	1	.01	1.20	1.05	1.38
SES (high)	**1.53**	.12	167.36	1	<.001	4.64	3.68	5.85
Constant	**-2.66**	.37	52.59	1	<.001	.07		

Finally, the CASP-QoL model was significant, $\chi^2(6) = 337.33$, $p < .001$ and correctly classified 93.1% of cases. The effect of the Age was significant, increasing the odds of good QoL by 4.25% per year and high SES increased odds by approximately 834%. The effect of unpaid employment lowered this by approximately 56.52%. The effect of Location, Gender and Ethnicity were not significant predictors of good QoL.

Table 10

Logistic Regression Predicting Likelihood of Reporting Good CASP-Qol

							95% C.I. for OR	
	B	*S.E.*	Wald	*df*	*p*	OR	Lower	Upper
Age	**.04**	.01	14.15	1	<.001	1.04	1.02	1.07
Ethnicity (non-Māori)	-.23	.14	2.85	1	.09	.79	.61	1.04
Gender (female)	.11	.13	.74	1	.39	1.12	.87	1.44
Employment (unpaid)	**-.83**	.14	34.69	1	<.001	.44	.33	.57
Location (rural)	.22	.14	2.38	1	0.12	1.24	.94	1.63
SES (high)	**2.24**	.14	274.14	1	<.001	9.34	7.17	12.17
Constant	**-1.39**	.69	4.10	1	.04	.25		

When the shared variance between the predictors was controlled for, only older Age and higher SES consistently exhibited a protective effect across all scales. Conversely, unpaid Employment was a risk factor in all scales. The influence of Gender, Ethnicity and Location displayed variations across the scales examined.

3.4 Question 3. Change Across 3 Years Controlling for Key Demographic Factors

To address the final research question, a series of repeated measures Analysis of Covariance (ANCOVA) tests was conducted. These analyses explored changes in psychological wellbeing indicators across three time points while controlling for the demographic factors significantly associated with wellbeing outcomes: Age, Employment and SES.

3.4.1 Loneliness

As shown in Table 11, the covariates, Age and SES were significantly related to Loneliness across three time points. Employment was not significantly related to Loneliness across Time. The significant interaction effect between Time and Age indicated that Loneliness across Time was not similar for all values of Age. The interaction effect between Time and SES indicated that Loneliness across Time differed significantly as the value of SES changed. Employment and Time did not have a significant interaction effect, indicating that Loneliness scores across time were similar between the levels of Employment.

Table 11

Repeated Measures ANCOVA Results – Loneliness (n=3,116)

	df	*SS*	*MS*	*F*	*p*	η_p^2
Between-Subjects						
Intercept	1	1752.09	1752.09	330.92	**<.001**	.10
Age	1	33.28	33.28	6.29	**.01**	.00
Employment	1	10.55	10.55	1.99	.16	.00
SES	1	3365.07	3365.07	635.56	**<.001**	.17
Within-Subjects						
Time	2	3.90	1.96	2.19	.11	.00
Time * Age	2	6.14	3.08	3.44	**.03**	.00
Time * Employment	2	.03	0.01	0.01	.99	.00
Time * SES	2	9.53	4.78	5.35	**.01**	.00

The post hoc tests (Table 12) revealed significant differences between specific years. LONE_total20 was lower than LONE_total21 but higher than LONE_22. Also, LONE_total21 was higher than LONE_total22, indicating it was greater than both 2020 and 2022.

Table 12

Mean Contrasts for Each Combination of Within-Subject Variables for Loneliness

	Mean Difference	Std. Error	*p*	95% CI Lower	95% CI Upper
LONE_total20 - LONE_total21	-.20	.02	**<.001**	-.25	-.14
LONE_total20 - LONE_total22	.06	.03	**.05**	.00	.12
LONE_total21 - LONE_total22	.26	.02	**<.001**	.20	.31

Examining the means showed how living standards (SES) and Age interacted with Loneliness across time. Figure 3 illustrates that those with lower SES in 2022 consistently experienced the highest levels of Loneliness across Time. By 2022, the gap between loneliness scores for those in hardship and those with good living standards had widened. Figure 4 shows that those younger in 2022 tended to report higher levels of Loneliness across Time. However, in 2021, all groups reported increased loneliness and the differences between the age groups was smaller.

Figure 3

Interaction Between SES and Loneliness

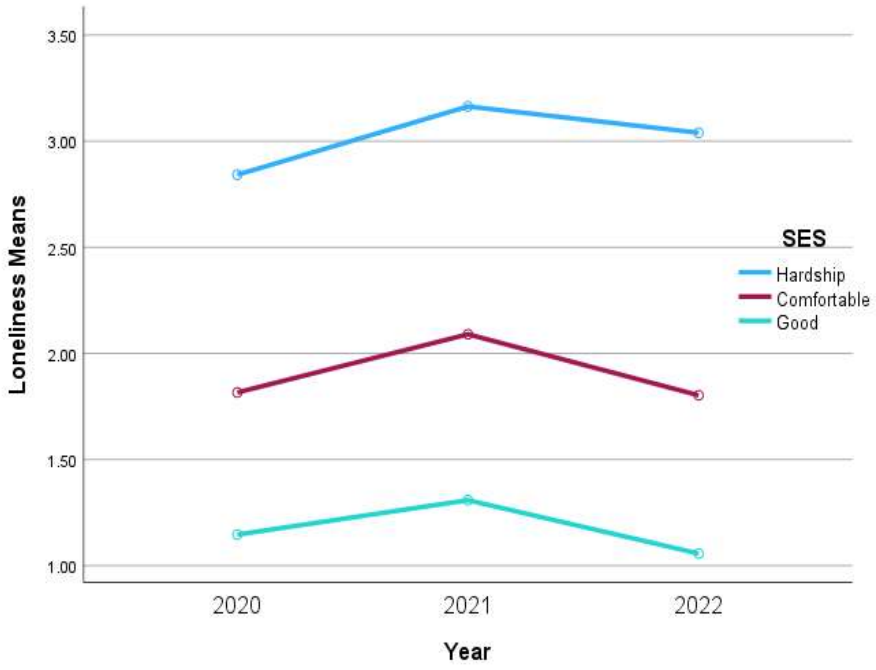
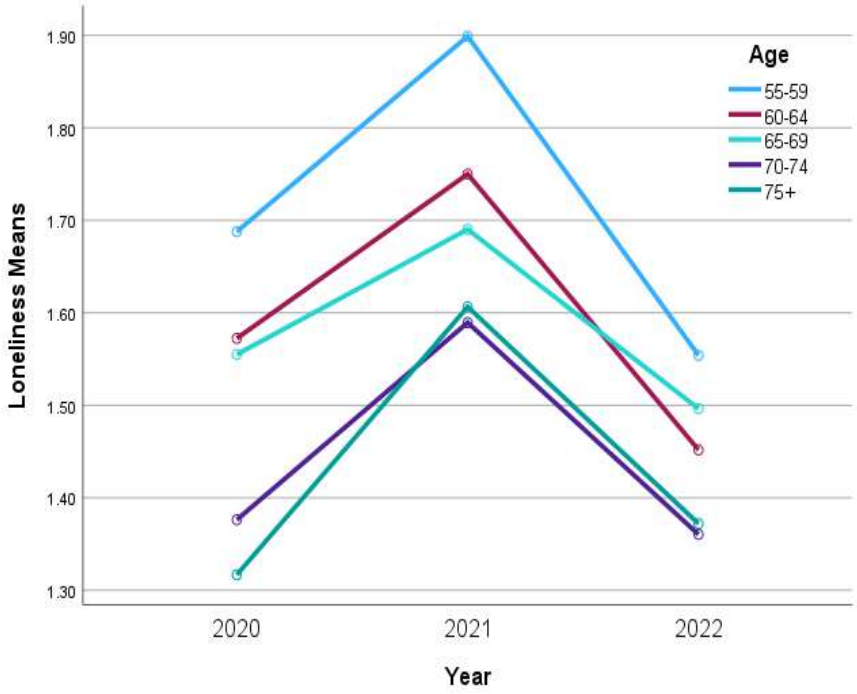


Figure 4

Interaction Between Age and Loneliness



3.4.2 Depression

As shown in Table 13, the covariates, Employment and SES were significantly related to Depression across three time points. Conversely, the covariate, Age was not significantly related to Depression across Time. The main effect for Time was not significant, Wilks Lambda .10, F (2, 3,116) = 1.62, p = .20, multivariate partial eta squared = .00, indicating the values of Depression across three years were all similar after controlling for Age, SES, and Employment.

The interaction effect between Time and Age was significant, indicating that the relationships between CESD_2020, CESD_2021, and CESD_2022 differed significantly as the value of Age changed. Likewise, for SES, indicating that the relationships between CESD_total20, CESD_total21, and CESD_total22 differed significantly as the value of SES changed. The interaction effect between Time and Employment was not significant, indicating that the relationships between CESD_total20, CESD_total21, and CESD_total22 were similar between the levels of Employment.

Table 13

Repeated Measures ANCOVA Results – Depression (n=3,121)

df	*SS*	*MS*	*F*	*p*	η_p^2

Between-Subjects						
Intercept	1	18,780.64	18,780.64	466.15	**<.001**	.13
Age	1	18.33	18.33	.46	.50	-
Employment	1	616.71	616.71	15.31	**<.001**	.01
SES	1	43,981.15	43,981.15	1,091.64	**<.001**	.26
Within-Subjects						
Time	2	22.08	11.06	1.63	.20	.00
Time * Age	2	82.62	41.40	6.09	**.00**	.00
Time * Employment	2	8.47	4.24	.62	.54	-
Time * SES	2	158.11	79.22	11.65	**<.001**	.00

The post hoc tests as shown in Table 14 indicated that CESD_2020 was significantly less than CESD_2021 and CESD_2021 was significantly greater than CESD_2022.

Table 14

Means Contrasts for Each Combination of Within-Subject Variables for Depression

	Mean Difference	Std. Error	*p*	95% CI Lower	Upper
CESD_total20 - CESD_total21	-.42*	.07	**<.001**	-.57	-.26
CESD_total20 - CESD_total22	-.11	.07	.27	-.28	.05
CESD_total21 - CESD_total22	.30*	.07	**<.001**	.15	.46

Figure 5 shows the interaction between standard of living and Depression. Those with lower SES in 2022 consistently experienced the highest levels of Depression across Time. By 2022, scores had worsened for those in hardship and the gap between those with good living standards had widened.

Figure 5

Interaction Between SES and Depression

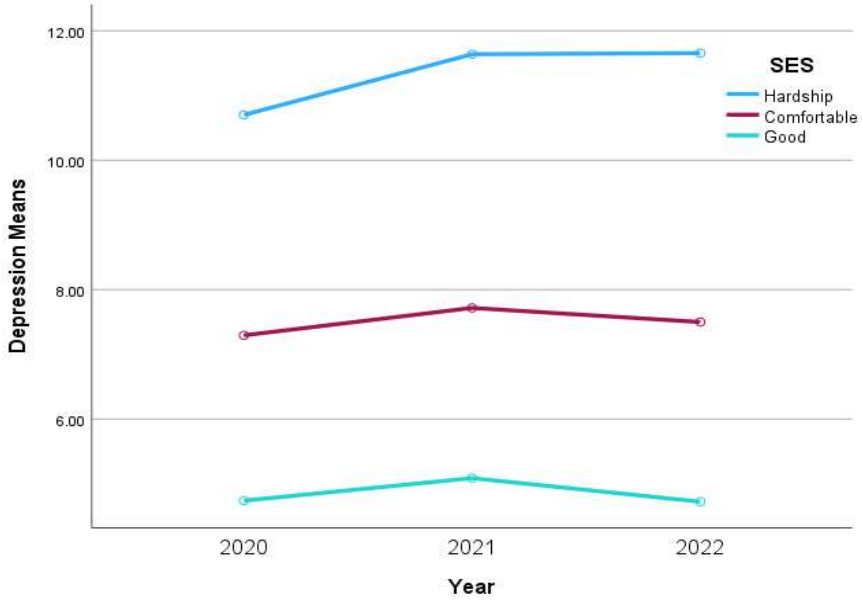
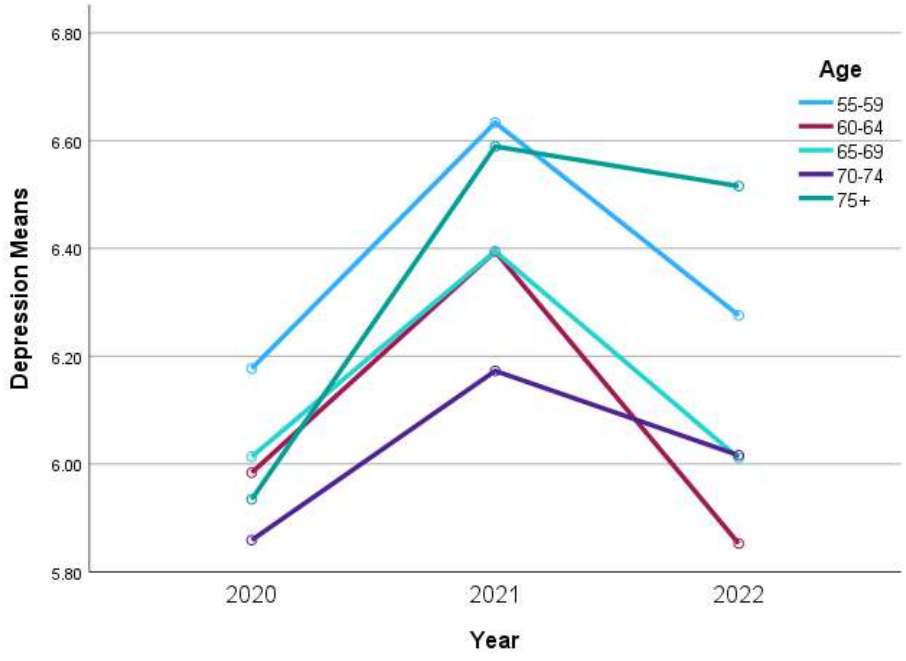


Figure 6 shows the interaction between Depression and Age across Time. Those aged 75+ did not report the same level of decrease in depression scores in 2022 as the other age groups.

Figure 6

Interaction Between Age and Depression



3.4.3 Anxiety

As shown in Table 15, all covariates were significantly related to Anxiety across Time. The main effect for Time was not significant, Wilks Lambda 1, F (2, 3,187) = .46, p = .63, multivariate partial eta squared = .00, indicating the values of Anxiety across three years were all similar after controlling for Age, SES, and Employment.

The interaction effects between the Time and Age and Time and Employment were not significant, indicating that the relationships between GAI_total20, GAI_total21, and GAI_total22 were similar for all values of Age and levels of Employment. Conversely, the interaction effect between Time and SES was significant, indicating that the relationships between GAI_total20, GAI_total21, and GAI_total22 differed significantly as the value of SES changed. The post hoc tests revealed no significant differences in scores over Time as shown in Table 16.

Table 15

Repeated Measures ANCOVA Results – Anxiety (n=3,192)

	df	*SS*	*MS*	*F*	*p*	η_p^2
Between-Subjects						
Intercept	1	1,077.37	1,077.37	251.89	**<.001**	.07
Age	1	89.96	89.96	21.03	**<.001**	.01
Employment	1	26.00	26.00	6.08	**0.01**	.00
SES	1	1,686.76	1,686.76	394.37	**<.001**	.11
Within-Subjects						
Time	2	0.74	0.37	0.49	0.61	-
Time * Age	2	3.29	1.66	2.20	0.11	.00
Time * Employment	2	0.19	0.10	0.13	0.88	-
Time * SES	2	5.73	2.89	3.83	**0.02**	.00

Table 16

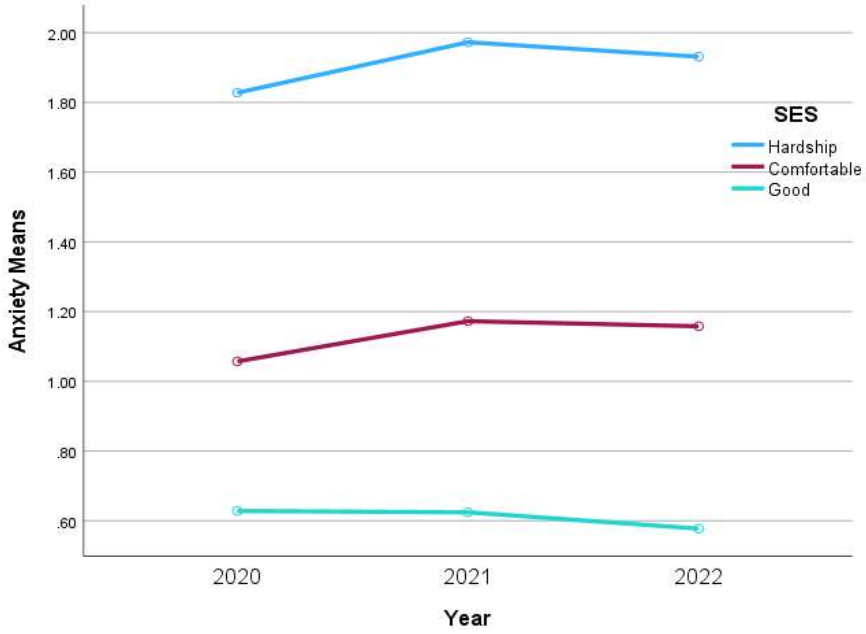
Marginal Means Contrasts for Each Combination of Within-Subject Variables for Anxiety

	Mean Difference	Std. Error	*p*	95% CI Lower	95% CI Upper
GAI_total20 - GAI_total21	-.03	.02	.41	-.08	.02
GAI_total20 - GAI_total22	.00	.02	1.00	-.05	.06
GAI_total21 - GAI_total22	.03	.02	.30	-.02	.08

Figure 7 illustrates the interaction between standard of living and Anxiety. Those with lower SES in 2022 consistently experienced the highest levels of Anxiety across Time. By 2022 the gap between Anxiety scores for those in hardship and those with good living standards had increased. There was no significant interaction with Age.

Figure 7

Interaction Between SES and Anxiety



3.4.4 Mental Health

As shown in Table 17, all covariates were significantly related to Mental Health across three time points. The main effect for Time was not significant, Wilks Lambda 1, F (2, 2,655) = 2.92, p = .054, multivariate partial eta squared = .00, indicating the values of Mental Health across three years were all similar after controlling for Age, SES, and Employment.

The interaction effect between the Time and Age was not significant, indicating that the relationships between SF12MCS_2020, SF12MCS_2021, and SF12MCS_2022 were similar across all age groups. The interaction effect between the Time and Employment was not significant. The interaction effect between the Time and SES was significant, indicating that the relationships between SF12MCS_2021, SF12MCS_2021, and SF12MCS_2022 differed significantly as the value of SES changed.

Table 17

Repeated Measures ANCOVA Results – Mental Health (n=3,192)

	df	*SS*	*MS*	*F*	*p*	η_p^2
Between-Subjects						
Intercept	1	37,211.82	37,211.82	221.81	**<.001**	.08
Age	1	5,770.98	5,770.98	34.40	**<.001**	.01
Employment	1	2,199.89	2,199.89	13.11	**<.001**	.01
SES	1	108,304.63	108,304.63	645.57	**<.001**	.20
Within-Subjects						
Time	2	221.28	110.81	3.03	.05	.00
Time * Age	2	543.42	272.13	7.44	**<.001**	.00
Time * Employment	2	27.68	13.86	.38	.68	.00
Time * SES	2	324.32	162.41	4.44	**.01**	.00

The post hoc tests as shown in Table 18 indicated that SF12MCS_2020 was significantly greater than SF12MCS_2021 and SF12MCS_2021 was significantly lower than SF12MCS_2022.

Table 18

Mean Contrasts for Each Combination of Within-Subject Variables for Mental Health

	Mean Difference	Std. Error	*p*	95% CI Lower	95% CI Upper
SF12MCS_total20 - SF12MCS_total21	.736*	.163	**<.001**	.344	1.127
SF12MCS_total20 - SF12MCS_total22	.266	.169	.344	-.138	.671
SF12MCS_total21 - SF12MCS_total22	-.469*	.165	**.013**	-.864	-.075

Figure 8 shows the interaction between standard of living and Mental Health. Those with lower SES in 2022 consistently experienced the lowest levels of Mental Health across Time. By 2022, the gap between Mental Health scores for those in hardship and those with good living standards had increased and scores worsened.

Figure 8

Interaction between SES and Mental Health

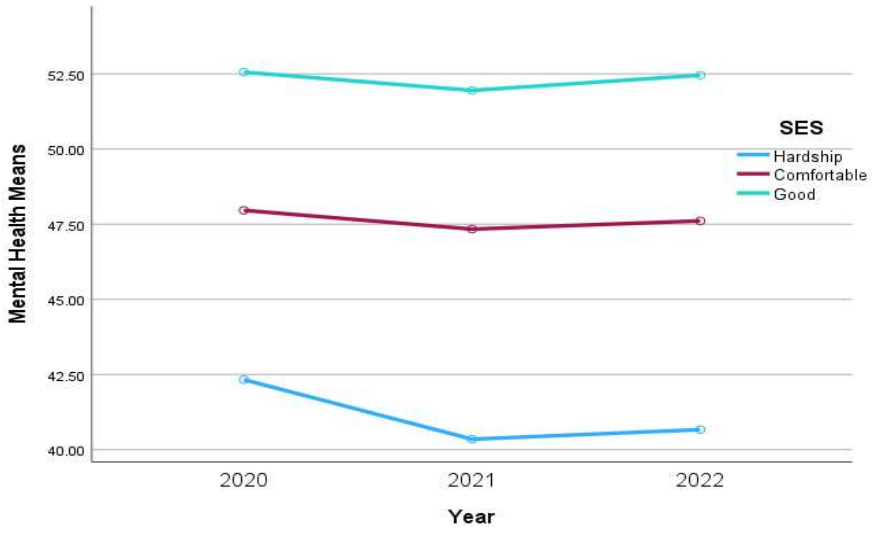
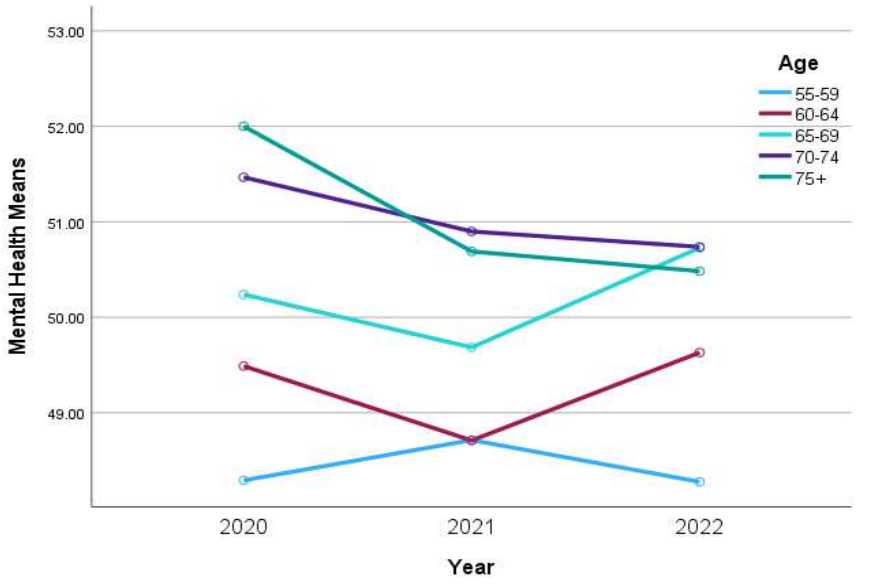


Figure 9 shows the interaction with Age and Mental Health. Those younger in 2022 tended to report the lowest levels of Mental Health across Time. Although they were the only group that showed improvements in 2021, their scores declined in 2022. However, the gap in Mental Health scores between the youngest and the oldest group had reduced by 2022.

Figure 9

Interaction between Age and Mental Health



3.4.5 Quality of Life

As shown in Table 19, only SES was significantly related to QoL across Time. The main effect for Time was not significant, Wilks Lambda 1, F (2, 3,154) = 2.41, p = .79,

multivariate partial eta squared = .00, indicating the values of QoL across three years were all similar after controlling for Age, SES, and Employment.

The interaction effect between Time and Age and Time and SES were significant, indicating that the relationships between WHOQOL_2020, WHOQOL_2021, and WHOQOL_2022 differed significantly as the value of Age and SES changed. The interaction effect between the Time and Employment was not significant.

Table 19

Repeated Measures ANCOVA Results – QoL (n=3,159)

	df	*SS*	*MS*	*F*	*p*	η_p^2
Between-Subjects						
Intercept	1	675.22	675.22	767.19	**<.001**	.20
Age	1	2.63	2.63	2.99	.08	.00
Employment	1	1.53	1.53	1.74	.19	.00
SES	1	1240.14	1240.14	1409.06	**<.001**	.31
Within-Subjects						
Time	2	.10	.05	.25	.78	.00
Time * Age	2	2.31	1.18	5.72	**.00**	.00
Time * Employment	2	.34	.18	.85	.43	.00
Time * SES	2	14.85	7.56	36.77	**<.001**	.01

The post hoc tests as shown in Table 20 indicated that WHOQOL_2020, was significantly greater than WHOQOL_2021 and WHOQOL_2022. WHOQOL_2021 was significantly greater than WHOQOL_2022.

Table 20

Mean Contrasts for Each Combination of Within-Subject Variables for WHOQOL

	Mean Difference	Std. Error	*p*	95% CI Lower	95% CI Upper
WHOQOL_2020 - WHOQOL_2021	.04*	.01	**.003**	.01	.06
WHOQOL_2020 - WHOQOL_2022	.08*	.01	**<.001**	.06	.11
WHOQOL_2021 - WHOQOL_2022	.05*	.01	**<.001**	.02	.08

Figure 10 shows the interaction with SES and QoL. Those with lower SES in 2022 consistently experienced the lowest levels of QoL across Time. By 2022, the gap between QoL scores for those in hardship and those with good living standards had widened.

Figure 10

Interaction between SES and QoL

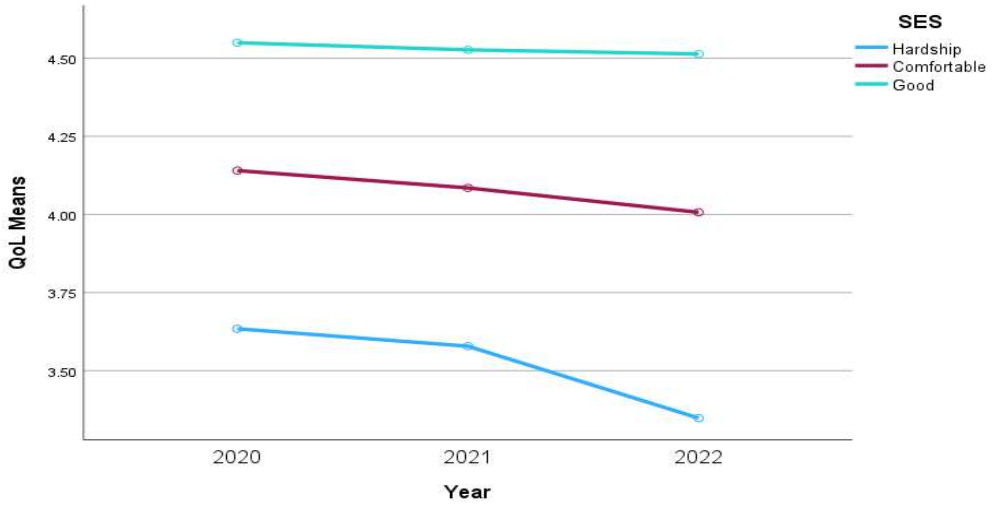


Figure 11 shows the interaction of Age with QoL. While all groups reported some reduction in QoL across the three years, those in the 75+ age group showed the greatest decrease in QoL.

Figure 11

Interaction between Age and QoL

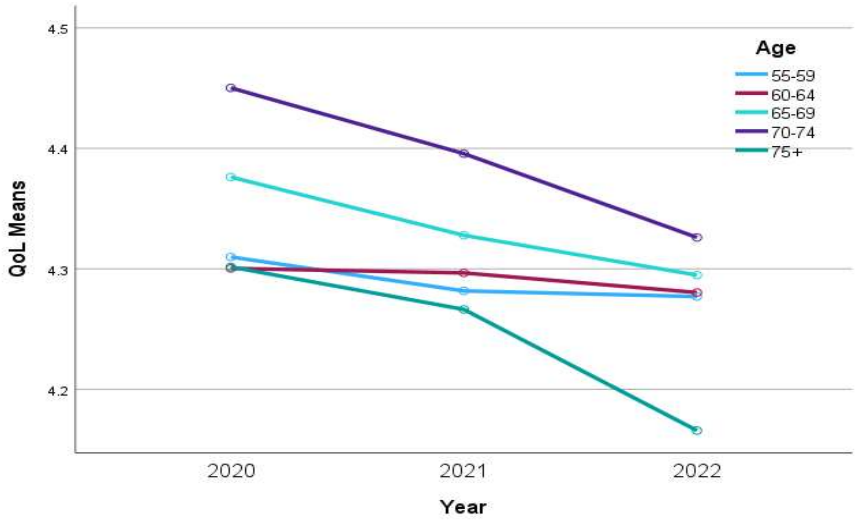


Table 21 provides an overview of the changes in various psychological wellbeing indicators among older New Zealanders belonging to different age groups over the course of three years. In particular, those 75+ had the greatest increase in Loneliness and Depression between 2020 and 2021 and experienced the least improvement between 2021 and 2022. This age group also had one of the greatest increases in Anxiety and one of the

least improvements in 2022. Furthermore, they had the largest decrease in Mental Health between 2020 and 2021 and one of the lowest increases between 2021 and 2022. Lastly, they had one of the most significant decreases in QoL between 2020 and 2021 and had the largest decrease between 2021 and 2022.

Table 21

Changes in Means Across Age Groups

	AGE	2020	2021	**Change**	2022	**Change**
Loneliness	50-59	1.68	1.90	0.22 ▲	1.56	0.34 ▼
	60-64	1.58	1.75	0.17 ▲	1.46	0.29 ▼
	65-69	1.55	1.71	0.16 ▲	1.51	0.20 ▼
	70-74	1.38	1.59	0.21 ▲	1.36	0.23 ▼
	75+	1.34	1.62	0.28 ▲	1.37	0.25 ▼
Depression	50-59	6.16	6.69	0.53 ▲	6.36	0.33 ▼
	60-64	5.98	6.39	0.41 ▲	5.88	0.51 ▼
	65-69	6.01	6.42	0.41 ▲	6.04	0.38 ▼
	70-74	5.86	6.18	0.32 ▲	6.00	0.18 ▼
	75+	5.97	6.68	0.71 ▲	6.53	0.15 ▼
Anxiety	50-59	0.97	1.03	0.06 ▲	0.98	0.06 ▼
	60-64	0.96	0.96	0.00 =	0.93	0.03 ▼
	65-69	0.96	0.95	0.01 ▼	0.92	0.03 ▼
	70-74	0.74	0.84	0.11 ▲	0.77	0.07 ▼
	75+	0.71	0.81	0.10 ▲	0.78	0.03 ▼
Mental Health	50-59	47.90	48.60	0.70 ▲	48.20	0.40 ▼
	60-64	49.40	48.60	0.80 ▼	49.40	0.80 ▲
	65-69	50.10	49.50	0.60 ▼	50.30	0.80 ▲
	70-74	51.40	50.70	0.70 ▼	50.50	0.20 ▼
	75+	51.50	50.40	1.10 ▼	50.20	0.20 ▼
Quality of Life	50-59	4.31	4.28	0.03 ▼	4.27	0.01 ▼
	60-64	4.30	4.30	0.00 =	4.28	0.02 ▼
	65-69	4.38	4.33	0.05 ▼	4.30	0.03 ▼
	70-74	4.45	4.39	0.06 ▼	4.32	0.07 ▼
	75+	4.31	4.27	0.04 ▼	4.17	0.10 ▼

Table 22 provides an overview of the changes in various psychological wellbeing indicators among older New Zealanders belonging to different SES levels over the course of three years. The 'Hardship' group experienced the largest increase in Loneliness between 2020 and 2021 and showed the lowest decrease between 2021 and 2022. Similarly, they had the largest increase in Depression between 2020 and 2021, and unlike other groups, they continued to experience an increase in Depression between 2021 and 2022. The Hardship

group experienced a persistent decline in Mental Health between 2021 and 2022. Additionally, while the 'Comfortable' group exhibited the largest increase in Anxiety between 2020 and 2021, the Hardship group's levels remained unchanged between these two years. For QoL, the Comfortable group had the most significant decrease between 2020 and 2021, but the Hardship group experienced the largest decrease between 2021 and 2022.

Table 22

Changes in Means Across SES Levels

	SES Level	2020	2021	**Change**	2022	**Change**
Loneliness	Hardship (low SES)	2.86	3.18	0.32 ▲	3.08	0.10 ▼
	Comfortable	1.82	2.11	0.29 ▲	1.81	0.30 ▼
	Good (high SES)	1.14	1.31	0.17 ▲	1.06	0.25 ▼
Depression	Hardship (low SES)	10.67	11.67	1.00 ▲	11.83	0.16 ▲
	Comfortable	7.22	7.66	0.44 ▲	7.45	0.21 ▼
	Good (high SES)	4.71	5.13	0.42 ▲	4.70	0.43 ▼
Anxiety	Hardship (low SES)	1.82	1.95	0.13 ▲	1.95	0.00 =
	Comfortable	1.03	1.16	0.14 ▲	1.13	0.03 ▼
	Good (high SES)	0.63	0.63	0.00 =	0.58	0.05 ▼
Mental Health	Hardship (low SES)	42.20	40.20	2.00 ▼	39.90	0.30 ▼
	Comfortable	48.00	47.40	0.60 ▼	47.70	0.30 ▲
	Good (high SES)	52.50	52.00	0.50 ▼	52.30	0.30 ▲
Quality of Life	Hardship (low SES)	3.63	3.58	0.05 ▼	3.33	0.25 ▼
	Comfortable	4.14	4.08	0.06 ▼	4.00	0.08 ▼
	Good (high SES)	4.55	4.53	0.02 ▼	4.52	0.01 ▼

Overall, the main effect of Time was not significant, indicating the pandemic did not have much effect on older adults' psychological wellbeing over Time after adjusting for Age, Employment, and SES. The results show a significant interaction effect for Time and Age (except for Anxiety) and Time and SES. This indicates that there is a difference for different Ages and SES levels across Time. Examining the Mean scores between each pair of years showed some common differences across Time, which explained the interaction effects. Those 75 and above, as well as those classified under the Hardship category, experienced the greatest fluctuations in psychological wellbeing and did not exhibit the same level of recovery as other as other groups three years on. These differences are slight, but significant.

4. Chapter IV - Discussion

The COVID-19 pandemic and its response had a significant global impact, especially on older adults, primarily due to the greater physical vulnerability to COVID-19. Despite the extensive research on the pandemic's effects, there remains a noticeable gap in understanding the psychological impact on older New Zealanders over an extended period of three years. This study aimed to address this gap in the existing literature, shedding light on the psychological experiences and outcomes of this population during the COVID-19 pandemic at three time points. Unlike historical influenza pandemics, such as the Spanish Flu (1918), Asian Flu (1957), and Swine Flu (2009), the COVID-19 pandemic exhibited an unparalleled and evolving nature. It endured beyond its initial wave, taking on different forms with the emergence of new variants and evolving societal responses (New Zealand History, n.d.; Feehan & Apostolopoulos, 2021). This distinctive characteristic necessitated an exploratory approach, focusing on specific research questions used to guide the current study.

The three research questions include: (1) Do older New Zealanders report a change in indicators of loneliness, anxiety, depression, mental health, and quality of life across 3 years of the pandemic? This question serves to understand the psychological impact older New Zealanders experienced. It offers insights into the progression of Loneliness, Anxiety, Depression, Mental Health, and Quality of Life over a span of three consecutive years; (2) Are Age, Gender, Ethnicity, SES, Employment, and Location related to Loneliness, Anxiety, Depression, Mental Health, and Quality of Life in 2022? This question explores the interplay of socio-demographics and psychological wellbeing. It offers insights into the disparities and dynamics that shaped the experiences of older New Zealanders in 2022; and (3) Do older New Zealanders report a change in indicators of Loneliness, Anxiety, Depression, Mental Health, and Quality of Life across 3 years of the pandemic when controlling for significant socio-demographic factors? This question functions as a bridge through time while also considering the impact of key socio-demographic factors.

This section discusses the findings and their implications. A particular strength of this study is that it included an onset pandemic baseline and follow-up timepoints throughout the pandemic. This allowed for a longitudinal comparison of psychological impact to identify changes. This study contributes to existing knowledge and suggests potential avenues for future research, with the aim to enhance support for this population by sharing their experiences during a challenging period in history.

4.1 Question 1: How did the psychological wellbeing of older New Zealanders change over three years of the pandemic?

The analysis of psychological wellbeing scores during the COVID-19 pandemic revealed two interesting findings: a pattern of comparative decline in 2021 followed by improvement in 2022, with the exception of Anxiety; and a progressive decline in Quality of Life. The decline in psychological wellbeing in 2021 aligns with the COVID-19 psychological fatigue theory that prolonged effects of a pandemic can worsen a population's psychological wellbeing and deteriorate their capacity to cope (Ruiz et al., 2022). While older New Zealanders fared relatively well during the first year of COVID-19, the prolonged exposure and response had an adverse impact on their psychological wellbeing. This mirrors findings from Mayerl et al. (2021), Daly & Robinson (2022) and Pederson et al. (2022). It also aligns with New Zealand Ministry of Social Development (2020) predictions that continued exposure to the pandemic and social restrictions would intensify its impact leading to further deterioration in the population's psychological wellbeing. However, these findings are inconsistent with the Ministry's 2021 report that older New Zealanders fared worse in 2020. According to Vaculíková and Hanková (2023), who reported similar findings, the increase was especially notable among individuals who reported poor physical health and who had not left their homes at any point since the outbreak. It also reported an increase in digital social isolation in 2021 compared to the previous year. Hence, the data indicates that 2021, which marked the peak of the pandemic, was an especially difficult period for older adults. By the second year, they had endured an extended period of social isolation and other protective measures. This suggests that for older New Zealanders, the strategy 'go hard' was taking its toll, with signs of COVID-19 psychological fatigue becoming evident.

The improvement observed in 2022 implies that the introduction of the new Traffic Light system (and widespread rollout of vaccinations) brought a much-needed change in strategy and fostered optimism about a return to normalcy. A similar trend was noted in the United States where the virus threat, although not fully eradicated, started to diminish in significance in 2022 (Gilmerm, 2022). Another potential explanation is the prevalence of the Omicron variant in 2022, which was noted to cause milder symptoms compared to earlier COVID-19 strains (Ministry of Health, 2022). This could have contributed to a reduction in some of the stressors associated with COVID-19, as indicated in a Chinese study (Hong et al. (2022c).

Interestingly, Anxiety levels among older New Zealanders did not decrease in 2022; instead, they remained relatively consistent throughout the pandemic. It is possible that the fear of contracting COVID-19 or its impact on their health may have persisted, even in the presence of preventive measures, especially if they were already in poor health or had an underlying illness (Ahmed, 2020; Kocak et al., 2021). The potential influence of Anxiety arising from the impending recession and rise in cost of living (Nicola et al., 2020), and the devasting floods was considered, but it was not until the year 2023 that these become prominent.

Secondly, the consistent decline in Quality of Life scores over time is another interesting finding. Quality of life encompasses various aspects such as physical health, psychological wellbeing, social relationships, and overall life satisfaction (Teoli & Bhardwa, 2022). Its consistent decline challenges the assumption that psychological wellbeing and quality of life necessarily follow the same trajectory. The findings of this study emphasise that the decline in quality of life extended beyond psychological wellbeing. This suggests that factors affecting quality of life, such as economic stability may not have recovered as quickly as psychological wellbeing.

Overall, this study aligns with existing literature by confirming a decrease in psychological wellbeing during the acute phase of the COVID-19 pandemic and the subsequent resilience seen in the following year. It contributes valuable insights by highlighting the persistent levels of anxiety experienced throughout the entire pandemic, from its outset to its later stages, along with the gradual decline in overall quality of life. Although some fluctuations were observed in psychological wellbeing indicators, this study demonstrated that, on average, the scores remained within the normal range. Consequently, the longitudinal follow-up revealed unexpected signs of resilience within this population.

4.2 Question 2: What demographic factors were associated with psychological wellbeing in 2022?

The older adult population exhibits significant heterogeneity in terms of their experiences, resources, and coping strategies in response to the pandemic. Accordingly, some older adults fared worse as a result of socio-demographic vulnerabilities. This study's bivariate correlations revealed notable associations between Age, Gender, Ethnicity, Employment, Location, and SES, with Loneliness, Depression, Anxiety, Mental Health, and

Quality of Life. These findings align with prior research (e.g., Lay-Yee et al., 2022; Sams et al., 2021; Sasaki et al., 2021; Gaggero et al., 2022), adding further support to well-established trends. However, further examination of the interrelationships using logistic regression analysis identified Age, Employment status, and SES as the primary demographic predictors of psychological wellbeing amongst older New Zealanders.

4.2.1 Age as a Predictor of Psychological wellbeing

A key observation from this study was the potential influence of Age as a protective factor in relation to psychological wellbeing. Older New Zealanders displayed a degree of resilience during the pandemic, and there was an association between increasing age and a decreasing likelihood of experiencing adverse psychological wellbeing. This finding supports previous research which has also identified a similar trend; for example, Al-Hanawi et al. (2020), Brown et al. (2020), Beam and Kim (2020) and Lebrasseur et al. (2021). It is also consistent with research from a Czech Republic study that identified age-related drivers contributing to loneliness. In both the 2020 and 2021 waves of the COVID-19 pandemic, feelings of loneliness were most prevalent among younger retirees, with similar percentages observed (40% and 45%) (Vaculíková & Hanková, 2023). Similarly, in a cross-sectional study conducted in the United States during March and April 2020, (N = 833), it was found that those aged 60 to 70 years reported elevated distress levels during the pandemic in comparison to those aged 71 and over (Emerson, 2020). A study in Spain, (N = 1,933) also found that the elderly exhibited lower rates of depression and anxiety (and stress) in comparison with younger age groups (Ozamiz-Etxebarria et al., 2020). The resilience exhibited by older adults in this, and other research is generally attributed to the accumulation of life experiences and the development of coping strategies that commonly accompany the ageing process. It is possible that older individuals, having encountered a myriad of life challenges and adversities over time, have developed a range of skills and adaptive mechanisms that contributed to their ability to be resilient during the unique stressors brought on by the pandemic.

In contrast, the findings of the current study also stand in opposition to those reported in other literature. For example, an empirical study in Greece, (N=103) reported higher prevalence of psychological distress within three weeks after a nationwide lockdown. In this study, 81.6% of older adults reported Depression and 84.5% reported Anxiety, both ranged between moderate and severe (Parlapani et al., 2020). Similarly, Qiu et al. (2020) found that

those aged 60+ in China exhibited the most pronounced COVID-19 peritraumatic distress. Some studies attributed this to limited access to technology and social media; thus, making it more difficult to adjust to the changes brought about by the lockdowns (Martins Van Jaarsveld, 2020). Nevertheless, the results of this study highlight the ability of older adults to exhibit resilience, even in the face of technological challenges.

Overall, this study shows that mental health in older adults is influenced by many factors, including personal resilience, life experiences, and specific situations. In essence, this finding suggests that not all older adults experience heightened psychological distress as they age. It emphasises the need to acknowledge the diverse experiences of older individuals.

4.2.2 Employment as a Predictor of Psychological wellbeing

Employment status was identified as another pivotal predictor of positive psychological wellbeing. Being in paid work, regardless of its nature as either part-time or full-time, had a positive impact on older New Zealanders' psychological wellbeing during the pandemic. The psychological benefit of employment among older people has been well-documented. This study further reinforces the association between employment and psychological wellbeing, particularly in the context of the COVID-19 pandemic. This result is consistent with the findings of a study conducted in Chile (N = 421), which found that trajectories characterised by consistent employment (full-time and part-time, occasional workers and people who were working and studying concurrently), were linked to reduced depressive symptoms compared to trajectories associated with retirement or inactivity (Madero-Cabib et al., 2021). According to their study, maintaining long-term employment in older age groups is generally linked to reduced levels of depression. Another study by Cabib et al. (2022) demonstrated that older adults with formal employment (including self-employment) trajectories, were more likely to show relatively better mental health outcomes during a pandemic. Similarly, Creese et al. (2020) and Pierce et al. (2020) found that older adults who were retired, unemployed, or engaged in part-time work prior to the onset of the pandemic were more likely to experience deteriorating mental health during the pandemic than those who were employed full-time. The findings of this study show that regardless of whether part-time or full-time, being in paid employment has a positive impact on the psychological wellbeing of older New Zealanders, especially during a challenging period.

The strong association between employment status and psychological wellbeing can be attributed to the stability and social support inherent in these employment patterns (Wickrama et al., 2017; Wahrendorf et al., 2020). Employment provides a daily feeling of purpose and fosters a supportive network of colleagues. In addition, it has the potential to enhance one's financial status, as well as provide better access to medical care, health services, and housing conditions (Wickrama et al., 2017; Wahrendorf et al., 2020; Allen et al., 2022). All of these factors would contribute to enhancing older adults' psychological wellbeing, particularly in the context of a pandemic. Furthermore, when considering various demographic groups, it is evident that older adults who are in paid employment experience a range of benefits that collectively demonstrate the positive influence on their overall quality of life (Madero-Cabib et al., 2021). This supports the argument to promote global policy reforms aimed at encouraging people to postpone their retirement (Ní Léime et al., 2020).

4.2.3 Socio-economic Status as a Predictor of Psychological wellbeing

The existing body of literature extensively documents the association between socioeconomic level and psychological wellbeing. That is, those who have higher SES tend to have more positive psychological outcomes (Pinquart & Sörensen, 2000). The present results align with this observation. SES consistently emerged as the most influential predictor of psychological wellbeing outcomes among older New Zealanders in 2022, with instances as high as 834 percent odds of better mental health. The findings demonstrate that those with higher SES exhibited lower levels of loneliness, depression and anxiety and higher levels of mental health and overall quality of life. Importantly, this also emphasises that the COVID-19 pandemic brought to light pre-existing inequalities in SES that disproportionately affect those on the lower end.

An analysis of global literature reveals consistent patterns linking SES to the psychological wellbeing of older adults during the COVID-19 pandemic (Sams et al., 2021; Sasaki et al., 2021). In the United Kingdom, it was observed that economically vulnerable adults were found to have weaker social networks, were lonelier, and suffered from poorer psychological wellbeing during the pandemic (Jaspal & Breakwell, 2022). Similarly, a Chinese study in Hong Kong found that older adults with low SES were more likely to report declines in both mental and physical wellbeing (Chung et al., 2021). These declines primarily stemmed from concerns about COVID-19 and prospective changes to economic

status and way of life (such as job loss and insecurity). Moreover, an international review by Gong et al. (2022) reported that those with lower SES during the pandemic encountered adverse psychological effects, including but not limited to increased feelings of isolation, insecurity, anxiety, depression, sleep disturbances, experiences of discrimination, and substance misuse.

A potential rationale for these findings is that higher SES often grants access to a wealth of resources that can effectively alleviate the psychological impacts experienced during challenging times. An illustrative study from Singapore by Tadai et al. (2023), with a sample size of 6,667 older adults not only highlighted the significant influence of SES on mental (and physical) wellbeing but also shed light on the pivotal role that social resources play in nurturing resilience. Importantly, this research challenged the notion that affluent socioeconomic backgrounds inherently build resilience. Instead, it posits that resilience is cultivated through the utilisation of social resources made available by one's level of SES, which in turn fosters the development of resilience and the preservation of overall wellbeing. In essence, higher SES offers a valuable buffer against the adverse psychological impacts of challenges like the COVID-19 pandemic. Likewise, Koma et al. (2020) reported the prevalence of depression or anxiety was 37 percent among older adults with annual household incomes less than $25,000, nearly twice the rate observed among older adults with annual household incomes exceeding $100,000 (20 percent). Essentially, those with higher SES are generally less exposed to stressors related to economic instability, such as worries about basic needs like food and housing. Reduced exposure to these stressors can contribute to better psychological wellbeing, especially during a crisis. Overall, the evidence suggests that higher SES acts as a valuable buffer against the adverse psychological impacts of crises like the COVID-19 pandemic, reflecting the importance of addressing socioeconomic inequalities in efforts to promote psychological wellbeing among older adults.

4.2.4 Gender, Ethnicity, and Location

Although Gender, Ethnicity and Location were not as strong predictors of overall psychological wellbeing, they did make an impact on certain outcomes. For example, Gender was associated with Anxiety and Mental Health. Women were found to be more anxious than men in this study, and they reported lower levels of mental health which was consistent with other studies (e.g., Pierce et al., 2020; Rodríguez-Rey et al., 2020; Mazza et

al., 2020). Ethnicity was associated with Depression and Mental Health. Māori experienced greater depression and worse Mental Health during the pandemic. This finding is consistent with other research on the impact of ethnicity (e.g., Allen et al., 2022c; Webb & Chen, 2021). A possible explanation for this is the long-lasting effects of colonisation on the Indigenous people of New Zealand. Lastly, Location was associated with Loneliness, Depression and Mental Health. Those who lived in urban areas experienced higher levels of Loneliness and Depression and lower levels of Mental Health. This pattern can be traced back to 120 years ago, where research by William White (1903) revealed geographical variations in rates of 'insanity' within the United States. Notably, this research demonstrated that urban areas exhibited elevated rates of mental health issues. The correlation of psychological wellbeing with urbanisation is also consistent with Fuller and Huseth-Zosel (2021) and Allen et al. (2022c) during the COVID-19 pandemic. These findings collectively highlight the complexity of socio-demographic influences on psychological wellbeing during a global crisis such as the COVID-19 pandemic. While Age, Employment, and SES stood out as primary predictors, it is important to acknowledge that Location, Gender, and Ethnicity were also related to specific psychological wellbeing outcomes. In summary, these findings provide evidence that age alone is not a sufficient criterion for understanding this population's experience. Rather, it affirms that they cannot be considered a homogenous group because their distinct social and practical contexts have a substantial impact on their experiences.

4.3 Question 3: Do older New Zealanders report a change in psychological wellbeing indicators across 3 years, while controlling for key socio-demographic factors?

The final ANCOVA analyses revealed that older New Zealanders did not report a change in psychological wellbeing indicators across time, once the key socio-demographic factors (Age, SES and Employment) were controlled for. This indicates that the psychological wellbeing of this population remained relatively stable or unaffected by the pandemic when these factors were considered. This emphasises the resilience exhibited by older New Zealanders throughout the pandemic. The resilience of older adults during this challenging time is remarkable and highlights their ability to withstand and adapt to adverse circumstances. The findings in this study are consistent with studies by Karmann et al. (2023), Hayden et al. (2022) and Fristedt et al. (2021). These findings also highlight the significance of socio-demographic factors on psychological wellbeing. Comparable results

were documented in a longitudinal study conducted in Spain among older adults, which also attributed their findings to both resilience and specific socio-demographic factors (López et al., 2022). Lastly, these results emphasised Age and SES as the most influential factors in predicting psychological wellbeing among older New Zealanders across time. There were noticeable differences in the trajectory of wellbeing among two specific groups: those aged 75 and above, and older New Zealanders with low SES.

Those 75 and older did not recover as well across psychological wellbeing measures. This age group experienced the greatest increase in Loneliness, Depression and Anxiety in 2021 and the least improvement in 2022. This age group had the largest decrease in Mental Health and Quality of Life in 2021 and the largest decline in 2022. These observations highlight the additional challenges that those 75+ encountered during the three-year period. One possible explanation is the management of chronic illnesses common in this age group, particularly during the pandemic. For instance, existing research has established a strong link between social isolation and declines in quality of life, independence levels, cognitive functions, mood, and overall health and life expectancy (Moreno-Tamayo et al., 2019). However, this association is especially pronounced among older adults who are simultaneously managing chronic illnesses, as evidenced in a study by Scarlata et al. (2021), (M =77.7 years) that explored the psychological wellbeing of older adults with Chronic Obstructive Pulmonary Disease, (a prevalent condition among adults aged 65+ [Halbert et al., 2006]) during the pandemic. Additionally, a study by Merla et al. (2023), (M = 82 years) investigated experiences of older adults with Dementia, (a condition affecting approximately one-third of all individuals aged 85+ [National Institute on Aging, n.d.]). Findings from these studies report significant declines in psychological wellbeing during COVID-19. Likewise, for those 75+ in the current study, the delayed recovery could potentially be attributed to the impact of social isolation while simultaneously managing chronic illnesses common in this age bracket. Additionally, as previously mentioned, as people age, their social connections and support networks diminish, thus making recovery potentially more challenging.

Changes in Loneliness, Depression, Anxiety, Mental Health, and Quality of Life across three years were influenced by differences in SES. Those with good standard of living (high SES) reported lower levels of Loneliness, Depression, Anxiety and higher Mental Health, and Quality of Life consistently over the three years. In contrast, individuals with lower SES displayed greater fluctuation in their psychological wellbeing. These patterns

suggest that socioeconomic disparities can amplify or alleviate the psychological wellbeing challenges individuals face during prolonged stressful periods such as a global pandemic. In this study, those in 'Hardship' experienced the largest increase in Loneliness in 2021, and lowest improvement in 2022. Similarly, they had the largest increase in Depression, and unlike other groups, continued to experience an increase in Depression. Anxiety levels increased during the pandemic with no improvement in 2022. These findings indicate that older New Zealanders with low SES endured persistent Loneliness, Depression and Anxiety, placing them at higher risk of suicidal tendencies (Barron, 2018; Rodney et al., 2021; Reynolds & Kupfer, 1999). Furthermore, Anxiety in later life is linked to reduced Quality of Life and heightened levels of disability (de Beurs et al., 1999). Studies also show that addressing chronic disorders may necessitate extended treatment to achieve lasting benefits (Beutel et al., 2022). However, as previously discussed, this SES group may encounter financial barriers that restrict their access to psychological wellbeing resources and support; thus, increasing their vulnerability. Regarding Quality of Life and Mental Health, the Hardship group experienced a persistent decline in Mental Health during the pandemic. Additionally, they had the smallest recovery in terms of Quality of Life. These findings suggest that those with low SES are at a higher risk of experiencing psychological issues and encounter difficulties in their efforts to recover and enhance their psychological wellbeing; the pandemic only exacerbated these.

Overall, the findings in this study highlight the importance of considering Age and SES when examining the dynamics of psychological wellbeing over time. While, on average, these measures remained relatively stable across the three years of the pandemic, different Age and SES groups reported significant variations. Those 75+ and with low SES did not recover as quickly as the other groups in the third year, highlighting a greater vulnerability throughout and in the aftermath of the pandemic.

4.4 Limitations and Future Research

While the present study has its strengths, such as longitudinal assessments of older New Zealanders psychological wellbeing and a large sample size, it also has its limitations. First, the study does not include the experiences of those residing in nursing home or care facilities. Studies have shown that this subgroup experienced unique challenges that impacted their psychological wellbeing earlier in the pandemic (López et al., 2022). This

study only considered older adults living in the community, and who volunteered to complete and return a mail survey. Future studies are needed to cover the impact on people living in care facilities.

Second, there is a potential bias in the sample, as most older New Zealanders that participated reported higher SES. This could lead to an overrepresentation of older New Zealanders with higher SES in the study results. Consequently, the findings may not accurately reflect the psychological wellbeing of the entire population of older adults in New Zealand, and generalisations should be made with caution. This non-response could lead to an underestimation of the impact of the pandemic on psychological wellbeing among all older people. To obtain a more comprehensive understanding, future studies should strive for a more balanced range of participants across different socioeconomic backgrounds. Furthermore, given that SES can influence psychological wellbeing, and considering the challenges faced by older New Zealanders with low SES during the COVID-19 pandemic, it is important to further examine the relationship between SES and the psychological wellbeing of older adults at this important juncture. This investigation gains significance as the world navigates the path to post-pandemic recovery.

Third, the study revealed an underrepresentation of older Chinese and Polynesian participants. Discrimination and racism may have been experienced by older Chinese adults amidst the pandemic because of the virus initially being identified in China, thus, adversely impacting their psychological wellbeing. Moreover, the study did not adequately include Polynesian groups in comparison to the overall population. This underrepresentation could potentially be attributed to language barriers during survey administration, inadvertently excluding the significant experiences of these communities. Consequently, the experiences of these communities may have been overlooked, hindering a comprehensive understanding of the impact of the COVID-19 pandemic on their psychological wellbeing. In future research, it is important to address these limitations and ensure that larger ethnic and marginalised groups are adequately represented, and their experiences are taken into account. Overall, the study, despite its merits, must be considered within the context of these limitations to provide a more comprehensive understanding of the psychological wellbeing of older adults in New Zealand.

4.5 Practical Implications

Loneliness emerged as a persistent issue across all three years of the pandemic; this suggests that Loneliness may have existed in older New Zealanders prior to the pandemic. A study by Oshio et al. (2022) found that pre-pandemic social isolation was detrimental to psychological wellbeing during the pandemic. This implies that individuals would likely continue to be lonely during the pandemic if they were lonely prior to it. Therefore, by proactively building and strengthening support systems beforehand, older adults may be better equipped to navigate challenging circumstances such as a nationwide lockdown (Oshio et al., 2022). For example, Stevens (2001) conducted a study on a Netherlands educational program designed to promote wellbeing and reduce loneliness among older women. The programme empowered women by helping them understand their needs, analyse their social network, set goals, and develop networking strategies. The study showed that most participants succeeded in developing new friendships and significantly reducing loneliness, while also experiencing changes in social behaviour. Such programmes can serve as a strategy to address and mitigate the loneliness experienced by older New Zealanders and reduce its impact of future crises on their psychological wellbeing. As many studies have highlighted the positive effect of support networks in safeguarding psychological wellbeing (Wanberg et al., 2020; Tadai et al., 2023; Allen et al., 2022c), ensuring that older adults remain socially integrated and supported within their communities is a policy implication of pandemic recovery and recurring preparedness.

Our findings suggest that, on the whole, older New Zealanders were able to adapt and persevere under crises such as the COVID-19 pandemic. However, the oldest-old were slower to recover after the acute phase of the pandemic. Research indicates that oldest adults are more susceptible to psychological distress, attributed to a combination of age-related health decline and a decrease in social relationships, which leads to an accumulation of stresses (Hernández-Ruiz et al., 2021). Thus, it is important to recognise the unique needs of the oldest-old population and provide them with appropriate support and resources to improve their psychological wellbeing during and after such events. Addressing these challenges can ensure a more resilient and adaptive older population in the face of future crises.

Paid employment acted as a protective factor among older New Zealanders during the pandemic. Thus, as previously mentioned, encouraging older adults to continue working beyond retirement age, or offering paid part-time or flexible employment can significantly

improve their psychological wellbeing (Ní Léime et al., 2020). Therefore, policy initiatives should be directed towards enhancing the conditions and calibre of employment opportunities for older adults (Cabib et al., 2022), with the objective of mitigating the high uncertainty associated with inadequate financial security during a crisis.

This study also contributes to the discussion on socioeconomic inequality by highlighting the influence of economic status on the prevalence of loneliness, depression and anxiety during the COVID-19 outbreak. The implementation of governmental policies can serve as a means of safeguarding older adults against these disparities by ensuring an ample provision of essential resources such as food, and preventative supplies, as one way of managing psychological wellbeing (Wang, 2023). In addition, it is widely acknowledged that the implementation of containment measures was primarily aimed at preventing the transmission of the virus and safeguarding public health. However, implementing additional policies that address and mitigate the economic hardships faced by specific groups, such as those with lower SES when implementing containment measures that disproportionately impact their economic activities should be considered (Hsieh et al., 2020). Furthermore, it is recommended that health organisations and government agencies allocate a greater proportion of their media resources towards providing information and highlighting the help and resources available for older adults during the pandemic, as opposed to simply focusing on updates regarding COVID-19 infection rates and mortality statistics. In other words, it is equally important for media entities to allocate resources towards matters that directly affect the lives and livelihoods of the population, as opposed to just focusing on sensationalised items that enhance viewership but contribute minimally to public health and wellbeing (Schultz, 1998). This approach not only empowers them but also serves as a valuable tool in mitigating anxiety.

Overall, this study underscores the importance of long-term monitoring of psychological wellbeing during a crisis. Support should not be limited to the acute phase of a pandemic but should continue to address the evolving needs of older adults over time. Adopting a tailored approach to psychological wellbeing for this diverse group of older adults ensures better mental health and quality of life during and beyond crisis situations. These practical implications serve as a guideline for policymakers, and healthcare organisations as they work to develop targeted strategies aimed at supporting the psychological wellbeing of older New Zealanders in the midst of and following a crisis similar to the COVID-19 pandemic.

4.6. Conclusion

Despite the difficulties posed by the pandemic, and in contrast to the preconceived notions about the older population, an increasing body of research, including this study, is shedding light on the strengths and resilience of older adults, even as they age. Taking demographic factors into account demonstrates that age alone cannot explain this population's experience during the pandemic. Their social and practical settings strongly influence their experiences; therefore, they cannot be regarded a homogenous group. Overall, these findings demonstrated that older adults and with higher levels standards of living experienced a more positive trajectory in psychological wellbeing compared to younger adults and those with lower SES. In addition, those 75+ and in hardship struggled to recover as quickly after the acute phase of the pandemic.

This study offers valuable insights into the psychological wellbeing of older adults in New Zealand. It suggests that the combination of social isolation and the management of chronic illnesses may have had a considerable impact on the psychological wellbeing of oldest New Zealanders during the COVID-19 pandemic. It underscores the importance of considering the specific needs and challenges faced by oldest adults, particularly during times of crisis. The study also demonstrates that being in paid employment can serve as a protective factor during disruptive events like a global pandemic, necessitating policy initiatives aimed at improving employment opportunities for older adults. Moreover, this research contributes to discussions on socioeconomic inequality by emphasising the role of economic status. It suggests that government policies can protect older adults from discrimination by ensuring the availability of essential resources such as food and preventive supplies to reduce the adverse effects on psychological wellbeing. In addition, the study calls for specific policies addressing the economic challenges faced by those with lower SES when implementing containment measures that affect their economic activities. This study showed that the pandemic further deepened the divide between socioeconomic groups. It is crucial for policymakers and healthcare professionals to prioritise support and resources for those in disadvantaged communities to ensure equitable access to mental health services to reduce their vulnerability to adverse outcomes.

Future studies should consider the impact of older New Zealanders living in rest homes or care facilities. In addition, strive for a more balanced range of participants across different

socioeconomic backgrounds, and ensuring that larger ethnic and marginalised groups are adequately represented.

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Appendices

Appendix 1 – Survey Questionnaires

From the full 2022 Questionnaire provided below, the following were used in this study:

1. Loneliness - 6-Item Scale for Overall, Emotional, and Social Loneliness - Q46
2. Depression - Center for Epidemiologic Studies Depression Scale (CES-D) – Q17
3. Anxiety - General Anxiety Inventory (GAI) – Q18
4. Mental health – Mental Component Score (MCS-12)
5. Quality of life – WHO Quality of life (WHOQoL: Q9) and (CASP-12: Q24)
6. Demographic variables (age, gender, ethnicity, SES, Employment and Rural/Urban location)

For 2020 and 2021, the same questionnaires were used, with different numbering.

General instructions for completing the survey

Please read the following carefully

- You can decline to answer any particular question. If you choose not to answer a question, please leave it blank.
- 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.
- 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 this component of the study.

For each question in the survey you will be asked to provide either:

- a single response. Please mark with a cross (e.g. ✕) inside one box on each line in pen. If you make a mistake, simply scribble it out and mark the correct answer.
- one or more responses, as appropriate. For these items you will be instructed to *'Please cross all that apply'*.
- a written answer. Please print your answer as clearly as possible on the line provided.

Example question and response: Please cross 'Yes' to indicate if a health professional has told you that you have any of the following conditions:

(Please cross one box on each line)	No	Yes, in the last 12 months	Yes, prior to the last 12 months
Sleep disorder	✕ 1	2	3
Stroke	✕ 1	2	3
Cancer	1	✕ 2	3
Please specify cancer type:	melanoma		

- a number: where a number or date is required, print the figure in the box provided.

Example question and response: How many of the following people are you in regular contact with? Please place a zero or a number in the squares as appropriate:

Adult child(ren) and/or grandchild(ren)/mokopuna		5

Thank you for taking the time to complete this questionnaire.

If you need help to answer any questions, please contact us either on the HART free-phone line 0800 100 134 or via email: hart@massey.ac.nz

Your health and wellbeing

This questionnaire asks for your views about your health. This information will help keep track of how you feel and how well you are able to do your usual activities. Thank you for completing this questionnaire!

For each of the following questions, please mark an [**X**] in the one box that best describes your answer.

1. In general, would you say your health is:

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

2. 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?

	Yes, limited a lot	Yes, limited a little	No, not limited at all
a. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	☐ 1	☐ 2	☐ 3
b. Climbing several flights of stairs	☐ 1	☐ 2	☐ 3

3. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Accomplished less than you would like	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b. Were limited in the kind of work or other activities	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

4. During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Accomplished less than you would like	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b. Did work or other activities less carefully than usual	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

5. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?

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

6. These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks:

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
a. Have you felt calm and peaceful?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
b. Did you have a lot of energy?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
c. Have you felt downhearted and depressed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

7. 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.)?

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

8. All things considered, how satisfied are you with your life as a whole these days? *(Please cross one box)*

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

9. How would you rate your quality of life? *(Please cross one box)*

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

10. How would you rate your memory at the present time? *(Please cross one box).*

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

11. Would you say your memory at the present time is better, about the same, or worse now than it was 2 years ago? *(Please cross one box).*

Better	Same	Worse
☐ 2	☐ 1	☐ 0

12. Have you lost 5 or more kilograms (11 or more pounds) of weight during the last year? *(Please cross one box)*

☐ 1 **Yes** ☐ 2 **No**

13. Do you have any difficulty with lifting or carrying weights over 5 kilograms (11 pounds), like a heavy bag of groceries? *(Please cross one box)*

☐ 1 **Yes** ☐ 2 **No**

14. Do you have any difficulty with getting up from a chair after sitting for long periods? *(Please cross one box)*

☐ 1	**Yes**	☐ 2	**No**

15. Do you experience severe fatigue or exhaustion? *(Please cross one box)*

☐ 1	**Yes**	☐ 2	**No**

16. Please answer the following questions about yourself by indicating the extent of your agreement.

(Please cross one box on each line)	**Strongly disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
There is not enough purpose in my life.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
To me, the things I do are all worthwhile.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Most of what I do seems trivial and unimportant to me.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I value my activities a lot.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I don't care very much about the things I do.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I have lots of reasons for living.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

17. Below is a list of some of the ways you may have felt or behaved. Please indicate how often you have felt this way during the past week (7 days).

(Please cross one box on each line)	**Rarely or none of the time**	**Some or a little of the time**	**Occasionally or a moderate amount of the time**	**All of the time**
I was bothered by things that usually don't bother me.	☐ 1	☐ 2	☐ 3	☐ 4
I had trouble keeping my mind on what I was doing.	☐ 1	☐ 2	☐ 3	☐ 4
I felt depressed.	☐ 1	☐ 2	☐ 3	☐ 4
I felt that everything I did was an effort.	☐ 1	☐ 2	☐ 3	☐ 4
I felt hopeful about the future.	☐ 1	☐ 2	☐ 3	☐ 4
I felt fearful.	☐ 1	☐ 2	☐ 3	☐ 4
My sleep was restless.	☐ 1	☐ 2	☐ 3	☐ 4
I was happy.	☐ 1	☐ 2	☐ 3	☐ 4
I felt lonely.	☐ 1	☐ 2	☐ 3	☐ 4

I could not "get going".	☐ 1	☐ 2	☐ 3	☐ 4

18. Please answer the items according to how you've felt in the last week. Indicate 'agree' if you mostly agree that the item describes you or indicate 'disagree' if you mostly disagree that the item describes you.

(Please cross <u>one</u> box on each line)	**Agree**	**Disagree**
I worry a lot of the time.	☐ 1	☐ 2
Little things bother me a lot.	☐ 1	☐ 2
I think of myself as a worrier.	☐ 1	☐ 2
I often feel nervous.	☐ 1	☐ 2
My own thoughts often make me nervous.	☐ 1	☐ 2

19. How often do you take part in sports or activities that are:

(Please cross <u>one</u> box on each line)	**More than once a week**	**Once a week**	**One to three times a month**	**Hardly ever or never**
...vigorous (e.g., running or jogging, swimming, aerobics)	☐ 1	☐ 2	☐ 3	☐ 4
...moderately energetic (e.g., gardening, brisk walking)	☐ 1	☐ 2	☐ 3	☐ 4
...mildly energetic (e.g., vacuuming, laundry/washing)	☐ 1	☐ 2	☐ 3	☐ 4

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

Never	**1 time**	**2 times**	**3-5 times**	**6-11 times**	**12 times or more**
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

21. In the <u>last 12 months</u>, how many times have you yourself:

(Please cross <u>one</u> box on each line)	**Never**	**1 or 2 times**	**3 or 4 times**	**5 or more times**
Been admitted to hospital for one night or longer	☐ 1	☐ 2	☐ 3	☐ 4
Used a service at, or been admitted to, a hospital	☐ 1	☐ 2	☐ 3	☐ 4
Gone to a hospital emergency department as a patient	☐ 1	☐ 2	☐ 3	☐ 4
Consulted another health professional other than the above	☐ 1	☐ 2	☐ 3	☐ 4
Sought medical treatment for an accident or injury (including any of the above contacts)	☐ 1	☐ 2	☐ 3	☐ 4

22. Have you received a vaccine against the COVID-19 coronavirus? *(Please cross <u>one</u> box)*

☐ 1	**Yes**	☐ 2	**No**

23. Have you ever tested positive for COVID-19? *(Please cross <u>one</u> box)*

☐ 1	**Yes**	☐ 2	**No**

24. Here is a list of statements that people have used to describe their lives or how they feel. We would like to know how often, if at all, you think the following applies to you.

(Please cross <u>one</u> box on each line)	**Often**	**Sometimes**	**Not often**	**Never**
My age prevents me from doing the things I would like to.	☐ 1	☐ 2	☐ 3	☐ 4
I feel that what happens to me is out of my control.	☐ 1	☐ 2	☐ 3	☐ 4
I feel left out of things.	☐ 1	☐ 2	☐ 3	☐ 4
I can do the things that I want to do.	☐ 1	☐ 2	☐ 3	☐ 4
I feel that I can please myself what I do.	☐ 1	☐ 2	☐ 3	☐ 4
Shortage of money stops me from doing things I want to do.	☐ 1	☐ 2	☐ 3	☐ 4
I look forward to each day.	☐ 1	☐ 2	☐ 3	☐ 4
I feel that my life has meaning.	☐ 1	☐ 2	☐ 3	☐ 4
I enjoy the things that I do.	☐ 1	☐ 2	☐ 3	☐ 4
I feel full of energy these days.	☐ 1	☐ 2	☐ 3	☐ 4
I feel that life is full of opportunities.	☐ 1	☐ 2	☐ 3	☐ 4
I feel that the future looks good for me.	☐ 1	☐ 2	☐ 3	☐ 4

25. Please indicate whether a health professional has ever told you that you have any of the following conditions.

(Please cross <u>one</u> box on each line)	No	Yes, in the last 12 months	Yes, prior to the last 12 months
Arthritis or rheumatism	☐ 1	☐ 2	☐ 3
Disorder of the neck or back. (e.g., lumbago, sciatica, chronic back or neck pain, vertebrae or disc problems)	☐ 1	☐ 2	☐ 3
Diabetes	☐ 1	☐ 2	☐ 3
A disability	☐ 1	☐ 2	☐ 3
Please specify disability: _____			
Heart trouble (e.g., angina or heart attack)	☐ 1	☐ 2	☐ 3
High blood pressure or hypertension	☐ 1	☐ 2	☐ 3
Depression	☐ 1	☐ 2	☐ 3
Other mental illness	☐ 1	☐ 2	☐ 3
Please specify other mental illness: _____			
Respiratory condition (e.g., bronchitis, asthma)	☐ 1	☐ 2	☐ 3
Sleep disorder	☐ 1	☐ 2	☐ 3
Stroke	☐ 1	☐ 2	☐ 3
Active or chronic gout	☐ 1	☐ 2	☐ 3
Active/chronic hepatitis, cirrhosis or other liver condition	☐ 1	☐ 2	☐ 3
Cancer	☐ 1	☐ 2	☐ 3
Please specify cancer (e.g. lung, leukaemia, melanoma): _____			
Other illness	☐ 1	☐ 2	☐ 3
Please specify other illness: _____			

26. Can you see ordinary newsprint? (with glasses or contact lenses if you usually wear them)
(Please cross <u>one</u> box)

Easily	With difficulty	Not at all
☐ 1	☐ 2	☐ 3

27. Can you hear a conversation with one other person (whether or not you usually wear a hearing aid)?
(Please cross <u>one</u> box)

Easily	With difficulty	Not at all
☐ 1	☐ 2	☐ 3

28. In the past six months, have you had any falls including a slip or trip in which you lost your balance and landed on the floor or ground (e.g., trip over on a footpath, slip down some stairs, fall from a ladder)? (*Please cross one box*)

No, not at all	Yes, once	Yes, twice	Yes, 3 or more times
☐ 1	☐ 2	☐ 3	☐ 4

29. In the past six months, have you slipped or tripped but managed to stop yourself falling (e.g., by grabbing furniture for support, or, regaining your balance)? (*Please cross one box*)

No, not at all	Yes, once	Yes, twice	Yes, 3 or more times
☐ 1	☐ 2	☐ 3	☐ 4

30. How concerned are you that you might fall? (*Please cross one box*)

Not at all concerned	Somewhat concerned	Fairly concerned	Very concerned
☐ 1	☐ 2	☐ 3	☐ 4

31. How many hours of sleep do you usually get in a 24-hour period, including all naps and sleeps?

☐☐ **Hours (range 1 – 24)**

32. How satisfied are you with your sleep? *(Please cross one box).*

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

33. How often have you had trouble staying awake while driving, eating meals or engaging in social activity?

Not during the last month	Less than once a week	Once or twice a week	Three or more times a week
☐ 1	☐ 2	☐ 3	☐ 4

34. What is your current driving status? *(Please cross one box)*

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

35. If you have stopped driving, what was the main reason for this? *(Please cross one box)*

☐ 1 Family/friends recommended that I stop.	☐ 2 My GP/doctor recommended that I stop.
☐ 3 Licensing or licence renewal problems.	☐ 4 Driving is unpleasant.
☐ 5 Changes due to ageing.	☐ 6 I feel anxious when driving.
☐ 7 I don't need a car.	☐ 8 My spouse/partner drives me when needed.
☐ 9 Friends drive me if needed.	☐ 10 Driving is expensive/car costs a lot.
☐ 11 Health reasons make driving difficult.	☐ 12 Other (please specify): _____

36. In the past year, how often have you driven a car or motor vehicle while feeling drowsy? *(Please cross one box)*:

Never	Occasionally	Often	Don't drive/don't have a licence/don't have a car

37a. Were you ever knocked unconscious due to injury or accident, for example during your childhood falling from a tree or in adulthood in a car accident or due to a sports injury? *(Please cross one box)*

Yes **No (Go to Q38)**

37b. Please tell us your age at the time of this event and the time you spent unconscious as a result of injury. If you were knocked unconscious more than once, please provide information for each event. If you have more than 5 events, please use the space on the back of the survey to list them.

Event	Age at time of the event:	Time spent unconscious *(please cross one box per line)*		
		Less than 5 minutes	Greater than 5 minutes	Don't know
1				
2				
3				
4				
5				

The following questions are about your health and health related behaviours. Please cross the box that best answers each question.

38. Have you, at any stage of your life, ever been a regular smoker? (*Please cross one box*)

Yes **No**

39. If you currently consider yourself a regular smoker, how many do you think you would smoke on an average day? (*Please cross one box*)

1 to 10	11 to 20	21 to 30	31 or more	Not a regular smoker

40. How often do you have a drink containing alcohol? (*Please cross one box*)

Never	Monthly or less	Two to four times per month	Two to three times per week	Four or more times a week

41a. If you answered 'Never' at Q40, have you ever drunk alcohol in the past? (*Please cross one box*)

Yes	No	
		If 'No', go to Q42

41b. How many drinks containing alcohol do you have on a typical day when drinking? (*Please cross one box*)

1 or 2	3 or 4	5 or 6	7 to 9	10 or more

☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

41c. How often do you have six or more drinks on one occasion? (*Please cross <u>one</u> box*)

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

Whānau, family and friends

42. Do you provide unpaid care for:

(Please cross <u>one</u> box on each line)	Yes, daily	Yes, weekly	Yes, occasionally	No, never	Not applicable (I have none)
Your mokopuna/grandchildren?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Other people's whāngai/children?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

43. I contribute my time and/or labour to volunteer activities: (*Please cross <u>one</u> box*)

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

44. How many hours do you contribute to volunteer activities per week?

		Hours per week

45. Please indicate whether or not you belong to any of these types of organisations:

(Please cross <u>one</u> box on each line)	No	Yes
Sports clubs	☐ 1	☐ 2
Community or service organisations that help people	☐ 1	☐ 2
Political party, or professional association, or business organisation	☐ 1	☐ 2
A trade union	☐ 1	☐ 2
Religious, church, or other spiritual organisation	☐ 1	☐ 2
Hobby, leisure time, or arts association/group	☐ 1	☐ 2
Group that supports cultural traditions, knowledge or arts	☐ 1	☐ 2
Any other club, lodge or similar organisation	☐ 1	☐ 2

46. Please indicate for each of the statements below, the extent to which they apply to the way you feel now.

(Please cross <u>one</u> box on each line)	Yes	More or less	No
I experience a general sense of emptiness.	☐ 1	☐ 2	☐ 3
There are plenty of people I can rely on when I have problems.	☐ 1	☐ 2	☐ 3
There are many people I can trust completely.	☐ 1	☐ 2	☐ 3
There are enough people I feel close to.	☐ 1	☐ 2	☐ 3
I miss having people around.	☐ 1	☐ 2	☐ 3
I often feel rejected.	☐ 1	☐ 2	☐ 3

47. Think about your current relationships with friends, whānau/family members, co-workers, community members and so on. To what extent do you agree that each statement describes your current relationships with other people?

(Please cross <u>one</u> box on each line)	Strongly disagree	Disagree	Agree	Strongly agree
There are people I can depend on to help me if I really need it.	☐ 1	☐ 2	☐ 3	☐ 4
There are people who enjoy the same social activities I do.	☐ 1	☐ 2	☐ 3	☐ 4
I feel part of a group of people who share my attitudes and beliefs.	☐ 1	☐ 2	☐ 3	☐ 4
I have close relationships that provide me with a sense of emotional security and well-being.	☐ 1	☐ 2	☐ 3	☐ 4
There is someone I could talk to about important decisions in my life.	☐ 1	☐ 2	☐ 3	☐ 4
I have relationships where my competence and skills are recognised.	☐ 1	☐ 2	☐ 3	☐ 4
There is a trustworthy person I could turn to for advice if I were having problems.	☐ 1	☐ 2	☐ 3	☐ 4
I feel a strong emotional bond with at least one other person.	☐ 1	☐ 2	☐ 3	☐ 4
There are people who admire my talents and abilities.	☐ 1	☐ 2	☐ 3	☐ 4
There are people I can count on in an emergency.	☐ 1	☐ 2	☐ 3	☐ 4

48. In the past year, have you been subjected to abusive behaviour or speech because of your age? (*Please cross <u>one</u> box*)

☐ 1 **Yes** ☐ 1 **No**

Caregiving

These questions are about providing care for someone with a long-term illness, disability or frailty. By 'providing care', we mean practical assistance for at least 3 hours a week.

49. Have you provided care for someone with a long-term illness, disability or frailty within the last 12 months? (*Please cross one box*)

1	**Yes**	2	**No**	**If 'No', go to Q61 on page 12**

50. In total, how many people with a long-term illness, disability or frailty do/did you regularly provide care for in the last 12 months? (*Please cross one box*)

One person	**Two people**	**More than two people**
1	2	3

51. Do you receive a *Supported Living Payment* for providing care for another person? *(Please cross one box)*

1	**Yes**	2	**No**

Please select the person you spent the most time caring for within the last 12 months. Tell us about that person and their circumstances at the time of care.

52. Approximately how old is/was the person you care(d) for?

			Years

53. How long have/had you been caring for this person?

		Years			**Months**

54. How often on average do (did) you provide this care or assistance? (*Please cross one box*)

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

55. On average, how many hours per week did/do you care for this person?

			Hours per week

56. Is the person you care(d) for your: *(Please cross one box)*

1	Spouse or partner	2	Mother-in-law or father-in-law
3	Mother or father	4	Brother or sister
5	Son or daughter	6	Friend
7	Other whānau member/relative	8	Other

57. Does/did the person you care(d) for: (*Please cross <u>one</u> box*)

☐ 1	Live with you	☐ 2	Live alone
☐ 3	Live with their whānau/family	☐ 4	Live in a nursing home or care facility
☐ 5	Live with their friends	☐ 6	Other

58. Does/did the person you care(d) for have any of the following major medical conditions or disabilities? *(Please cross <u>all that apply</u>)*

☐ 1	Frailty in old age	☐ 1	Stroke
☐ 1	Intellectual disability	☐ 1	Mental health problem (e.g., depression)
☐ 1	Visual impairment	☐ 1	Cancer
☐ 1	Alzheimer's disease/dementia	☐ 1	Respiratory condition (e.g., asthma, emphysema)
☐ 1	Severe arthritis / rheumatism	☐ 1	Other (please specify): _____

59. Do you have a good relationship with the person you care(d) for? *(Please cross <u>one</u> box)*

Never	Sometimes	Often	Always
☐ 1	☐ 2	☐ 3	☐ 4

60. Overall, what is the effect on your life of providing care? My life is: (*Please cross <u>one</u> box*)

A lot better for it	A little better for it	Neither better nor worse for it	A little worse for it	A lot worse for it
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Where you live

61. Which one of the following options best describes the type of residence that you currently live in (your primary residence)? *(Please cross <u>one</u> box)*

☐ 1	House or townhouse (detached or 'stand alone')
☐ 2	House, townhouse, unit or apartment (joined to one or more other houses, townhouses, units or apartments)
☐ 3	Moveable dwelling (e.g., caravan, motor home, boat, tent)
☐ 4	Unit, villa or apartment in Retirement Village
☐ 5	Rest home or continuing care hospital
☐ 6	Other (Please specify): _____

62. In terms of the ownership arrangements, your primary residence is: *(Please cross <u>one</u> box)*

- ☐ 1 Owned by yourself and/or spouse/partner **with a mortgage**
- ☐ 2 Owned by yourself and/or spouse/partner **without a mortgage**
- ☐ 3 Owned by whānau/family
- ☐ 4 Owned by a whānau/family trust
- ☐ 5 Private rental
- ☐ 6 State, Council or Kaumātua housing
- ☐ 7 Licence to occupy
- ☐ 8 Other (Please specify): _____

63. How long have you lived in your present home?

☐☐ **Years** ☐☐ **Months**

64. Please rate your level of agreement to each of these statements in relation to your present home.

(Please cross <u>one</u> box on each line)	**No, definitely not**		**Neutral**		**Yes, definitely**
I am satisfied with my house.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I am satisfied with my neighbourhood.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I am happy with the living conditions of my house.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
My house enables me to see friends and whānau/family as often as I like.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
My house enables me to participate in community activities as often as I like.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
My house supports all my daily activities.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
My home does not meet all my needs.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I am able to keep my house warm.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
My house is difficult for me to clean.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I can get to the shops easily.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I am close enough to any help I need.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I am close enough to important facilities.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I feel safe at home.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
I feel safe in my neighbourhood.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
The neighbourhood is peaceful.	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

I have peace of mind at home.	1	2	3	4	5

65. How would you describe the condition of your current residence? (*Please cross <u>one</u> box*)

No repairs or maintenance needed right now	Minor maintenance needed	Some repairs and maintenance needed	Immediate repairs and maintenance needed	Immediate and extensive repairs and maintenance needed
1	2	3	4	5

66. Does your residence have a problem with dampness or mould? (*Please cross <u>one</u> box*)

No	Minor problem	Moderate problem	Major problem
1	2	3	4

67. In winter, is your current residence colder than you would like? (*Please cross <u>one</u> box*)

Yes - always	Yes - often	Yes - sometimes	No
1	2	3	4

68. Please rate your level of agreement to each of these statements in relation to your present neighbourhood:

(Please cross <u>one</u> box on each line)	Strongly disagree		Neutral		Strongly agree
People in this area would do something if a house was being broken into.	1	2	3	4	5
In this area people would stop children if they saw them vandalising things.	1	2	3	4	5
People would be afraid to walk alone after dark.	1	2	3	4	5
People in this area will take advantage of you.	1	2	3	4	5
If you were in trouble, there are lots of people in this area who would help you.	1	2	3	4	5
Most people in this area can be trusted.	1	2	3	4	5

69. Thinking about your future housing needs, please rank the following in importance to you from 1-9, where 1 is most important to you and 9 is least important to you. *(Please enter numbers 1-9).*

	Affordability of purchase or rent.
	Affordability of upkeep.
	Ease of cleaning and maintenance.
	Safety features such as handholds in bathroom and toilet, accessible cupboards, accessible doorways.
	Easy to keep warm.
	Space for visitors.

	Security of tenure (can stay as long as you like).
	Ability to have pets.
	Other (Please specify): _____

70. Thinking about your future neighbourhood needs, please rank the following in importance to you from 1-8, where 1 is most important to you and 8 is least important to you. *(Please enter numbers 1-8).*

	Friendly neighbours.
	A mix of generations.
	Close to my family/whānau.
	Walking distance to important facilities.
	Good public transport.
	Open spaces such as parks or beaches.
	Peace and safety.
	Other (Please specify): _____

71. Thinking about your ideal living arrangement ten years from now, please rate these options:

(Please cross <u>one</u> box on each line)	**Ideal**	**Perhaps**	**Never**	**I didn't know about this option**
Live with children or other whānau.	☐ 1	☐ 2	☐ 3	☐ 4
Live in a stand-alone house.	☐ 1	☐ 2	☐ 3	☐ 4
Live in an apartment.	☐ 1	☐ 2	☐ 3	☐ 4
Live in shared housing (e.g., with others of your own age or with younger house-mates).	☐ 1	☐ 2	☐ 3	☐ 4
Live in co-operative housing (shared ownership of apartments or housing estate).	☐ 1	☐ 2	☐ 3	☐ 4
Live in Papakāinga (homes owned and occupied by whānau).	☐ 1	☐ 2	☐ 3	☐ 4
Live in senior housing (e.g., rental accommodation provided by city councils or Kāinga Ora).	☐ 1	☐ 2	☐ 3	☐ 4
Live in Kaumātua housing (e.g., rental housing provided by iwi).	☐ 1	☐ 2	☐ 3	☐ 4

Live in a retirement village (with independent villas).	☐ 1	☐ 2	☐ 3	☐ 4
Live in assisted living (e.g., serviced apartment or supported housing).	☐ 1	☐ 2	☐ 3	☐ 4
Live in a mobile home.	☐ 1	☐ 2	☐ 3	☐ 4
Live in your own home and provide free accommodation to a homesharer in exchange for help with specified tasks	☐ 1	☐ 2	☐ 3	☐ 4
Other (please specify): _____				

72. Do you know how to access government support for paid care at home, for transport, or for accommodation if you need to? (*Please cross <u>one</u> box*)

☐ 1 **Yes** ☐ 1 **No**

Work and retirement

73. Since the COVID-19 pandemic was declared by the World Health Organisation (WHO) on March 11, 2020:

(Please cross <u>one</u> box on each line)	**Yes**	**No**
Have you engaged in any paid employment?	☐ 1	☐ 2
Have you been considered an essential worker?	☐ 1	☐ 2
Have you worked from home?	☐ 1	☐ 2
Has your hourly wage or salary been reduced?	☐ 1	☐ 2
Have your hours of paid employment been reduced?	☐ 1	☐ 2
Have you lost or left your job?	☐ 1	☐ 2
Have you been offered skills training from your employer to support how you do your job during the COVID-19 pandemic?	☐ 1	☐ 2

74. Has/will the COVID-19 pandemic be a factor in your decision to retire (i.e., earlier or later than you had previously planned)? *(Please cross <u>one</u> box)*

☐ 1 **Yes, plan to retire *earlier*** ☐ 2 **No change to plans** ☐ 3 **Yes, plan to retire *later***

75. If you are retired, at what age did you retire?

☐☐ **Age at retirement** ☐ 1 **I am not retired**

76. How many hours do you currently work in paid employment per week?

☐☐ **Hours**

77. Have you ever done shift work?

Shift work is any type of work pattern that requires you to be awake when you would normally be asleep (this could include permanent, changing, non-standard, irregular or unpredictable work hours, early starts, late finishes and night work).

☐ 1	**Yes –** Please provide an estimate for the total years of experience you have with these types of work pattern:		**Years**
☐ 2	**No**		

78. Which of the following best describes your **preferred** work status? (i.e., what you would like to be doing) *(Please cross one box)*

Full-time paid work, for an employer	1
Part-time paid work, for an employer	2
Full-time self-employed paid employment	3
Part-time self-employed paid employment	4
Flexible work schedule negotiated with employer	5
Project or contract work (short-term and full-time)	6
Project or contract work (short-term and part-time)	7
Fully retired, no paid work	8
Full-time homemaker	9
Full-time student	10
Other (please specify): _____	11

79. Which of the following best describes your **current** work status? *(Please cross one box in this column)*

Full-time paid work, for an employer	☐ 1	**go to Q80**
Part-time paid work, for an employer	☐ 2	
Full-time self-employed paid employment	☐ 3	
Part-time self-employed paid employment	☐ 4	
Flexible work schedule negotiated with employer	☐ 5	
Project or contract work (short term and full time)	☐ 6	
Project or contract work (short term and part time)	☐ 7	
Fully retired, no paid work	☐ 8	**go to Q85**
Full-time homemaker	☐ 9	
Full-time student	☐ 10	
Unable to work due to health or disability issue	☐ 11	
Unemployed and seeking work	☐ 12	
Other (Please specify): _____	☐ 13	

80. Which of the following best describes your current occupation? *(Please cross <u>one</u> box)*

- ☐ 1 Labourer (e.g., cleaner, food packer, farm worker)
- ☐ 2 Machinery operator/driver (e.g., machine operator, store person)
- ☐ 3 Sales worker (e.g., insurance agent, sales assistant, cashier)
- ☐ 4 Clerical/administrative worker (e.g., administrator, personal assistant)
- ☐ 5 Community or personal service worker (e.g., teacher aide, armed forces, hospitality worker, carer)
- ☐ 6 Technician/trades worker (e.g., engineer, carpenter, hairdresser)
- ☐ 7 Professional (e.g., accountant, doctor, nurse, teacher)
- ☐ 8 Manager (e.g., general manager, farm manager)
- ☐ 9 Other (Please specify): _____

81. How long have you worked for your current employer?

☐☐ **Years** ☐☐ **Months** **<u>OR</u>** ☐ 1 **N/A**

82. If you are self-employed, how long have you been self-employed?

		Years			Months

83. Which of the following best describes your current work?

(Please cross one box on each line)	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	N/A
I feel fairly well satisfied with my present job.	1	2	3	4	5	7
Work should only be a small part of one's life.	1	2	3	4	5	7
I am satisfied with the progress I have made toward meeting my overall career goals.	1	2	3	4	5	7
I find my job to be very stressful.	1	2	3	4	5	7
My job makes it difficult to be the kind of spouse or parent I'd like to be.	1	2	3	4	5	7

84. Please indicate how much you agree or disagree with the following statement: *(Please cross one box)*

	Strongly disagree	Somewhat disagree	Moderately disagree	Neither agree nor disagree	Moderately agree	Somewhat agree	Strongly agree
I can financially afford to retire now.	1	2	3	4	5	7	1

Your financial wellbeing

In this section we ask about your financial circumstances. Please be assured that your answers to these questions are completely confidential.

Please see notes on the last page of the questionnaire to help work out your income, if needed.

85a. From all sources of income, what do you expect your annual personal income **before tax** to be this financial year?

(*Please cross one box*)

- 1 **loss**
- 2 **zero income**
- 3 **$1 - $5,000**
- 4 **$5,001 - $10,000**
- 5 **$10,001 - $15,000**
- 6 **$15,001 - $20,000**
- 7 **$20,001 - $25,000**
- 8 **$25,001 - $30,000**
- 9 **$30,001 - $35,000**
- 10 **$35,001 - $40,000**
- 11 **$40,001 - $50,000**
- 12 **$50,001 - $60,000**
- 13 **$60,001 - $70,000**
- 14 **$70,001 - $100,000**
- 15 **$100,001 - $150,000**
- 16 **$150,001 - $200,000**
- 17 **$200,001 or more**

85b. From all sources of income, what do you expect your annual household income **before tax** to be this financial year?

(*Please cross one box*)

- 1 **loss**
- 2 **zero income**
- 3 **$1 - $5,000**
- 4 **$5,001 - $10,000**
- 5 **$10,001 - $15,000**
- 6 **$15,001 - $20,000**
- 7 **$20,001 - $25,000**
- 8 **$25,001 - $30,000**
- 9 **$30,001 - $35,000**
- 10 **$35,001 - $40,000**
- 11 **$40,001 - $50,000**
- 12 **$50,001 - $60,000**
- 13 **$60,001 - $70,000**
- 14 **$70,001 - $100,000**
- 15 **$100,001 - $150,000**
- 16 **$150,001 - $200,000**
- 17 **$200,001 or more**

86. Do you currently receive New Zealand Superannuation? *(Please cross one box)*

1 **Single rate** 2 **Couple rate** 3 **No**

87. Do you currently receive a Veteran's Pension? *(Please cross one box)*

1 **Single rate** 2 **Couple rate** 3 **No**

88. For the following questions, please indicate whether or not you have (or have access to) the item:

(Please cross one box on each line)	Yes, I have it	No, because I don't want it	No, because of the cost	No, for some other reason
Telephone	1	2	3	4
Washing machine	1	2	3	4
At least two pair of good shoes	1	2	3	4
Suitable clothes for important or special occasions	1	2	3	4
Personal computer	1	2	3	4
Home contents insurance	1	2	3	4
Enough room for whānau/family to stay the night	1	2	3	4

89. For the following questions, please indicate whether or not you do the activity:

(Please cross one box on each line)	Yes, I do it	No, because I don't want to	No, because of the cost	No, for some other reason
Keep the main rooms of your home adequately heated	1	2	3	4
Give presents to whānau/family or friends on birthdays, Christmas or other special occasions	1	2	3	4
Visit the hairdresser at least once every three months	1	2	3	4
Have holidays away from home for at least a week every year	1	2	3	4
Have a holiday overseas at least every three years	1	2	3	4
Have a night out for entertainment or socialising at least once a fortnight	1	2	3	4
Have whānau/family or friends over for a meal at least once every few months	1	2	3	4

90. The following are a list of things some people do to help keep costs down. In the last 12 months, have you done any of these things?

(Please cross one box on each line)	Not at all	A little	A lot
Gone without or cut back on fresh fruit and vegetables to help keep down costs	1	2	3
Continued wearing clothing that was worn out because you couldn't afford a replacement	1	2	3
Put off buying clothes for as long as possible to help keep down costs	1	2	3
Stayed in bed longer to save on heating costs	1	2	3
Postponed or put off visits to the doctor to help keep down costs	1	2	3
NOT picked up a prescription to help keep down costs	1	2	3

Spent less time on hobbies than you would like to help keep down costs	1	2	3
Gone without or cut back on trips to the shops or other local places to help keep down costs	1	2	3

The following questions are about your material standard of living – the things that money can buy. Your material standard of living does NOT include your capacity to enjoy life. You should NOT take your health into account.

91. Generally, how would you rate your material standard of living? (*Please cross <u>one</u> box*)

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

92. Generally, how satisfied are you with your current material standard of living? (*Please cross <u>one</u> box*)

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

93. How well does your total income meet your everyday needs for such things as accommodation, food, clothing and other necessities? (*Please cross <u>one</u> box*)

Not enough	Just enough	Enough	More than enough
1	2	3	4

94. Below are statements that people have made about their standard of living. Please indicate how true these statements are for you.

(Please cross <u>one</u> box on each line)	Not true for me at all				Definitely true for me
I can afford to go to a medical specialist if I need to.	1	2	3	4	5
I am able to visit people whenever I wish.	1	2	3	4	5
I am able to give to others as much as I want.	1	2	3	4	5
I am able to do all the things I love.	1	2	3	4	5
I expect a future without money problems.	1	2	3	4	5
My choices are limited by money.	1	2	3	4	5
I can afford to go to a dentist if I need to.	1	2	3	4	5

Your personal situation

95. What gender do you identify as? (*Please cross <u>one</u> box*)

- ☐ 1 Tāne/Male
- ☐ 2 Wāhine/Female
- ☐ 3 Gender diverse (please specify): _____

96. Do you identify as: (*Please cross <u>one</u> box*)

☐ 1 Heterosexual/Straight	☐ 2 Gay/Lesbian
☐ 3 Bisexual	☐ 4 Other sexual identity
☐ 5 Uncertain	☐ 6 Prefer not to answer

97. When were you born?

Day: ☐☐ **Month:** ☐☐ **Year:** 1 9 ☐☐

98. Which one of these statements is true about you? (Please answer for your **<u>current</u>** marriage, partnership or situation). (*Please cross <u>one</u> box*)

☐ 1 I am married.	☐ 2 I am a widow or widower.
☐ 3 I am in a civil union/de facto/partnered relationship.	☐ 4 I am single.
☐ 5 I am divorced or permanently separated from my legal husband or wife.	

99. What is your highest educational qualification? (*Please cross <u>one</u> box*)

- ☐ 1 No qualifications
- ☐ 2 Secondary school qualifications (e.g., School Certificate, University Entrance, NCEA)
- ☐ 3 Post-secondary certificate, diploma, or trade diploma
- ☐ 4 University degree

100. Please cross as many options as you need to indicate all the people <u>who live in the same household as you</u>. Please also put in the number of people (<u>excluding yourself</u>). If you live alone, please cross the option at the top of the table.

(Please cross <u>all that apply</u>)	**Yes**	**Number of people**
I live alone	☐ 1	
My spouse or partner(s)	☐ 1	☐☐
My parent(s) and/or parent(s)-in-law	☐ 1	☐☐

My son(s) and/or daughter(s)	☐ 1		
My sister(s) and/or brother(s)	☐ 1		
My mokopuna/grandchild(ren)	☐ 1		
Other relatives not listed above	☐ 1		
Other people not listed above	☐ 1		

101. Please indicate below which ethnic group or groups you belong to: (*Please cross <u>all that apply</u>*)

☐ 1	Māori	☐ 1	Niuean
☐ 1	New Zealand European	☐ 1	Chinese
☐ 1	Samoan	☐ 1	Indian
☐ 1	Cook Island Māori	☐ 1	Tongan
☐ 1	Other (please specify e.g., Dutch, Japanese, Tokelauan): _____		

102a. Which country were you born in? (*Please cross <u>one</u> box*)

☐ 1	New Zealand	☐ 2	India
☐ 3	Australia	☐ 4	South Africa
☐ 5	England	☐ 6	Samoa
☐ 7	People's Republic of China	☐ 8	Cook Islands
☐ 9	Other (print the name of the country): _____		

102b. If you were **<u>not</u>** born in New Zealand, please indicate below the approximate date that you first arrived to live in New Zealand.

		Month (e.g. 04)					**Year (e.g. 1985)**

Māori Ancestry

The following items are about having Māori ancestry. If you don't think this is applicable to you, please move to page 25.

103. How would you rate your overall ability with Māori language? (*Please cross <u>one</u> box*)

Excellent	Very good	Good	Fair	Poor	None
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 6

104a. Have you ever been to a marae? (*Please cross <u>one</u> box*)

☐ 1 **Yes** ☐ 2 **No** **If you crossed 'No' go to Q105.**

104b. How often over the past 12 months? (*Please cross <u>one</u> box*)

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

105. We want to understand your experiences of being part of different Māori communities over your lifetime. Examples could be kōhanga or kura whānau, whare wānanga, Marae communities, neighbourhoods with many Māori whānau living there, or a Māori language community.

Please tell us what Māori communities you have been part of…

…when you were a tamariki (child):

…when you were a rangatahi (youth):

…when you were a pakeke (adult):

…while retired:

Questions from the WHO SAGE survey

This year we're inviting participants in the Health, Work, and Retirement survey to complete questions that are asked of participants in the World Health Organisation (WHO) Study on Global AGEing and Adult Health (SAGE). The SAGE is part of an ongoing program of work to compile comprehensive longitudinal information on the health and well-being of adult populations and the ageing process.

While some of these questions are very similar to others in the survey, your responses to these help us understand how ageing in Aotearoa New Zealand compares internationally.

106. As you know, some people take jobs for which they are paid in cash or kind. Other people sell things, have a small business, or work on the family farm or family business. Have you worked for at least 2 days during the last 7 days (not including housework)? *(Please cross one box)*

☐ 1	**Yes**	☐ 2	**No**

107. These questions are specifically about your health. Overall in the last 30 days, how much difficulty did you have with work or household activities? By difficulty, we mean requiring increased effort, discomfort or pain, slowness or changes in the way you do the activity. *(Please cross one box)*

None	Mild	Moderate	Severe	Extreme/cannot do
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

108. These questions are about the different functions of your body. When answering these questions, please think about the last 30 days, taking both good and bad days into account. We would like you to consider how much difficulty you have had, on average, in the last 30 days, while doing the activity in the way that you usually do it. By difficulty we mean requiring increased effort, discomfort or pain, slowness or changes in the way you do the activity.

Overall in the last 30 days, how much difficulty did you have:

(Please cross one box on each line)	None	Mild	Moderate	Severe	Extreme/ cannot do
… in vigorous activities ('vigorous activities' require hard physical effort and cause large increases in breathing or heart rate)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… with self-care such as bathing/washing or dressing yourself?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… in taking care of and maintaining your general appearance (for example, grooming, looking neat and tidy)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…in staying by yourself for a few days (3 to 7 days)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…with concentrating or remembering things?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…in learning a new task (for example, learning how to get to a new place, learning a new game, learning a new recipe)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

…with personal relationships or participating in the community?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…in dealing with conflicts and tensions with others?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

(Q108 continued)	None	Mild	Moderate	Severe	Extreme/ cannot do
…with making new friendships or maintaining current friendships?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…with dealing with strangers?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…with sleeping, such as falling asleep, waking up frequently during the night or waking up too early in the morning?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…with feeling sad, low or depressed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…with worry or anxiety?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Questions 109 and 110 ask about difficulties due to health conditions. Health conditions include diseases or illnesses, other health problems that may be short- or long-lasting, injuries, mental or emotional problems, and problems with alcohol or drugs.

109. Think back over the last 30 days and answer these questions thinking about how much difficulty you had doing the following activities. Some of these questions may seem repetitive, but we do need your attention and it is important to give us answers to each question.

Overall in the last 30 days, how much difficulty did you have:

(Please cross one box on each line)	None	Mild	Moderate	Severe	Extreme/ cannot do	N/A
In sitting for long periods?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In walking 100 metres?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In standing up from sitting down?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In standing for long periods?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With climbing one flight of stairs without resting?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With stooping, kneeling or crouching?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
Picking up things with your fingers (such as picking up a coin from a table)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In taking care of your household responsibilities?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In joining in community activities (for example,	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9

festivities, religious or other activities) in the same way as anyone else can?						
In extending your arms above shoulder level?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
Concentrating on doing something for 10 minutes?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In walking a long distance such as a kilometre?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
(Q109 continued)	**None**	**Mild**	**Moderate**	**Severe**	**Extreme/ cannot do**	**N/A**
In bathing/washing your whole body?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In getting dressed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In your day-to-day work?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With carrying things?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With moving around inside your home (such as walking across a room)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With eating (including cutting up your food)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With getting up from lying down?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With getting to and using the toilet?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
With getting where you want to go, using private or public transport if needed?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
Getting out of your home?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
In the last 30 days, how much have you been emotionally affected by your health condition(s)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9
Overall, how much did these difficulties interfere with your life?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5	☐ 9

110. Besides any vision aids (eyeglasses or contact lenses) do you use any other assistive device (cane, walker, or other) for any difficulties you experience? *(Please cross <u>one</u> box)*

☐ 1	**Yes**	☐ 2	**No**

111. What is your weight?

			Kilograms (kg)	**OR**			**Stones**			**Pounds**

112. The next questions are about time you spent doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be an active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, household chores, providing care or seeking employment.

In answering the following questions 'vigorous activities' require hard physical effort and cause large increases in breathing or heart rate, 'moderate activities' require moderate physical effort and cause small increases in breathing or heart rate.

(Please cross one box on each line)	Yes	No
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate, (like heavy lifting, digging or chopping wood) for at least 10 minutes continuously?	☐ 1	☐ 2
Does your work involve moderate-intensity activity that causes small increases in breathing or heart rate (such as brisk walking, carrying light loads, cleaning, cooking, or washing clothes) for at least 10 minutes continuously?	☐ 1	☐ 2
Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?	☐ 1	☐ 2

113. The following questions are about care you received at a hospital, health centre, clinic, private office or at home from a health care worker that did not include an overnight hospital stay. For your most recent visit to a health care provider, how would you rate the following:

(Please cross one box on each line)	Very good	Good	Moderate	Bad	Very bad
The amount of time you waited before being attended to?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Your experience of being treated respectfully?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
How clearly health care providers explained things to you?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
Your experience of being involved in making decisions for your treatment?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
The way the health services ensured that you could talk privately to providers?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
The ease with which you could see a health care provider you were happy with?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
The cleanliness in the health facility?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

114. This section of the survey asks your opinions about other areas and issues in your life. The following questions are to get your opinions about community, social and political aspects in your life. We'd like to know about some of your involvement in your community. For all of these, just give your best guess. How often in the last 12 months have you:

(Please cross one box on each line)	Never	Once or twice per year	Once or twice per month	Once or twice per week	Daily
… met personally with someone you consider to be a community leader?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
…attended any group, club, society, union or organisational meeting?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

(Q114 continued)	Never	Once or twice per year	Once or twice per month	Once or twice per week	Daily
… worked with other people in your neighbourhood to fix or improve something?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… had friends over to your home?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… been in the home of someone who lives in a different neighbourhood than you do or had them in your home?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… socialised with coworkers outside of work?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… attended religious services (not including weddings and funerals)?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
… gotten out of the house/your dwelling to attend social meetings, activities, programs or events or to visit friends or relatives?	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

We would like to know about your level of interest in local or national politics and your opinions about how the government responds to issues that interest you. Remember, all responses are confidential.

115. How interested would you say you are in politics and national affairs? *(Please cross <u>one</u> box)*

Very interested	Interested	Neither interested or uninterested	Uninterested	Very uninterested
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

116. Lots of people find it difficult to get out and vote. Did you vote in the last national election? *(Please cross <u>one</u> box)*

☐ 1 **Yes** ☐ 2 **No**

117. How much say do you have in getting the government to address issues that interest you? *(Please cross <u>one</u> box)*

Unlimited say	A lot of say	Some say	Little say	No say at all
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

118. How free do you think you are to express yourself without fear of government reprisal? *(Please cross <u>one</u> box)*

Completely free	Very free	Moderately free	Slightly free	Not free at all
☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Finally, we'd like to ask for your thoughts about your life and life situation.

119. We want to know how you feel about your health and quality of life. Do you have enough energy for everyday life? *(Please cross <u>one</u> box)*

Completely	Mostly	Moderately	A little	None at all

Appendix 2 – Ethics Approval

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

15/06/2022

Dear: Prof Fiona Alpass

Re: Ethics Application - SOA 22/23 - Health, Work and Retirement study 2022

Thank you for the above application that was considered by the Massey University Human Ethics Committee:

at their meeting held on

On behalf of the Committee I am pleased to advise you that the ethics of your application are approved.

Approval is for three years. If this project has not been completed within three years from the date of this letter, reapproval must be requested.

If the nature, content, location, procedures or personnel of your approved application change, please advise the Secretary of the Committee.

Yours sincerely

Professor Craig Johnson
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

Research Ethics Office, Research and Enterprise
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