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**THE PSYCHOLOGICAL IMPACT OF RESOURCE GAINS AND  
LOSSES IN AN AGEING POPULATION  
FROM THE PERSPECTIVE OF CONSERVATION OF RESOURCES  
THEORY**

**A thesis presented in partial fulfillment of the requirements for the degree  
of Doctor of Clinical Psychology at Massey University, Palmerston North**

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*“There is not one type of old age for all” (Seneca the Younger 1<sup>st</sup> Century AD)*

The aim of the current study was to examine a series of hypotheses and questions derived from Hobfoll's (1988) conservation of resources theory (COR) using existing longitudinal data from 1,119 55-70 year-old participants of the Health, Work and Retirement Study parent study (Alpass, 2009). The years from mid-life through retirement into older adulthood are signified by change and adjustment. COR theory predicts these years are also a time of significant stress as personal and material resources are depleted. This main hypothesis of this study predicted that losses in valued resources over time would result in loss of psychological wellbeing over the same period. Additionally, other central COR principles were examined such as the potential role of resource gain in alleviating the impact of other resource losses, and the potential for resource losses or gains to spiral. Hobfoll's suggestion that losses and gains increase respective vulnerabilities and opportunities for further losses and gains were also explored, as was his idea that resources correlate or travel together as a "caravan". **Analyses:** Chi-square and logistic regression were used as the general strategy for testing all hypothesized main and interaction effects as well as for exploring research questions. Resources examined for the potential impact of changing levels on psychological wellbeing were economic standard of living, physical health, and social support. **Results:** Losses in economic standard of living were associated with clinically significant loss in psychological wellbeing, with large losses associated with increased odds of loss in psychological wellbeing at a rate over four times that of participants who did not experience such loss. Gains in economic standard of living were also associated with gains in psychological wellbeing, but to a lesser degree. Similarly,

loss of social support over the same period was associated with loss of psychological wellbeing. However gains were not associated with gains in psychological wellbeing. Anomalously, no association was found for losses or gains of physical health on psychological wellbeing. In support of COR, there was evidence that losses impacted psychological wellbeing to a greater degree than sustained low levels of resource ownership, indicating resource loss may have greater impact than sustained “poverty”. Gains in physical health were also found to alleviate the impact of loss of other resources as predicted by COR. No support was found for predominance of loss or gain spirals. Resource ownership levels were far more likely to oscillate than to spiral up or down. Correlations of resources with each other were moderate, providing some evidence of Hobfoll’s resources traveling together. *Significance:* Results suggested provisional support for the central principles of COR theory linking loss and gain of valued resources to psychological wellbeing. Economic standard of living emerged as a critical and valued resource linked to the relative psychological impact of losses and gains of this resource. This research highlighted limitations in COR theory, in particular an absence of consideration of the differential values resources may have, and the different roles resources might play in maintaining psychological wellbeing. Questions were also raised about the refutability of COR theory. Implications for future research, theory and for the psychological wellbeing of older adults are discussed.

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## Acknowledgements

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## PREFACE

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The aim of the present study was to examine a series of hypotheses and questions derived from Hobfoll's (1988) conservation of resources theory (COR). This theory proposes that loss or gain in valued resources (e.g., money, time, friendships) would have direct psychological impact on an individual irrespective of amount of resource possessed by the individual before the loss or gain. Older adulthood is a time of expected loss but also of less considered gains, such as when retirement brings an opportunity to spend more time with friends and family. Older adulthood is therefore a rich context to examine COR theory in practice. The longitudinal New Zealand Health, Work and Retirement Study (Alpass, et al., 2007) provided the wealth and depth of data to make it possible for such an examination of the interplay of losses and gains over time in three resources highly valued through retirement into late life - economic resources, social support, and physical health.

This introductory chapter describes the political and epidemiological setting in which the older adults of this current study live. The chapter outlines demographic transitions in New Zealand and compares these to international contexts, before considering the political rhetoric generated by these changes in population distribution. In aiming to present a balanced view of older adulthood in the Aotearoa context, time will be spent challenging the statistical and demographic myths, which fuel fears of the ageing population. This scene setting is important as it is within this milieu the general philosophies, and psychological theories of ageing addressed in chapter two develop. Chapter two focuses on the lived experience of ageing in late life beginning by providing a commentary on the general philosophies of ageing (such as "positive ageing") that have been popular

and arguably politically motivated within recent history. What is known of ageing well, and where the peaks and troughs of psychological well being in older adulthood lie will be outlined; and finally the most influential psychological theories of ageing will be reviewed including Carstensen's (1999) socio-emotional selectivity theory and Antonucci's (2009) convoy model of ageing. Chapter three describes Hobfoll's (1989) conservation of resources theory (COR) in detail as the main theoretical premise of this study, covering the principles and definitions of this theory and including a review of theoretical support and limitations. Chapter five presents the three resources used in this study to examine COR theory in older adulthood - social support, physical health, and economic standard of living. An argument for their inclusion in this study as 'valued resources' will be given along with a summary of what is known of the importance of these resources to psychological wellbeing in late life.

The general aims of the study are presented in chapter five and will include a synopsis of hypotheses to be tested and exploratory questions to be considered. A description of the research design, design decisions, and of the process of data collection is outlined in chapter six. Additionally a description of participants, variables (and variable transformations) and measures used are described, along with a brief description of the larger Health, Work and Retirement Study (Alpass et al, 2007) from which the current study data derive. Results from analyses addressing the main hypotheses and exploratory questions are presented in the order described in Chapter seven. Finally chapter eight opens with a discussion of the research findings and examines how these findings fit into the theoretical base of COR theory (Hobfoll, 1988,1989) and integrate with findings of past research

before consideration of the strengths and limitations of this study and COR theory, and how findings might contribute to or direct future research.



## **CHAPTER 1**

### **INTRODUCTION: AGEING IN AOTEAROA/NEW ZEALAND**

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## New Zealand's Ageing Population

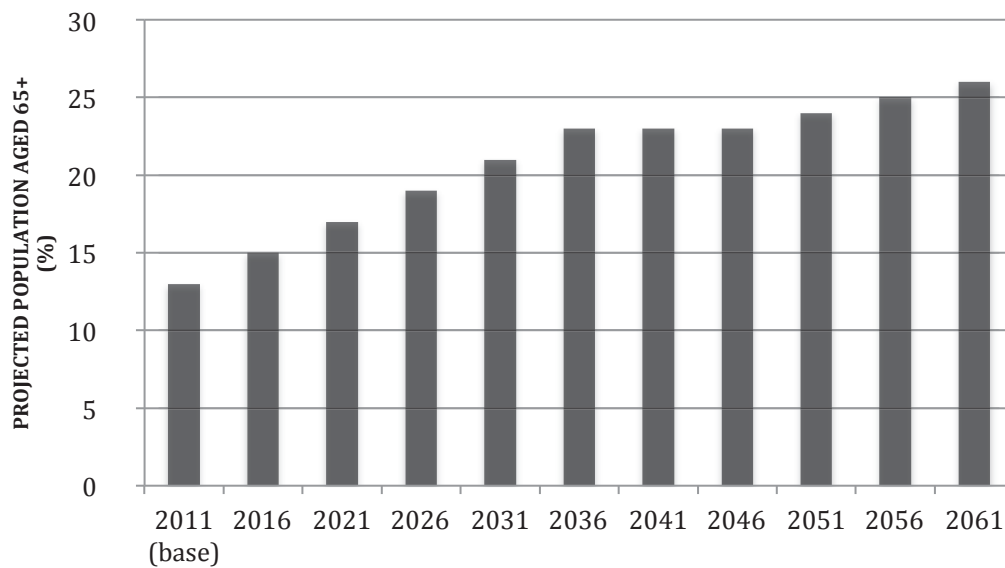
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### Demographic transitions

New Zealand's population, as elsewhere, is on the cusp of a demographic transition. Increasing longevity, declining birth rate, stable migration, along with the post WWII baby boom generation reaching pensionable age, will result in the population of over 65s becoming the largest in both proportion and number over the next three decades. As early as 1948 the "baby boom" was identified by popular press "Population: Babies mean business," headlined in *Newsweek* (1948, p. 21). Conservative predictions estimate that the population of adults over the age of 65 in New Zealand will double from 586,000 to around 1.2 million by 2036 (Statistics New Zealand, 2011). This rise coupled with more recent declines in birth rate mean the over 65 population is projected to represent 21% of the population by 2031, rising to 26% in 2061 - this from the current figure of 13% (Figure 1, Statistics New Zealand, 2011). In 2006, children under 15 out-numbered those over 65 by a ratio of 2:1. However, within the next ten years, New Zealand children will be outnumbered by the over 65s.

There have been dramatic shifts in life expectancy in New Zealand over the past century, and further change is expected in the future. Eighty-six percent of men and 90% of females reached 65 in the 2004-2006 period - by 2051 this is projected to be 92 and 94% respectively. Life expectancy from age 65 onward is 17.8 years for males and 20.5 years for females, extending to 22.5 years and 25.0 years respectively by 2051 - a gain of 10 years since the 1950s, when life expectancy from birth was

only 67 years for men and 71 for women (Statistics New Zealand, 2007).



*Figure 1.* Projected population growth as a percentage of total population, 2011 (base year) to 2061 (Statistics New Zealand, 2011)

Anticipated shifts in the cohort distribution of the 65-and-over age group will be most notable. In 2011, 65-69 year-olds represented 30% of this group, with a peak of 33% expected in 2016. By 2061, however, this is expected to fall to 22% as the baby-boomer generation ages. As the population “bump” ages, the proportion of over 65s who are aged 90 and above will triple, from 4% to a peak of 13% over this period. As the resources important to and needed by people in their 60s, differ from those that are important and needed by people in their 90s, continued societal and community level adjustment will be required during this period of population flux (Statistics New Zealand, 2011).

Cultural demographic shifts are ongoing. Māori age structure is significantly different to that of the general New Zealand population. Māori are comparatively youthful with a median age in 2006 of 22.7 compared with a median age of 35.9 for the total New Zealand population (Statistics New Zealand, 2007b). The Māori

population is projected to grow slowly over the next 20 years at a rate of approximately 3.5% per year and by 2026 is expected to make up 7% of the total population. By 2021, the population of Māori aged 65 and over is estimated to reach 56,000, from a figure of 20,000 in 2001 (Statistics New Zealand, 2007b). Other cultural changes will be evident as New Zealand's cultural demographic has become increasingly diverse. The Asian population in particular, has experienced and is likely to continue to experience, the most rapid growth. Latest projections suggest that those of Asian ethnicity will make up 9% of all over 65s by 2026, a growth of 5% from 2006 statistics. By this time Asian older adults will outnumber Māori whose projections are more modest, with an expected gain of 2% in the 20 years to 2026 (New Zealand Statistics, 2007). A slight rise in the number of Pacific Islanders over the age of 65 is expected, who will make up 3% of the over 65s by 2026, compared to 2% in 2006 (New Zealand Statistics, 2007). New Zealand society is set the challenge of not only needing to adjust to larger numbers of older adults, but to also adjust to the changing cultural needs of this population.

Geographical regions in New Zealand are experiencing older adult population growth at different rates. Some territorial authorities already have comparatively older populations. In 2006 the over 65 population of the Kapiti Coast district was 23%, Tauranga, Waitaki, Thames-Coromandel, and Horowhenua districts already have equally high proportions of older adults (Statistics New Zealand, 2007). By 2031, 22 out of New Zealand's 73 territorial authorities will have populations in which the over 65s will comprise more than 30%. Dense urban areas have comparatively lower proportions. In Auckland, Waitakere, Porirua, and Wellington city less than 10% of the population in 2006 was over 65. Wellington city recorded a reduction between 1996 and 2006 from 8.8% to 8.4%. These

differences will become more pronounced as younger people continue to move to areas of greater work opportunity.

While there is a perception that many older adults desire to move to “a place in the sun” upon retirement, in reality older adults are less likely to move. Between 2001 and 2006, 67.5% of older adults remained in the same dwelling and only 7.4% moved between regional council areas, this compared to figures of 48.0% and 13.4% respectively, for the total population over the same period (Statistics New Zealand, 2007).

One statistic projected to decrease is the sex ratio of the 65 and over population. Currently for those over 65, women outnumber men by a ratio of 126:100. This is expected to lower to 118:100 by 2051 as more men than in previous years reach advanced stages of life. The widest gap in life expectancy (6.5 years) was seen in the 1970s - since then men have made greater gains, although women still outlive men by 2.7 years. In 2006 women aged between 85-89 outnumbered men by approximately 2:1, by 2051 this is expected to drop to 1.3:1 (Statistics New Zealand, 2007).

In summary, these demographic shifts will be visible and societally palpable, presenting complex and distinct economic and societal circumstances for New Zealand as a whole and for geographical regions distinctly. The attention given primarily to population ageing by quantity conceals other transitions such as those by gender and ethnicity. Particular concerns that have been given political and journalistic emphasis are those primarily concerned with “quantity” - in particular the sustainability of New Zealand’s state-funded superannuation scheme, and the anticipated rising costs of health care provision.

## **Rhetoric and realities**

As the baby-boom population has aged, their generation has often been represented as a threat, specifically to the economic security of the non-old. The non-old are encouraged to anticipate the “epidemic,” “onslaught,” “avalanche,” “tsunami,” or other metaphorical catastrophe that the large numbers of old will bring (Cruickshank, 2008; Maples, 2007). At the extreme, nations with high populations of ageing adults are warned that they face “mountains of debt” that could destabilize the world economy (Longman, 1999). Ageing in western cultures has long been perceived as a time of loss - of physical capacity, economic power, and social position - and increasingly, old age comes laden with the association of societal burden. The aged are considered expensive to maintain and little able to contribute to a society entrenched in values of individualism, independence, and capitalism, and one which favours self-reliance and productivity, as measures of success (Cruickshank, 2013). The old have been considered to be making “selfish demands”, on taxpayers, and governments possessing a “sense of entitlement” (Ekerdt, 1986). With such culturally constructed definitions of success, if held with an uncritical gaze, the aged have become a convenient and well-utilized repository of blame for the origin and maintenance of the economic and societal woes of many nations, including New Zealand.

Over time alternative voices have risen to question and challenge the emotionally laden rhetoric associated with ageing populations (Cruickshank, 2013). Commentators for example, have emphasised that New Zealand is expected to face the most profound annual increment in the older adult population of all OECD countries citing a baby-boom fertility rate that was higher than anywhere else - 4.2

births per woman in 1961 compared with a peak of little more than 3 in most European countries (Teitelbaum & Winter, 1998) - yet little is made of New Zealand having a lower baseline proportion of total population over 65 than other European countries. Up to the early 20<sup>th</sup> century, New Zealand carried a largely youthful migrant population, with large numbers of young arriving from Australia and the United Kingdom - while Māori were in decline. In 1901 for example, our over 65 population was 4%. Our reference point for “growth” is therefore different from long established populations. In England, Spain, and France in the 18<sup>th</sup> century, for example, approximately 10% of the population were over 60, in arguably much poorer conditions. In 2005, 20% of Italians, 19% of Germans, 17% of French, and 16% of English and Welsh were over 65, compared to 12% of New Zealanders. Projections to 2051 place NZ similarly behind these countries bar England and Wales (Statistics New Zealand, 2007). Italy has estimated its older adult population to rise to 36%, Germany and France, 28%, and England and Wales, 25%, compared with New Zealand’s expected rate of 27%. New Zealand is therefore not unique, but following and in some cases catching up to more established older adult populations in Europe.

Rising health care costs are not inevitable. One 10-year longitudinal study of ageing in America concluded that once people reach 65, added years do not have a major impact on health costs (Rowe and Kahn, 1998). Further, the trend amongst older adults in middle to upper socioeconomic demographics has been towards a compression of morbidity to near the end of life, which may in fact reduce per person demand on health care services for many (Fries, Bruce, & Chakravarty, 2011). Data on healthy life expectancy (HLE) - that is the number of years lived in full health - has only been collected in New Zealand since 1996. In the 10 years to

2006, HLE has risen by 3.2 years for males and 2.6 years for females, equivalent to the rise in life expectancy and indicative of no rise in the number of years spent in health dependency (Statistics New Zealand, 2007). For the lowest socio-economic groups, health morbidity rates are likely to be higher and life expectancy significantly shorter, as it has been throughout history (Thane, 2005). In 2005-2007, males in the least deprived decile of small areas in New Zealand could expect to live 8.8 years longer than males in the most deprived decile (82.1 compared to 73.3 years). For females the gap was 5.9 years (84.6 compared to 78.7 years).

The notion that older adults “are undeserved economic burdens” can be similarly challenged. Little recognized is that historically the baby-boom generation has made much larger proportional economic contributions over their lifetime than later generations. Tax rates have dramatically fallen in recent decades. Top marginal tax rates were as high as 68% from the 1960s until the 1980s, before falling to the current rate 33%. Company tax rates from 1950-1970 were 50% compared with the equivalent company tax rate of 28% in 2013 - the fourth lowest of all OECD countries. Similarly in the United States, it has been argued that the costs of Medicare and Social Security could be met if companies were taxed today at the same rate as they were in the mid 20<sup>th</sup> century (Minkler, 1997). Estes (2001) has argued that in the US, older-adults have become a convenient scapegoat for problems caused elsewhere, including deficits due to tax cuts, wars, bank bailouts, and stimulus spending over 2008-2009.

Economic contributions are continuing for many who choose or need to work beyond pensionable age. In 2010, 35% of New Zealanders aged 65-69 were employed, as were 17% of 70-74 year olds (Ministry of Social Development, 2011).

This is a doubling of employment participation since 1996. For men, the participation rate of 65-69 year olds has increased from 17 to 43% in the 10 years to 2006. One in five 70-74 year old men remained in employment in 2006. For women, the rate of 65-69 year olds in employment had risen to 25%. A number of important policy changes have impacted on these figures over this period; specifically, the abolition of compulsory retirement, which came into force in 1999 and the rising of the pensionable age to 65 by 2001. The amount of tax paid by older New Zealanders' earnings from employment however, has and will continue to rise dramatically - projected to increase from about \$200 million in 2011 to about \$1.8 billion in 2051.

Older adults are further contributing through spending, thus supporting large industries marketing goods and services to the retired. By 2051, older consumer spending in New Zealand is expected to quadruple to become a \$45 billion industry. Goods and Services Tax (GST) revenue from older adults' expenditure is expected to rise from \$1.76 billion in 2011 to \$7.86 billion in 2051. It has been suggested by researchers that an incremental increase in New Zealand Superannuation payments over the next 40-year period, will be offset by the flow-back of income tax and GST revenue (Paul, Rashbrooke, & Rea, 2006).

Other contributions are fiscally invisible but no less important - caregiving, child minding, volunteering, and financially supporting adult children (Estes, 2004). Data from the 2006 census indicated that 18.3% of the over 65 group undertook voluntary work, 14% looked after children of other households in an unpaid capacity, and 13% assisted in looking after a person who was ill or suffering a disability. The over 65 group make a less visible although significant contribution



to the economic and social well-being of New Zealand.

When viewed through the lens of reality, older adults cannot carry the responsibility for economic doom that may or may not be impending and can contribute to growth as “an untapped resource, a deep well that when nurtured can give back to families, schools, communities, and public consciousness much more than they can take .... Tap into it, and we will be richer than we ever imagined ...” (Winakur, 2011, p. 996).

### **Chapter summary**

New Zealand’s population as elsewhere is entering a new transitional phase which will see more older adults reach pensionable age than ever before. It will be the largest in size and also proportion, reaching 26% by 2061. This transition will be felt as society, communities, and individuals adjust to the changing demography over the coming years. This change will be experienced in different ways, by different cohorts who live in different geographical locations. The widely reported view that demographic change equates to economic “catastrophe” has been used as a rhetorical device, arguably misappropriating blame, in order to advance political/economic agenda. There is evidence that the baby-boom generation, will continue to contribute to both the economy and society through paid and voluntary work. Further, there is a significant opportunity for markets to adapt and grow by catering to the needs and desires of the burgeoning older adult population. This milieu is the context in which the older adults of the current study live and where the general and psychological theories of ageing have developed.

## CHAPTER 2

### AGEING WELL EXPECTATIONS AND EXPERIENCE

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## Expectations and the Experience of ‘Being Older’

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### General philosophies of ageing

Social gerontologists over more recent years have attempted to redefine old age in positive terms. “Successful aging” has become a popular concept since the 1990s when several researchers began to challenge the medically based disease model of aging, highlighting physical abilities as markers of late life potential. Rowe and Kahn (1997) in an early model of ageing articulated three characteristics of “success.” Firstly, freedom from disease and disability, secondly, high cognitive and physical functioning, and thirdly, social and productive engagement. This model has met with critique; it has been accused as counterproductive by defining successful aging against the yardstick of youth while deploying a white, middle-class perspective founded upon the values of productivity, effectiveness and independence (Tornstam, 2005). Successful ageing inadvertently defines “unsuccessful ageing” as frailty, physical weakness, dependence, and interdependence, suggesting failure at ageing is possible and inevitable. Rozanova (2010) in a study of the discourse of “successful ageing” in American newspapers found themes of, “successful ageing as personal choice,” “unsuccessful ageing as an individual responsibility,” and that “successful ageing is accomplished through personal engagement with society.” She argues these themes embody the neo-liberal principles of containing the costs of care for the elderly and maximizing individual effort and responsibility for managing disease and decline in later life. She notes that absent were themes that incorporated the demographic interplay of factors inherent in ageing well including those of geographical area, wealth,

ethnicity, class, gender, genetic make-up, and good fortune. By this definition, the white middle and higher-classes are those most likely to age “successfully” (Rozanova, 2010). Cruickshank (2008) argues that successful ageing has become a commodity, claimed politically to reduce state responsibility in care, and sold commercially to the wealthy via “anti-ageing” product. Later terms including “productive ageing” (Butler & Gleason, 1985) and “responsible ageing” (Bishop, 1999) making the agenda overt asserting an expectation that older adults contribute and are responsible for their own wellbeing, with minimum state support.

In New Zealand a manifestation of the political agenda for ageing has been the Positive Ageing Strategy (Dalziel, 2001). This was one of a number of interlinked strategies developed after 1999, by the then Labour government under the Health of Older People Strategy (Ministry of Health, 2002). These emerged in a zeitgeist of social and public concern regarding the ongoing affordability of welfare states in developed nations (Barr, 2006). The 1990s had borne witness to the emergence of the application of generational accounting to public policy (Auerbach, Gokhale, & Kotlikoff, 1994), which aimed to quantify the risks to environmental and economic sustainability caused by the “graying of the federal budget.” Generational accounting was and is concerned with generational fairness, modeling how government spending and tax burdens would be distributed across the age cohorts (Williamson & Rhodes, 2011). This process amplified the concern across a number of developed nations that ageing populations would threaten future living standards (Guest & McDonald, 2001; Hinrichs, 2002; Wisensale, 2003). In 1998, the Organization for Economic Cooperation and Development (OECD) published a

report entitled *Maintaining Prosperity in an Ageing Society*, which delivered a strong message about the fiscal impacts of pensions and health spending. The document further advocated the discouragement of early retirement, while increasing the capacity of older adults to remain economically productive (OECD, 1998). The Positive Ageing Strategy was developed in part as a response to these concerns, with the view that the promotion of positive wellbeing and not welfare dependency was beneficial to both individual and state. The strategy encompassed active and productive ageing strategies, promoting the value of older people's contributions and continued participation in society. The strategy also sought to identify barriers that inhibit older persons participating in society including discrimination, financial instability, and inaccessibility. The document placed emphasis on mutual responsibility and collective action, stating an aim to challenge intergenerational misunderstandings that view ageing as a journey of loss, inactivity, and dependence (Dalziel, 2001).

The Positive Ageing Strategy has faced similar criticism to that of successful and productive ageing discourse - in particular that of failing to recognize and acknowledge the late life realities of many who do suffer frailty and dependence. As economic concerns have grown there has also been a subtle shift in the carried weight of responsibility from state to self, further marginalizing those older people who suffer disease and disability in later life (Davey & Glasgow, 2006). Opie (1995) argues that by shifting responsibility to the individual, society has been given permission to avoid thinking about creating a respected place for the oldest within its bounds - questioning whether such policies are driven by welfare intentions or economic forces. By emphasizing the young to middle-age goals of independence, self-reliance and individual responsibility, Davey & Glasgow (2006) argue that the

adaptive value of cooperation, reciprocity, interdependence, and cultural diversity are undermined. Traditional Māori models of ageing for example, place greater emphasis on spiritual transcendence in late life rather than on health and deficit paradigms. Ageing is framed as a positive life course transition associated with mana and prestige (Durie, 1999; Kukutai, 2006). Within this paradigm the archetype of becoming an elder is associated with experience, wisdom, and cultural knowledge, and valued and established roles within communities. While the Positive Ageing strategy documents “respecting cultural diversity” as a theme, the strategy is borne from western philosophy with an emphasis that is arguably contra to that of many Māori who affiliate with tikanga Māori.

“Conscious ageing” (Moody, 2005), a more recent incarnation of ageing philosophy, aims to recognize the inapplicability of the values of the non-old to late life and to encourage a conscious resistance to stereotype. Proponents argue that goals should transition from independence, productivity, and physical health in mid-life, to those of interdependence, resilience and adaptation to physical change, playfulness, and creativity (Liang & Luo, 2012) in later life. Conscious ageing is a knowing resistance to the roles, appearance, or spaces, determined for the old by the non-old. Viewing this age as any number of possibilities is considered a marker of conscious ageing as a time of rest following a life of hard work, an opportunity to work or be creative in new ways, or a continuation of life as it has been. Learning to be old entails the freedom to learn to be old in unique ways. Cruickshank (2008) argues that there is no particular social role associated by virtue with a particular age. The old bear no responsibility to be productive, responsible, or wise, having the same roles as others who choose how they want to spend their

time based on temperament, energy, family need, habits, locale, income, friendships, skills, but not age. The philosophy of conscious ageing highlights one of many paradoxes associated with this time of life; that is transcending the values of the young requires the ability to both individually as well as collectively resist socially prescribed norms. Conscious ageing could be argued as a further pursuit of the wealthy who have the resources to choose transcendence over stereotype; however, this philosophy does avoid the difficulties of successful, productive, or responsible ageing.

One of the difficulties with seeking a general philosophy of ageing is the diversity represented by the group generically described as “of pensionable age.” Lifespan research has shown that chronological age is meaningless in defining a group that represents the extremes of physical health, determined by many factors including cohort, genetics, and a lifetime of diverse experience and circumstance (Dannefer & Kelley-Moore, 2009). Rather than reaching a generic understanding of the aged, a burgeoning focus is upon identifying factors that assist people to age in a state of psychological wellbeing.

### **Psychological wellbeing and older adulthood**

Psychological wellbeing has been labelled a “conceptually muddy” construct (Morrow & Mayall, 2009) and while a singular substantive definition has remained elusive, there is agreement on its multi-faceted nature (Pollare & Lee, 2003). Early definitions that emerged from a hedonic tradition emphasised dimensions of positive affect, life satisfaction, and an absence of negative affect (e.g., Braeburn, 1969; Diener, 1984). Those from a eudiamonic tradition highlighted positive psychological functioning, human development, mastery, and purpose (e.g., Rogers,

1961; Ryff, 1989). Most researchers however agree that psychological wellbeing includes a feeling that life is going well, that necessary and valued life tasks are able to be accomplished, roles are fulfilled, and social needs are met (Huppert, 2009). A brief review of research of psychological wellbeing, including interrelated dimensions of happiness and mental health and illness, in older adulthood will now be discussed.

Growing old at the healthy end of the spectrum has clear advantages to, and beyond, the individual, and there is intense interest in defining and understanding the multiplicity of factors that contribute to the ability to subjectively age well. Reviews of recent literature indicate that this field of research has core contentions and controversies. In particular, the disagreement as to whether “in general” psychological wellbeing improves or declines with age, has resulted in “camps” of opinion headed by economists and psychologists respectively. The debate intensified following an often-referenced report by Blanchflower and Oswald (2004), detailing “robust” findings of a U-shaped relationship between age and happiness, and suggesting that from middle age psychological wellbeing rises considerably into old age - a finding that was at odds with psychological research and theory of the time (Cantril, 1965; Dear, Henderson, & Korten, 2002; Palmore & Luikart, 1972). Prior to this study, findings by economic researchers had been equivocal, with studies identifying positive, negative, and “no relationship” between happiness and age (Alesina, Di Tella, & MacCulloch, 2004; Clark & Oswald, 1994; Easterlin, Schaeffer, & Macunovich, 1993; Winkelmann & Winkelmann, 1998). Several published studies have supported the original Blanchflower study (Hayo & Seifert, 2003), and most notably a follow-up study in



which Blanchflower and Oswald (2008) used data from 500,000 West European and American randomly sampled participants, confirming their original finding after controlling for cohort effect. Across both continents the “typical persons” psychological wellbeing was found to trough in middle age and rise considerably in later life. In this study, the researchers re-examined data from existing datasets, including one million UK citizens, and again found confirmatory evidence of a U-shaped relationship.

Social scientists and psychologists however have questioned the validity of the Blanchflower studies - in particular, the methods that have been used to produce this curvilinear relationship - primarily the inclusion of the “usual suspect” demographic variables. The concern cited is the likelihood that the upward trend observed in late life was in fact, an artifact of unobserved relationships between predictor and demographic variables, such as income, wealth and health, rendering their inclusion “inappropriate and questionable” (Frijters & Beatton, 2012; Glenn, 2009). Personality traits for example have been found to predict happiness across the lifespan (Ferrer-i-Carbonell & Frijters, 2004; Lucas & Deiner, 2009), while not correlated with age, personality correlates with income, health, wealth, and levels of social support which in turn correlate with longevity. Wealthy, healthy, happy people live (and are happier) longer thus creating an upward U. These unexamined correlations are an issue because not accounting for them leads to the possibility of reverse causality.

In response to these concerns, Frijters and Beatton (2012) re-examined the original three datasets using fixed effects to account for the variables (such as getting a job, getting married), happening to middle aged individuals who are already happy. In

all three datasets reverse causality bias was shown to have forced the U-shape relationship found in the original studies. When controlling for the fixed-effects, the non-linearity disappeared, and the relationship between happiness and age followed more of a wave or inverse U-shape. In all data-sets using both raw and fixed effect regressions, psychological wellbeing rose steadily until around age 70; a “happiness peak” followed by a large and steady decrease in happiness as people get older. This re-working corresponds with other more recent data. Chandola, Ferrie, Sacker, and Marmot (2007) conducted a prospective cohort study of 10,308 men and women aged 35-55 at baseline. Over an 18 year period they found that ageing by one year was associated with better mental health, reaching a peak at age 68-70 before declining. In order to assess the impact of social inequality the authors split the group by employment grade. Similar wave-shaped trajectories were found in all employment grade groups, although lower and higher peaks were reported for lower and higher employment grades respectively.

Data on prevalence rates for mood disorder support the re-examined data, specifically for major depression and depressive symptomatology. Studies show an inverse trend with the lowest rates for major depressive disorder amongst community dwelling adults over the age of 65 of between 1-5% (Blazer, 2003; Djernes, 2006; Lyness, King, Cox, Yoediono, & Caine, 1999; Phoenix et al., 1999; Steffens et al., 2000), compared to 7% in the general adult population (American Psychological Association, 2013). From the age of 65-70, prevalence has been found to increase dramatically with age (Luppa et al., 2012; Stek et al., 2006). This rise in depression is thought to be related to increased rates of disease and disability, pain, and dependency (Hasin, Goodwin, Stinson, & Grant, 2005). Prevalence rates

published in studies of the oldest-old (those over 85) converge at the rate of 15% for clinically significant depression (Stek, Gussekloo, Beekman, van Tilbury, & Westerndorp, 2004). Increases in rate are substantial for medical out-patients at 5-14% (Whooley, Stone, & Soghikian, 2000), medical inpatients at 10-12% (Blazer, 2003), and long-term care residents at 14-42% (Djernes, 2006). Late-life depression is one of the most common presenting issues in primary health care (Bruce, 2002; Gilman et al., 2013). The MaGPIe study (Magpie Research Group, 2006) provided the first primary care prevalence data in New Zealand for the over 65 group, with a 12-month prevalence of any DSM-IV depressive disorder of 4.8% for women and 2.1% for men. In a study in Christchurch of 80 patients presenting to a primary care clinic, 10% met diagnostic criteria for major depression, with sub-diagnostic depressive symptoms present in 27.5% (Begg, Richardson, & Wells, 2006). These findings match those found in international studies, where 10% of older adult primary care patients met diagnostic criteria for depressive disorder (Ferraro & Su, 1999) and a further 20% presented with depressive symptoms (Luppa et al., 2012).

Depression for older adults has been shown to be far more debilitating than for younger adults. It carries a higher risk of suicide, is often a marker of functional decline, including marked disability, decreased cognitive ability, increased dependency, and emotional suffering (Fiske, Wetherell, & Gatz, 2009). Depression may also manifest in different forms in late age, including somatic complaints, sluggishness, loneliness, memory and cognitive problems, and therefore may be easy to misattribute as symptoms of general ageing and decline (Alexopoulos, 2005). Risk factors for the development of late life depression, are considered cumulative, with no particular factor being prominent (Fiske et al., 2009). Cardiovascular and neurological changes have been implicated, as are genetic influences that may

contribute across the lifespan (Alexopoulos, 2005; Carney & Freedland, 2003; Wouts et al., 2008). Other psychological (ruminative thinking, anxiety), social risk (stressful life events, difficulties with relationships), and socioeconomic factors contribute to the network of risk (Nolen-Hoeksema & Ahrens, 2002; Kendler, Gatz, Gardner, & Pedersen, 2006). Physical disability in late life is also associated with increased risk, particularly if there is loss in the ability to perform instrumental and personal activities of daily living (Fiske et al., 2009).

Suicide prevalence rates of older adults further signal the potential for decline in mental health in late life. Completed suicide rates for white men in particular are higher in later life than in any other age group (Conwell, Van Ouden, & Caine, 2011). In the United States in 2010 the rate for this group was over four times the national average (WHO, 2013). In New Zealand provisional suicide death rates released by the Chief Coroner (by age) between June 2012 and June 2013 found a rate of 31.38 per 100,000 for males over the age of 85, higher than for any other age group (Ministry of Justice, 2013). Rates for females are lower across all age groups. In this provisional data, suicide rates for the “younger old” (those 60-75 years) were below the national average of 12.10 per 100,000 – 6.83, 7.08, and 8.95 per 100,000 for the 60-64, 65-70, and 70-74 cohort groups respectively. There is however serious concern that rates among older adults will increase as the baby boom cohort move through late life. Birth cohorts carry with them a propensity to suicide as they age (Conwell et al., 2009) and those of the baby boom cohort have had relatively higher suicide rates at any given age than earlier or subsequent cohorts (Hu, Wilcox, Wissow, & Barker, 2008; Phillips, Robin, Nugent, & Idler, 2010).

The most prominent feature of suicidal behaviour in older adults is psychiatric illness (Conwell et al., 2011), and this has been reported to be present in 71% to 97% of all suicides in international studies (Beautrais, 2002; McGirr et al., 2009; Waern et al., 2002). Physical ill health and functional impairment may also contribute to risk. As with depression in later life, no particular illness carries specific risk; there is evidence that a number of illnesses carry an accumulation of risk (Juurlink, Herrmann, Szalai, Kopp, & Reidelmeier, 2004). Other risks that have been identified include disruption in instrumental activities of daily living (Conwell et al., 2009), perceptions of physical health status (Beautrais, 2002), pain (Sirey et al., 2008) and cognitive decline (Dombrowski et al., 2009). Interpersonal factors have also been identified. Beautrais (2002) in a New Zealand study of 53 adults aged 55 and older who died by, or made a serious attempt at, suicide, found that serious relationship problems and financial problems distinguished completed suicides and suicide attempters from controls. This study was a replication of a Swedish study with similar findings (Rubenowitz et al., 2001). In studies examining life circumstance prior to completed suicide in older adults, loneliness, bereavement, and perceived burdensomeness were found to be significant factors (Van Orden et al., 2010).

To summarize, the most robust evidence suggests that there is a general trend for psychological wellbeing to rise into early stages of older adulthood, before a trend for significant decline from 70 years onward. Several factors have been implicated in maintaining psychological wellbeing including good physical and financial health, and adequate social relations and support. Mental illness in late life has serious implications including decline in physical health, and increase in dependency and suicide. For the young-old, research indicates that the potential

for psychological gains are high, particularly for those in good physical and financial health (Crimmins & Beltran-Sanchez, 2011). Diversity, however, is the marker of this population. There is significant range in circumstance both between and within age group cohorts. This collective group represents some of the most active and healthy, and the most disabled and dependent. It is invariably a time of change.

Gerontologists and psychologists have long been interested in what it means to be old, to adapt to age related change, and how wellbeing, in particular psychological wellbeing, is achieved and maintained. Several models have come to pre-eminence.

### **Psychological theories of ageing**

The desire to understand the ageing process can be traced to past centuries. Coronaro in 1557 ascribed ageing healthily to exercise, diet, and temperance – a position with contemporary resonance. While ageing is ultimately a biological process, the pace at which, and the state of wellbeing in which people age is determined by a matrix of interplaying factors, including life-style choice, socio-economic position, familial ties, and social relationships. Age theorists, since Coronaro, have placed emphasis in different parts of the matrix, but have yet to identify an encompassing, definitive hierarchy of vulnerabilities that will determine if a person will age well, or in a state of ill health (Braveman, Egerter, & Mockenhaupt, 2011).

Biopsychosocial theories have attempted to understand how environmental/medical/ technological change may explain the rate at which people

age in order to determine those most vulnerable in a population (Brown, 2000; Ryff & Singer, 2008; Crimmins, Kim, & Vasunilashorn, 2010). The stress theory of ageing (Finch & Seeman, 1999) is one example from the bio-psychosocial approach that proposes the significant impact of chronic and acute stressors on disability and disease. Theorists propose that age related change coupled with individual differences in neuroendocrine reactivity to stress, may increase the propensity for disease and disability in older adulthood (Crimmins et al., 2010; Finch and Seeman, 1999).

Several theories focus upon certain aspects of the internal experience of ageing - the quality of, or the sense of wellbeing, in which life is lived. These theories assume a sense of meaning or purpose as necessary for life satisfaction and propose avenues along which a sense of meaning is achieved as people age. Socio-emotional selectivity theory proposed by Carstensen and colleagues (Carstensen, Isaacowitz, & Charles, 1999) states that as people age, their values shift from an interest in acquiring pragmatic knowledge and skills required for life, to having a focus on close emotional relationships. The shift in priorities associated with these values, stem from the development of a finite sense of time and the diminishing proportion of time left to live. Time perception is the spur that allocates investment in relationships that, according to this theory, become increasingly valued. Diminishing time perception is also implicated in the cognitive control theory of ageing (Mather & Carstensen, 2005). The passage of time is thought to promote wellbeing by motivating those in late life to focus more attention on positive stimuli and life experience, and give less attention to negative ones. Memories are selectively distorted in the cause of emotional regulation.

Social relationships feature heavily in several other psychological theories of ageing that consider change across the lifespan. The convoy model of social relations (Antonucci, Birditt, and Akiyama, 2009) for example, considers that social relations are essential for health – contributing to social support, and health through the opportunities afforded by strong social networks. The “convoy” refers to the collection of people who travel alongside an individual throughout their life meeting differing needs at different times, providing feedback, and physical and emotional support. Late life is viewed as the time when convoys shrink and have a familial focus. Empirical research, outlined later in this thesis, does suggest that social relations have a role in buffering against the negative health impact of acute and chronic stress (Antonucci, 1990; Hatch & Dohrenwend, 2007; Thoits, 2010).

Baltes (1997) argues convincingly from his work within the Berlin Study of Aging, that emotional wellbeing is preserved amongst those in late life through the reframing of goals in accordance with a diminished state of resources available. People invest remaining abilities in tasks and behaviours that are deemed adaptive to an often physically altered life. According to his selection, optimization, and compensation theory (SOC), there is an internal (often automatic) adjustment when resources become limited. Goals become focused around central values, and the increasingly limited resource reservoir is optimized to meet these goals. Baltes provides an example of an ageing musician who because of cognitive decline, and slowed dexterity, adjusts by selecting a reduced repertoire, focusing practice on a smaller number of pieces, and compensating by playing slow sections even slower to give the illusion of speed. Emotional regulation plays a part in the automatic adjustment of goals to ones that are achievable and therefore able to provide a



sense of meaning and satisfaction. Optimization and compensation are the pragmatic solutions required to achieve these goals. This process often involves a “trade-off” of task complexity for simplicity, in order to obtain a sense of achievement. This process is thought similar for goals considered survival relevant (such as maintaining balance) to those associated with personal growth (such as self-actualization). Emotional wellbeing is managed therefore by a savvy selection of goals, achievable through optimization and compensatory means. SOC developed within the broader and comprehensive lifespan theory of development (Baltes, 1987; Baltes, Reese, & Lipssett, 1980), which encompasses the idea that development is not completed in adulthood, but is rather a process spanning conception to death. Development is considered by this theory to be multidimensional and multidirectional, the life-path influenced by the interplay of endogenous and exogenous factors. This person specific inter-play of factors creates non-linearity in life trajectories, and explains diversity of health outcome in late life. Life development for all ages is considered by Baltes to be influenced by the joint expression of features of growth (gain) and decline (loss). Development occurs within the gain/loss dynamic, whereby late-life losses begin to outnumber gains.

Many of these psychological theories of ageing could be criticized for placing an optimistic front upon pessimistic assumptions. Inherent is the belief that ageing is a loss process, and that emotional wellbeing is achieved through a downgrading of goals, compensation for diminished abilities, and/or cognitive distortion of reality. Skill and knowledge development are not commonly considered as goals for continued life satisfaction beyond 65 many studies focus singularly upon the significance of social relationships (Berkman & Glass, 2000; Cohen & Lemay, 2007;

Darbonne, Uchino, & Ong, 2012; Fredrickson & Carstensen, 1990; Glass, De Leon, Bassuk, & Berkman, 2006; Golden, Conroy, & Lawlor, 2013; Seluk & Ong, 2013; Shankar, McMunn, Banks, & Steptoe, 2011). The potential for gains to be made in late life are seldom considered, or at least underplayed. Several studies have, however, highlighted the potential for life-long development and research is beginning to reflect a new reality of ageing in which people over 65 are able to continue to develop physical health, financial capacity, as well as continue to develop new skills and knowledge, through life-long learning programmes (Menec, 2003; Sloane-Seale & Kops, 2007). The contribution of those beyond pensionable age working in formal paid and voluntary capacities is also generating research interest. For example, data from 2,716 Singaporeans aged 55 and above showed that those continuing to work beyond retirement age in a volunteer or paid capacity had better cognitive performance scores, fewer depressive symptoms, and better mental well-being and life satisfaction than non-volunteering retirees (Hammond, 2004; Schwingel, Niti, Tang, & Ng, 2009).

Resource based theories are another group accruing interest in lifespan psychology. They can be thought of as meso-level theories placing particular emphasis on the contribution of the context in which people live to wellbeing. In particular, the resources that people possess (or don't) and the opportunities afforded (or not) by these resources are considered to predict strengths (and vulnerabilities) in health terms. Resources in this sense are broadly defined as objects, conditions, or personal characteristics that can be used or exchanged for survival within one's culture, e.g., physical health, money, adequate housing (Hobfoll, 1989). Cumulative advantage/disadvantage theory (Dannefer, 2003) for

example, emphasizes the effect of early advantage or disadvantage to differentiation of cohorts over time. Early risk factors are proposed to shape trajectories in the short term, but more dramatically over the longer term. The accumulation of risk factors over the life course therefore increases the heterogeneity of outcome. The level of premature aging, dependency, disability, and mortality are the visible signs in later-life of lifespan advantage or disadvantage where heterogeneity becomes most pronounced (Dannefer, 2003). This is consistent with the observation of increasing diversity of health and lifespan in populations as they age (Dannefer, 2003; Dannefer & Sell, 1988; Maddox & Douglas, 1974). People who have early advantage through a solid supply of resources are propelled into promising trajectories, whilst those with inadequate resources are more vulnerable to further health, wealth, and wellbeing disadvantage (Ferraro & Kelley-More, 2003; McCabe, Roediger, McDaniel, Balota, & Hambrick, 2010). People are considered within these models to have human agency, but an agency constrained by the opportunities within the social structures and cultural environments in which they live (Elder, Johnson, & Crosnoe, 2003). Evidence supports the effect of cumulative disadvantage across domains including IQ, income, and status attainment into late life (Crystal & Shea, 1990; Kerckhoff 1993; McCabe et al., 2010; Nelson & Dannefer, 1992; Rosenbaum, 1984). Several international studies on health in late-life have corroborated evidence in support of a socially and economically determined health gradient (Banks, Nazaroo, & Steptoe, 2012; Borsch-Supan & Jurges, 2006).

Life courses seldom propel in a straight line, from early childhood advantage or disadvantage. Patterns of change and stability occur within and between individuals to account for different outcomes over time. Mid/late-life inflection from projected paths may occur when forces intervene major accidents,

bankruptcy, relationships, and disease are examples of events which create transition points, or nonlinearities in a life path. Conservation of resource theory (Hobfoll, 1988) within the band of resource theories, predicts the psychological impact of change in one's level of resource wealth, or poverty over a shortened timeframe, and is a useful theoretical framework to consider the assessment of losses and gains in late-life. For the purposes of this study, it is the theoretical framework of best fit.

### **Chapter summary**

In recent years several attempts have been made to redefine older adulthood in positivist terms. Most including successful aging and productive aging have been critiqued for not representing the lived experience of ageing, and for being insensitive to the demographic and health diversity represented by the term “older adult.” In New Zealand the Positive Ageing Strategy (Dalziel, 2001), was born from this zeitgeist but arguably founded on the concerns about the fiscal impact of future pensions and health spending. Encouraging healthy, active, and contributing lifestyles along with self-responsibility for wellbeing, is considered beneficial to the economy and also to the individual. A more recent philosophical incarnation, conscious ageing, suggests that ageing well can be achieved by transcending all stereotypes of what ageing should be. The ability to live how one wishes, however, may be an ideal reserved for those rich in resources.

Defining older adulthood in a way that is meaningful for, and representative, of all is problematic; evidencing how life is “in general” experienced is more amenable to research. Noting contentions, the most recent evidence suggests that there is a general trend for a positive experience of older adulthood, particularly the early

phase, where psychological wellbeing is thought to rise to a summit at the age of approximately 70. Finally, psychological theories have been developed to understand the ageing process and elucidate the means to ageing in a state of psychological health. Theories differ in their scope from evolutionary and biologically based theories, to those that focus largely on the internal world of perception and cognition such as Carstensen's (1999) socio-emotional selectivity theory, and those that focus predominantly on key resources such as Antonucci's (2009) convoy model. Lifespan theories cast a wider net, and account for diversity in older adulthood based on trajectories of genetic, socio-demographic advantage and disadvantage from birth. Finally, resource based theories, such as COR, are examples of lifespan theories, placing particular emphasis on the contribution of context, in particular the resources available present and historical to psychological wellbeing.

## **CHAPTER 3**

### **CONSERVATION OF RESOURCES THEORY**

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## Conservation of Resources Theory

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Conservation of resources theory (COR) (Hobfoll, 1988) is a general “stress and coping” theory that may have particular significance to an understanding of psychological wellbeing in late life. Originating within organizational psychology, COR theory has more recently been utilized to examine changes in circumstance throughout the lifespan. COR is considered a micro-meso level theory, which attempts to span both individual and contextual influences on the stress process viewing the person as a product of the society within which they live and ultimately of the resources they have available and the opportunities that these resources afford. As access to and ownership of resources differs, so too does the experience of wellbeing. COR theory is primarily concerned with change as the primary mechanism influencing psychological wellbeing. Loss is considered highly salient, and loss of any resource is likely to deflate an individual’s psychological wellbeing (Ng & Feldman, 2012). Because loss is so aversive, accrual of resources to offset losses is a primary goal (Wright & Hobfoll, 2004). Stable levels of resource ownership over time should, according to theory, equate to stability in psychological wellbeing, above a “certain level” of resource deprivation (Hobfoll, 2011). Under this level of deprivation, psychological wellbeing is predicted to suffer; akin to that experienced with loss. Past research has supported the prediction that acute loss of material resource can be more distressing than chronic economic circumstance (Ennis, Hobfoll, & Schroder, 2000).

Resource based theories commonly focus upon a single resource identified for its role in maintaining psychological wellbeing, examples being social support, socio-

economic status, and physical activity (Kubicek, Korunka, Raymo, & Hoonakker, 2011). Hobfoll (2002) calls these key resource theories, because they share an assumption that there is a key resource for any given situation that will make that situation manageable. Key resources identified in research as being of primary importance to retirement have included social networks (Barnes & Parry, 2004; Kim & Moen, 2002;), financial resources (Shultz, Morton, & Weckerle, 1998; Taylor & Doverspike, 2003), and goal directed behaviour (Brandstadter & Renner, 1990; Kubicek et al., 2011). COR theory differs from key resource theories in that rather than focusing on a single resource, the theory looks specifically at the process of resource use (Hobfoll, 2002). The principal assumptions of COR theory stress that the strive to obtain, retain, protect, and foster valued resources is a universal primary human motivation, akin to an automatic evolutionary survival behaviour, and transcending culture, age, and environment (Hobfoll & Lilly, 1993; Hobfoll, Lilly, & Jackson, 1991). The mechanisms of loss and gain are therefore of greater centrality to psychological health than the identified resources. For older adults in particular loss, or threats of loss - to health, finances, and social support - is salient, particularly in late old age. Hence losses that are actual or tangible, as well as losses that are perceived can cause psychological distress (Brotheridge & Lee, 2002).

Although concerned with shorter term shifts in resource ownership and the relationship of such change to psychological wellbeing, COR theory is held within umbrella resource theories that emphasize a longer term perspective. These theories assume resources are “gathered” for an individual prior to birth through inter-generational transmission, and more directly from birth where lifespan



trajectories begin to take shape through the health and learning opportunities that resources afford and build upon (Wickrama, Conger, & Abraham, 2005; Willson, Shuey, & Elar, 2007). COR theory is heavily informed by theories emphasizing the influence of lifespan sequences and events on the accumulation of resources over time (Antonovsky, 1979; Lomranz, 1990).

COR theory was developed, in part, as a response to stress and coping theories of the 1960s and 1970s (Lazarus, 1966; McGrath, 1970). Hobfoll (1988, 1989) viewed theories such as the Diathesis-Stress Model (Lazarus, 1993) as placing too great an emphasis on individual coping capacity in the face of environmental and personal stress. Resource based theorists have argued the emphasis on the individual and their capacity to cope denies or at least underplays the reality of resource poverty and environmental context (Crystal & Shea, 1990; Dannefer, 2003; DiPrete & Eirich, 2006; Hatch, 2005; O’Rand, 1996).

Unlike previous stress and coping frameworks, COR theory has proposed that perceptions of most major stressful events are universally similar. Hobfoll (1988) plausibly argues that it would be unusual for loss of physical health to be perceived as anything other than a loss or negative event. Within COR theory perceptions, or attributions about an event are secondary to the loss itself. Particular “personal skill resources” such as resilience, self-confidence and self-esteem are part of a persons’ resource pool sitting alongside other resources such as money, social support and insurance. This pool of resources can be utilized to buffer the effects of stress. For example, Kubicek et al. (2011), using data from 2,899 participants who experienced loss of employment through retirement over the course of the Wisconsin Longitudinal Study (1957-), found that post retirement wellbeing was

associated with pre-retirement physical health and tenacity in goal pursuit for both men and women. Financial assets were strongly associated with men's retirement satisfaction. For women preretirement social contact was most significant suggesting a robust resource reservoir can be a buffer against loss. Jopp & Smith (2006) found in a study of 159, 71-91 year olds that financial resources and adaptability such as knowing and using SOC (selection, optimization, and compensation) strategies were independently predictive of psychological wellbeing for this group.

The development of COR theory, can be distinguished not only by a shift in emphasis, but also by a shift in philosophical standpoint. Unlike other stress and coping models, which view wellbeing for the most part as self-determined through personal attribute or coping capacity, COR theory views wellbeing as a function of the environmental nest in which one was born, and now lives. This includes one's history and a considerable portion of circumstantial luck or misfortune. An insight key to COR is that the individual cannot be separated from the social context in which they live their lives; people are in a sense shaped by and actively shaping their worlds (Hobfoll & Wells, 1998).

### **Defining resources**

Within COR theory resources are defined broadly as "things that individuals value" (Hobfoll & Wells, 1998) - a definition that arguably produces an endless list. Hobfoll (2001) however, in both research and theory chooses to concentrate on resources that have wide acceptance, those that he calls "primary" - such resources are shared by many, if not most, people within a given context. He has created a

list of 74 resources (Appendix 1, p.201) he claims hold validity within a western culture, arguing that loss of any one resource would be experienced as loss by most people within this context. Hobfoll's (2001) claim that most resources identified are transcultural is yet to be tested.

For the purposes of categorizing, Hobfoll (1989) suggests it is helpful to divide resources into four groups: 1) objects, 2) conditions, 3) personal characteristics, and 4) energies. They can be of value in themselves such as physical health, or of secondary value - used to obtain an intrinsically valued resource, such as health insurance. "Objects" are those things physical in nature, and either necessary for survival, such as shelter or transport, or have an acquired value, such as art. Evidence suggests objects necessary for survival are rated as being of higher value than luxury objects (Hobfoll et al., 1991). This is also predicted by Maslow's theory of self-actualization (Maslow, 1968), which Hobfoll (1989) has identified as one theoretical base for COR theory development. "Conditions" provide access to survival needs and provide opportunities for accessing other resources. The condition of "a good marriage", for example, may provide access to emotional support and love. Conditions tend to be built over a long time, such as a job of high status, but can be lost abruptly, through for example, redundancy, retirement, or bereavement. "Personal resources" include personal qualities and skills such as self-esteem, resilience or, having a professional trade. Finally, "energy resources" by their nature provide access to other resources, such as money, knowledge, or technology. The value of resources is considered to shift over time with age, stage, and changing roles. For the professional, upon retirement the value of the "work wardrobe" is lost, and leisure objects such as golf clubs or bicycles, may increase.

Resources such as money or a spouse/partner have ongoing value, yet still alter in value depending on circumstance.

### **Principles of COR theory**

#### *The path to distress or wellbeing*

According to Hobfoll (1988), loss or threat of loss, of a valued resource undermines one's ability, or one's belief in one's ability to survive, and leads to psychological distress. Retaining, protecting and developing resources therefore, becomes a primary human motivation. Distress is considered to occur when an investment does not accrue an anticipated gain (Hobfoll & Wells, 1998). For example, when financial institutions fail, taking with them retirement funds. As resources are built over a longer time period, older adults have more difficulty replenishing resources, and are more vulnerable to such loss (Baltes, 1997). In older adulthood, social resources may be lost due to death, or the changing circumstances of children, friends and older parents. The loss of the work role may be one of the initial losses taking with it other resources, such as money, or self-esteem. Objectively, older adulthood appears flush with circumstantial loss. Selection optimization and compensation theory (Baltes, 1987) argues by older adulthood many individuals have extensive skills and knowledge regarding the effective use of a limited resource pool, and may be able to have protection from psychological distress by applying strategies to limit losses, and enhance gains. SOC skill development within COR theory, can be seen as a resource gain, one that is useful in buffering the effect of loss into older adulthood. A further example could include bolstering social ties upon retirement, which may lead on to enhancing social support and self-esteem. Taking up a sport or hobby may replace a sense of mastery at work,

with a sense of mastery at something new and allow growth and development in a new life domain.

### *The principle of resource investment*

Inherent in a resource investment strategy is risk. If a financial investment is required to join or participate in a club, the risk is that the club/activity will not be enjoyed or that social relationships are not, as anticipated, forthcoming. Trying something new brings the possibility of success or failure, and with this the possibility of bolstering or depleting resources such as self-esteem and mastery. The decision to become self-employed if made redundant prior to retirement, carries considerable risk to energy and personal resources. It follows that COR theory emphasizes that it is those with considerable resource reservoirs who are more able and likely to risk investment, and therefore have greater potential to make gains. Those with limited resources are thought to adopt a defensive strategy, protecting what they have, although by doing so limiting possibilities for growth (Hobfoll, 1988). An older woman, for example, may not join a café lunch meet with friends in order to protect limited financial resources. In doing so, she may be limiting her access to emotional and social support.

An underlying assumption of the principle of resource investment is that people make decisions about resource investment for all types of resources, as they do their economic ones: by determining the payoff they would receive for their investment. Resources are generally invested and gained over a long time period and their ownership requires certain conditions, such as supportive environments, and successful histories. Resource ownership pathways can be thought to begin in childhood, where children from favourable environments are “invested in” by

parents, teachers, and loved ones (Elman & O’Rand, 2007; Ferraro & Kelley-Moore, 2003; Ross & Wu, 1996). Children gain love, self-esteem, and financial investment, which they can then use to invest for further gain, and have an established buffer of resources to protect them from the effects of loss. Several theorists propose that one’s resource reservoir develops prior to birth and is ‘passed on’ through intergenerational transmission of wealth or poverty (Dannefer, 2003; Hatch, 2005; O’Rand, 1996).

*The principle of the primacy of resource loss*

Resource loss and gain are not considered equivalent processes within COR theory (Hobfoll & Lilly, 1993). Here COR is informed by evolutionary theory, in particular negativity bias acknowledging the acute concern of losses to survival, and explaining the intense psychological distress when loss is experienced (Tversky & Kahneman, 1991). Researchers have suggested the processing of negative or loss-related stimuli may operate along an independent neuroanatomical pathway. These ideas have developed from studies showing greater cognitive processing load associated with loss related stimuli compared with positive or gain related stimuli (Ito, Larsen, Smith, & Cacippo, 1998). Hobfoll and Lilly (1993) also cite research evidence from cognitive psychology on immune neglect to inform this principle. These studies found, contrary to what would be predicted by learning theory (i.e., people learn over time to accurately perceive that adversity is usually overcome), that individuals persistently continue to overestimate the degree of threat, danger, and negative outcome caused by potentially aversive events (Gilbert, Pinel, Wilson, Blumberg, & Wheatley, 1998). Cited too, are the intense biological reactions to trauma related events (Hobfoll & Schumm, 2009). Research suggests that while

people can learn to manage trauma related symptoms, the trauma imprint or “fear network” remains un-extinguishable (Arden, 2011). The primacy of loss assumption, hence, rests on a belief that we are biologically programmed through the process of evolution to pay more attention to loss. The central tenet of COR therefore, is that losses are predicted to have, in the order of magnitude, a more negative impact on psychological wellbeing, than the positive impact gains may have.

Within COR theory, gain is valued only to the extent to which it may compensate for loss, or secondarily bring pleasure. As pleasure in itself does not have “survival value,” gains are assumed to take on most meaning in the context of loss, such as when social support is mobilized to combat the stress of bereavement. There is limited evidence in support of this proposition. In an early study Wortman and Silver (1987) found that while people are deeply affected by the loss of a partner even after a 10-year period, a sub-sample who remarried did not experience an equivalent positive response over the same time period. That is, loss of a partner had a more negative impact on psychological health, than the positive impact made by the gain of a partner. Wells, Hobfoll, and Lavin (1999), in a study of 71 pregnant American women over the course of their pregnancy to post delivery, found that while resource losses predicted postpartum anger and depression, those that made resource gains along with losses, were buffered from the psychological impact of loss. Resource losses and gains in this study were measured over time with the COR-E (Hobfoll, 1988) in which participants indicated a level of loss or gain in relation to each of the 74 core resources identified by Hobfoll (1988) in his seminal article. A recent study by Cheng, Wong, and Tsang (2006) provides further thought on the relationship between losses and gains. In their study of 301 residents of

Hong Kong during the SARS crisis, they found those who gave a “mixed” account of their experience in terms of benefits and costs, had higher levels of psycho-social resources at an 18-month follow up. Those who had noted only having benefited during the crisis were worse off at 18-months. The authors suggest this counter-intuitive finding results from an individual creating contextual meaning for the gain experience, which in turn promotes growth and resiliency. Those who benefited without the contextual backdrop of loss had the experience, without the meaning - therefore the effect of the initial benefit is not lasting. In support of the primacy of loss hypothesis, those who only experienced “costs” (or losses) during the crisis had the worst levels of psychological health.

Although resource gains are considered to have less of an impact, they are not without it. Shmotkin (1998) describes all ageing individuals as facing a challenge to maintain psychological wellbeing by making continued gains through personal development in spite of inevitable losses in physical abilities. Hobfoll and Wells (1998) suggest that resource gains have particular relevance in later life and suggest there are many possibilities for gain, opportunities to enjoy life in ways that were previously not possible. Studies have established possibilities for improvements in wisdom, emotional control, and higher levels of cognitive development (Baltes, Staudinger, Maercker, & Smith, 1995), and mastery in leisure opportunity. Friendships and relationships with family and grandchildren may flourish when time to invest in such activity increases. Gain opportunities however, are not available to all in society. For those with lower levels of baseline resources at retirement, it can become increasingly difficult to replenish depleting resources, and many may be inhibited from seeking and having opportunities to gain (Hobfoll



& Wells, 1998). Hobfoll (1989) suggests that resource poor individuals are more likely to adopt a defensive posture during times of stress as an attempt to conserve resources that they own. He suggests that deploying resources at such times is stressful. Older adults for example may be reluctant to invest money in new hobbies when they have concerns about making retirement funds last.

The impact of resource loss rests on a burgeoning research base. Loss of resources has been found to be predictive of the psychological and physical health of trauma victims. In an early study of Vietnam veterans, King, King, Keane, Fairbank, and Adams (1998) found long-term resource losses over time predicted the large majority of the variability in post combat PTSD diagnoses. Resource loss following natural or man-made disaster has also been found to predict psychological diagnoses. Studies have shown that loss of resources as a result of Hurricane Andrew (Ironson et al., 1997), the World Trade Center attack in New York (Bonanno, Galea, Bucciarelli, & Vlahov, 2007; Hobfoll, Tracy, & Galea, 2006), and terrorism in Israel (Hall et al., 2010) have contributed to the severity of the psychological diagnosis. Resource loss has also been implicated in the wellbeing of those who have experienced personal trauma, such as cancer (Hou, Law, Yin, & Fu, 2010), childhood trauma, and rape (Schumm, Hobfoll, & Keogh, 2004). Holahan, Moos, Holahan, and Cronkite (2000) in a 10-year longitudinal study of 326 randomly selected adults from the San Francisco Bay area found that resource loss over this 10-year period was significantly associated with an increase in depressive symptoms. This research, using structural equation modeling, suggested resource loss mediated the relationship between negative life events and depressive symptoms. Resources studied were identified as “psychosocial” and detailed as family support, self-confidence, and temperament. Although control for initial

depressive symptomatology was used in this study, common method variance may have contributed to linkages - in other words, there is a potentially confounding rather than causative relationship between self-confidence and depression. This is a limitation openly identified by the authors of this study.

*The propensity of losses and gains to spiral*

Hobfoll (1988, 1989) stated within COR theory that resource “loss spirals” occur, and are most likely to occur amongst individuals lacking adequate resources, or when an initial loss renders resource reservoirs unable to meet the demand of subsequent loss. Loss of a valued resource therefore increases the vulnerability for further loss and the possibility of a loss spiral or cycle. With each “turn” of a loss spiral, resources become increasingly depleted and less able to offset future demands (Baltes, 1997; Thoits, 2010). Loss cycles can gain increasing momentum when a loss is significant and an individual is without or with little resource reserve capacity. Experiencing redundancy at age 60 could perpetuate the loss or threat of loss of a family home, access to leisure or social activities, self-confidence, mastery, and optimism, for a sole income earner with a mortgage. For an individual experiencing redundancy at this age with reserve capacity, such as a working spouse and a mortgage free home, further losses become less likely.

Significant losses in later life can be associated with increased likelihood of physical and psychological ill health. Wells, Hobfoll, and Lavin (1999) found in their study of pregnant women that those women who had experienced a series of losses were more negatively affected by later resource losses in terms of increased anger and marked depressive symptoms. The King et al. (1999) study cited earlier found that Vietnam veterans who had experienced pre-war losses, were more likely

to have significant losses and PTSD symptoms post war, than those who had not experienced such losses prior to active service. In later life, the concept of the loss spiral suggests that it is older adults with limited resources who will be most vulnerable to the snowballing succession of losses increasing the possibility of health morbidity and reduced life expectancy.

Gain spirals are considered possible, but operate usually by resource investment, and occur without the same level of momentum. Individuals with resources available to invest are more likely to experience a cycle of gains. A retiree who can afford golf clubs and membership may gain from this subsequently by increasing social contacts, emotional support and physical fitness. Because gain spirals are not as significant to survival they are viewed as having less of a psychological impact. As noted earlier, older adults who are resource poor have very limited opportunity for gain in late life, and less opportunity for gains to spiral.

#### *Resource caravans*

The final COR concept discussed, the “resource caravan,” (Hobfoll, 1988, 1989, 2001) describes the way resources aggregate together. This is the simple suggestion that people with a lot (or a little) of a single significant resource tend to have a lot (or a little) of other resources. For example, Hobfoll (1998) describes self-efficacy caravanning with optimism, and social support with self-esteem. These resource caravans are considered to travel together over time unless some inner or outside force causes an alteration in their constellation (Hobfoll, 2001). This concept steps away from the significance of loss and gain and is concerned about level of resource ownership at any point in time rather than across time. In late life wealth might

mean one has health insurance and access to health care resources without wait, preserving rather than depleting physical health.

### **Empirical support and limitations**

Empirical support for the principles of COR is growing rapidly (Arata, Picou, Johnson, & McNally, 2000; Borg, Hallberg, & Blomqvist, 2006; Hobfoll & Lily, 1993; Gagliardi, Marcellini, Papa, Guili, & Mollenkopf, 2010; Maslach, Schaufeli, & Leiter, 2001). Although a wealth of supporting evidence comes from within organizational psychology, more recently COR has been adopted within lifespan models by theorists with a particular interest in exploring the multi-dimensional determinants of wellbeing. Most recently, Leung and Earl (2012) in a study of 257 Australian retirees, found support for an assessment of resources critical to retirement (the Retirement Resources Inventory). They further found that ownership of resources within social, health and economic domains accounted for approximately 22% of the variance in retirement adjustment beyond that accounted for by demographic variables in this sample. Results from cross-lagged panel analysis strongly indicated retirement resources predicted retirement wellbeing rather than the other way round. More recently, COR theory has been seen and utilized as a meta-theory within which theories pertinent to older adulthood have been subsumed. Jopp and Smith (2006) cited earlier, integrated selection optimization and compensation theory within COR, by identifying and measuring SOC strategy as a key personal resource that can develop into late adulthood and be utilized to cope with stress.

Hobfoll (1988) has argued in a number of papers the most distinguishing feature of COR is its “testability,” citing change in resource ownership and psychological

wellbeing as measurable variables. Criticisms of other models including that of Lazarus' (1966) stress and coping framework, have come from the assumption that coping capacity offsets environmental stress, and environmental stress challenges coping capacity. The circular reasoning inherent in this assumption is a challenge to empirical research design.

COR theory is not itself without criticism, and at the heart of much criticism is the determination of what is and what is not a valued resource by a person in any particular culture. The tension between resources that are of idiosyncratic value versus those with culturally determined significance remains a contentious issue. A related issue is the apparent "limitlessness" of potentially significant resources, complicating the potential operationalization of COR theory. Hobfoll (2001) counters these concerns by referring to his developed list of 74 *key* resources (Appendix 1, p. 201) that he argues are transcultural and instrumental in their ability to buffer the effects of stress. Other "objects" may be of some value but are not considered *key* resources vital or necessary to wellbeing in COR theory. Only loss or gain of key resources is thought to significantly impact on psychological wellbeing, so only these are of concern to COR theory. A further issue regards the net worth of resources. It seems reasonable to assume resources are not of equal value, and even that the value of particular resources shift and change as people move through their lives. Having differing "relative value", makes ascertaining "net gain" or "net loss" difficult to comprehend or operationalize. Additionally, COR theory is criticized for not accounting for the influence of individual personality traits as underlying influences to both vulnerability and resilience in the face of stressful events. Hobfoll (2001) has defended his model by stating, "resource loss

has a robust effect over and above the impact of these personality traits,” (Hobfoll, 2001, p. 360). As yet, there is little direct empirical support for this statement.

Despite these criticisms, COR theory remains a useful means of illuminating our understanding of the relationships of, and specifically changes in resources over time to psychological wellbeing. A particular strength of COR theory is the potential for positive social change. Understanding the importance of maintaining different resources allows for the development of resource engaging ecologies (Hobfoll, 2011). Support, stability, and safety within communities, Hobfoll (2011) argues, are crucial in creating sustainable community ecologies. He calls for support in the development of resource caravan passageways, which he describes as “the environmental conditions that can foster, enrich, and protect the resources of individual sections or segments of organizations in total, or if ill-considered detract, undermine, obstruct, or impoverish people’s or group’s resource reservoirs” (Hobfoll, 2011, p. 118). Identifying the impact of key resource transitions in late-life allows for interventions to be targeted at individual, community, and societal levels.

COR theory is considered the best fit of model to examine the impact of changing resources on psychological wellbeing within the database and longitudinal timeframe of the Health, Work and Retirement Study (Alpass et al., 2007). The psychological impact of loss, gain and stability in resource levels has been little studied from a longitudinal perspective in later-life. COR theory provides an operational means to examine the impact of change in key resources at a stage of life where resource accumulation and depletion can be studied. Late life is peppered with multiple transitions that are rare in other periods of the lifespan.

Studying these transitions may not only illuminate our understanding of psychological wellbeing in later life, but may shed light on the psychological impact of transitions during younger years. Most importantly COR theory may help our understanding of how to help older adults cope with the stress of transition, and the stress associated with the depletion of key resources. Finally, as COR theory is not specific to late life, but rather a theory that is equally relevant across the lifespan, using COR may help to break down stereotype and prejudice. By linking older adulthood into a lifelong process we are “less likely to see older individuals as anything but ourselves in another metamorphosis,” (Hobfoll & Wells, 1998, p. 132).

### **Chapter summary**

This chapter outlined the core principles of COR theory. While not developed with the context of older adulthood or the transition to retirement in mind, conservation of resources (COR) is a stress and coping theory with themes relevant to an understanding of psychological wellbeing in later life. The principles of the theory consider the psychological impact of actual or perceived loss and gain of resources, with loss transitions as particularly salient because of the threat loss of resources poses to survival. Older adults are vulnerable to the experience of loss and have more limited capacity to replenish resource reservoirs through physical or material gain. Gains, however, can be made. For some, these are financial following access to pensions, but for many they are personal gains such as learning adaptive strategies, free time, access to leisure pursuits, and enriched family ties. COR also emphasizes the interplay of losses and gains and suggests it is transition rather than ownership of resources that has the most impact on psychological wellbeing. Empirical evidence is growing in support of the principles of COR,

although very few studies have looked particularly at resource gains and losses in the transition to or within older adulthood.

This study uses COR as the theoretical landscape in which to evaluate the impact of changes to three key resources – physical health, economic standard of living, and social support. These resources were chosen because of an accumulation of evidence supporting their individual contribution to psychological wellbeing in later life. They are considered by several theorists to be critical resources for wellbeing as people age (Leung & Earl, 2012; Wang & Shultz, 2010). These resources will be considered in turn in the following chapter.



## **CHAPTER 4**

### **KEY RESOURCES IN OLDER ADULTHOOD**

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### **Three Key Resources Important to Psychological Wellbeing in Older Adulthood**

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Although a number of resources have been identified as important to early and late older adulthood, including access to transport (Spinney, Scott, & Newbold, 2009), religious involvement (Fry, 2000), physical activity (Morgan & Bath, 1998), and cognitive skills (Logsdon, Gibbons, McCurry, & Teri, 2002), three key resources have the largest body of empirical support: socio-economic status, social support, and physical health. Studies to date have primarily focused on the impact of level of “ownership” of these resources without consideration that ownership of resources changes across time, and thus change in itself may be the most significant influence on psychological wellbeing. These resources have been chosen because while the impact of level is evidential and widely accepted, the impact of change is not. In this chapter each resource will be considered in turn, outlining what is currently known about the relationship of each to psychological wellbeing.

#### **Economic standard of living and psychological wellbeing in older adulthood**

The association between low socio-economic position and poor health is firmly established (Diener & Biswas-Diener, 2002; Krause et al., 1996; Pappas, Queen, Hadden, & Fisher, 1993). Lynch, Kaplan, and Shema (1997) in a 30 year longitudinal study using a representative sample of adults from California (N = 1,124) found that sustained economic hardship increased the odds of functional impairment (odds ratio 3.38; 95% confidence interval, 1.49 to 7.64), and clinical depression (odds ratio, 3.24; 95% confidence interval, 1.32 to 7.89). In their study, very little evidence of reverse causation was found; that is, poor health predicting poor economic condition. Likewise, Chiao, Weng, and Botticello (2011) conducted

an 18-year study of 3,062 Taiwanese older adults aged 60, and found that older adults who experienced economic strain had poorer wellbeing than those who did not. These results held once demographic conditions were controlled for.

Several studies have examined the link between socio-economic position and mental health specifically, and there is strong evidence financial hardship is associated with depression (Fryers, Melzer, & Jenkins, 2003; Kessler et al., 2008; Levinson et al., 2010; Lorant et al., 2003). Financial hardship in this instance is defined as an individual's inability to source day-to-day resources necessary for an adequate standard of living including food, heating, accommodation, and transport (Whelan, Hannan, & Creighton, 2001). Financial hardship has been shown to have a stronger link to depression than personal income, unemployment, or level of education all of which take no account of current living costs and personal debt (Jenkins et al., 2008). Butterworth, Olesen, and Leach (2012) found financial hardship to be a stronger indicator of depression than other socio-demographic indicators of low socio-economic position such as unemployment or living in a disadvantaged area. Only reliance on welfare payments remained a significant factor linked to depression independent of hardship in their study. Further a dose-response was also evident. For those with multiple hardships the odds of depression doubled. While all types of hardship in this study were correlated with depression, food insecurity produced the strongest relationship (Butterworth et al., 2012). Other studies have similarly found that incremental improvements in psychological health were associated with steps above the poverty line to the level of financial comfort (Ecob & Smith, 1999).

There has been considerable debate, regarding the role low socioeconomic standards of living plays in depression, i.e., as an agent in its aetiology and development, or as a maintenance and reinforcing factor - by limiting access to resources required for recovery (Butterworth et al., 2009; Lorant et al., 2003). Alternatively, the role of economic resource as an outcome of mental disorder over the life-course has been conceptualized with mental disorder impacting on educational attainment, labour force participation, and therefore earnings (Kessler et al., 2008; Levinson et al., 2010). The social selection theory posits that psychological ill-health causes a downward social mobility, leading to economic hardship and poverty (Eaton, 1980) and may indirectly affect social position through such factors as relationship dissolution, unemployment, early retirement, or bankruptcy (Wade & Pevalin, 2004; Whooley et al., 2002).

Financial hardship is clearly a potent stressor, plausibly associated with the aetiology of stress related mental disorder; it is accompanied with feelings of despair, demoralisation, lack of control, and helplessness (Brown, 2002). The consensus growing amongst researchers is that socioeconomic disadvantage precedes poor mental health and has a strong causal influence (Johnson, Cohen, Dohrenwend, Link, & Brook, 1999), with most contemporary models of psychological health including some measure of socioeconomic position (Evenson and Simon, 2005; Hawkins and Booth, 2005; Turner & Van Gundy, 2004).

High levels of socio-economic status are considered to equally contribute to enhanced psychological wellbeing (George, 1996; Pinquart & Sorenson, 2000). High socio-economic status may be a self-reference indicative of the accomplishments of one's life and a marker of accepting one's past as worthwhile.

Thus higher education and occupational successes along with financial reward may contribute to a positive appraisal of one's life course, which in turn may promote psychological wellbeing in old age. Several studies for example have shown that the influence of higher income on wellbeing is mediated by activities (Grundy & Sloggett, 2003; Taylor, Jenkins, & Sacker, 2012). People with very high standards of living have greater opportunity for and exposure to pleasurable events and novel activities, which have been known to enhance wellbeing. Higher educational attainment may in addition contribute to a better knowledge of the availability of these activities, which may in turn promote their use (Pearlin, Menaghann, Lieberman, & Mullan, 1981).

There is mixed evidence regarding the impact of economic hardship on psychological wellbeing in late-life. Older people who have left the workforce are over-represented in lower economic status groups in western countries (Zaidi, 2008). It should therefore follow that older adults are susceptible to poverty and therefore poor mental health. Research suggests that there is an amplification of the impact of low economic status before retirement to that after retirement. People on low incomes before retirement carry intensified physical and mental health vulnerabilities with them into retirement (Arber & Ginn, 1995). Those with less are more susceptible to further losses in physical and mental health.

George (1992) reviewed more than 20 studies in which bivariate correlations between financial resources and subjective wellbeing were reported in the older adult participants and found correlations between .12 and .43. In a study of elderly Chinese living in Hong Kong, Chi and Chou (2001) reported that financial strain was significantly associated with a general measure of life satisfaction. Mirowsky

and Ross (2001) alternatively found a weak association between hardship, depression, and age. They suggested older adults were less susceptible to distress in the face of sustained hardship, hypothesizing those in late-life are better equipped to cope with negative life events because of greater experience and maturity. Two studies, Weich and Lewis (1998) and Butterworth and colleagues (2009), failed to find the relationship between financial hardship and depression varied with age. More recent studies have found strong evidence to the contrary. A study by Anstey and colleagues (2012) of 8,841, 16-85 year olds from Australia's 2007 National Survey of Mental Health and Wellbeing, found the relative effect of hardship was strongest in late adulthood (OR = 4.10, 95% CI = 1.16 - 14.51) compared with that of middle age (OR = 3.53, 95% CI = 2.05 - 6.09), and non-significant in the youngest group (16 to 34 years). Gilman et al. (2013) in a study of 1,226 older adults sampled from primary care, found that mean depression rating scores were significantly higher for those patients experiencing financial strain [(b) 1.78, 95% CI = 0.67-2.89)]. Financial strain was also associated with suicidal ideation amongst this group (OR = 2.35, CI = 1.38-3.98). Zimmerman and Katon (2005) found financial strain associated with depressive symptomatology independent of income level. Further, when adding social support to the regression model, associations remained largely unchanged. The Whitehall (II) study is perhaps the most ambitious study of social inequality in self-reported health in old age to date. Chandola, Ferrie, Sacker, and Marmot (2007) surveyed 10,308 men and women working in London's civil service and found while mental health showed the previously reported trend of improving into early old age, those who were on lower socio-economic grades made slower improvement and achieved lower levels of mental health than those on higher grades. They concluded social

inequalities increased into old age, and gaps in physical and mental health between wealthy and poor widened.

Interestingly, Leveque, Van Rossem, De Boyser, Van de Velde, and Bracke (2011) found that associations between economic hardship, depression, and age varied across socio-political context. They examined data from 23 countries in the European Social Survey (2006-2007) using multilevel analyses and found that the link between hardship and depression was not significantly different across the life course in Nordic and Northern European regions, was positively associated across Southern and Eastern European countries, and decreased with age in Anglo-Saxon welfare states. Welfare regimes may therefore be significant in attenuating, strengthening or reversing the psychological effects of economic hardship on aging.

While New Zealand has no official poverty measure, low-income thresholds or poverty lines are generally used to reference those likely to be experiencing significant economic hardship – recognized as approximately 60% of the median income of any reference year. Using this measure, the poverty rate for older New Zealanders was at 7% in 2010 according to Ministry of Social Development statistics (Ministry of Social Development, 2010), which is lower than any other age group, yet a significant proportion. Compared to other OECD countries New Zealanders' average household disposable income currently ranks below average, 25<sup>th</sup> out of 36 countries (US\$18,601, compared to the average of US\$22,387), at the same time spending on average 29% of household income on housing costs - the highest of any OECD country, where the average is 22%. This figure has risen rapidly since the 1980s where the average was 10%, meaning that real levels of disposable income have reduced considerably, as has the ability to save for retirement during the

working years. While National New Zealand Superannuation provides a personal income floor for the over 65s, those vulnerable to poverty include people with little or no personal savings, or without home ownership. As home ownership rates are declining the likelihood of increasing numbers of over 65s experiencing financial hardship in future years will increase. However, although poverty levels are rising, in New Zealand it is also possible for the financial situation for some over 65s to improve. Once pensionable age is reached, those who have been within the benefit system may find that their income increases with the addition of superannuation. Those who continue to work while collecting superannuation are also gaining economically over these years.

International research has shown movement into and out of economic hardship is considerably more volatile over the lifespan than was previously thought. It has been estimated that 26 to 39% of people 45-65 years of age have had income reductions of 50% or more at least once in a 10-year period (Lynch et al., 1997). Those with less have been shown to be considerably more susceptible to changing economic circumstance than those with higher economic living standards (Grundy & Sloggett, 2003). The psychological impact of transitions across economic gradients in late life has not, to this point in time, been given adequate research attention, and is not well understood.

### **Social support provision and psychological wellbeing in later life**

Social support has been thought to contribute to psychological wellbeing through direct provision of emotional support. Such support also links people indirectly to other valued resources, such as pragmatic assistance, information, transport, belonging, purpose, and community (Fiori, Antonucci, & Cortina, 2006). Recent



research suggests that patterns of social connectedness through and beyond retirement are nuanced and show great complexity. Cornwell, Laumann, and Schumm (2008) examined data from 4,400 participants in a population-based study in America and found evidence age was negatively related to network size, closeness to network members, and number of non-primary group ties. Age was positively related to frequency of socializing with neighbours, religious participation, and volunteering. Older adults are more likely to have a smaller network, but one that is more active in terms of participation and frequency of contact - a decrease in social network volume along with an increase in density and quality of relationship (Ajrouch, Blandon, & Antonucci, 2005; Schnittker, 2007).

Carstensen (1992) analyzed interviews conducted with 50 participants at the age of 18, 30, 40, and 52 years. This study similarly found that interaction frequency with acquaintances and friends decreased from young adulthood onward, whereas interaction frequency with family members and closeness to family and friends increased once middle adulthood was reached. Reduction in network size may be cast as a conscious choice based on one's values, rather than as a sign of marginalization with negative implications.

Without exception, older adults are vulnerable to social losses as they move through critical life transitions - loss of social roles, collegial relationships, spouses and friendships through bereavement and relocation. Functional impairments experienced in late life can also lead to a loss of non-kin ties, reduced reciprocation in social exchanges and a lack of involvement in voluntary associations (Britton et al., 2008). Geographic mobility of family and relatives can mean reduced frequency of contact and support through transitional experiences and declines in health.

Some older people - particularly those in areas with heavy outward migration of young - lack networks of emotionally and instrumentally supportive family relationships. A 16-year follow-up study in Finland of 974 older adults found that the number and quality of contacts diminished into late old age (70-85 years). Offspring were more often identified as the “closest person” despite reductions in the frequency of contact with them (Lyyra, Lyyra, Lumme-Sandt, Tiikainen, & Heikkinen, 2010). The transition to widowhood, has been found to be particularly stressful and disruptive to social support, both immediately following the spouse’s death and in the long term (Leichenstein, Gatz, Pendersen, Berg, & McClearn, 1996).

Spatial context is considered to bear significant impact on the constraints and opportunities for social involvement for the older adult, particularly amongst the oldest old, where the social and physical space occupied by this group has been shown to shrink especially for those with fewer financial resources (van der Meer, 2008). Kweon, Sullivan, and Wiley (1998) argue, from their research into environmental barriers to activity in older adults, that this is not so much attributable to declines in health, but a failure of society to organize spaces for older people effectively. Several studies have linked accessible neighbourhood open spaces to happiness, quality of life, and activity levels of older adults (Herzele & de Vries, 2012; Sugiyama, Thompson, & Alves, 2009). Gender and marital status have also been found to affect network structures (Brown, Lee, & Bulanda, 2006; Chan, Malhotra, Malhotra, & Ostbye, 2011; Wenger, 1991). Marriage and living alone with a spouse seems to have little, or if anything, a negative impact on network size for women but has a positive effect for men (Corin, 1982; Nezlek,

Richardson, Green & Schatten-Jones, 2002). Single men have the smallest networks compared to widowed men, while married men have the largest networks compared with other men (Wenger, 1991).

Since the 1960s, research has shifted from acknowledgment of the social vulnerability of the older adult, to begin to focus upon the types and degrees of connectedness that lead to positive outcomes for the aged. A vast evidence base has accumulated lending strong support to the link between social participation and physical and psychological wellbeing throughout the lifespan and particularly in old age (Thoits, 2010). Social involvement in old age is linked to lower mortality rates (Hsu, 2007), improvements in physical functioning (Jang, Mortimer, Haeley & Graves, 2004), heightened cognitive and emotional functioning (Folland 2007; Gleit et al., 2005), and reduced likelihood of dementia processes (Crooks et al., 2008). In an 18-year longitudinal study of 1,388 Taiwanese older adults, Chaio, Weng, and Borticello (2011) found (using growth curve modeling accounting for demographic and health differences) that those who continued or initiated social activity in later life had significantly fewer depressive symptoms than those who did not ( $\beta = -1.41$ ,  $p < 0.001$ ).

Social support additionally operates as an efficacious buffer against acute difficult life events and chronic strains (Antonucci, 1990; Eckenrode & Gore, 1990; Hatch & Dohrenwend, 2007), while weak social relationships are linked to psychological distress amongst older persons experiencing chronic and acute stressors. Lonely individuals are prone to mental illness, and in particular depression, and increased mortality risk (Antonucci, 1990; Barrera, 2000; Berkman & Glass, 2000; Bowling & Farquhar, 1991; Cohen & Wills, 1985; Holt-Lunstad, Smith, & Layton, 2010; Israel

& Schurman, 1990). Correlations between perceived levels of functional support and depression ranged from -.20 to -.45 (Newsom & Schulz, 1996; Oxman, Berkman, Kasl, Freeman, & Barrett, 1992; Russell & Cutrona, 1991). Lack of social support has been linked to mortality, morbidity, poor recovery rates from illness (Berkman, 1983), and a reduced likelihood of individuals engaging in healthy behaviours (Oxman & Hull, 2001). A meta-analysis of social factors and suicidal behaviour in older adults in industrialized countries found limited social connectedness was associated with suicidal ideation, non-fatal suicidal behaviour, and suicide in later life (Fassberg et al., 2012). Ashida and Heaney (2008) conducted 147 face-to-face interviews with community dwelling older adults. Their findings showed that frequency of social connectedness and network proximity and density had positive effects on health status, suggesting that enhanced and close relationships are important predictors of wellbeing. Similarly Hatfield, Hirsch, and Lyness (2013) found in a study of 735 American older adults that social interaction provided a significant buffer between the burden of functional impairment and depressive symptoms. Importantly, it was the emotional support rather than instrumental support that was most efficacious as a buffer.

Findings from the Survey of Health, Ageing and Retirement in Europe (SHARE), which includes information gathered from 15,000 retired men and women, suggest social relationships where reciprocity is experienced improves prospective and perceived quality of life in retirement (Siegrist & Wahrendorf, 2009). A comparatively small-scale study of 77 women between 30 and 70 years of age suggests interpersonal tension had a greater negative effect on satisfaction with life than social support had a positive impact (Darbonne, Uchino, & Ong, 2013). This

study had a number of limitations, which compromised its significance. Consideration of social tension as a flipside of social support is, however, arguably of instrumental value. That strong social networks have positive effects on wellbeing is undisputed by empirical evidence. As such, it is widely accepted that social support is of particular importance to older people because of the numbers and types of stressors experienced. As a resource itself, “social support” is thought to undergo considerable transition over the period from early to late old age. While much is known about the importance of social support, less is known about the impact of transition, or changes in perceived levels of social support.

### **Physical health and psychological wellbeing in later life**

Of the dimensions of ageing commonly identified, biological ageing is the most visible. Ageing, at its heart is a biological process upon which a matrix of environmental and other non-genetic factors are placed. Normal chronological ageing processes involve unavoidable loss of some physical capacity. Physiologic and performance variables generally reach their peak between late teenage and 30 following which, functional capacity begins to decline. The most critical change is a decline in cardiac function (Wilson & Tanaka, 2000). Muscle strength for both men and women declines approximately 30% between age 20 and 70. These internal physiological changes have an external face as changes in the cell regeneration process create the embodiment of a person carrying lines, colour, and a stature that indicate they are beyond youth.

Normal aging, while not pathological, creates a vulnerability to disease, illness, and disability. Muscle weakness, and decreases in bone density in old age make older individuals more likely to fall and more open to disabling consequences caused by

breaks and fractures and pain. Other illnesses associated with ageing processes include arthritis, coronary heart disease and hypertension. High rates of health morbidity and disability are found amongst the older population in New Zealand as they are in other countries. The 2001 Disability Survey (Statistics New Zealand, 2001) showed that more than half of all New Zealanders over the age of 65 had a disability - defined by any limitation in function caused by a chronic or long-term health condition.

The physical health status in the older adult population is diverse – often the outcome of a life-long pattern of socio-demographic circumstance and fortune. It is also not static; while normal ageing is generally associated with some loss of physical ability, it is also possible and common for health improvements to occur in later life. Increased time for recreation and exercise post retirement has meant many older adults have seen gains in strength, endurance and cardiac function. Older adults who have begun an exercise routine have found improvements with their mental health and level of life satisfaction (Vogel et al., 2009).

Physical health is strongly linked with the subjective experience of psychological wellbeing. While decreasing physical capacity associated with normal ageing is not associated with psychological distress (Blazer & Hybels, 2005; Halpert & Zimmerman, 1986; Smith & Baltes, 1999), several studies have shown that chronic physical illness and disease is linked with mental ill health and depression in the older adult (Heidrich & Powwattana, 2004). Bierman and Statland (2010) found for older people, limitations in the ability to perform activities of daily living was significantly linked with depressive symptoms. Hsu (2012), in a Taiwanese sample of 4,049 participants surveyed over 18 years and six data waves, looked specifically

at diverse lifespan trajectories. A total of 1,402 participants completed all six data waves. Their goal was to identify group-based trajectories of depressive symptoms over an extended period among older people and to identify risk factors for depression. Higher-level trajectories of depressive symptoms were related to chronic disease, lower physical function, lower economic satisfaction, and previous depressive symptoms for both men and women (Bruce, 2002).

Loss of functional ability also significantly impacts on other dimensions of wellbeing, and may indirectly affect psychological health. Older individuals with disabilities are likely to have an average household income lower than that of older individuals who are not disabled (Statistics New Zealand, 2001). Physical disability and loss of mobility may also make an older individual vulnerable to social isolation, leading to less social support (Gagliardi, Marcellini, Papa, Giuli, & Mollenkopf, 2010). For people with physical disabilities support may be primarily instrumental, rather than social and emotional.

The decline of physical health may contribute to declines in psychological wellbeing and an increase in depressive symptoms in older adults. Transitions in physical health, disability status, and especially the onset of disability, are highly stressful and disruptive because of the required adjustment in day to day living (Elliot, Witty, Herrick, & Hoffman, 1991; Koenig, Pappas, Holsinger, & Bachar, 1995). The impact of the effects of change in physical health has been little researched from a longitudinal perspective in the older adult population. One study has examined the psychological impact of disability status using data from two waves of the National Institute of Ageing Established Populations for Epidemiologic Studies of the Elderly, from Duke University, United States (Yang &

George, 2005). They found the onset of disability increased depression scores by 61% in a population of 1,300 older adults (as measured by the Center for Epidemiological Studies Depression measure). In their overall regression model disability levels, which were stable across time, showed decreasing importance in predicting change in CES-D relative to disability transition. Further, the onset of disability showed stronger effects on depression scores than improvements in physical health. The impact was related to the gradient of transition - those experiencing the transition to severe disability experienced the greatest level of depressive symptomatology. Early losses, such as the first stages of muscle weakness, also showed a relationship to depression, indicating that these changes may trigger an awareness of future decline. In contrast, gains in physical activity/health in late-life have been linked to improvements in psychological wellbeing (McAuley, Elavsky, Jerome, Konopack, & Marquez, 2005).

### **Chapter summary**

Three key resources stand out by their evidence base for their independent effects on psychological wellbeing in older adulthood. These are economic resources, social support, and physical health. This chapter summarized the support for the independent effect of each resource on psychological wellbeing in older adulthood and argues that a more nuanced assessment of the relationship to these resources is warranted - in particular, an assessment of the psychological impact of losses and gains across time.



**CHAPTER 5**  
**RESEARCH OBJECTIVES**

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The general aim of this study was to formulate and evaluate a series of hypotheses and questions derived from Hobfoll's (1989) conservation of resources theory, in order to provide some insight into a little examined aspect of older adulthood – the psychological impact of gains and losses. Specifically, the study examines whether there is a relationship between change in resource ownership and changes in psychological wellbeing. The main hypotheses explore whether in later life, changes in the key resources of physical health, economic standard of living, and social support are reflected in changes in psychological wellbeing over a period of time (in this case, four years). The use of Conservation of resources (COR) theory has mostly been evaluated within the field of organisational psychology and support for this model has gathered. As resource losses are in many respects expected with transitions through retirement and in older adulthood, COR is arguably a good model to examine whether resource loss is a stressor causing losses in psychological wellbeing, and whether gains have the inverse effect.

### **Hypotheses testing and exploratory questions**

The theoretical stance in which this study is embedded is that of COR theory. This study is a direct test of the theory in relation to resource transitions experienced approaching and in older adulthood. Hypotheses and exploratory questions are derived from the principles and assumptions outlined by Hobfoll (1989).

### **Resource loss**

A central tenet of COR theory is that resource loss is the principal ingredient in the stress process (Hobfoll, 1988, 1989, 1998). Leaning on evolutionary theory, *loss* or the perceived threat of loss of any key resource in a given culture, is consciously

seen (or subconsciously felt) as a threat to survival, causing stress and long-term deleterious effects on psychological wellbeing. According to Hobfoll (1989) a primary human motivation is to retain resources and prevent loss; failure to do so is an underlying cause of psychological distress.

This research evaluates this tenet for adults aged between 55 and 70 by testing the hypothesis that:

*Hypothesis 1: Loss of any of the three resources over a four-year period will be accompanied by loss in psychological wellbeing.*

### **The impact of low resource reserves**

As COR theory considers loss of valued resources as the cause of distress, maintenance of resource levels over time fosters psychological stability. Hobfoll (2001) however, considers resource poverty an exception, causing distress through chronic resource lack, and an ongoing state of vulnerability to loss due to diminished resource reservoirs available to buffer the impact of future losses (Kessler & Clear, 1980). For example, the need for major dental work for a person experiencing economic hardship may be economically and psychologically devastating. Chronic poverty is considered psychologically harmful not in itself but because of the process of ongoing resource losses which occur when in a state of poverty. Hobfoll and Lilly (1993) consider resource loss to be the most critical axis of the stress experience; negative conditions, if stable, will not be as stressful as the particular losses that may be sustained on a daily basis (Ennis, Hobfoll, & Schroder, 2000). The following hypothesis aims to address this aspect of COR

theory by assessing the psychological impact of resource poverty in the context of those in and approaching older adulthood:

*Hypothesis 2: Stable low resources levels are also accompanied by psychological wellbeing loss, but to a lesser extent than for resource loss.*

### **Social support as an attenuating factor**

There is strong empirical support for a link between high levels of social support and psychological wellbeing in later life. This hypothesis aims to assess whether a high and stable level of social support may act to mitigate or provide a buffer against, the deleterious effects on mental health of loss of other key resources. The hypothesis therefore is:

*Hypothesis 3: The effect of resource loss on mental health loss is attenuated in the presence of stable high social support.*

### **Resource gains**

Resource gain is considered a positive experience, appreciably increasing resource reservoirs that may be needed at a later time (Hobfoll, 1989). Hobfoll (1989) claims resource gains may produce positive emotion because of the potential to protect against future losses. However, because there is often no immediacy in the need for these resources, appreciable improvements in psychological wellbeing may not occur. The magnitude of impact on psychological wellbeing of resource gain, is therefore not equivalent to the magnitude of impact on psychological wellbeing of resource loss.

*Hypothesis 4: Resource gains are accompanied by mental health gains, but the size of this effect is smaller than for the loss effect (hypothesis 1).*

### **Resource gains may attenuate the impact of loss**

According to COR theory (Hobfoll, 1988, 1989, 1998) *gain* has saliency primarily in the face of loss. Gain plays a role in offsetting or preventing loss and in this context, takes on significance as a protective factor. This tenet will be considered in the following hypothesis:

*Hypothesis 5: Resource gains can attenuate the effects of resource losses on mental health loss.*

### **Resource caravans**

Hobfoll's (1998) description of the *resource caravan* will be explored. This simple tenet means that having one major resource is typically linked with having others. Similarly, absence of a significant resource is linked with absence or lack of other resources. This question pertains to whether there is evidence of the clustering of resources suggestive of the possibility of a resource caravan. This concept steps away from the significance of *loss* and *gain* and is concerned about level of resource ownership across resources at any point in time rather than over time. This will be explored through the exploratory question.

*Exploratory question 1: Is there evidence of resource caravans, i.e., are resources related synchronically?*

## Resource spirals

According to COR theory (Hobfoll, 1988), when a key resource is depleted, the likelihood of further depletion of resources is increased. When resources are depleted they may not be able to offset the demands of further stress, giving momentum to a cycle of further losses. Gain cycles are acknowledged as occurring, but at a slower rate, such as when individuals gain resources they have more resources to invest, yielding greater opportunity to gain further resources. Individuals who have lost key resources are thought to adopt a defensive position, and are less likely to risk the resources that they do have in order to make potential gains. Many older adults are vulnerable to losses spiraling because of diminishing resource reserves and a reluctance for resource investment. Losses and gains will be examined by assessing the extent to which resource changes between time periods correlate with each other, i.e., will a loss follow a loss, and a gain, a gain?

*Exploratory question 2: Is there evidence of resource spirals, i.e., to what extent do resource changes correlate over time?*

## Summary of hypotheses and questions

**Hypothesis 1:** *Loss of any of the three resources over a four-year period will be accompanied by loss in psychological wellbeing.*

**Hypothesis 2:** *Stable low resources levels are also accompanied by mental health loss, but to a lesser extent than for resource loss.*

**Hypothesis 3:** *The effect of resource loss on mental health loss is attenuated in the presence of stable high social support.*

**Hypothesis 4:** *Resource gains are accompanied by mental health gains, but the size of this effect is smaller than for the loss effect (hypothesis 1).*

**Hypothesis 5:** *Resource gains can attenuate the effects of resource losses on mental health loss.*

**Exploratory question 1:** *Is there evidence of resource caravans, i.e., are resources related synchronically?*

**Exploratory question 2:** *Is there evidence of resource spirals, i.e., to what extent do resource losses and gains correlate over time?*

## **CHAPTER 6**

### **METHOD**

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Data to address hypotheses and explanatory questions was sourced from the longitudinal datasets of the larger Health, Work and Retirement Study (Alpass et al., 2007). It is therefore a secondary analysis of Alpass et al.'s (2007) datasets. A brief description of this parent study will be presented next as background to the current study.

### **Overview: The Health, Work and Retirement Study**

Alpass et al.'s (2007) Health, Work and Retirement Study (HWR), was established to examine the impact of the transition from work to retirement on people's independence and wellbeing over time. The study was funded by the Health Research Council of New Zealand for two waves of data collection in 2006 and 2008 and run by a research team at Massey University. The study was approved by the Massey University Human Ethics Committee: Southern A, Application 09/17. Third and fourth waves, for 2010 and 2012, were funded by the Ministry of Science and Innovation and transformed into the New Zealand Longitudinal Study of Ageing (NZLSA), which incorporated further participants and was co-run between Massey University and the Family Centre Social Policy Research Unit. Although further participants were added to the study through this collaboration, the present study only utilizes datasets from participants who first participated in 2006 and participated again in 2008 and 2010.

The HWR study has collected, and is continuing to collect, data by postal survey on various aspects of physical and mental health - psychosocial factors, work, retirement status, socioeconomic and demographic status, and attitudes towards retirement. Core assessments have been collected as part of each dataset wave for longitudinal analyses, and other modules have been added or left out according to

the particular cross-sectional study interests. There are seven domains covered in surveys: 1) health, 2) physical activity, 3) social support, 4) work status and attitudes, 5) retirement status and attitudes, 6) socio-demographic information, and 7) whakapapa and whanaungatanga. Each section of the questionnaire is composed of referenced measures and questions developed specifically for the HWR study.

### **Data collection**

The New Zealand Electoral Roll was used to select a nationally representative sample. Electoral roll representation in New Zealand is mandatory and therefore high (96% for adults over 18-years in 2007). General and Māori subsamples were targeted separately, with Māori oversampled to account for conservative response rate predictions due to small population representation 7.8% in 2007 (Statistics New Zealand, 2007). Māori and general populations (which included Māori selected from the general sampling process) were treated independently, and equal probability random selection was used to select participants from respective populations of interest.

Target sample sizes were determined by a review of recommendations from other large-scale health-focused longitudinal studies, response rates obtained in a pilot study, and Dillman's (2000) guidance for power adequacy in representative postal surveys. Based on response rate expectations and sampling size, the HWR study is anticipated to have greater than 90% power to detect a moderate effect, at alpha .05, for 15 independent variables (Bornstein, Rothstein, Cohen, & Pollack, 1990, cited in Towers, 2007).

Dillman's (2000) Tailored Design Method was used as a model for data collection for the 2006 and subsequent postal surveys, and consisted of a five stage postal schedule. Stage one was an initial letter sent to advise potential participants of 1) their selection, 2) the process by which they were selected to participate in the study, and 3) advising them of the delivery of a postal survey in the coming week. One week following, the questionnaire with freepost return envelope was sent, accompanied by a detailed cover letter, consent, and a request to participate in the longitudinal aspect of this study. At week 3, a card was sent to all participants thanking those who had completed surveys and encouraging others to complete. Two further contacts were made to non-respondents to encourage participation. No further correspondence was sent after week five.

In order to test the principles of COR theory, only the general sample was deemed the appropriate path following advice from three Massey University's cultural advisors. Advisors were unanimous in their recommendation not to stratify the sample by ethnicity. Several issues were raised including that the interpretation of differences between Māori and general sample participants (if found) would be injudicious for a non-Māori researcher using a western theoretical paradigm and western derived measures. There was a concern that differences would not be attributable to ethnicity but to historical and societal circumstance beyond the scope of this study to address – the risk of misattribution therefore high. A further concern was that because of the diversity that the category of Māori encompasses in identification with tikanga Māori, classification of Māori as a single ethnicity group is problematic. Using only general sample participants was therefore the most defensible option given cultural and theoretical considerations. Hobfoll (1988, 1989, 1998) states that the value given to resources is defined within a particular

culture. A pertinent example was given by advisors: life prolongation is not a goal for many older Māori who place greater value on taha wairua (spiritual health) than taha tinana (physical health). The loss and gain of resources therefore is culturally dependent.

### Return rates and final sample size

The 2006 questionnaire was sent to 5,264 potential general population participants. Exclusion criteria, which included hospitalization, un-notified change of address, or death, further reduced the sample by 214 persons. Of the 5,050 who could have completed the survey, 3,101 (61%) were returned (Table 1). Forty-seven percent of the original sample indicated that they would be willing to participate in the longitudinal aspect of the study.

Table 1

*Postal Survey Return Rates and Re-Response Rates 2006-2010*

Category	General Electoral Roll
Total population 55–70 years	609,000
Sample drawn	5,264
Excluded <sup>1</sup>	214
Sample invited	5,050
Response rate 2006	3,101 (61%)
Re-participation rate 2008 (of the 2006 sample)	1,247 (40%)
Re-participation rate 2010 (of the 2006 sample)	1,124 (36%)
Further exclusions	5
Participants eligible for current study	1,119

<sup>1</sup> Excluded due to inability to contact, being deceased, or residing in an institution, or age outside 55-70.

As the focus of the present study was change over time, only data from participants who completed two further waves of data were utilized for analysis. Table 1 shows the response rate of the original pool of responders for the 2008 and 2010 data

waves. A total of 1,119 general sample participants completed three postal surveys over a four-year period (2006-2010). This equated to 36% of the original general sample.

### **Sample description**

Comparisons on socio-demographic variables between those general sample participants who completed the 2006 survey but did not go on to complete the 2010 survey revealed there were no statistically significant differences between these groups for age, gender, marital status, or employment status as at 2006. Small, but statistically significant effect sizes were found for qualification. Those who completed three waves of data were slightly more likely to have tertiary qualifications, than those responding only in 2006 ( $\chi^2(3) = 50.36, p < 0.005, Phi = .129$ ). Correspondingly those who only responded in 2006 were more likely to have no formal qualification 35.3% of one time responders compared to 25.4% of repeat responders.

The demographic features of the final participant pool are presented in Table 2. Frequencies show that the age distribution of participants amongst the three age bands between 55 and 70 years was fairly even, with slightly over one-third in the 55-59 age group, one-third in the 60-64 age group, and slightly under one-third in the 65-70 age group. The inclusion of the youngest age-band who would normally be defined as the late-middle aged rather than older adults, enables the capture of losses and gains through transitional work to retirement years. There is a small gender imbalance with females outnumbering males, at 591 compared with 528, representing a difference of 5%. This is consistent with NZ census gender-age structure which was 49% male and 51% females for 55-70 year-olds in 2006

Table 2

*Sample Description*

		Frequency	Percentage
Age	55-59	386	37.0
	60-64	350	33.5
	65-70	308	29.5
		1,119	100.0
Gender	Male	528	47.2
	Female	591	52.8
		1,119	100.0
Marital Status	Partnered	873	78.0
	Separated/Divorced	94	8.4
	Widowed	100	8.9
	Never married/Single	44	3.9
	Missing/Not otherwise	8	0.7
		1,119	100.0
Educational Level	No secondary	280	25.0
	Secondary	279	24.9
	Post-secondary	155	13.9
	Tertiary	390	35.3
	Missing	15	1.3
		1,119	100.0
Employment Status 2006	Full-time paid	460	41.1
	Part-time paid work,	278	24.8
	Retired, no paid work	262	23.4
	Full-time homemaker	48	4.3
	Full-time student	4	0.4
	Unemployed	7	0.6
	Other – health disability	39	3.5
	Missing	21	1.9
		1,119	100.0
Employment Status 2010	Full-time paid	326	29.1
	Part-time paid work,	235	21.0
	Retired, no paid work	425	38.0
	Full-time homemaker	30	2.7
	Full-time student	5	0.4
	Unemployed	12	1.1
	Other – health disability	63	5.6
	Missing	23	2.1
		1,119	100.0

(Statistics NZ, 2006). The majority (78%) of participants were living with partners, 8.5% separated or divorced, and 9% widowed. Notably, a significant proportion had a tertiary qualification (35.3%).

In terms of employment status, 41.1% reported full-time employment in 2006. Sixty-four percent of those employed full-time were male according to 2006 data. In 2010, 29% were in full-time employment, 62% of whom were male. Correspondingly, those identifying as “retired” increased from 23% to 38%, a 15% rise. Numbers in part-time employment remained relatively static at approximately 20% over the four year period. Participants who were part-time employees were more likely to be female by a ratio of approximately 2:1. The final sample of 1,119 participants included 64 participants (5.7%) who identified as Māori within the general sample, 11 (1.0%) who identified as Pacific, and 49 (4.4%) who identified as Other. The majority (89.5%) of the general sample population identified as of NZ European descent.

### **Data analyses**

Statistical Package for Social Sciences (SPSS) version 20.0 for Mac software (IBM Inc, Chicago IL, USA) was utilized to address all hypotheses and questions. To test the main hypotheses, chi-square tests of independence and logistic regression were used with an emphasis on odds ratios and their confidence intervals. The choice of statistical techniques was guided by the decision to measure change as a dichotomous variable, as will be discussed in the following section on measures.

## Measures

All measures used in this current study were included in the 2006, 2008, and 2010 Health, Work and Retirement Survey questionnaires (2010 survey in Appendix 2, p. 203). Resource and wellbeing measures needed to identify change over time were included in all three datasets.

### *Biographical information*

*Age.* Participants were asked to identify the year they were born. Age at survey completion was then calculated and participants divided into one of three age bands: 55-59, 60-64, and 65+.

*Gender.* Survey participants were asked to identify as either male or female.

*Marital status.* Participants were asked to identify with one of a list of relationship statuses. For the purpose of the current study, participants who were legally married were grouped with those in civil unions or partnerships and classified as “partnered”. Other marital status groupings were “divorced/separated”, “widowed”, or “single/never married”.

*Educational attainment.* Participants’ highest level of educational attainment was obtained via forced choice survey question. Participants were asked to identify whether they had “no qualifications”, “secondary school qualifications”, “post secondary qualifications (certificates or trade diplomas)”, or “university degrees”.

*Employment status.* Participants’ employment status was measured via a direct survey question regarding current work status with forced choice response. Participants were asked to indicate whether they were in “full-time paid



employment”, “part-time paid employment”, “retired, no paid work”, a “full-time student”, “full-time home-maker”, “unemployed”, or “unable to work due to a disability or health related issue.”

### ***Resource variables***

*Economic standard of living.* Economic standard of living was measured by the Economic Standard of Living Index - Short Form (ELSI - SF, Appendix 2, p. 223). The ELSI is a survey tool for measuring people’s economic standard of living, developed as part of the New Zealand Ministry of Social Development’s research programme on living standards (Jensen, Spittal, & Krishnan, 2005). This is a non-income based assessment of access to durables or the material aspect of wellbeing reflected in a person’s consumption, activities, and personal possessions, such as clothing, recreations, access to medical services, and so on, rather than the economic resources that enable them. In this way it is more reflective of disposable income after budgetary demands such as accommodation costs and is considered a more reliable indicator of material wellbeing than income. The ELSI SF consists of 25 items from the original 40 ELSI items, and requires 4-6 minutes for completion (Jensen et al., 2005, p. 1).

The ELSI-SF consists of four sub-scales, seven items relating to commodity ownership, seven to participation in activities, eight relating to economizing behaviours, and three items relating to general assessment of standard of living, and satisfaction with living standards (Table 3).

Scores are totaled to produce a range from 0 to 41. To truncate outliers, anyone

scoring below 10 is given the score of 10, after which 10 is subtracted from the total score to produce a range of 0 through 31. This range can be classified into intervals signifying standard of living (Table 4).

Table 3

*Economic Standard of Living - Example Short Form (ELSI-SF) Example Items*

	Ownership restrictions	Participation restrictions	Economizing behaviours	Self-rated standard of living
Item examples	Telephone Heating all main rooms	Presents for family/ friends birthdays etc Hairdresser three-monthly	Gone without fresh fruit and vegetables	How would you rate your material standard of living?
Response indicating poorer living standards	‘Don’t have it because of cost’	‘Don’t do it because of cost’	‘Yes’ (in the last 12 months)	‘Poor’; ‘very dissatisfied’; ‘not well at all’

The scale has been tested in a number of populations to establish its psychometric properties (Perry, 2010). The ELSI-SF has shown good construct validity and excellent reliability. Jensen et al. (2005) reported a Cronbach’s alpha of 0.88 in their original study of the ELSI-SF. Cronbach’s alpha in the present sample was 0.91 indicating a very good level of reliability. The mean score for the present sample was 23.9 for the adjusted score with a standard deviation of 5.77 at time one (2006 values).

Table 4

*Economic Standard of Living Index (ELSI) Classification Labels*

ELSI-SF score	Living standard level	Label
0-8	1	Severe hardship
9-12	2	Significant hardship
13-16	3	Some hardship
17-20	4	Fairly comfortable
21-24	5	Comfortable
25-28	6	Good
29-31	7	Very good

*Social support.* Social support was assessed using the Social Provisions Scale (Cutrona & Russell, 1987, Appendix 2, p. 211). This measure assesses perceived levels of support based on Weiss' (1974, cited in Weiss, 1998) description of six relational provisions obtained from relationships with other human beings attachment, social integration, reassurance of worth, reliable alliance, guidance, and opportunity for nurturance. Respondents are asked to rate their current supply of each of these provisions by responding to 24 corresponding statements, for example, "There are people I can depend on to help me if I really need it." Each subscale has four items, two positively worded and two negatively worded. Responses are recorded via a four-point scale from *completely true* to *not at all true*. The scores are able to be summed for each social provision (0-16) as well as providing a total score by summing all six subscales (0-96). Higher scores are indicative of higher levels of social support provision. The overall psychometric properties of the SPS are reasonably strong across diverse samples with extensive support for construct validity (see for example, Cohen & Wills, 1985; Kertesz et al., 2005; Post & Welsh, 2007), although the internal consistencies of two subscales *opportunity for nurturance* and *attachment* were lower than the other subscales. For the purpose of the analyses in the current study, questions pertaining to *opportunity for nurturance* were removed because of their poor reliability and because the focus of the current study was on receiving rather than providing support. Alpha coefficients for the total scale score range from .85 to .92 across a variety of research populations (Green, Furrer, & McAllister, 2011; Russell & Cutrona, 1987; Vogel & Wei, 2005). The average Cronbach's alpha for this sample across three data-sets was .84. The mean total score was 78.3 ( $SD = 9.61$ ) at T1 (2006). For the purposes of this study only the total score was used for analysis.

*Physical health status.* The Physical Health Component Score (PCS) obtained from the Medical Outcomes Study Short-Form Health Survey (SF 36, McHorney, Ware, & Raczek, 1993, Appendix 2, p. 203) in wave 1, and the Medical Outcomes Study Short-Form Health Survey – Shortened Version (SF-12, Ware, Kosinski, & Keller, 1996), in waves 2 and 3, provided the means to measure physical health resources. The SF-36 is comprised of 36 physical health and mental health questions, and has eight subscales. Those relating to the PCS include physical functioning, difficulty fulfilling role expectations due to physical health problems, bodily pain, and general health. The SF-12 was developed as an abbreviated 12-item version for use when only physical and mental health summary scores were required (Ware, Kosinski, & Keller, 1996). Included in the PCS score are summations of responses to two questions pertaining to physical functioning, two on role limitations due to health problems, one on bodily pain, and one on general health perception. Example questions include: *Does your health limit you in these activities, if so how much: 1) moderate activities such as moving a table, pushing a vacuum cleaner, bowling, or playing golf, 2) climbing several flights of stairs, 3) climbing one flight of stairs, 4) walking one block, 4) bathing or dressing yourself.* Participants respond on a 3-point scale from *yes limited a lot*, to *no not limited at all*. Another example pertaining to pain was: *During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?* Participants were asked to respond on a 5-point scale from *not at all*, to *extremely*. The two versions of the SF assessments have shown equivalence, indicated by very good correlation and agreement in both general populations (Gandek et al., 1998; Ware et al., 1996;), elderly (Jakobsson, Westergren, Lindskov, & Hagell, 2012; Resnick & Nahm, 2001), and special populations (Lacson et al., 2010). PCS scores are calculated using a

standard scoring algorithm and items are weighted according to their loading on two factors, the physical component summary (PCS) and mental component summary (MCS), so they can be interpreted in the same direction, with higher scores indicating better health. The PCS scores (Ware et al., 2002), are normalised and standardized to create  $t$  scores so that the population mean for each summary scale is 50 (Ware et al., 1994).

Psychometric properties for the use of the SF 36 and the SF 12 with an older adult population have been extensively studied. Jakobsson (2007) in a study of 4,278, 75 to 105 year-olds found acceptable convergent and discriminant validity, and Cronbach's alpha. Further the SF-36 has been used in a large New Zealand population study, with good evidence of validity and reliability amongst this population (Scott, Tobias, Sarfati, & Haslett, 1999). SF-measures have also shown sensitivity to change (Edgar, Dawson, Hankey, Phillips, & Wood, 2010; Hemingway, Stafford, Stansfeld, Shipley, & Marmot, 1997; Sekhon, Pope, & Baron, 2010). The Cronbach's alpha of the PCS for the present study is 0.85. The mean score of the current sample was 50.78 ( $SD = 9.61$ ) in wave 1 (2006).

### *Dependent variable*

*Psychological wellbeing.* The Mental Component Summary score (MCS) obtained from the Medical Outcomes Study Short-Form Health Survey (SF 36; McHorney, Ware, & Raczek, 1993, Appendix 2, p. 203) in wave 1, and the shortened version of the Medical Outcomes Study Short-Form Health Survey (SF 12) in waves 2 and 3, were used as measures of psychological wellbeing. The SF 36 comprises 36 items grouped into eight sub-scales each examining a different dimension of health. The subscales pertaining to the MCS include mental health, role limitations caused by

emotional difficulties, vitality, and social functioning. The shorter SF-12 was designed to reproduce only the PCS and the MCS scores and consists of only 12 of the original items and includes one question on vitality (energy/fatigue), one question on social functioning, two questions on role limitations because of emotional problems; and two questions on general mental health (psychological distress and psychological well-being). Example items include: *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? 1) accomplished less than you would like; 2) limited in the kind of work or other activities.* Participants respond on a 5-point scale from *all of the time*, to *none of the time*. Another item asked participants to rate their level of happiness: *In general, how happy or unhappy do you usually feel?* Participants respond on a 10-point scale from *extremely unhappy* to *extremely happy*. The SF-12 and SF-36 have shown equivalence for both PCS and MCS. The measure has also been found as an acceptable means of detecting active and recent depressive disorders in general population samples (Vilagut et al., 2013; Ware et al., 1994). MCS scores are derived from a two-factor algorithm provided by the developers of the scale (Ware, Kosinski, & Dewey, 2000), which weights all SF-items according to loading on each of the two component summary factors, the PCS described above, and the currently discussed MCS. The MCS scores are standardized using a linear  $t$  score transformation to have a mean of 50 and a standard deviation of 10. Lower scores imply poor psychological wellbeing. The SF-12 and the SF-36 have been used and examined extensively in research. The measure has shown good test-retest reliability (Lenert, 2000; Resnick & Parker, 2001; Ware et al., 1996), good construct and criterion validity (Gandek et al., 1998; Jenkinson & Layte, 1997; Ware et al., 1996), good discriminant validity (McHorney,

Ware, & Raczek, 1993; Ware, Kosinski, & Dewey, 2000), and adequate to good sensitivity to change (Jenkenson et al., 1997; Riddle et al., 2001; Sugar et al., 1998). The Cronbach's alpha reliability coefficient for the MCS for the current study was 0.73 across three data waves. The mean MCS score was 50.11 ( $SD = 9.446$ ) for the 2006 dataset.

### *Measuring Change*

To test the hypotheses relating change in resources to change in psychological wellbeing it was necessary to form change scores for all four of the primary variables. This was accomplished by subtracting scores gathered in 2010 from corresponding scores gathered in 2006. Change values for each resource variable and wellbeing were transformed into two dichotomous variables 1) *gain/no-gain*, and 2) *loss/no-loss*. These transformations clearly involved the exclusion of a considerable amount of change information. This could have been avoided by conducting all analyses on simple difference scores. However, this fine-grain approach did fit with the hypotheses, which referred to change rather than precise amounts of change. Accordingly all variables were treated as dichotomous, denoting the presence or absence of gain or loss. Additionally, dichotomization places considerable reliance on the choice of cut-off. Subsequent to primary analyses, experimentation with lower or higher "cut-off" values was conducted to assess how more or less conservative cut-off values would affect the pattern of results.

Change values were established from cut-off estimates that are likely indicative of meaningful change. For the ELSI this was a greater than the 3-point value on the 31-point scale. This equates to a change in ELSI level (Table 3, p. 83) and a

difference that ranges from substantial to very large (Ministry of Social Development, 2004).

As no established cut-off was available for the Social Provisions Scale (SPS), the minimum cut-off for change was set conservatively at change greater than 1-SD from the mean of wave 1 (2006) scores, and this was used to create dichotomous loss and gain variables. This equated to change greater than 8-points on the 60-point scale.

To create a dichotomous change variable, Physical Health Component Score, a minimum change of greater than 5-points on the 100-point scale was utilized. This is based on the most conservative MCIC (minimum clinically important change) scores referenced in previous research (Coteur, Feagan, Keininger, & Kosinski, 2009; Parker et al., 2012; Parker, Godil, Shau, Mendenhall, & McGirt, 2013; Samsa et al., 1999;). MCIC estimates for SF-measure subscales are published standards for minimal “clinically and socially relevant” change, and are generally based on Cohen’s  $d$  representing a moderate effect size.

The dependent variable, *psychological wellbeing*, as measured by the Mental Health Composite Score (MCS) of the SF-measure, was established as change greater than the minimum clinically indicative change score (MCIC). This was represented by a change of greater than 5-points on the 100-point scale. As with the MCIC for the PCS, the MCS MCIC represents clinically and socially relevant change and has been examined and utilized in previous research (Coteur et al., 2008; Parker et al., 2012; Parker et al., 2013; Samsa et al., 1999). The 5-point change cut-off is based on the most conservative MCIC previously referenced.



### *Additional variables*

Data from other measures used within the parent HWR study were included when addressing exploratory question two. Factors associated with the group of participants who experienced loss of a resource over two time periods (indicative of a loss spiral) were explored, including demographic variables and rates of depression and poverty utilizing the following measures.

*Depression.* The Centre for Epidemiological Studies Depression Scale (CES-D, Radloff, 1977, Appendix 2, p. 206) was used as a specific measure of depressive symptomatology (Kohout, Berkman, Evans, & Cornoni-Huntly, 1993). The 10-item short-version used within the parent HWR study, measures depressive symptoms and behaviours experienced during the past seven days. Participants are asked to indicate how often they have felt certain symptoms including: *I had trouble keeping my mind on what I was doing, I felt everything I did was an effort, I felt lonely*, on a 4-point scale from *rarely or none of the time* to *all of the time*. The CES-D was originally developed for and has been used in large-scale community based studies of older adults (Haringsma, Engels, Beekman, & Spinhoven, 2004). Although first used to estimate prevalence of depression in populations, it has been employed across both clinical and epidemiologic studies concerned with predicting depression and looking at depression as a predictor of other health outcomes (Beekman *et al.*, 1997; Bisschop, Kriegsman, Deeg, Beekman, & van Tilbury, 2004). It has good psychometric properties, with high levels of sensitivity and specificity for depression established with an older population (Andresen, Malmgren, Carter, & Patrick, 1994; Beekman *et al.*, 1997; Bisschop *et al.*, 2004; Stansbury, Reid, & Velozo, 2006).

*Poverty.* Poverty was measured using income and housing cost data, based on the poverty threshold recommended by the New Zealand Poverty Measurement Project (NZPMP), of below 60% of median, equivalent, disposable, household income after adjusting for housing costs (Waldegrave, Stephens, & King, 2003).

## **CHAPTER 7**

### **RESULTS**

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This chapter presents results from univariate analyses on all of the primary variables, bivariate associations among the independent and sociodemographic variables before describing results for hypotheses, and research questions obtained from chi-square, logistic regression and correlational analyses.

### **Univariate analyses**

#### *Economic standard of living*

Economic standard of living levels show the majority of participants in both 2006 and 2010 have good, or very good economic standard of living. The mean ELSI score was 23.90 ( $SD = 5.78$ ) in 2006 and 24.16 ( $SD = 5.94$ ) in 2010. For both years the range was 0-31. When compared with the mean of general sample respondents who completed only the 2006 survey ( $N = 1763$ ), means were equivalent (23.45,  $SD = 5.89$ ). These results are comparable to normative data established from a study of older adults by Jensen, Spittal, and Krishnan (2005).

#### *Social provisions*

The mean scores for the Social Provision Scale were equivalent across time periods, 80.26 ( $SD = 9.82$ ) and 80.11 ( $SD = 9.82$ ) in respective 2006 and 2010 datasets. These means were slightly higher than the first published study using the Social Provisions Scale with older adults (Cutrona, Russell, & Rose, 1986) where the mean was 76.9 ( $SD = 9.2$ ). The range for scores was 33 to 96 in both 2006 and 2010 waves. The mean social provisions scale score for general sample participants who participated in further studies was slightly higher than those who only participated in the first survey. This difference was small but statistically significant ( $M(2006) = 78.90, SD = 9.92, t = -3.549(2879), p < 0.001$ ).

### *Physical health*

The mean physical health summary score for the group participating in three data waves across a 4-year period was 50.78 ( $SD = 9.610$ ) in 2006, and 49.73 ( $SD = 10.68$ ) in 2010, with a range from 9-70 in 2006, and 10-71 in 2010. Means are slightly higher than normative data obtained from a New Zealand study of SF-36 validity that established a mean PCS of 45.5 ( $SD = 0.7$ ) for 65-74 year-olds (Scott, Tobias, & Sarfati, 1998); this may be accounted for by the younger age group (55-64) included in the current study. Present study means are identical to a more recent Australian study which included a community sample of 2013 participants to obtain norms for the SF-12. For this study, PCS mean was 50 ( $SD = 10.6$ ) for 55-64 year-olds, and 49 ( $SD = 12.4$ ) for 65-74 year-olds (Avery, Dal Grande, & Taylor, 2004). Further, when compared to general sample participants who only completed the 2006 survey, the mean was very similar 49.93 ( $SD = 9.99$ ), indicating that the present study sample was very similar to general normative populations on this indicator of physical health.

### *Psychological wellbeing*

The mean for the mental health summary score (MCS) as an indicator of psychological wellbeing was 50.73 ( $SD = 8.83$ ) in 2006, and 49.86 ( $SD = 7.631$ ) in 2010, with a range from 11-67 in 2006, and 15-71 in 2010. Means were slightly lower than those obtained from a New Zealand study of SF-36 validity that established a mean for the MCS of 53.8 ( $SD = 0.6$ ) for 65-74 year-olds (Scott, Tobias, & Sarfati, 1999). This figure was similar to the means obtained from Avery et al.'s (2004) Australian study. For their study, the mean MCS was 53.4 ( $SD = 8.4$ ) for 55-64 year-olds, and 53.8 ( $SD = 8.4$ ) for 65-74 year-olds (Avery, Dal Grande, &

Taylor, 2004). When compared to general sample participants who only completed the 2006 survey, the mean was very similar 51.36 ( $SD = 8.58$ ), indicating that the present study sample was representative on mental health measures.

#### *Frequency distributions of loss and gain variables*

Frequency distributions for transformed loss/no-loss, and gain/no-gain variables categories, created as described in the previous chapter (p. 88) are presented in Table 5. For all variables, the majority of participants experienced neither loss nor gain over the four year period. Participant responses indicated the most change (either substantial loss or gain) was in physical health and mental health over the four-year period, representing 41.6% and 41.7% of participants respectively. Losses were more frequent than gains for both physical and mental health variables.

Table 5

*Frequency Distributions of Losses and Gains for the Resource Variables and for Psychological Wellbeing*

	Any change (Percent)	Loss independent variable		Gain independent variable	
		Loss	No Loss	Gain	No Gain
Economic standard					
of living Index (ELSI)	29.5%	123 (12.8%)	835 (87.2%)	160 (16.7%)	798 (83.3%)
Physical Health (PCS)	41.6%	244 (25.3%)	719 (74.7%)	157 (16.3%)	806 (83.7%)
Social Provisions (SPS)	19%	99 (10.1%)	884 (89.9%)	87 (8.9%)	896 (90.1%)
Mental Health (MCS)	41.7%	235 (24.4%)	728 (75.6%)	167 (17.3%)	796 (83.7%)

Economic standard of living gains were slightly more frequent than losses and finally frequencies for losses and gains of social support provision were similar.

### *Associations among resource and sociodemographic variables*

The first stage in the analysis was to assess independent loss and independent gain variables for associations with each other and with sociodemographic variables (Table 6). These associations are of interest in themselves and also because they will indicate the possibility of confounding relationships between variables which may impact on the complexity of the statistical models needed to test the research hypotheses. Small or non-significant associations allow the models to be simple with gains in statistical power.

Table 6

#### *Associations Between Independent and Demographic Variables*

	ELSI loss/ no loss	PCS loss/ no loss	SPS loss/ no loss	ELSI gain/ no gain	PCS gain/ no gain	SPS gain/ no gain
ELSI loss /no loss		.052	.090*	-	-	-
PCS loss/no loss	-	-	.014	-	-	-
SPS loss /no loss	-	-	-	-	-	-
ELSI gain/no gain				-	.014	.040
PCS gain/no gain				-		.030
SPS gain/no gain				-	-	-
Age (under/over 65)	-.016	.065*	-.032	-.067*	.005	.043
Gender (M/F)	.050	.013	.073*	.044	-.022	-.036
Marital Status (Partner/No partner)	.081*	.008	.111**	.027	-.013	-.081*
Employment Status (Paid/No paid work)	.030	.090*	-.023	-.023	.032	.003
Qualification (Up to secondary/ tertiary)	-.065*	-.044	-.027	-.005	-.042	-.032

\* $p < 0.05$

\*\* $p < 0.005$

When assessing for associations between independent variables by chi-square analysis, only one statistically significant result was found, that between ELSI loss and Social Provisions Scale loss ( $\chi^2(1, N = 872) = 6.995$ ,  $\Phi = 0.090$ ,  $p = .008$ ). This association is considered small and unproblematic to further analysis especially given the effect of the large sample size on the  $p$  value. No statistically significant associations were found between gain independent variables. The dichotomized demographic variables of gender (male/female), age (over/under 65), work (paid work/no paid work), qualification (tertiary/below tertiary), marital status (partnered/not partnered) were then tested for their potentiality as confounds with both loss and gain independent variables.

Very few associations were found between resource and sociodemographic variables. There was a statistically significant association between Social Provisions Scale loss and gender, with females more likely to be in the loss category. Age was only associated with physical health loss, with those who had experienced loss more likely to be aged over 65 years in 2006. Those who had experienced physical health loss over 2006-2010 were less likely to be in paid employment. Small but statistically significant associations were found between economic standard of living loss, and qualification (up to tertiary/tertiary), with those experiencing loss less likely to have tertiary qualifications. ELSI loss was also the only loss variable with a statistically significant association with marital status. Those who had experienced ELSI loss were less likely to have a partner than those who did not experience loss of economic standard of living.



When *gain* independent variables were assessed for association with demographic variables, only two small associations were found. The first statistically significant association was between ELSI gain and age, with those under 65 more likely to make ELSI gains than those over 65. There was a small but statistically significant association between social provision gain and marital status, with those who had experienced *gain* more likely to be partnered than those who were not.

The psychological wellbeing dependent variables MCS loss and MCS gain were also tested for potential associations with demographic variables prior to formal hypothesis testing. No statistically significant associations were found with mental health loss. A small effect was found between age and mental health gain - those over 65 were more likely to experience mental health gain over the four-year period than those under 65 ( $\chi^2(1, N = 963) = 5.180$ ,  $\Phi = -0.073$ ,  $p = .023$ ). Further, those who had only “up to” secondary qualifications were less likely to make gains in mental health over the four-year period than those who had tertiary qualifications ( $\chi^2(1, N = 951) = 8.226$ ,  $\Phi = -0.093$ ,  $p = .004$ ).

Given the small magnitude of any significant associations, there seemed a very low possibility of these associations confounding subsequent analyses. In order to maximize statistical power, analyses to test main hypotheses did not include any control for associations across resource types or with socio-demographic variables. Follow up analyses using more complex models were however conducted to check that confounding variables were not problematic.

## Hypotheses tests

***Hypothesis 1:*** *Loss of any of the three resources over a four-year period will be accompanied by loss in psychological wellbeing.*

To assess whether participants who experienced resource loss over the four-year period were more likely to experience loss in psychological wellbeing over the same time period, chi-square analyses were conducted to test for associations between loss of each resource (economic standard of living, physical health, and social provisions), and loss of MCS (Table 7).

Table 7

*Associations Between Resource Loss and Clinically Significant Loss in Psychological Wellbeing*

Resource Loss	Pearson		<i>P</i>	Odds	95% CI	
	Chi	Df			Lower	Upper
ELSI loss	10.077	1	0.002	1.999	1.296	3.085
PCS loss	3.965	1	0.046	0.679	0.488	0.996
SPS loss	6.221	1	0.013	1.854	1.135	3.031

Statistically significant associations were found for loss on the ELSI scale. Participants who had experienced loss in economic standard of living were almost twice as likely to experience clinically significant losses in mental health than those who did not experience economic standard of living losses. A statistically significant although counterintuitive association was found between physical health loss and clinically significant loss in mental health. Participants who experienced physical health loss over the four-year period were found to be *less* likely to experience mental health loss over that period (MCS) when compared with everyone else. Finally, loss in the provision of social support resources over a four-year period was associated with clinically significant loss in mental health. For

participants who experienced loss of perceived social support, the odds of experiencing clinically significant loss in mental health (MCS) were 1.854.

Follow up logistic regression analyses to check that confounding relationships did not impact on odds ratios were completed. To do so, variables that were assessed in preliminary analyses to a statistically significant degree with independent or dependent variables were entered alongside the independent variable being considered. In all but one instance the odds ratios were found to be at least as great as those in the bivariate analysis when relevant variables were entered, indicating that these additional variables did not present as confounds. The exception was that between *social provisions (SPS) loss* and *economic standard of living (ELSI) loss*. In this case, when ELSI loss was controlled, the relationship between SPS loss and MCS loss weakened slightly from an odds ratio of 1.854 ( $p = .013$ ) to 1.633 ( $p = 0.081$ ), suggestive of a confounding relationship, albeit a very limited one.

### **Reanalyses using different thresholds of change**

Experimentation with higher “cut-off” values was conducted to assess how more conservative cut-off values would affect the pattern of results.

*Economic standard of living.* Those who experienced higher levels of economic standard of living losses (greater than 5-points, followed by greater than 7-points on the ELSI scale) were grouped into dichotomous variables and analysed for association with clinically significant mental health loss. With greater levels of ELSI loss, increasing odds ratios were observed (Table 8). A clear dose-response

relationship was found, with odds of mental health loss increasing from 1.99 to 2.78 to 4.48 as the threshold of loss changed from 3 to 5 to 7 points on the ELSI.

Table 8

*Associations Between Levels of Loss of Economic standard of living and Clinically Significant Loss in Psychological Wellbeing*

ELSI loss	Pearson Chi	df	P	Odds	95% CI	95% CI
					Lower	Upper
<b>ELSI loss &gt; 3-points</b>	<b>10.077</b>	<b>1</b>	<b>0.002</b>	<b>1.999</b>	<b>1.296</b>	<b>3.085</b>
ELSI loss > 5-points	14.729	1	0.000	2.783	1.620	4.780
ELSI loss > 7-points	19.655	1	0.000	4.475	2.183	9.173

*Physical Health.* When the threshold of loss was heightened from 5 to 10 and then 15 points on the PCS scale, the negative association between physical health loss and mental health loss was not observed (Table 9). Associations were not statistically significant for these groupings over the four-year period. Odds ratios suggest that at these levels participants were no more likely to experience mental health loss than everybody else, i.e., those who experienced lower levels of loss or gains, or had not changed physical health status. This suggests the potential of the negative borderline result in the main analysis is not reliable and if so, overall there is no effect.

Table 9

*Associations Between Levels of Loss of Physical Health and Clinically Significant Loss in Psychological Wellbeing*

PCS loss	Pearson	Df	P	Odds	95% CI	95% CI
	Chi				Lower	Upper
<b>PCS &gt; 5-points</b>	<b>3.965</b>	<b>1</b>	<b>0.046</b>	<b>0.679</b>	<b>0.488</b>	<b>0.996</b>
PCS > 10-points	2.183	1	0.140	0.697	0.432	1.127
PCS > 15-points	0.035	1	0.852	1.061	0.568	1.984

*Social Provisions.* To explore whether participants who had experienced social provisions loss at greater levels than observed in the primary analysis also

experienced greater likelihood of mental health loss, two further analyses were performed. Higher threshold cut-offs of loss were created, at 10, and 12 points on the SPS. When social provision loss was assessed, increasing odds ratios were observed (Table 10). As the threshold of loss moved from 8 to 10 to 12 points on the SPS, odds of mental health loss increased from 1.85 to 2.04 to 2.57.

Table 10

*Associations Between Levels of Loss of Social Provisions and Clinically Significant Loss in Psychological Wellbeing*

SPS loss	Pearson		<i>P</i>	Odds	95% CI	
	Chi value	df			Lower	Upper
<b>SPS loss &gt; 8-points</b>	<b>6.221</b>	<b>1</b>	<b>0.013</b>	<b>1.854</b>	<b>1.135</b>	<b>3.031</b>
SPS loss > 10-points	5.993	1	0.014	2.042	1.141	3.653
SPS loss > 12-points	7.520	1	0.006	2.566	1.280	5.144

***Hypothesis 2:*** *Stable low resources levels are also accompanied by mental health loss, but to a lesser extent than for resource loss.*

This hypothesis pertains to whether over the four-year period, stable but low levels of a significant resource (resource poverty), negatively impact on psychological wellbeing at a level comparable to those who have experienced loss. If this is not the case then this will add weight to Hobfoll's (1988, 1989, 1998) claim that it is the process of loss that is most detrimental to psychological wellbeing over time.

### **Low-stable levels of economic standard of living**

In order to explore whether over the four-year period, people with stable but low levels of economic standard of living, experience negative effects on psychological wellbeing equal to those who have experienced loss, a dichotomous variable was created identifying those who had stable-low (have not changed more than 3-points on the 31-point ELSI scale) levels of economic standard of living and had scores

less than 17-points on the ELSI scale. Scores of less than 17-points on this scale are less than 1 standard deviation from the mean. They also align with ELSI levels identifying greater than “some level of hardship” (Table 4, p. 83). The dichotomous variable therefore represents participants with stable-low (hardship) levels ( $N = 42$ , 4%), versus everybody else ( $N = 1077$ , 96%).

Chi-square analysis was then used to analyse whether there was an association between *stable-low ELSI levels* and *mental health loss* over time. Results indicated no statistically significant association ( $OR = 1.279$ , 95%  $CI = 0.582 - 2.811$ ;  $\chi^2(1, N = 843) = 0.377$ ,  $\Phi = 0.021$ ,  $p = .539$ , therefore provided no evidence to suggest that people with low and stable levels of economic standard of living experience psychological wellbeing loss to a greater extent than anyone else over a four-year period. This contrasts with the main effect analysis of hypothesis one, in which the odds of clinically significant loss of psychological wellbeing having experienced loss in economic standard of living were 1.99.

### **Low-stable levels of physical health**

When a sub-group of participants ( $N = 49$ ) who experienced low (less than 1 standard deviation below mean) and stable (had not changed more than 5-points on the PCS over four years) were compared to everybody else ( $N = 1070$ ) for association with clinically significant mental health loss by chi-square analysis, a statistically significant association was found. Stable and low levels of physical health were associated with clinically significant loss of psychological wellbeing although not in the expected direction ( $OR = 0.417$ , 95%  $CI = 0.175 - 0.993$ ;  $\chi^2(1, N = 843) = 4.137$ ,  $\Phi = -0.066$ ,  $p = .042$ ). Results suggest the likelihood of loss of

psychological wellbeing may be less for participants at low-stable levels when compared with the rest of the survey sample.

### **Low-stable levels of perceived social support**

In order to explore whether over the four-year period, people with stable but low levels of social provision experience negative effects on psychological wellbeing (loss) equal to those who have experienced loss, a dichotomous variable was created to identify those who had stable-low levels (have not changed more than 8-points on the 56-point SPS scale) of social provision and had stable-low scores less than 59-points (range 24-80). Scores of less than 59-points on this scale are less than 1 standard deviation from the mean of 2006 data values. The dichotomous variable therefore represents participants with stable-low levels ( $N = 90$ , 8%), versus everybody else ( $N = 1029$ , 92%). Chi-square analysis was then used to assess for association with *mental health loss* over time.

No statistically significant association was found (OR = 0.940, 95% CI = 0.562 1.574;  $\chi^2(1, N = 843) = 0.133$ , Phi = -0.008,  $p = .815$ ). There is therefore no evidence to suggest that people with low and stable levels of social provision experience mental health loss to a greater extent than for other all other participants over a four-year period.

In summary, low and stable levels of economic standard of living and perceived social support provision were not associated with mental health loss over time, lending support that loss of resources is more deleterious to mental health over time. Low and stable levels of physical health were anomalously associated with gains in mental health over time mirroring earlier findings which considered

physical health loss.

***Hypothesis 3:*** *The effect of resource loss on mental health loss is attenuated in the presence of stable high social support.*

This hypothesis could only be tested by examining the possibility of high levels of social support attenuating the losses of psychological wellbeing associated with loss of economic standard of living, as the remaining resource (*physical health*), was not found to impact on psychological wellbeing loss in the main analyses. To assess the question of whether, *stable-high levels of social support attenuate the effect of economic standard of living losses on psychological wellbeing*, a dichotomous variable was created identifying those who had stable (have not changed more than 8-points on the 56-point SPS scale) of social support over a four-year period and had scores greater than 76-points (range 24-80). Scores of more than 76-points on this scale are 1 standard deviation above the mean. The dichotomous variable therefore represents participants with stable-high levels ( $N = 141$ , 13%), versus everybody else ( $N = 978$ , 87%). Binary logistic regression was then used to assess for an interaction effect of high levels of social provision (SPS) on the relationship between ELSI loss and MCS loss. As interaction effects tend to be small, their detection requires significant statistical power. In the current study an alpha of .10 was used to increase the power of detecting an effect if one was present.

The interaction between economic standard of living loss and high levels of perceived social support was statistically significant (Table 11). High and stable levels of social support were found to impact on the relationship between economic standard of living losses and psychological wellbeing.



Table 11

*Interaction Analyses for High Social Support Levels of Social Support Attenuating the Impact of Economic Standard of Living Losses on Psychological Wellbeing (Binary Logistic Regression)*

	B	S.E.	Wald	df	P	Odds Ratio	95% C.I. for OR	
							Lower	Upper
Economic Loss (>3-points)	0.786	.226	14.744	1	<.001	2.194	1.410	3.413
Stable-high social support	-0.252	.232	1.180	1	.277	0.777	0.493	1.225
<b>Economic Loss x Stable-High Social Support</b>	<b>-1.201</b>	<b>.714</b>	<b>2.828</b>	<b>1</b>	<b>.093</b>	<b>.301</b>	<b>.074</b>	<b>1.220</b>

Follow up chi-square analysis (Table 12) confirmed the direction of the effect. Those participants who experienced economic standard of living losses but had high and stable levels of social support were unlikely to experience losses in psychological wellbeing. For those who did not have high levels of support the main effect of greater likelihood of psychological wellbeing loss strengthened, compared those whose social provisions were high and stable who did not experience psychological wellbeing loss, despite economic standard of living losses.

Table 12

*Chi-Square Analysis to Assess the Direction of the Interaction of High Stable Levels of Social Support on the Association Between Economic Standard of Living Losses and Loss in Psychological Wellbeing*

	OR (95% CI)	Chi <sup>2</sup>	Phi	P
Whole sample N = 778	2.194 (1.410-3.411)	12.585	0.127	0.000
SPS everybody else N = 637	2.605 (1.614 4.205)	16.148	0.159	0.000
SPS stable-high N = 141	0.784 (0.210 2.920)	0.132	-0.031	0.716

***Hypothesis 4:*** Resource gains are accompanied by mental health gains, but the size of this effect is smaller than for the loss effect (hypothesis 1).

To assess whether participants who experienced resource *gain* over a four-year period were more likely to experience gain in mental health over the same time

period, chi-square analyses were used to test for statistically significant associations between gain of each resource (economic standard of living, physical health, and social provisions), and gain of MCS (Table 13)

Table 13

*Associations Between Resource Gain and Clinically Significant Gain in Psychological Wellbeing*

ELSI gain	Pearson Chi value	df	<i>P</i>	Odds Ratio	95% CI Lower	95% CI Upper
ELSI gain	6.888	1	0.009	2.101	1.194	3.698
PCS gain	1.210	1	0.271	1.272	0.828	1.965
SP gain	0.766	1	0.382	1.296	0.724	2.318

Gains in economic standard of living were associated with clinically significant gains in mental health over a four-year period. Participants who gained on the ELSI scale were 2.101 as likely to make clinically significant gains (greater than 5-points) in mental health. No statistically significant association was found between physical health gain and gains in psychological wellbeing over a four-year period, indicating that those who had made clinically significant gains in physical health were no more likely to experience mental health gains than everybody else. Similarly no association between social provision gain greater than one standard deviation and gains in mental health was found. This indicates that those who experienced social provisions gains of 1 standard deviation or greater were no more likely to experience mental health gains than everybody else.

Follow up logistic regression analyses to check that confounding relationships did not impact on odds ratios were completed. Sociodemographic variables that were assessed in preliminary analyses as associated with independent or dependent variables were entered alongside the independent variable. In this case odds for

the association between ELSI gain and psychological wellbeing gain were at least as great, indicating these variables were unlikely to present as confounds. By including these variables in the PCS and SPS regression analyses, associations did not become significant by their inclusion, again indicating these were unlikely to be confounds.

### Reanalyses using different thresholds of change

Different thresholds of ELSI gain were analysed to indicate the possibility of dose-response effect. Higher thresholds of gain were set at gain greater than 5-points, and gain greater than 7-points. This created two new dichotomous variables: gain greater than 5-points ( $N = 31$ , 4%) versus everybody else ( $N = 812$ , 96%), and gain greater than 7-points ( $N = 13$ , 2%) versus everybody else ( $N = 830$ , 98%). When higher levels of economic gain were assessed, increasing odds ratios were observed (Table 14). A clear dose-response relationship was found, with odds of mental health gain increasing from 1.73 to 2.10, to 3.31 as the threshold of gain changed from 3 to 5 to 7 points on the ELSI.

Table 14

*Associations Between Levels of Gain in Economic standard of living and Clinically Significant Gain in Psychological Wellbeing*

ELSI gain	MCS gain	Pearson Chi-value	df	<i>P</i>	Odds	95% CI Lower	95% CI Upper
<b>ELSI gain &gt; 3-points</b>		<b>6.114</b>	<b>1</b>	<b>0.013</b>	<b>1.729</b>	<b>1.117</b>	<b>2.675</b>
ELSI gain > 5-points		6.888	1	0.009	2.101	1.194	3.698
ELSI gain > 7-points		10.985	1	0.001	3.313	1.570	6.991

Similarly greater levels of physical health gain were analysed for association with clinical significant psychological wellbeing gain over a four-year period. Two new dichotomous variables were created: gain greater than 10-points on the PCS ( $N =$

60, 6%) versus everybody else ( $N = 903$ , 94%), and gain greater than 15-points on the PCS ( $N = 23$ , 2%) versus everybody else ( $N = 940$ , 98%). When the cut-off threshold of physical health gain was heightened from 5 to 10 to 15 points on the SF scale, no statistically significant associations between higher levels of physical health gain and gains in psychological wellbeing were observed (Table 15). Odds ratios suggest that at these levels participants were no more likely to experience mental health gain than everybody else, i.e., those who experienced lower levels of gains, losses, or had not changed physical health status.

Table 15

*Associations Between Levels of Gain of Physical Health and Clinically Significant Gain in Psychological Wellbeing*

PCS gain	Pearson Chi-value	df	$P$	Odds Ratio	95% CI Lower	95% CI Upper
<b>PCS gain &gt; 5-points</b>	1.210	1	0.271	1.272	0.828	1.965
PCS gain > 10-points	0.835	1	0.361	1.345	0.711	2.547
PCS gain > 15-points	2.818	1	0.093	2.133	-.863	5.269

Finally, to explore whether participants who had experienced perceived social provision gains at greater levels, also experienced increased likelihood of mental health gain, two further dichotomous variables were created: gains greater than 10-points on the SPS ( $N = 50$ , 5%) versus everybody else ( $N = 1069$ , 95%), and gains greater than 12-points on the SPS ( $N = 33$ , 3%) versus everybody else ( $N = 1086$ , 97%). When social provision gains were assessed at greater levels, participants who experienced these gains were no more likely to experience mental health gain than everybody else (Table 16).

Table 16

*Associations Between Levels of Gain of Social Provisions and Clinically Significant Gain in Psychological Wellbeing*

SPS gain	MCS gain	Pearson Chi value	df	<i>P</i>	Odds Ratio	95% CI Lower	95% CI Upper
<b>SP gain &gt; 8</b>		<b>0.766</b>	<b>1</b>	<b>0.382</b>	<b>1.296</b>	<b>0.724</b>	<b>2.318</b>
SP gain > 10		0.246	1	0.620	1.199	0.586	2.453
SP gain > 12		0.597	1	0.440	1.440	0.568	3.649

The second part of hypothesis 4 suggests that losses will have a greater impact on psychological wellbeing than gains, when losses and gains are of equivalent magnitude. When comparing odds ratios obtained from loss and gain chi-square analyses, there was negligible evidence resource losses impacted on mental health to a greater extent than resource gains (Table 17).

Comparisons of effect across ELSI losses and ELSI gains were both statistically valid ( $p$  values < 0.001) and show that the odds ratio for ELSI loss and MCS loss was equivalent to the odds ratio for ELSI gains and MCS gain with a large overlap of confidence intervals.

Table 17

*Comparisons of Odds of Impact on Mental Health Across Resources Losses and Gains*

	Odds	95% CI Lower	95% CI Upper	<i>P</i>
<b>ELSI loss</b>	<b>1.999</b>	<b>1.296</b>	<b>3.085</b>	<b>0.002</b>
ELSI gain	1.729	1.117	2.675	0.013
<b>PCS loss</b>	<b>0.679</b>	<b>0.488</b>	<b>0.996</b>	<b>0.046</b>
PCS gain	1.272	0.828	1.965	0.271
<b>SPS loss</b>	<b>1.854</b>	<b>1.135</b>	<b>3.031</b>	<b>0.013</b>
SPS gain	1.296	0.724	2.318	0.382

The odd ratios for physical health (PCS) loss and psychological wellbeing (MCS) loss, was lower than the odds ratios for physical health (PCS) gain and

psychological wellbeing (MCS) gain, however there was a large overlap in confidence interval and therefore no evidence to suggest that loss of physical health impacts more on psychological wellbeing than gain of physical health.

Odds ratio comparisons for social provisions (SPS) loss versus (SPS) gain, is suggestive of loss having more impact, with an odds ratio of 1.854 for loss compared to that of 1.296 for gain. However, there is large overlap of confidence interval and therefore no convincing evidence of a greater impact of loss over gain.

***Hypothesis 5:** Resource gains can attenuate the effects of resource losses on mental health loss.*

To assess whether gain in one resource category mitigates the effect on psychological impact of loss in another resource category, a series of analyses were performed to examine loss and gain interaction effects on mental health loss. Interaction effects were tested by means of hierarchical logistic regression. Paired combinations of loss and gain variables were entered first to test for the effect of one independent variable while the other was controlled (Step 1). The interaction effect was then tested while controlling for the main effect (Step 2). Dichotomous independent variables identifying participants who had lost and gained resources over the four-year period were identical to those used to test main hypotheses. These were dichotomous variables representing those who had reported ELSI loss/gain of greater than 3-points, SPS loss/gain greater than 8-points, and PCS loss/gain of greater than 5-points. Six possible interactions were tested: between 1) ELSI loss and SPS gain, 2) ELSI loss and PCS gain, 3) SPS loss and ELSI gain, 4) SPS loss and PCS gain, 5) PCS loss and ELSI gain, and 6) PCS loss and SPS gain.

As interaction effects tend to be small, their detection requires considerable statistical power. To enhance this, an alpha of .10 was adopted to test for interaction effects. A summary of interaction effects can be found in Table 18. Where a statistically significant effect was found, chi-square analyses of subgroups were used to examine the nature of the interaction. These results also appear in Table 18.

Table 18

*Summary of Resource Loss and Gain Interaction Affecting Mental Health Loss and Follow-Up Sub-Group Analyses*

	<i>P</i>	Odds	95% C.I.	
			Lower	Upper
<b>1 ELSI loss X SPS gain</b>	<b>.396</b>	<b>.372</b>	<b>.038</b>	<b>3.647</b>
<b>2 ELSI loss X PCS gain</b>	<b>.060</b>	<b>.346</b>	<b>0.114</b>	<b>1.044</b>
<i>PCS no gain</i>	<.001	3.209	1.784	5.773
<i>PCS gain</i>	.484	1.660	0.396	6.951
<b>3 SPS loss X ELSI gain</b>	<b>.271</b>	<b>.437</b>	<b>.100</b>	<b>1.906</b>
<b>4 SPS loss X PCS gain</b>	<b>.048</b>	<b>.285</b>	<b>.082</b>	<b>.990</b>
<i>PCS no gain</i>	.002	2.359	1.362	4.085
<i>PCS gain</i>	.484	0.673	0.220	2.054
<b>5 PCS loss X ELSI gain</b>	<b>.050</b>	<b>0.125</b>	<b>0.016</b>	<b>1.000</b>
<i>ELSI no gain</i>	.195	0.767	0.513	1.147
<i>ELSI gain</i>	.095	0.190	0.023	1.611
<b>6 PCS loss x SPS gain</b>	<b>.793</b>	<b>.801</b>	<b>.153</b>	<b>4.202</b>

*Notes. P values for interaction effects were produced by the Wald test. Statistical detail can be found in Appendix 3, p. 241.*

*1) Does gain in social resources attenuate the impact of loss of economic resources on mental health?*

The binary logistic regression found no statistically significant interaction between perceived gains in social support and economic loss impacting on mental health loss.

*2) Does gain in physical health attenuate the impact of loss of economic standard of living?*

The results of the binary logistic regression suggest that the relationship between economic loss and mental health loss is attenuated by physical health gain. A follow up chi-square analysis identified that the main effect of economic loss on mental health loss was only apparent for those who had not experienced physical health gain. The odds for the no gain group were 3.20 ( $p < 0.001$ ) as opposed to 1.66 ( $p = 0.48$ ) for the group who had also made physical health gains (Table 18). Physical health gains appear to mitigate the impact of ELSI loss on mental health.

*3) Does gain in economic standard of living attenuate the impact of loss of social support provision?*

The binary logistic regression found no statistically significant interaction between gains in economic standard of living and social provision loss impacting on mental health loss.

*4) Does gain in physical health attenuate the impact of loss of social support provision?*

The results of the binary logistic regression suggest that the relationship between perceived social provision loss and mental health loss is attenuated by physical health gain. A follow up chi-square analysis identified that the main effect of social



provision loss on mental health loss was only apparent for those who had not experienced physical health gain. The odds for the no gain group were 3.36 ( $p = 0.002$ ) as opposed to 0.673 ( $p = 0.484$ ) for the group who had also made physical health gains (Table 18). Physical health gains therefore appear to mitigate the impact of social provision loss on mental health.

*5) Does economic standard of living gain attenuate the impact of physical health loss on mental health?*

The results of the binary logistic regression suggest the relationship between physical health loss and mental health loss is altered by economic standard of living gain. Primary hypothesis testing found an anomalous association between physical health loss and mental health loss, such that those who experienced mental health loss were slightly less likely to experience losses in psychological wellbeing. A follow up chi-square analysis found this anomalous association between physical health loss and mental health loss was only apparent for those who had not experienced economic standard of living gain. The odds for the no gain group were 0.828 ( $p = 0.336$ ) as opposed to 0.103 ( $p = 0.009$ ) for the group who had also made economic standard of living gains (Table 18). Economic standard of living gains appear to alter the anomalous impact of physical health loss on mental health, and may help explain the anomalous relationship, i.e., those who made ELSI gains (with PCS loss) were slightly less likely to experience psychological wellbeing loss than everybody else, and those who did not make ELSI gains with (with PCS loss) were no more likely to experience psychological wellbeing loss. This suggests economic standard of living gains have a direct and positive impact on psychological wellbeing.

6) *Does social provision gain attenuate the impact of physical health loss on mental health?*

The binary logistic regression found no statistically significant interaction between gains in social provisions and physical health loss impacting on mental health loss.

In summary, evidence was found to suggest gains in physical health and economic standard of living gains may attenuate the impact of loss of other resources.

***Exploratory question 1:*** *Is there evidence of resource caravans, i.e., to what extent do resource types correlate within a given time period?*

The question asks whether there is evidence of the clustering of resources suggestive of the possibility of a resource caravan. In order to assess this question, Pearson  $r$  correlations between the original scores on the resource measures were assessed for significance and magnitude for each year that data was collected, 2006, 2008, and 2010.

Table 19

*Correlations Between Resources Across Three Data Waves*

Year	ELSI and PCS	ELSI and SPS	PCS and SPS
2006	.256**	.307**	.139**
2008	.250**	.207**	.070*
2010	.256**	.369**	.154**

Notes: \*  $p < 0.05$  \*\*  $p < 0.005$

All correlations between resource raw scores for each dataset were both in a positive direction and statistically significant (Table 19). The strongest correlation for all years was between economic standard of living and social provisions. Economic living standards and physical health resources were also moderately

correlated across all datasets. Small and statistically significant correlations were found between physical health and social provisions.

***Exploratory question 2:*** *Is there evidence of resource spirals, i.e., to what extent do resource losses or gains correlate over time?*

This question was concerned with whether resource loss leads to further loss over time, and similarly whether gain leads to further gain. Hobfoll (1989) describes this as the propensity of losses and gains to spiral, noting loss spirals occur with greater pace and magnitude. This question was explored by using data from 2006, 2008, and 2010 datasets in two ways: first, to assess whether the amount of change was correlated across the two periods; and second, to explore whether loss and gain continued across the two periods regardless of the degree of loss or gain, i.e., whether there were identifiably consistent losers and gainers. Change scores for each type of resource were created by subtracting 2008 scores from 2006 scores to create the first *change variable* for change between wave 1 and wave 2 datasets. The second *change variable* was created in the same way but with 2008 and 2010 datasets. As a first step the first change variable (2006-2008) was correlated with the second change variable (2008-2010). A positive correlation between change scores would be strongly suggestive of loss and gain spirals over the two two-year time periods. As a second step, change variables were then recoded - all negative change values recoded as ‘-1’, all positive change values recoded as ‘1’, and those whose scores had not changed recoded as ‘0.’ This enabled percentages of people who had experienced any level of loss between wave 1 and wave 2 as well as loss between wave 2 and wave 3 to be identified - indicative of *loss spiral*, and likewise for *gain*.

*Additionally, what are the characteristics of “chronic” losers?*

Participants who experienced loss in both time periods were considered in (or vulnerable to) an ongoing loss spiral, and were of primary interest. A dichotomous variable was created to identify only these participants *loss-loss group* (1), versus *everybody else* (0). Additional comparisons with demographic and potentially relevant measures from the full HWR survey were used to describe any differences between these groups across, *age, gender, marital status, qualification, after housing cost poverty rates, depression rates, average number of health problems, and retirement status*.

*Economic standard of living.* The correlation between change scores between each time period (2006–2008 & 2008–2010) was negative and weak  $r = -0.282$  ( $p < 0.001$ ), indicating spiraling loss or gain was not the predominant trend in this group of participants. Frequencies of patterns of losses and gains across the two time periods are presented in Table 20. These figures show evidence of loss and gain spirals, but again indicate economic standard of living is more likely to systematically oscillate up and down.

Table 20

*Contingencies of Economic Standard of Living Change Patterns (Loss, Gain, No Change) Over Successive Two-Year Time Periods: 2006-2008 and 2008-2010*

		ELSI change second time period			Total
		Loss	Gain	No Change	
ELSI change first time period	Loss	90	204	38	332
		%	27.2%	61.4%	100%
	Gain	151	113	73	337
		%	44.8%	33.5%	100%
	No Change	43	70	40	153
		%	28.1%	45.8%	100%

Chi-square analyses suggest that participants who experienced “chronic loss” - any level of loss of economic standard of living over two time periods - were more likely to be living below the poverty line as defined by *after housing cost poverty* ( $\chi^2(1, N = 819) = 16.509, \text{Phi} = 0.142, p < .000$ ). Fifty-seven percent of people who experience “chronic loss” were in this category compared with 35% of all other participants. Differences were also noted in depression rates as measured by the Center for Epidemiological Studies Depression Scale (CES-D ( $\chi^2(2, N = 117) = 8.236, \text{Phi} = 0.101, p = .001$ ). Observationally, 25% of those who experienced ongoing economic standard of living losses had scored below the CES-D cut-off indicative of possible clinical depression, compared with 16% of all other participants. There is also suggestive evidence that this group is likely to be in the youngest age group (55-59) as 46% of the loss-loss group were in this age group compared with 37% of everyone else. This difference was, however, not statistically significant ( $\chi^2(2, N = 177) = 4.691, \text{Phi} = 0.078, p = .096$ ).

No other statistically significant differences were found for gender, marital status, highest qualification, average number of health problems, and retirement status.

*Physical health.* The correlation between change scores for each time period (2006-2008 and 2008-2010) was negative and moderately strong  $r = -0.443$  ( $p < 0.001$ ), indicating spiraling loss or gain was not the predominant trend in this group of participants. Frequencies of patterns of losses, and gains across the two time periods are presented in Table 21. These figures show evidence of physical health loss and gain spirals, but again indicate perceptions of states of physical health are more likely to oscillate, i.e., systematic ups and downs.

Table 21

*Contingencies of Physical Health Change Patterns (Loss, Gain, No Change) Over Successive Two-Year Time Periods: 2006-2008 and 2008-2010*

		PCS change second time period			Total
		Loss	Gain	No Change	
PCS change first time period	Loss	143	251	23	417
	%	34.3%	60.2%	5.5%	100%
	Gain	198	121	23	342
	%	57.9%	35.4%	6.7%	100%
	No	37	32	12	81
	Change	45.7%	48.1%	6.9%	100%

When descriptive statistics were considered for those who experienced chronic physical health loss—recorded any level of loss of physical health for both time periods—this group was found to be in the oldest age category ( $\chi^2(2, N = 814) = 5.264$ ,  $\Phi = 0.082$ ,  $p = .072$ ). Thirty-seven percent of this group were in the 65 and above age bracket, compared to 27% of participants in the “everybody else” group. No other statistically significant or notable differences were found when considering other demographic variables.

*Social support provision.* The correlation between change scores for each time period (2006-2008; 2008-2010) was negative and strong  $r = -0.515$  ( $p < 0.001$ ), indicating spiraling loss or gain was not the predominant trend in this group of participants. Frequencies of patterns of losses and gains across the two time periods are presented in Table 22. These figures show evidence of social support loss and gain spirals, but again indicate perceptions of social support provision are more likely to fluctuate.

When other factors were considered for those who experienced chronic social support loss—recorded loss of perceived social support for both time periods—no statistically significant differences were found when considering demographic variables. An observed difference (not reaching statistical significance) was in rates

of depression as measured by the CES-D. Twenty-seven percent of the chronic loss group met criteria for possible depression compared with 19% for “everybody else”.

Table 22

*Contingencies of Social Support Patterns (Loss, Gain, No Change) Over Successive Two-Year Time Periods: 2006-2008 and 2008-2010*

		SPS change second time period			Total
		Loss	Gain	No Change	
SPS change first time period	Loss		107	319	449
		%	23.8%	71.0%	100%
	Gain	%	216	108	358
			60.3%	30.2%	100%
	No Change	%	20	33	70
			28.6%	47.1%	100%

In summary, evidence suggests a small subgroup of older adults do present a pattern of ongoing loss of resources. Those who experience ongoing loss of economic standard of living are more likely to be living below the poverty line and more likely to have problems with depression.

## Results summary

Analyses supported Hypothesis 1, that *loss of resources over a four-year period will be accompanied by loss in psychological wellbeing*, for social support and economic standard of living, but not for physical health. Hobfoll’s (1989) prediction that *low and stable levels of resource would be accompanied by loss of psychological wellbeing to a lesser extent than for resource loss* (Hypothesis 2) was also supported by evidence. Loss presented as a better predictor of psychological wellbeing loss than stable/low resource levels. Additionally, there was evidence that high levels of social support

can attenuate the impact of loss, as shown by Hypothesis 3 analyses. For those who experienced economic standard of living losses with high levels of social support, psychological wellbeing losses were no more likely than those who hadn't experienced such losses. Social support may be a powerful attenuating factor in combating the loss of other valued resources.

Evidence from analyses regarding gain hypotheses found, as predicted, gains in resources were not as likely to be associated with gains in psychological wellbeing, as losses were associated with psychological wellbeing losses. An exception was economic standard of living. Gain in this resource was associated with psychological wellbeing gain with a dose-response relationship found, i.e., greater gains were associated with increased odds of gain in psychological wellbeing. Hobfoll's (1989) suggestion that resource gains may offset the psychological impact of loss was examined through an exploration of interaction effects between losses and gains. Results suggest physical health gains may provide such protection when loss of other resources is experienced.

Finally, Hobfoll's (2001) theoretical concept of the resource caravan and the axiom of loss and gain spirals were considered via exploratory questions. Correlation analyses indicated some evidence of aggregated resources, indicative of a *caravan* effect. Similarly, there was evidence a minority of participants experienced a pattern of loss over a four-year period indicative of a loss spiral. Follow up analyses suggested those who experienced economic standard of living losses over subsequent two-year periods, may have vulnerability to poverty and depression.



## **CHAPTER 8**

### **DISCUSSION**

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This chapter will discuss and interpret findings from the current study of data from 1,119 participants in the New Zealand Health, Work, and Retirement Study (Alpass et al., 2007), and secondly, examine how these findings fit into the theoretical base of conservation of resources theory (Hobfoll, 1988, 1989). Particular attention will be given to integrating these findings with those of previous research, and consider whether they provide support for the central principles and tenets of conservation of resources theory, specifically 1) resource change as a determinant of change in psychological wellbeing, 2) loss as a primary mechanism for psychological distress, 3) the role of resource gain as a ‘buffer’ against the effects of loss, 4) the tendency of resources to “cluster”, i.e., that possessing a key resource enables possession of other resources, 5) the spiraling nature of resource losses and gains, 6) the psychological impact of resource poverty, and 7) whether high levels of one resource can mitigate loss. Further, how this research might pertain to older adults approaching and transitioning into retirement will be addressed. Following on, a reflection on the theoretical and conceptual approach and research methods employed in the present study is presented, including an appraisal of both strengths and limitations. Recommendations for future research will be made, before a summary of the core contributions of the present study.

### **Change as a determinant of psychological wellbeing**

Central to conservation of resources theory (Hobfoll, 1988) is that the mechanism for change in psychological wellbeing is directly associated with *loss* or *gain* of key resources. Key resources used to test this theory over a transitional period into

older adulthood were physical health, economic standard of living, and social support. Each will be addressed in turn.

### *Economic standard of living*

In support of COR's central mechanism for psychological stress, when the impact of economic standard of living loss over the four-year study period were evaluated, the odds of clinically significant loss in psychological wellbeing increased significantly. Those who identified significant losses equating to moving down at least one economic standard of living level as defined by the Economic Standard of Living Index (ELSI), were twice as likely to have identified clinically significant psychological loss over the same time period than those who did not experience such loss. Those who had experienced large losses in economic standard of living (greater than 7 points on the ELSI scale) experienced clinically significant loss of psychological wellbeing 4.5 times that of those who had not experienced such loss. The relationship between loss of economic standard of living and psychological distress appears robust, given the "dose-response" effect of greater ELSI losses equating to increased likelihood of mental health loss. The ELSI is based on objective indicators of living standards, rather than the subjective perception of these standards. The ELSI is therefore less likely to be affected by reverse causality (mental health influencing perception), adding to the strength of the finding. These results suggest economic resources are highly valued through retirement and in older adulthood, a finding echoed in past research (Grundy & Sloggett, 2000; Lynch, Kaplan, & Shema, 1997; Turner & Van Gundy, 2004). Associations indicate that not only are economic resources valued, but are key - making the distress associated with loss of economic position comprehensible.

Despite the axiom that “money doesn’t buy happiness”, there is increasing evidence to suggest economic resource is associated with psychological wellbeing. Past studies have shown the association between income level and life satisfaction is statistically significant and practically meaningful (Sengupta et al., 2012). Low socio-economic status and financial strain have been shown to be associated with elevated risk of psychological distress and depressive symptomatology (Ferraro & Su, 1999; Kahn & Pearlin, 2006; Zimmerman & Katon, 2005), diagnoses of major depression (Price, Choi, & Vinokur, 2002) and suicidal ideation (Gilman et al., 2013) amongst older adults. The findings of the current study add a further nuance to the economic resource psychological wellbeing relationship, in that *loss* of economic power may be a primary mechanism in determining distress independent of the quantity of economic resource that is possessed. Loss of economic standard of living is a direct threat to one’s ability to manage, cope, purchase other needed resources, and ultimately, survive, and this threat (according to COR theory) causes distress, which may work to motivate a drive to protect and preserve what one has.

Economic resources clearly seem to matter, and have been mooted as central to the purchase of independent living. Independence is possibly one of the major life tasks for all age groups within Western cultures, and has been shown to be of critical importance to the psychological wellbeing of older adults (French et al., 2002). The National Advisory Council on Ageing Study (1990) in America found a strong link between financial wealth and independence. Many older respondents in this study linked economic resources with having the ability if required to hire the help that would be needed in order to remain in their own home and perform the “normal things of life” for as long as possible (French et al., 2002, p. 71) without

being reliant on family or friends. Independence may therefore be considered a resource purchased by economic resource.

Older adulthood is a time when opportunities to generate wealth diminish. Many will have experienced loss of income due to retirement, and if financial position is not already lost, it can be foreseen. Evidence from the current study strongly suggests that older adults experiencing transitions that directly or indirectly impact on economic resources are vulnerable to clinically significant changes in mental health. Poor psychological wellbeing in older adults has broad implications. It is linked to expediting physical decline and levels of dependency (Fiske, Wetherell, & Gatz, 2009) and increased risk of mental illness and suicide (Conwell, Van Ouden, & Caine, 2011). Therefore, assisting older adults to maintain their economic standard of living, recognizing the significance of economic loss and supporting those who experience such loss, may prevent such negative sequelae.

In New Zealand, particular strains on economic standard of living are present and envisaged for those reaching retirement currently and in the cohorts to come. Compared to other OECD countries, New Zealand's already high and increasing housing costs alongside the decline of home ownership amongst the current and future older adult population (Davey, de Joux, Nana, & Arcus, 2004), have serious implications for the health and psychological wellbeing of older adults in this country. O'Sullivan and Ashton (2012) in a study using a tool to estimate the minimum income for healthy living (MIHL) in New Zealand using 2009 data, found even for home owners the MIHL far exceeded the universal state pension (NZS), and for single renters this figure exceeded NZS by 46% and is expected to rise. Given 43% of over 65s in New Zealand rely on NZS as a sole source of income

(O’Sullivan & Ashton, 2012) these figures raise serious concern for the wellbeing of older adults in this country, and indicate losses in economic standard of living will become increasingly problematic.

Significant economic standard of living gains were evident and associated with an increase in the odds of clinically and statistically significant gains in psychological wellbeing at odds of 2.1, when compared to participants who did not make such gains. When cut-off levels of gain were increased, the odds of clinically and statistically significant gains in psychological wellbeing similarly increased, indicating a dose-response effect. An ELSI gain of greater than 7-points on the 31-point scale increased the odds of psychological gain to 3.3. This finding adds to evidence indicating the value economic standard of living has for older adults. That gains are impactful, adds strength to the suggestion that economic wellbeing is *key* through retirement into older adulthood. As reported previously, economic standard of living’s key role in mental health is corroborated by past research. A study of 5,197 New Zealanders (Sengupta et al., 2012) for example, found that income was strongly associated with a number of self-evaluations of happiness and quality of life, and had strong negative associations with stress. Earlier research on the relationship between economic indicators and happiness has suggested that it is not net income level per se that predicts happiness, but the comparison of one’s income to peers (Boyce, Brown, & Moore, 2010). It is possible the gains in psychological wellbeing associated with gains in economic standard of living are an artifact of movement in rank relative to one’s peer group. The Easterlin (1974) paradox – that income and happiness are positively associated within a country at a given time, but not within a country over time – also suggests economic gains are not considered as gains if they are experienced by an entire group. Economic

standard of living as measured in this study by the ELSI, is however a better measure of financial wellbeing over time than income – the latter taking no account of inflation or purchasing power. It is possible for incomes to increase without gains in economic standard of living.

It should be considered that gains in economic standard of living may have a variable impact depending on the level at which gains are made. It is easy to assume gains, which propel an individual out of poverty, may be more impactful on an individual than gains made from relative wealth. Past studies have found positive associations between income and happiness plateau above a certain income level (Easterlin, 1995; Oswald, 1997; Sengupta et al., 2012). Likewise, the psychological gains associated with economic gain over time, for those with greater wealth may be less. Arguments as to whether money matters less after basic needs are met (Veenhoven, 1995), or whether money matters more as people adapt and their living aspirations, expectations, and desires rise accordingly (Graham & Pettinato, 2002), have been presented. These questions were beyond the scope of the current study to address. However, they will be important to examine in the ongoing development of this theory.

In summary, economic standard of living presents as a *key* resource, significant in maintaining mental health through older adulthood and may be particularly salient in the transition into retirement. Older adults are vulnerable to economic standard of living losses, particularly so in the New Zealand context of rising living costs and pensions which do not adequately cover needs. This research indicates loss of economic standard of living is likely to have serious implications for the psychological health of older adults and supports Hobfoll's (1988) theoretical

principle of loss as a mechanism for distress. Additionally, gains in economic standard of living likely add to the security of the individual, protecting their ability to survive by creating an economic buffer against future threat, and allowing greater access to other resources that a better standard of living may bring.

### *Physical health*

It defies prediction that loss of physical capacity over the four-year period was not associated with clinically significant loss of psychological wellbeing. On the surface this outcome is surprising, in that if there is no effect of clinically significant loss of physical capacity then, within the theory, the value of physical capacity as a resource is challenged, or the theory does not hold. It seems counterintuitive to suggest that middle-aged to older adults have little care for their physical health. However, possible explanations can be found in previous research. As discussed in the opening chapters, psychological wellbeing has “in general” been found to improve with age to approximately age 70 despite age related physical declines that are considered “normal” (Blazer & Hybels, 2005; Halpert & Zimmerman, 1986; Smith & Baltes, 1999). Because of the age of the current sample – late middle to young-old – it is likely that declines observed were due to age attributable “slowing” rather than more disabling physical health losses that are common later in life. Past research has found that it is chronic illness, transitions to disability status, and loss of independence that are strongly associated with poorer mental health (see for example, Elliot, Witty, Herrick & Hoffman, 1991; Koenig, Pappas, Holsinger, & Bachar, 1995; Yang & George, 2005). This type of loss is common amongst the older old, but less likely amongst those younger than 70.



Why “age attributable” physical decline might not impact upon psychological wellbeing, has been explored by several theorists and several explanations may contribute to some degree. Ideas about expected loss, for example, may play a part (Heckhausen & Krueger, 1993). Studies have found that between middle and older adulthood life expectations shift and certain losses are anticipated and psychologically prepared for. Theorists suggest young and middle aged people expect to make gains, becoming wealthier, stronger, and more self-assured and confident. In contrast, in older adulthood losses rather than gains are expected as people lose physical and financial capacity, and employment status (Heckhausen & Baltes, 1991; Heckhausen, Dixon, & Baltes, 1989). Physical decline it could be argued is a normative expectation of older adulthood, for which individuals can psychologically prepare to cope. Baltes (1987) suggests within the framework of selection, optimization, and compensation theory that as people age and experience decline, they accommodate physical and cognitive loss through the use of compensatory strategies, and lower their expectations of what is possible. People discover ways to accomplish social and daily activities either more slowly, or in a different or efficient way, meaning that self-esteem and psychological wellbeing can be preserved in the face of physical decline.

Horizontal social comparisons therefore may also contribute to psychological preservation as physical resources decline. Social comparison theory (Festinger, 1954) proponents argue that self-assessments of how well one is doing are made in relation to peers. For older adults, physical health status may be declining at a rate comparable to one’s peers, and therefore not perceived as decline. As a potential extension to COR theory, it may be that losses and gains are perceived as such only in relation to one’s peer group, i.e., “I’m doing about as good as the rest of my peer

group” psychological wellbeing is preserved (Dunning & Hayes, 1996; Festinger, 1954; Gilbert, Giesler, & Morris, 1995). As “the group” is in decline, *loss* as such is not perceived to be meaningful because it is congruent with expectation and age-appropriate. Festinger (1954) emphasized that social comparison can even be applied to enhance one’s self-esteem which may be true for older adults who despite experiencing age related physical decline, may hold a perception that they are “better off” than others within their age group who may have more disabling physical difficulties. Psychological wellbeing can be retained, and in some cases bolstered by such downward comparison (Cohen & Wills, 1985).

Alternatively, it may be the case that physical health is simply valued less as people age. It is possible that over time values change and the physical body begins to matter less, while other resources become foci and hold greater significance. It has been theorized that as people age they begin to give preference to emotionally gratifying experiences, including fostering close emotional ties to family (Antonucci, Birditt, & Akiyama, 2009; Carstensen, 1992). Carstensen’s socioemotional selectivity theory articulates the suggestion that people become increasingly selective in their values, giving more attention to emotionally meaningful goals and activities such as meaningful relationships, rather than physical strength. Carstensen (1992) links this shift to a “shrinking horizon” as people sense a foreshortened future. Physical health or fitness as a resource may therefore decrease in value from youth to older adulthood, as other resources such as strong social bonds become increasingly valued.

Other theorists have proposed a positivity effect that occurs with the process of ageing (Carstensen & Mikels, 2005). It has been suggested that as people age they

focus more attention upon positive experiences and memories than negative ones. It would follow that losses may matter less for the old than the young as they are given less psychological attention. This is contentious and research findings regarding changes in emotional reactivity across the lifespan are equivocal. While some studies have found physiological arousal in the face of minor stressors is diminished for older adults (Labouvie-Vief, Lumley, Jain, & Heinze, 2003), other studies have found that in later life those who have had major losses such as the loss of a loved one suffer stronger physiological and emotional reactions than younger adults experiencing similar losses (Kunzmann & Gruhn, 2005).

Some losses clearly matter, and potentially matter more for adults transitioning through retirement into older adult. The current study suggests age-attributable physical decline may not be one of the losses that contribute to loss of psychological wellbeing in later life. Although counterintuitive, this finding may align with current research on age normative physical decline, and psychological theories such as social comparison. A limitation of this study is the lack of distinction between physical health losses that are gradual and age-normative, and those which mark the transition from normative health to ill health and disability. It would seem reasonable to hypothesize, given past research indicating strong links between physical disability, chronic ill health in late life, and psychological wellbeing (Mulrow, Gerety, Cornell, Lawrence, & Kanten, 1994; Revicki & Mitchell, 1990; Smith, 2001), that those who experienced disabling physical losses may indeed have experienced parallel losses in psychological wellbeing. Given the relatively “youthful” older adult sample in the current study, these more disabling physical health losses are likely to have been rare. It is worth considering the possibility these results could be an artifact of the PCS being a subjective rather

than an objective measure of health however studies have shown objective health impairments are indirectly associated with subjective health perceptions (Cho, Martin, Margrett, MacDonald, & Poon, 2011).

That perceived gains in physical health were not found to be associated with gains in psychological wellbeing perhaps adds weight to the earlier suggestion that physical health may not be viewed as highly as other resources for those approaching and in retirement years. That losses or gains were not found to independently impact on psychological wellbeing suggests that there may be ambivalence towards or acceptance of one's state of physical health – it being what it is. As suggested when discussing physical health *losses*, other resources such as close relationships and financial health, may have or acquire greater significance at this transitional time of life. As transitions are made through retirement into older adulthood, theories other than COR offer little more to inform this finding. Social comparison theory for example, suggests that physical health gains at a time when most peers are either not making gains, or losing physical fitness, should bolster psychological wellbeing. It is possible that reference groups outside of one's age peer group dampen positive psychological effects. An older runner for example, may be making gains compared to their age group, but not compared to younger members of their running club.

As considered earlier, there is the possibility measurement issues may account for a non-significant result. The PCS as used as a measure of physical health is a subjective measure, which can only approximate actual levels of physical health. However, with research suggesting subjective measures of health are strongly associated with objective measures, and directly associated with measures of

psychological wellbeing (Cho et al., 2011), an association, even if not a strong one would have been expected. It is difficult to explain from a measurement perspective why this was not the case. It is possible that small gains in physical health status are difficult for older individuals to assess because advancing years bring expectations of poorer health and strength regardless of objective reality. The result, however, does suggest that general physical health status may not be considered key to the mental health of older adults, possibly as losses are expected and opportunities for gains are searched for elsewhere.

### *Social support*

The current study found that perceived loss of social support had an independent association with clinically significant loss of psychological wellbeing, supporting Hobfoll's (1988, 1989) principle of the primacy of the effect of loss on psychological wellbeing. Losses greater than one standard deviation from baseline were associated with clinically significant loss at a ratio of just under 2:1 when compared with those who had not experienced such loss in social provisions. When the cut-off for loss was increased, the odds of clinically significant losses in mental health correspondingly increased. The results suggest that social support provision is a highly valued resource amongst older adults, highlighting that such losses present at a time of particular vulnerability during the transition from middle age to older adulthood.

Social support losses are common for people as they age. Retirement can mean the loss of the social and supportive contact that commonly occurs in an ad hoc fashion in the workplace. For some, work has encapsulated the majority of human contact and therefore loss of this contact is highly significant. Into retirement, social

contact can decrease due to personal and other disability, disease or bereavement. These losses again, are significant not only because of the loss of the provision of social support, but of the reminder of the passage of time and the finiteness of life. Past research suggests that as people age, patterns of social connectedness change (Fiori, Antonucci, & Cortina, 2006). Networks become smaller, and denser – more focused upon neighbourhood and family connections – than the broader networks of acquaintances seen in earlier years. These are theorized as conscious realignments of values, heightening those associated with close or kinship ties over those of looser acquaintance (Carstensen, 1992; English & Carstensen, 2014). The support needed becomes increasingly focused on a narrower band of contacts, meaning vulnerability to the loss of support nonetheless increases. Increases in the geographical mobility of families over recent decades has meant that families often cannot provide a high level of support. Neighbourhoods too, can be highly transitional. In New Zealand, residential mobility is common, meaning sub-communities that could provide support are not established. In 2006, only 42.4% of New Zealanders had resided in the same dwelling over the previous five-year period (Statistics New Zealand, 2007). Such high residential mobility levels can destabilize communities, and have significant costs to families and individuals (Saville-Smith, 1999). When neighbours move, social and instrumental supportive relationships can be severed. The current research suggests such losses can have psychological consequences for older adults, and highlights the value of ageing in stable living circumstances in a stable and supportive community.

There are many types and functions of social support, with Cutrona and Russell (1997) identifying several including having positive attachments, being socially integrated, having people who provide reassurance of worth, a reliable alliance with

another or other people, and having someone to provide advice or guidance when necessary. These functions of social provision were represented in the social provisions scale used in this study. Strong networks of social support can channel access to and opportunity to share other resources – for example, provide help with particular problems, provide transport or help with mobility, or provide information about health and other services. It is possible that certain sub-types of social support are valued more highly than others through retirement, and are associated with greater impact on the psychological wellbeing of the individual when these are lost. The analytical constraints of the current study prevented differentiation of social support provision by type. However, the overall finding was significant and demonstrates that social support loss can be a potential threat to mental health. In addition, it signifies a potential prevention and intervention point.

Gains in social support did not directly increase the odds of clinically significant gain in psychological wellbeing. Although surprising, it is possible there are conditions under which social support may increase yet psychological wellbeing is not improved. Social support may play an important role in alleviating the impact of loss. Bereavement may be one example where social support may increase and alleviate the negative consequences of loss, yet not improve psychological wellbeing. This suggests loss and gain of different resources may have different effects and serve different functions in relation to psychological wellbeing. Social support provision has been identified as a key resource in later life in previous research; it is counterintuitive that gain does not have an impact and this research may not suggest the contrary. In the present study, loss of social provision was

independently associated with loss of psychological wellbeing, providing an indication of its value in older adulthood.

In summary, loss of economic standard of living and loss of social support provision were independently associated with psychological wellbeing loss, providing some support for the conservation of resources theory (Hobfoll, 1988) - that loss is a significant determinant of psychological wellbeing. Hobfoll's (1988, 1989) assertion that losses are more "impactful" than gains in terms of magnitude of impact on psychological wellbeing, is only suggested by the current study. When comparing odds ratios for the psychological impact across comparable losses and gains in economic standard of living, the odds ratio of loss associated with loss of psychological wellbeing was equivalent to that of gain being associated with gains in psychological wellbeing. Confidence intervals overlapped significantly, and no real difference of magnitude is suggested. As neither physical health loss nor gain were negatively or positively associated with change in psychological wellbeing, no evidence for the primacy of loss was found. When comparing associations for loss and gain of social support, loss was clearly significant whereas gain was not significantly associated with gain in psychological wellbeing. Here the primacy of loss hypothesis stands.

To summarize, the current study lends some suggestive support to Hobfoll's (1988) theoretical principle of differential magnitudes across losses and gains. As previously discussed, adults moving through retirement into older adulthood are susceptible to a number of losses, increasing the vulnerability to loss of psychological wellbeing. Evidence from the current study suggests that while gains in resources can be beneficial, particularly gains in economic standard of living,



prevention of loss through this transitional period may be both primary and crucial to maintaining mental health. These results provide some support for COR theory. However, they indicate key resources hold differential value and may fulfill different roles for older adults. Economic wellbeing and social support provision have emerged as *key* resources for adults transitioning through retirement into older adulthood. That physical health loss was not associated with clinically significant loss in psychological wellbeing may provide evidence to the contrary of the theory. It may be an indication that other forces are at play, including normative perception of the ageing body, and social comparison or within conservation of resources theory; losses are only considered as such with reference to the experience of the normative group.

Hobfoll (1988, 1998, 1999) when outlining conservation of resources theory, directly addresses the possibility of the differential effect of losses and gains on psychological wellbeing and further states that there is interplay between loss and gain variables under certain circumstances. The possibilities of differential impacts of losses and gains, and the possible interactions of these variables were evaluated in the series of research questions that followed the main hypotheses that will be discussed in a later section.

### **Resource poverty**

Within COR theory, Hobfoll (1988) has placed a caveat on his principle of the primacy of loss as a factor impacting on mental health, with the statement that the principle holds “above a certain level of resource poverty”, implying poverty in itself has a direct impact on distress and mental health. This corollary was tested by first identifying participants whose scores both fell below one standard deviation of

the mean score of each resource measure as measured in 2006 and in 2010. Chi-square analysis was then used to identify any association between this low-stable variable and psychological wellbeing loss. Stable levels of resource poverty when assessed by this definition, did not produce expected increases in the likelihood of psychological wellbeing, loss for economic standard of living, physical health, or social provisions. These non-significant findings could be a symptom of the definition of poverty that was used. Resource levels one standard deviation below the mean score may still represent levels that are above what Hobfoll meant by his notion of a “certain level” of poverty. These findings, however, lend indirect support for the first principle of *loss* as a primary determinant. While *loss* of both economic standard of living and social support provision was associated with clinically significant *loss* of psychological wellbeing, *stable levels* that were well below average were not; *change* was therefore found to be more detrimental than “comparative” poverty.

Unusually, low and stable levels of physical health were associated with a reduced likelihood of psychological wellbeing loss than when compared with “everyone else” in the participant population. This finding is unexpected and difficult to explain. From the perspective of Baltes’ (1997) selection, optimization, and compensation theory, it could be that those with stable and low levels of physical health may have, by nature of having stable levels of health, been able to compensate for, or adapt to, their lowered physical health status and therefore be less likely to suffer mental health loss than those whose physical health fluctuates. Measurement issues may possibly account for such an anomalous finding and will be discussed when considering limitations of the current study.

To summarize, findings from the current study did not add weight to the adjunct to Hobfoll's (1988, 1989) COR theory that proposed that a certain level of resource poverty was psychologically impactful over time. Psychological wellbeing was not found to be lower for those who had comparatively low and stable levels of resource ownership. Current study definitions of poverty may still be above Hobfoll's (1989, 1988) intention of the definition. Non-significant findings however, lend observational weight to the main premise of the conservation of resources theory, that change in resource ownership is a primary determinant of distress.

### **The influence of social support**

Many studies have focused on the importance of social support in older adulthood, and the question of the role of high levels of social support in the context of other loss was considered. From earlier analysis, economic standard of living loss provided a context to explore the mitigating effect of social provision on managing such identified loss, because loss of this resource was found to have the biggest impact on mental health. Statistical analyses found participants who had experienced significant economic standard of living losses and had high and stable levels of social support did not experience mental health loss. When examining only those who incurred economic standard of living losses without high levels of social support, the odds of incurring clinically significant losses in psychological wellbeing increased. This result is statistically and clinically significant, producing evidence that high levels of social support are able to mitigate the psychological impact of other losses in and through older adulthood. While not intuitively surprising, it is relatively unique to find statistical evidence for the proposition of

the “buffering” role social support plays in the context of loss. This finding supports other research indicating ageing individuals that are embedded in a supportive network have access to resources that mitigate negative outcomes (Bishop, Martin, & Poon, 2006; Grundy & Sloggett, 2003; Lucchetti, Spazzafumo, & Cerasa, 2001; Van Groenou & Ban Tilburg, 2003).

### **Resource roles and functions**

Hobfoll (1988) suggests that although gains in themselves may not be as positively impactful on psychological wellbeing, as losses are negatively impactful gains may have a functional role in alleviation of the psychological impact of loss. People who have a functional role in alleviation of the psychological impact of loss. People who have lost one key resource but gained another may be protected from the deleterious effects of the loss on mental health. This proposition was evaluated by a series of six logistic regression analyses that paired combinations of loss and gain variables to assess for interaction effects. Evidence from the current study suggests there is interplay between losing and gaining certain resources, as described by conservation of resources theory (Hobfoll, 1988). Firstly, the statistically significant association between economic standard of living loss and loss of psychological wellbeing did not hold for those participants who had experienced physical health gains. For this group, no association was found between economic standard of living loss and loss in psychological wellbeing, while for those who did not experience physical health gains, the odds ratio linking the association between economic standard of living loss and psychological wellbeing strengthened. Physical health gain played a similar role in mitigating the statistically significant association between social provision loss and psychological wellbeing loss. For those who experienced physical health gain, alongside social provision losses, no

association was found. For those who had not experienced physical health gains, the association strength increased, from an odds ratio of 1.8, to 2.4. It is in this interplay between loss and gain that we see the potential value of physical health gain for adults in this age cohort. This finding adds to evidence suggestive of the beneficial effects of physical activity in the management of mild to moderate mental illness (Paluska & Schwenk, 2000; Penedo & Dahn, 2005). Physical health gain may mitigate the effect of loss; not raising psychological wellbeing above baseline but preventing the negative impact of the loss of another key resource.

A further, more difficult to decipher and statistically significant loss-gain interaction was found between physical health loss and economic standard of living gain. In main effect analysis, it was found that those who had experienced physical health losses had slightly *decreased* likelihood of loss of psychological wellbeing - a small, but significant effect. When economic standard of living gain was added to the analysis this main effect disappeared. No negative association was found between physical health loss and psychological wellbeing loss for those who hadn't experienced economic standard of living gain. It is possible economic standard of living gains amongst participants may have contributed to a negative association found in the primary analysis. The positive impact of living standard gain in a sense outweighing the negative impact of physical decline.

In summary, while gains are, according to theory, thought less likely to independently impact on psychological wellbeing, there is suggestive evidence that they are important in mitigating the impact of other losses. Evidence points to gains in physical health specifically working to alleviate the psychological impact of other resource losses.

**Resource caravans**

Hobfoll (1988) claims that resources aggregate around ownership of a key resource. Access to health care, practical support, and entry to participation in recreational activities, for example, may be associated with or supported by higher levels of socio-economic status. This claim was investigated through correlation of the total scores of data from measures that represented each of the three resources. This question was concerned about level of ownership – whether having a lot of one resource equated to having a lot of another. Analyses found statistically significant correlations across all resources, the highest of which between economic standard of living and perceived social support of these resources correlated by 0.37 ( $p<0.001$ ) in 2010, and economic standard of living and physical health 0.27 ( $p<0.001$ ) in the same year. Physical health and perceived level of social support were found to have the smallest correlations. Economic standard of living correlated most highly with both physical health and social support; however, these resources correlated the least with each other, which suggests that economic standards may be the resource around which others aggregate. Main hypotheses analyses have already provided suggestive evidence of the value of economic resources through and into retirement. The strong correlations with other resources add strength to this by further indicating economic resources may enhance wellbeing by providing access to other resources. This conservation of resources corollary is therefore supported. Resources aggregate; further, when these three resources are considered, economic standard of living loss may assume “key” status.

### **The spiraling nature of loss and gain**

The possibility of loss and gain spirals was explored in the current study by examining patterns of loss and gain across two, two-year periods (2006-2008; 2008-2010). Analyses found losses (at any magnitude) during the first time period were no more likely to be followed by further losses in the second time period than gains. While the existence of loss and gain spirals for physical health, economic standard of living, and perceived social support were evident they were not predominant occurrences. After any level of perceived loss in a two-year period, perceived gains were common in the next time period, and vice versa - indicating that oscillation in the level of resources across time were far more common for adults in and approaching retirement.

Of those who experienced economic standard of living loss during the first time period 27% experienced further losses in the second time period equating to 9% of all participants experiencing loss in both periods, suggestive of “spiraling” loss. When this group was compared with those who did not experience ongoing loss, they were more likely to be found living below the poverty line (57%), to have features indicative of clinically significant depression (35%), and to be of the “youngest-old” age bracket, with 46% of this group aged 55-59. It is both concerning and unsurprising that those living in poverty are vulnerable to repeated loss of economic standard of living. People living in poverty, if employed, are more likely to be working in precarious employment and living circumstances, and existing on low incomes, leading to chronic vulnerability to loss of economic standard of living. Poverty is associated with poor health outcomes and people on low incomes have greater propensity for being forced into early retirement due to

illness or an inability to continue in physically demanding work environments (Burkhauser, Couch, & Phillips; 1996; Minkler, Fuller-Thomson, & Guralnik, 2006). There is strong evidence of links between financial hardship and depression, so the association between depression and economic standard of living losses is expected (Butterworth, Olesen, & Leach, 2012; Fryers, Melzer, & Jenkins, 2003; Kessler et al., 2008; Levinson et al., 2010; Lorant et al., 2003). Why the “young-old” are more vulnerable may be an artifact of the changing social and economic context placing additional strains on the over 50 generation. In the UK, the Equality and Human Rights Commission’s investigation (Smeaton, Vegeris, & Sahin-Dikmen, 2009) into the ageing workforce found one-quarter of 56-59 and 9% of 70-75 year olds were still financially supporting children. This number is likely to rise as the average age of mothers having children has risen. In 2013 in New Zealand, more women aged 35-39 gave birth than those aged 20-24 (Statistics New Zealand, 2014). This, coupled with a recent trend of children attaining financial independence later, has pushed the financial strain of child support through education and beyond into the later years. Additionally, a considerable proportion those 55 years and above are part of what is known as the ‘sandwich generation’ providing financial and other support to their own ageing parents in addition to grown children (Taylor & Patten, 2013). For those in low-income jobs and rented accommodation, such financial strains directly impact on economic standard of living and could deplete retirement savings and spark, or accelerate, a spiral of loss. These findings provide some evidence for the validity of Hobfoll’s (1988) “spiraling loss” hypothesis and further suggest that prevention of economic loss, and particularly repeated economic loss, is important to psychological wellbeing in the short and longer term.



While primarily concerned with the impact of cycles of loss, this study also found evidence of repeated patterns of gain. Approximately 10% of the study population made economic standard of living gains between 2006 and 2008, and again between 2008 and 2010. It appears that for some, repeated gains in economic standard of living are possible. While reasons for repeated gains are unknown for this group, it is possible that some could have had increases in net incomes by adding superannuation to income, by children reaching financial independence, becoming mortgage free, or intergenerational transfers through inheritance. Most participants, however, experienced fluctuations in economic standard of living gains followed by losses, and losses by gains, less seldom remaining static over time. This may be reflective of the transitions occurring across this age group, where changes in work and retirement role status may limit, or increase the ability to purchase or own basic or luxury goods or services, participate in social or other activities, or perceive satisfaction with material standard of living.

Although physical health losses over transitions into older adulthood are expected, only 13% of participants recorded declines in physical health in both time periods, compared to 11% who recorded gains over both periods. Physical health gains were therefore almost as likely as perceived physical health losses. Little difference in sociodemographic attributes was noted between those who experienced repeated perceived loss and those who did not. As would be expected, they were marginally more likely to be in the oldest age group of 65-70 years. For most, perceived physical health fluctuated; small gains and losses were noted for most over the two time periods. That repeated gains were almost as likely as repeated losses is noteworthy as this is counter to societal perception of physical health beyond 50 years of age. Previous research has shown that aerobic capacity and muscle

strength can improve, and at minimum be maintained, in older adulthood through physical activity and exercise (Buchner, Beresford, Larson, LaCroix, & Wagner, 1992).

The benefits of maintenance of physical health in older adulthood are numerous. Light exercise has been associated with decreased rates of disease and disability, likelihood of falls, and better social function, mental health, and neuro-cognitive function. Research has found however, that as people age, many become more sedentary, participating less in activity that may benefit health. It may be declines in physical health are normatively expected, contributing to a perception that gains are not, or at least, less possible. Evidence suggests it is difficult to persuade older adults to become more active and sustain behaviours that would assist their physical health despite being provided with information regarding the benefits (Schutzer & Graves, 2004; Warner, Schuz, Knittle, Ziegelmann, & Wurm, 2011). Past research has shown beliefs about self-efficacy, along with beliefs about the potential benefits of maintaining physical health through exercise, has explained significant variance in participation levels (McAuley, 1993; Schutzer & Graves, 2004). A main effect analysis in the present study suggests that physical health may be valued less in older adulthood than other resources. Neither losses nor gains were associated with losses or gains in mental health. It is possible that a perceived “lack of value” may underpin beliefs regarding the potentiality for gains to be made at this time of life, i.e., that once decline begins, it is assumed to roll with inevitability “downhill”. Holding this assumption means preserving psychological wellbeing, requiring a shift in what is valued to those things that are more controllable – relationships with family and friends and maintaining financial independence. This has implications for interventions aimed at improving physical

health in early older adulthood and suggests changing societal and individual expectations about what is normative in mid to later adulthood. In particular, it highlights that declines in physical health between the ages of 55 and 70 need not be an expectation of “normal aging”. More recently research findings have emphasized individual differences in health trajectories, noting larger variance in health status within cohorts than between them. In the UK, the Equality and Human Rights Commission’s (Smeaton, Vegeris, & Sahin-Kikmen, 2009) investigation into the over-50 workforce, found 62% of a sample of 1,500 felt they were as strong physically and mentally at work as they were in their 20s and 30s. This varied from 70% of managers and senior officials to 50% of those in skills trades. This finding is one defying the stereotype that people feel, and are, less capable as they age. It may signify that assumptions, expectations, and attitudes regarding strengths and capabilities in older adulthood are already changing.

Cycles of loss and gain of social support provision were found. Again, although spirals of social support loss were evident, they were not the predominant. Perceptions of social support over each time period were far more likely to move between perceived gains and losses. This may be reflective of the transitional period of retirement into older adulthood and further, the transitional nature of the need for support. During certain times the need for support may be more salient, such as with the loss of a job, or a partner; at other times social support levels may be less consequential. Fluctuations in perceived social support provision may therefore be reflective of fluctuations of need for social support. Post hoc analysis found that those who had perceived losses in both time periods – indicative of a loss spiral – did not have statistically significant demographic features that were in

any way different than those who did not perceive social provision loss in both periods.

In summary, evidence of Hobfoll's (2001) proposition of "spiraling losses and gains" was found when examining patterns of loss and gain in each of the three resources over two time periods. There was however, indication that losses and gains were more likely to oscillate than to spiral. There are issues with the operationalization of this proposition to consider. By design, two-year periods were used to determine a "cycle" of loss or gain. This may be too narrow or too broad to assess as "repeated loss". As Hobfoll (2001) states, losses spiral rapidly, perhaps within the time frame of a year, a month, or weeks. Gains may be more likely to be captured over a longer time period. The current research provides only observational support for Hobfoll's (2001) notion of the resource spiral over a circumscribed period of four years.

### **Conservation of Resources Theory   An Appraisal**

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Conservation of resources theory proved of pragmatic utility in the examination of the impact of change in levels of resource ownership over time for this representative group of older New Zealanders in, and transitioning into, retirement years. Several nuances pertaining to resource ownership and how these might apply to older adults in general have been highlighted. Most research to date has focused upon the relationship between resource ownership and how owning "a lot" or "a little" of a particular resource, such as wealth, transport or social support, might associate with or determine psychological wellbeing at a point in time. In

contrast, conservation of resources theory has provided a theoretical platform to examine the impact of the transition from having less of a resource, to having more and vice versa. It is a relatively unique proposition that change in resource ownership over time is in itself a central determinant of psychological wellbeing. Despite Hobfoll's (1988) claim that it is one of the most testable stress theories, the present study found several limitations in the testability of COR theory. One limitation pertains to the circularity of argument in the central principle of primacy of loss as a determinant of psychological distress. When loss of a resource does not lead to distress it is difficult to determine whether the theory is invalidated or the resource considered of little value to the individual or group. When losses in physical health were not observed to be associated with losses in mental health, the role, function and meaning of physical health as a resource was questioned. This calls to question the refutability of the theory. In operationalizing this principle, the "theory" may assume a purpose as a means to identify the value that a resource holds by an individual or within a particular culture or subculture, rather than as a test of a theoretical premise.

Further conundra in testing this theory include appraising a priori definitions of the value of resources within a particular culture when the possibilities of "valuable" resources are many. Hobfoll's (2001) attempt to list key resources "valued" within a Western context used a reference group of a mostly student, American sample, which has questionable relevance to an older adult population in New Zealand. Cultural values determining the resources that are valued, vary along a number of dimensions including age, and are constructed within time, place, and socio-political context (Gergen & Gergen, 2000). As discussed with reference to Carstensen's (1992) socio-emotional selectivity theory, what matters for people as

they age is likely to shift from accumulation of wealth to close and familial bonds with others. Hobfoll (2001) concedes that further work needs to be done to tease out resources that are key cornerstones of stress resistance within a particular culture. He argues that treating all resources as “good” trivializes the importance of those that are *key* to stress prevention, so a level of appraisal needs to be taken into account. It would follow, even amongst “good resources” there would be some more “good” than others – such that there may be a “key” resource that would open doors to other resources. The current study offers an indication economic living standards may be this key for older adults living in New Zealand. The possibility that resources may have different roles, functions, and meanings to individuals in particular contexts is not articulated within the principles or tenets of the theory. Gains in social support, for example, may have considerable positive impact to a person’s wellbeing during a time of loss, but may go unnoticed by another in a close marriage with a full and busy life. The current study’s findings suggest physical health gains, while not associated with perceived improvements in psychological wellbeing, may have a role in alleviating or mitigating the impact of other losses. While Hobfoll (2001) presents his theory as a micro-meso level of analysis, there is considerable scope within to explore and more fully articulate the values, roles, and functions or resources at the person and community levels.

While COR does not directly address the possibility that resources may have differential value when compared to each other and within different contexts of time, place, and ageing, the operationalization of COR theory within the context of the current study has enabled comparisons. Although examining the impact of change in three major resources across time has limitations, relative *values* have been explored. All resources are not of equal value to the older adult and this has

been given attention and highlights a layer of complexity to the principle of loss causing distress. The current study has highlighted that resources matter, but may matter differently, and may have differing roles. Economic standard of living correlated most highly with the other resources examined, more so than with each other, and they emerged as a key resource for this sample. Physical health was not found to be a resource that impacted directly upon psychological wellbeing through change in status over time. However, gain in physical health was found to mitigate the effect of economic losses on wellbeing. For those suffering economic losses, high and stable levels of social support were found to abate the impact of economic standard of living loss on wellbeing. COR theory likely hides considerable complexity regarding the roles, functions, and meanings of resources to individuals as they move through life.

Hobfoll (1988, 1989) presents COR theory as an alternative to prevailing stress-diathesis models. He claims that although appraisals are significant, they are more distal to contextual circumstance and available resource. Within COR “the appraisal” of a loss as “stressful” is dependent on a person’s psychological resources, nested alongside other resources such as social support, which may help see a person through a negative experience. Questionnaire style measures, such as those used in the current study are to varying degrees reliant on subjective appraisals rather than objective reality, which is problematic for a direct test of the theory. Additionally, it is very difficult to adequately quantify intrapersonal factors as opposed to context specific factors, which make an individual vulnerable or resilient to the effects of stress when objective reality is viewed through a prism of subjectivity. Certain measures approximate reality more closely, and in the current study the ELSI would be an example of a measurement of quantifiable indicators

of economic standard of living. The PCS relies on a considerable level of appraisal. Studies have found objective measures of physical health only have indirect associations with psychological wellbeing via subjective measures such as the PCS. COR theory has some difficulty disputing the importance of intra-individual vulnerability and personal appraisal in the experience of loss when the meaning of such loss cannot be apportioned.

Conservation of resources theory (Hobfoll, 1989,1991) can be viewed as an umbrella (meso) level theory in which other established and more focused theories nest in a complimentary rather than competing way (Figure 2). For example selection (of valued resources), optimization (making resource gains), and compensation (minimizing losses) (Baltes & Baltes, 1990) can be viewed as an integral part of the resource caravan. The ability to develop and use of SOC strategy as a personal resource becomes increasingly important in ageing in order to adapt to, and minimize the impact of, other resource losses (Freud, 2008). Socio-emotional selectivity theory (Carstensen, 1992) can provide an explanation as to what and why resources become valued in the transition to older-adulthood where the perception of a foreshortened future may alter goals from those of material resource gain, to having an emotional focus. Evolutionary theory while not a theory particular to ageing, does speak to why loss or threat of loss of valued resources are more impactful to psychological wellbeing than gains – loss being a direct threat to survival. Social comparison theory (Festinger, 1954) may explain why some losses and gains are not perceived as such – as losses and gains may be only perceived as such in relation to ones peers. Finally the social convoy of Antonucci's (1990) social convoy model can be viewed as a valued resource but also as part of the resource ecology or caravan passageway in which people live. The support found



for conservation of resources theory (1989,1991) in the current study potentially adds a layer of explanation to these other theories at the meso level. That COR theory integrates other established theories is a further strength of the model.

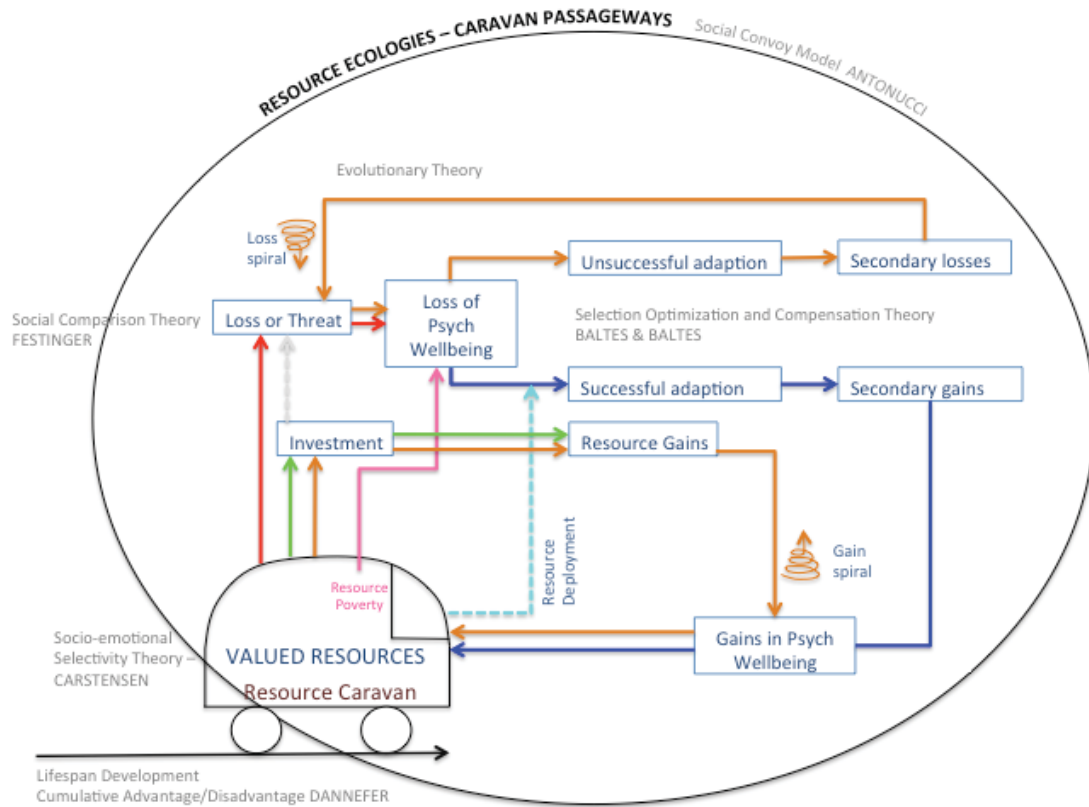


Figure 2. Schematic representation of conservation of resources theory in relation to other relevant theories

An additional strength of COR theory identified in past and the present research is its practical utility. By highlighting the importance of change as a determinant of psychological distress, points of vulnerability and intervention can be identified. People transitioning through retirement into old age face many changes in relative short succession, and many of these changes are losses. Pragmatically, conservation of resources theory provides the framework to track the impact of these losses over time, and as suggested earlier may help to identify significant

resources from the impact caused by their loss. Similarly, conservation of resources theory is functional in exploring the psychological impact of gain in certain resources. In his writings, Hobfoll (2001) discusses the development of resource engaging ecologies in which the resources valuable within a particular culture are “supplied, protected, shared, fostered, and pooled,” (Hobfoll, 2001, p. 118) in order to raise the wellbeing of all individuals within a community. Hobfoll suggests *resource passageways* be developed to support those at the lowest level of resources through the sharing and dissemination of resources, with the aim, in an occupational sense, to motivate individuals to accomplish more and be more satisfied in their work. Applying this to older adulthood, COR theory provides a means to identify key resources, which could be “supplied, protected, shared, fostered, and pooled” (Hobfoll, 2001, p. 118) to raise psychological wellbeing and life satisfaction across older adult communities. Examples would include programmes to raise levels of social support across communities, or policies to foster financial security through retirement. SuperGold Card transport funding introduced in 2011 to provide free off-peak transport to all New Zealanders aged 65 and over, is an example of an initiative that is part of a resource passageway significant to older adults of limited financial resources in urban environments. Such an initiative assists those with limited resources to access community support and required health care. As well as identifying and sharing resources, engaging ecologies for older adults would arguably include resources directed towards barriers caused by stereotype and ageism. Older adults share age in years, but represent diverse experiences of health, wellbeing, and socio-economic position, with a diverse range of possibilities and capabilities making this group difficult to define. Recognizing the diversity in later life calls into question the utility of

demarking “older adults” as a unified group, and signifies the possibility of becoming what American psychologist Bernice Neugarten (1979) described over 30 years ago as an “age irrelevant” society, as comfortable with a 28 year old mayor as a 70 year old student.

### **Reflections on the Research Method and the Conceptual Approach**

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A relative strength of the current study lies in the scale of the sample size. The Health, Work and Retirement Study (Alpass et al., 2007) represents by participant population, the largest study of older adults in New Zealand. The 6,500 New Zealanders who participated in the inaugural 2006 study were considered to accurately represent a snapshot of the experience of mid-life to older adulthood in New Zealand (Towers & Noone, 2007). The final sample of 1,119 used in the current study were found to be demographically equivalent to the first wave general population and therefore were considered representative of the wider population at least with respect to sociodemographic variables.

The comparatively large sample size further made possible the use of a methodological approach that best matched COR theory. Utilization of pre-existing longitudinal data made it possible to group participants according to their experience of gain and loss of resources over time, making binary log linear analysis a suitable technique to make comparisons between groups with quantifiable and meaningful change in psychological wellbeing. This approach ensured substantive amounts of change was represented as variables, over the “noise” of small or insignificant change over time, ensuring the most parsimonious model solution to

data fit. The approach also benefited from preliminary analysis that found minimal association between independent variables with each other and between demographic variables. This meant analysis could proceed with minimal concern for sparse cell counts, reducing complexity and increasing the statistical power of the model. This approach, matched with a comparatively large sample size produced a good match to COR theory.

A further strength of the conceptual approach was the breadth of subject matter. Examining the impact of meaningful and significant change across three resources significant to later life wellbeing meant tentative cross comparison of the value of these resources. If change in only one resource had been examined it would have been difficult to provisionally identify loss or gain of economic wellbeing as a probable *key* determinant, or highlight the role of gain in physical health, or high stable levels of social support, in mitigating the effect of economic standard of living losses.

The breath of scope of the current study also brings limitations. By examining changes in three distinct resources over time, vast quantities of literature on each topic have had to be condensed to brief summaries. Large units of analyses have been condensed to single indicators, such as the many varied components of physical health, economic standard of living, and social support, reduced to single composite scores. Identifying which of the resource components were most significant was not possible because of low cell counts, and the large number of calculations necessary would mean the chances of finding a statistically significant association between variables where no relationship existed would have been very high with such compromise in psychometric reliability and validity.

Other limitations related to the use of an existing dataset. Measures were unable to be determined a priori, and some measures were not represented in all data sets, such as the CES-D. Optimally, the CES-D measure of depression would have been used as an additional measure of psychological wellbeing at baseline, however this measure was only introduced in 2010. Other resources of interest were missing from the HWR dataset. Personal resources such as the use of adaptation strategies, e.g., the shortened version of Baltes original SOC-48 questionnaire, the SOC-15 (Baltes, Baltes, Freund, & Lang, 1999), would have been informative - research has suggested a rise of adaptation strategy as people age. Inclusion of this measure may have been able to examine whether, for example, a rise in the use of adaptation strategy compensates for physical health decline.

As highlighted earlier, this research may have been limited by the measures that were used. One concern is the subjective nature of questionnaire style assessments. The SPS and PCS in particular are measures that can only approximate objective reality of levels of social support and physical health through subjective experience and may be confounded by negative affect. Past research has indicated negative mood states have been found to correlate highly with self-rated health (Adler, Epel, Castellazzo, & Ickovics, 2000). The ELSI's use of clear indicators of economic standard of living (such as having, or not having something) makes this measure more reliable and less likely to be impacted on by low mood. Additionally, concerns have been raised relating to the algorithms used to calculate the PCS and MCS of the SF-12 and SF-36. Scale calculations use 2-factor orthogonal rotation with negative weightings on particular subscales, producing uncorrelated MCS and PCS scores. Authors have been concerned that by using this calculation, over time improvements in mental health can result in a counterintuitive decline in physical

health (Mishra, Hockey, & Dobson, 2014), and have suggested an alternative 2-factor oblique rotation algorithm be used. In a recent comparison study of oblique versus orthogonally produced PCS and MCS for 16,006 women from the Australian Longitudinal Study on Women's Health (ALS-WH) over a 14-year period and six waves of data, Mishra, Hockey, and Dobson (2014) found a negligible difference between methods for a similarly aged cohort of older women (aged 45-50 at wave 1 and 64-69 by survey 6): between 0.003 and 0.61 of a point across PCS and MCS orthogonal versus oblique rotation comparisons. However, small differences were noted between methods for the older cohort (aged 70-75 at wave 1 and 85-90 by wave 3). As approximately 15% of the current study sample were aged between 70 and 74 by wave 3, computation may have had an influence on findings. This highlights an overriding methodological concern about obtaining dependent and independent variables from within the same source questionnaire. The MCS was the only indicator of psychological wellbeing available across data waves. In future studies, the CES-D should be considered.

Additionally, this study was also unable to explore the differences in the way that resources might be valued between sub-cultures of older adults. Although out of the remit of a doctoral level research project, this study could have benefited from collaboration with Māori researchers to enable the analysis of losses and gains within this culture. This may have enabled a discussion regarding differences in resources considered significant to Māori such as *taha wairua*, or access to ancestral land using measures that were culturally appropriate. The large Māori sample database available through the HWR parent study would provide opportunity for such research.

The final limitation considered is the possible confounding effects of unmeasured variables that are associated with changes in resources and in wellbeing and may impact psychological wellbeing. For example, the personal resource psychological resilience has been linked to psychological wellbeing in older adults (Ong, Bergeman, & Bisconti, 2006; Smith, Hollinger-Smith, 2015; Windle, Markland, & Woods, 2008). People with low resilience might be more likely than those with high resilience to experience loss in psychological wellbeing. Resilience may also be linked to resource accumulation through hard work and one's ability to overcome obstacles to success and wealth. Though not as common amongst the younger-old population of the current study than in the later years, spousal bereavement or transition to status as a caregiver provide further examples of potentially confounding variables and have been found to impact psychological wellbeing and resource ownership in the short and longer term (Choi & Marks, 2002; Fry 2001). Such circumstance can additionally affect social and economic resource reserves (Schulz, Belle, Czaja, McGinnis, Stevens, & Zhang, 2004). While it is possible these unaccounted for variables may confound the impact of resource change on psychological wellbeing, the links found in the current study between resource change and wellbeing seemed sufficiently reliable to suggest an independent effect warranting further examination through replication.

### **Recommendations for Future Research**

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As emphasized by COR theory (Hobfoll, 1988, 1989, 2001), psychological wellbeing is determined for an individual by the internal and external conditions of the

context in which they live and specifically the resources that they have available. COR theory adds that loss, or threatened loss, or gain, of key resources are central determinants. Further work is required to discover key resources within particular subcultures. This research has provided some indication of the significance and roles of three key resources to older adults, but has only touched on their significance. For example, particular resources that constitute economic standard of living may be more significant than others, such as heating, food security, or access to transport.

Replication of the current study is recommended. Opportunity will arise to revisit and add to findings within the ongoing Health, Work and Rehabilitation study (Alpass et al., 2007) to track the impact of losses and gains over an extended period of time. In order to do so it is important that key measures are continued in the future and others considered, such as the SOC-15 to assess for adaptation strategy. The conceptual and analytical approach used in the current study – particularly the technique to measure *change* in the context of ageing – was relatively unique, and therefore replication of the current study over time will be required to validate findings.

As described above, there are methodological and measurement concerns that should be addressed in future studies, particularly concerns regarding the use of the PCS and MCS from the same measure as independent and dependent variables, as well as the issues regarding the use of correlated versus uncorrelated computations of these health indicators. Ideally, separate measures would be used, thereby eliminating concerns about computation and correlation. By reducing the scope of the study to explore the impact of the loss and gain of a single resource on



psychological wellbeing over time would allow for consideration of subscale differences to extract the “active ingredients” that, if lost or gained, make most impact upon psychological wellbeing. It may be for example, that loss of health due to pain may be detrimental to mental health.

Qualitative exploration of the change in key resources, experienced as older adults move from late middle age, through retirement into older adulthood is also recommended. This would add rich, substantive data regarding the personal meanings of resources to the lives of older adults, and in particular reactions to loss, or threat of loss, but also regarding the potentiality for gains to be made.

As discussed, the findings of this research would benefit from cultural validation. Consideration of losses and gains significant and key to Māori who identify with tikanga Māori would be an important test of theory within a New Zealand bicultural context. If losses and gains of key resources were similarly impactful to psychological wellbeing within Māori culture, a degree of transcultural validation for the model could also be achieved.

### **Contribution of the Present Research**

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Findings from the present study add to the burgeoning knowledge on the significance of resources to wellbeing within the context of resource-based theories. Contributions include an operationalization of the theory across a broad range of resources across time. This practical approach enabled the contribution of change in and of itself to be directly assessed for significance.

The present study has revealed that change in the level of resource ownership – as purported by COR theory – is significant to psychological wellbeing. Adding to this theory, the study highlights that resources differ in their relative impact. That resources matter differently to people within different cultures and at different ages is not unanticipated, but rarely evidenced by research. Further, the current research alluded to the differing roles that certain resources might have, including alleviating the impact of the loss of other resources. Physical health gain and high levels of social support provided examples of resource states of change that may ease the impact of economic standard of living loss. This interplay of resource change over time requires further investigation; however, this research contributes by providing a potential direction.

The present study has contributed to current understandings of the contribution of financial security in transitions from mid-life into older adulthood. Economic standard of living emerged as a key resource associated (as predicted by COR theory) with psychological wellbeing loss and gain. This adds to existing research that has established financial strain as a significant health determinant in later life (Kahn & Pearlin, 2006; Lynch, Kaplan, & Shema, 1997; Sargent-Cox, Butterworth, & Anstey, 2011). Economic standard of living and psychological wellbeing being were inextricably linked. This raises considerable concern for the pending older adult population. In New Zealand, reduced rates of home ownership and increased debt rates for those in middle and late middle age, raise concerns about how financial strain will impact on the mental health of those heading into retirement with less financial security - especially if superannuation payments fail to meet minimum income requirements for healthy living. The current research supports the need for intervention at individual, community, and political levels to assist in

the maintenance of economic living standards through retirement. This also calls into question New Zealand's approach to ageing policy, such as the positive ageing strategy, which emphasizes individual responsibility for ageing well. COR theory suggests wellbeing is inextricably linked to the opportunities one has throughout life to gain and grow a healthy resource caravan, the environmental conditions in which they have to do so, and the good fortune to be able to hold on to what they have for as long as possible in order to maintain levels of wellbeing. Some resource caravans are clearly smaller than others through a life of disadvantage or ill fortune meaning that some within society are more vulnerable to the impact of loss, and vulnerable to spiraling loss. This research suggests responsibility to protect those vulnerable to loss also lies at community and policy level, acknowledging people's agency is limited or enabled by the environment in which they live.

That high levels of social support were shown in the current research to mitigate the effect of loss was not unexpected, and validated the significance of social support in older adulthood. Findings suggest that it is not gains in social support in times of loss, or need that are important, but established networks of support. This research has implications for community development amongst older adults or support for the development of what Hobfoll (2011) calls "resource engaging ecologies".

While not lending conclusive evidence to the principles, tenets, and premises of conservation of resources theory, the current research supports the practical utility of the theory in determining the impact of key resource losses and gains in the older adult population. Past research has focused upon resource change within

organisations. The current study has also contributed to the discussion regarding how COR theory may meld with established theories of ageing such as Baltes' selection, optimization, compensation theory.

To conclude, this study is premised on the assumption that losses and gains of key resources are central determinants to psychological wellbeing from late mid-life into older adulthood. Findings largely support Hobfoll's conceptualization, with the caveat that loss and gain of certain resources are more significant than others. Hobfoll's notion that there is interplay between resources, in that gains may offset losses, was supported to some extent. This study lends support to the practical utility of conservation of resources theory (Hobfoll, 1988, 1989) and provides direction for extending our understanding of the importance of resource ownership transitions in later life. Finally, and significantly, this study may contribute practically to discussions regarding the development of resource engaging communities. Elucidating the importance of the maintenance of key resources into retirement provides a suggested direction for the development of programmes and policies that raise levels of psychological wellbeing into and within old age.

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## APPENDICES

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Appendix 1: 74 core resources CORE-E (Hobfoll, 1998)

1. Personal transportation (car, truck, etc.)	39. Ability to organise tasks
2. Feeling that I am successful	40. Extras for children
3. Time for adequate sleep	41. Sense of commitment
4. Good marriage	42. Intimacy with at least one friend
5. Adequate clothing	43. Money for extras
6. Feeling valuable to others	44. Self-discipline
7. Family stability	45. Understanding from my employer/boss
8. Free time	46. Savings or emergency money
9. More clothing than I need	47. Motivation to get things done
10. Sense of pride in myself	48. Spouse/partner's health
11. Intimacy with one or more family members	49. Support from co-workers
12. Time for work	50. Adequate income
13. Feelings that I am accomplishing my goals	51. Feeling that I know who I am
14. Good relationship with my children	52. Advancement in education or job training
15. Time with loved ones	53. Adequate financial credit
16. Necessary tools for work	54. Feeling independent
17. Hope	55. Companionship
18. Children's health	56. Financial assets (stocks, property, etc.)
19. Stamina/endurance	57. Knowing where I am going with my life
20. Necessary home appliances	58. Affection from others
21. Feeling that my future success depends on me.	59. Financial stability
22. Positively challenging routine	60. Feeling that my life has meaning/purpose.
23. Personal health	61. Positive feelings about myself
24. Housing that suits my needs	62. People I can learn from
25. Sense of optimism	63. Money for transportation
26. Status/seniority at work	64. Help with tasks at work
27. Adequate food	65. Medical insurance
28. Larger home than I need	66. Involvement with church, synagogue, etc
29. Sense of humour	67. Retirement security (financial)
30. Stable employment	68. Help with tasks at home
31. Intimacy with spouse or partner	69. Loyalty of friends

32. Adequate home furnishings	70. Money for advancement or self-improvement (education, starting a business, etc.)
33. Feeling that I have control over my life	71. Help with child care
34. Role as a leader	72. Involvement in organisations with others who have similar interests
35. Ability to communicate well	73. Financial help if needed
36. Providing children's essentials	74. Health of family/close friends
37. Feeling that my life is peaceful	
38. Acknowledgement of my accomplishments	

## Appendix 2: Health, Work, and Retirement Survey 2010

***YOUR HEALTH, WELL-BEING, & QUALITY OF LIFE***

- 1) In general, would you say your health is: (Please tick ONE circle)

Excellent	Very good	Good	Fair	Poor
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 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?

(Tick ONE circle on each line)

	Yes, limited a lot	Yes, limited a little	No, not limited at all
Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
Climbing <u>several</u> flights of stairs	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 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
- ?

(Tick ONE circle on each line)

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Accomplished less than you would like	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Were limited in the <u>kind</u> of work or other activities	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 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)?

(Tick ONE circle on each line)

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Accomplished less than you would like	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Did work or activities <u>less carefully</u> than usual	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

- 5) 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 time during the
- past 4 weeks
- ...

(Tick ONE circle on each line)

	All of the time	Most of the time	Some of the time	A little of the time	None of the time
Have you felt calm and peaceful?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Did you have a lot of energy?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
Have you felt downhearted and depressed?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

- 6) During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)? (Please tick ONE circle)

Not at all	A little bit	Moderately	Quite a bit	Extremely
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 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 friends, relatives, etc.)?

(Please tick ONE circle)

All of the time	Most of the time	Some of the time	A little of the time	None of the time
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

- 8) 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.

(Tick ONE circle on each line)

	Rarely or none of the time	Some or a little of the time	Occasionally or a moderate amount of time	All of the time
I was bothered by things that usually don't bother me	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I had trouble keeping my mind on what I was doing	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I felt depressed	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I felt that everything I did was an effort	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I felt hopeful about the future	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I felt fearful	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
My sleep was restless	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I was happy	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I felt lonely	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I could not "get going"	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

- 9) (a) How often do you have a drink containing alcohol? (Please tick ONE circle)

Never	Monthly or less	Two to four times per month	Two to three times per week	Four or more times a week
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

- (b) Have you ever drunk alcohol in the past? (Please tick ONE circle)

Yes	No
<input type="radio"/> 1	<input checked="" type="radio"/> 2

(If you ticked 'No' please go to Q.10)

- (c) How many drinks containing alcohol do you have on a typical day when drinking?

(Please tick ONE circle)

1 or 2	3 or 4	5 or 6	7 to 9	10 or more
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

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

Never	Less than monthly	Monthly	Weekly	Daily or almost daily
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

**10) We would like to know the type and amount of physical activity involved in your daily life. How often do you take part in sports or activities that are...**

(Tick ONE circle 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)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
...moderately energetic (e.g., gardening, brisk walking)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
...mildly energetic (e.g., vacuuming, laundry/washing)	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**11) Please tick 'Yes' to indicate if a health professional has told you that you have any of the following conditions. If possible, please also indicate your age when this condition was diagnosed or recognised.**

	Yes ▼	Approximate age	
Anaemia (low iron)?	<input type="radio"/> 1	→	
Arthritis or rheumatism?	<input type="radio"/> 1	→	
Asthma?	<input type="radio"/> 1	→	
Bowel disorders (e.g., colitis or polyps)?	<input type="radio"/> 1	→	
Cancer? Please specify type (e.g. lung, leukaemia, melanoma):	<input type="radio"/> 1	→	
<hr/>			
Chronic kidney or urinary tract conditions?	<input type="radio"/> 1	→	
Chronic liver trouble (e.g., cirrhosis)?	<input type="radio"/> 1	→	
Chronic skin conditions (e.g., dermatitis or psoriasis)?	<input type="radio"/> 1	→	
Diabetes?	<input type="radio"/> 1	→	
Epilepsy?	<input type="radio"/> 1	→	
Hearing impairment?	<input type="radio"/> 1	→	
Heart trouble (e.g., angina or heart attack)?	<input type="radio"/> 1	→	
Hepatitis?	<input type="radio"/> 1	→	
Hernia or rupture?	<input type="radio"/> 1	→	
High blood pressure or hypertension?	<input type="radio"/> 1	→	
Intellectual disability/handicap?	<input type="radio"/> 1	→	
Leg ulcers?	<input type="radio"/> 1	→	
Mental illness?	<input type="radio"/> 1	→	
Other respiratory conditions (e.g., bronchitis)?	<input type="radio"/> 1	→	
Physical disability/handicap?	<input type="radio"/> 1	→	
Sight impairment (that cannot be corrected by glasses)?	<input type="radio"/> 1	→	
Sleep disorder?	<input type="radio"/> 1	→	
Stomach ulcer or duodenal ulcer?	<input type="radio"/> 1	→	
Stroke?	<input type="radio"/> 1	→	
Other? Please specify below:	<input type="radio"/> 1	→	
<hr/>			

12) (a) Have you, at any stage of your life, ever been a regular smoker?

Yes	No	
<input type="radio"/> 1	<input checked="" type="radio"/> 2	→ (If you ticked 'No' please go to Q.13)

(b) If you currently consider yourself a regular smoker, how many do you think you would smoke on an average day? (Please tick ONE circle)

1 to 10 a day	11 to 20 a day	21 to 30 a day	31 or more a day	OR	Not a regular smoker
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4		<input type="radio"/> 5

13) 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 this applies to you.

(Tick ONE circle on each line)

	Often ▼	Some- times ▼	Not often ▼	Never ▼
My age prevents me from doing the things I would like to	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel that what happens to me is out of my control	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel left out of things	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I can do the things that I want to do	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel that I can please myself what I do	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Shortage of money stops me from doing things I want to do	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I look forward to each day	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel that my life has meaning	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I enjoy the things that I do	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel full of energy these days	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel that life is full of opportunities	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
I feel that the future looks good for me	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

14) The following questions are about your quality of life and health. Please think about your life in the last four weeks.

(Tick ONE circle on each line)

	Very poor ▼	Poor ▼	Neither good nor poor ▼	Good ▼	Very good ▼
How would you rate your quality of life?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

	Very dissatisfied ▼	Dissatisfied ▼	Neither satisfied nor dissatisfie d ▼	Satisfied ▼	Very satisfied ▼
How satisfied are you with your health?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
How satisfied are you with your ability to perform your daily living activities?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
How satisfied are you with yourself?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
How satisfied are you with your personal relationships?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5
How satisfied are you with the conditions of your living place?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

Not at all ▼	A little ▼	Moderately ▼	Mostly ▼	Completel y ▼
-----------------	---------------	-----------------	-------------	---------------------

Do you have enough energy for everyday life?

1

2

3

4

5

Have you enough money to meet your needs?

1

2

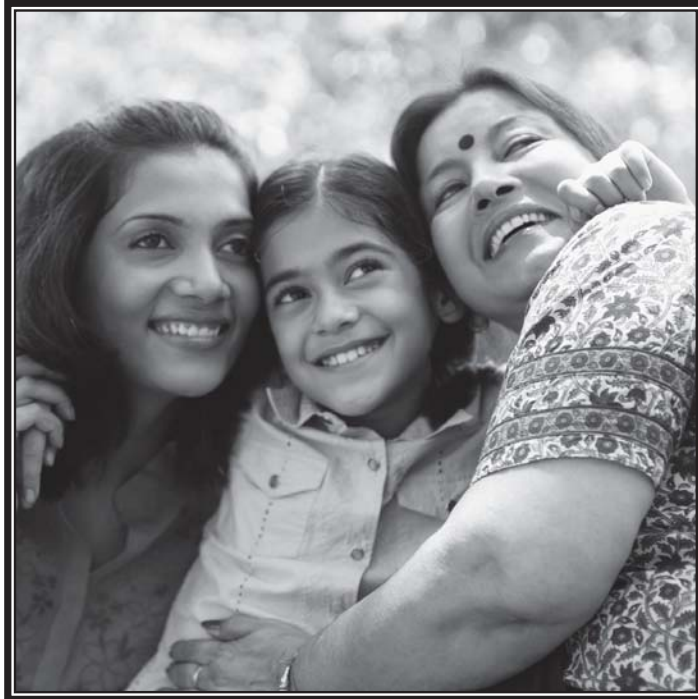
3

4

5



## ***Family & Friends***



This section is about your relationships with your family members, neighbours and friends.

**15) Think about your current relationships with friends, 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?**

(Tick ONE circle on each line)

	Strongly Disagree	Disagree	Agree	Strongly agree
	1	2	3	4
There are people I can depend on to help me if I really need it	1	2	3	4
I feel that I <u>do not</u> have close personal relationships with other people	1	2	3	4
There is no one I can turn to for guidance in times of stress	1	2	3	4
There are people who depend on me for help	1	2	3	4
There are people who enjoy the same social activities I do	1	2	3	4
Other people do not view me as competent	1	2	3	4
I feel personally responsible for the well-being of another person	1	2	3	4
I feel part of a group of people who share my attitudes and beliefs	1	2	3	4
I do not think other people respect my skills and abilities	1	2	3	4
If something went wrong, no one would come to my assistance	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 recognized	1	2	3	4
There is no one who shares my interests and concerns	1	2	3	4
There is no one who really relies on me for their well-being	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 another person	1	2	3	4
There is no one I can depend on for aid if I really need it	1	2	3	4
There is no one I feel comfortable talking about problems with	1	2	3	4
There are people who admire my talents and abilities	1	2	3	4
I lack a feeling of intimacy with another person	1	2	3	4
There is no one who likes to do the things I do	1	2	3	4
There are people I can count on in an emergency	1	2	3	4
No one needs me to care for them	1	2	3	4

**16) How far away, in distance, does your nearest:**

(Tick ONE circle on each line)

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

**17) Do you attend any of the following:**

(Tick ONE circle on each line)

	Yes, regularly	Yes, on occasion	No
	1	2	3
Religious meetings	1	2	3

Meetings of any community/neighbourhood or social groups

**18) How often do you speak or do something with:**

(Tick ONE circle on each line)

	Daily	2-3 times a week	At least weekly	At least monthly	Less often	Never / I have none
any of your children or other relatives?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
any friends in your community/neighbourhood?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
any of your neighbours?	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

**19) These questions are about your feelings of being supported. Please tell us who provides different types of support for you by ticking the appropriate circle below. You can tick more than one circle if more than one person provides this support. Tick the circle labelled 'No-one' if no-one offers this support to you.**

	Partner	Child or Grandchild	Parent or Grandparent	Extended Family	Close Friends	Colleagues	Acquaintances	Doctor/ Psychologist	Other (s)	No-one
Who can you call on when you need to talk or discuss something?	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
Who would you be able to rely on for help if you were sick?	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
Who would you be able to rely on if you had financial problems?	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
Suppose that you would like to go out for the day tomorrow and you don't want to go alone. Who do you think is very likely to want to go with you?	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1
Suppose that someone very close to you passes away. Who could you call on immediately – without making any sort of arrangement - for comfort?	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 1

**20) Please indicate for each of the statements below the extent to which they apply to the way you feel now. (Tick ONE circle on each line)**

	Yes	More or less	No
There is always someone I can talk to about my day-to-day problems	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I miss having a really close friend	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I experience a general sense of emptiness	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
There are plenty of people I can lean on when I have problems	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I miss the pleasure of the company of others	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I find my circle of friends and acquaintances too limited	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
There are many people I can trust completely	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
There are enough people I feel close to	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I miss having people around	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3
I often feel rejected	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3

I can call on my friends whenever I need them

**21) The following questions are about getting along with people and how you feel you are treated in your own home. These people may be family members or others who come to visit you. (Tick ONE circle on each line)**

	Yes ▼	No ▼
Are you afraid of anyone in your family?	<input type="radio"/> 1	<input type="radio"/> 2
Has anyone close to you tried to hurt you or harm you recently?	<input type="radio"/> 1	<input type="radio"/> 2
Has anyone close to you called you names or put you down or made you feel bad recently?	<input type="radio"/> 1	<input type="radio"/> 2
Do you have enough privacy at home?	<input type="radio"/> 1	<input type="radio"/> 2
Do you trust most of the people in your family?	<input type="radio"/> 1	<input type="radio"/> 2
Can you take your own medication and get around by yourself?	<input type="radio"/> 1	<input type="radio"/> 2
Are you sad or lonely often?	<input type="radio"/> 1	<input type="radio"/> 2
Do you feel that nobody wants you around?	<input type="radio"/> 1	<input type="radio"/> 2
Do you feel uncomfortable with anyone in your family?	<input type="radio"/> 1	<input type="radio"/> 2
Does someone in your family make you stay in bed or tell you you're sick when you know you're not?	<input type="radio"/> 1	<input type="radio"/> 2
Has anyone forced you to do things you didn't want to do?	<input type="radio"/> 1	<input type="radio"/> 2
Has anyone taken things that belong to you without your OK?	<input type="radio"/> 1	<input type="radio"/> 2

**22) The following questions concern your feelings of being discriminated against by others. How often in your day to day life has any of the following happened to you? (Tick ONE circle on each line).**

	Almost daily ▼	At least once a week ▼	A few times a month ▼	A few times a year ▼	Less than once a year ▼	Never ▼
You are treated with less courtesy and respect than other people	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
You receive poorer service than other people at restaurants and stores	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
People act as if they think you are not smart	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
People act as though they are afraid of you	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
You are called names or insulted	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6
You are threatened or harassed	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

**23) What would you say is the single most important reason for any of these things above happening to you? Was it your: (Please tick ONE circle)**

- Race or ethnicity? ☐ 1 ☐ 2 Sexual orientation?
- Gender? ☐ 3 ☐ 4 Disability?
- Age? ☐ 5 ☐ 6 Religion?
- Weight? ☐ 7 ☐ 8 Health?
- Not applicable: I am not discriminated against ☐ 9 ☐ 10 Other (Please specify):

**24) What is your religion? (Please tick ONE circle)**

Christianity	Islam	Hinduism	Sikh	Judaism
1	2	3	4	5
Buddhism	Taoism	Ratana	Other	<i>No religion</i>
6	7	8	9	10

**25) Is faith important to you?**

Yes	No	
<input type="radio"/> 1	<input checked="" type="radio"/> 2	→ (If you ticked 'No' please go to Q.26)

If you ticked 'Yes' above, how important is your faith to you? (Please tick ONE circle)

A little important	Reasonably important	Very important
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3

**26) How often do you practice religion, attend services or otherwise participate in religious activities? (Please tick ONE circle)**

Daily	Several times a week	Once a week	Once a month	Seldom or never	<i>Not practicing</i>
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

**27) The next three questions concern personal matters and they are important from a research point of view to understand people's sense of happiness and experience. We hope you don't mind us asking them. Remember that you are not obliged to answer, so if there is a question that you cannot answer then please feel free to move straight on.**

**(a) Are you interested in sex? (Please tick ONE circle)**

Not at all	A little	Quite a bit	Very much
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**(b) How often do you have sexual contact? (Please tick ONE circle)**

Never	Occasionally	Often	Very often
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**(c) How would you describe your sexual orientation? (Please tick ONE circle)**

Opposite sex attraction	Same sex attraction
<input type="radio"/> 1	<input type="radio"/> 2

Great effort! You've done well. Take a break if you like, get a cup of tea, and get ready for the next part.

## ***Your Caring Commitments***



The next section asks about caring roles you may perform for others (e.g., looking after sick relatives, caring for children).

Please answer the first question even if you do not undertake these sorts of roles.

**28) The following questions ask about childcare.**

**(a) Do you provide unpaid care for your grandchildren? (Please tick ONE circle)**

Yes, daily	Yes, weekly	Yes, occasionally	No, never	No, don't have grandchildren
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

**(b) Do you provide unpaid childcare for other people's children? (Please tick ONE circle)**

Yes, daily	Yes, weekly	Yes, occasionally	No, never
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**29) Please indicate if you personally receive any home-based care and/or support for the following jobs or chores. If possible, please also indicate who pays for this care or support.**

	Yes, I receive support for this	Who pays for this support?			
		You or your family	Government agency (e.g., ACC, DASH)	Other	Don't know
Preparing your meals	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Shopping for groceries and other things	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Normal everyday housework (e.g., laundry)	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Heavy household work (e.g., gardening)	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Looking after your personal finances (e.g., paying bills)	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Your personal care (e.g., bathing)	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4
Communicating with other people (e.g., at the doctor)	<input type="radio"/> 1	<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**30) 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. Which of the following statements best applies to you? (Please tick ONE)**

I currently provide care for someone with a long-term illness, disability or frailty	<input type="radio"/> 1	If you ticked one of these please go to <b>question 31</b> below
I have been caring for someone with a long-term illness, disability or frailty who has passed away or moved into a nursing home or hospital in the last 12 months	<input type="radio"/> 2	
I used to provide care for someone with a long-term illness, disability or frailty more than 12 months ago but do not actively care for them now	<input type="radio"/> 3	If you ticked one of these please go to <b>question 33</b> on page 14
I have not provided cared for someone with a long-term illness, disability or frailty	<input type="radio"/> 4	
I currently provide care for someone with a long-term illness, disability or frailty as part of my paid work	<input type="radio"/> 5	

**31) If you ticked '1' or '2' above, how many people with a long-term illness, disability or frailty do/did you regularly provide care for? (Please tick ONE circle)**

One person	Two people	More than two people
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3

**32) Please select the person you have cared for the longest. Tell us about that person and their circumstances at the time of care.**

**(a) Approximately how old is/was the person you care(d) for?**

Years

--	--



(b) How long have/had you been caring for this person? Years

		is
--	--	----

--	--

(c) How often on average do (did) you provide this care or assistance?

(Please tick ONE circle)

Every day	Several times per week	Once a week	Once every few weeks	Less often
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(d) How much time on average do (did) you usually spend providing such care or assistance on each occasion? (Please tick ONE circle)

All day and night	All day	All night	Several hours	About an hour
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

(e) Is the person you care(d) for your: (Please tick ONE circle)

- |                    |                       |                       |                                 |
|--------------------|-----------------------|-----------------------|---------------------------------|
| Spouse or partner? | <input type="radio"/> | <input type="radio"/> | Mother-in-law or father-in-law? |
| Mother or father?  | <input type="radio"/> | <input type="radio"/> | Other relative?                 |
| Son or daughter?   | <input type="radio"/> | <input type="radio"/> | Friend?                         |
| Brother or sister? | <input type="radio"/> | <input type="radio"/> | Other? (Please specify)         |
- 

(f) Does/did the person you care(d) for: (Please tick ONE circle)

- |                          |                       |                       |  |
|--------------------------|-----------------------|-----------------------|--|
| Live with you?           | <input type="radio"/> | <input type="radio"/> | Live alone?                              |
| Live with their family?  | <input type="radio"/> | <input type="radio"/> | Live in a nursing home or care facility? |
| Live with their friends? | <input type="radio"/> | <input type="radio"/> | Other? (Please specify)                  |
- 

(g) Does/did the person you care(d) for have any of the following major medical conditions or disabilities? (Please tick ALL that apply)

- |  |                       |                       |  |
|--|-----------------------|-----------------------|--|
| Frailty in old age   | <input type="radio"/> | <input type="radio"/> | Cancer   |
| Stroke   | <input type="radio"/> | <input type="radio"/> | Infectious disease                                 |
| Alzheimer's disease / dementia   | <input type="radio"/> | <input type="radio"/> | Major injury (e.g., head or spinal)                |
| Autoimmune disorder  | <input type="radio"/> | <input type="radio"/> | Respiratory condition (e.g., asthma, emphysema)    |
| Intellectual disability or handicap  | <input type="radio"/> | <input type="radio"/> | Paralysis  |
| Cerebral palsy   | <input type="radio"/> | <input type="radio"/> | Musculoskeletal condition (e.g., break / fracture) |
| Developmental disorder (e.g., Autism)  | <input type="radio"/> | <input type="radio"/> | Severe arthritis / rheumatism                      |
| Mental health problem (e.g., depression)                                     | <input type="radio"/> | <input type="radio"/> | Visual impairment                                  |
| Substance abuse / addiction  | <input type="radio"/> | <input type="radio"/> | Other? (please specify)                            |
| Other neurological disorder (e.g., multiple sclerosis, motor neuron disease) | <input type="radio"/> | <input type="radio"/> |  |
-

## ***Your Work or Retirement Status***



Nearly half-way there now.

The next section asks about whether you are working, retired or doing other things. You will be able to skip some of these questions.

**33) Please indicate your CURRENT employment status:**

Full-time paid employment, including self employment (35 or more hours per week)	1
Part-time paid work, including self employment (less than 35 hours per week)	2
Retired, no paid work	3
Full-time homemaker	4
Full-time student	5
Unable to work due to health or disability issue	6
Unemployed and seeking work	7
Other: (Please specify)	8

---

**34) Is your spouse/partner:**

Employed Full-time	Employed Part-time	Not employed	Not applicable
1	2	3	4

**35) Which of the following best describes:**

	(A) Your current occupation	(B) Your main occupation between 30-65
(a) Your current occupation?		
(b) Your main occupation between the ages of 30-65?		
Not in Paid Employment <u>OR</u> Retired	1	1
Labourer (e.g., Cleaner, food packer, farm worker)	2	2
Machinery Operator / Driver (e.g., Machine operator, store person)	3	3
Sales worker (e.g., Insurance agent, sales assistant, cashier)	4	4
Clerical / Administrative Worker (e.g., Administrator, personal assistant)	5	5
Community or Personal Service Worker (e.g., Teacher aide, armed forces, hospitality worker, carer)	6	6
Technician / Trades Worker (e.g., Engineer, carpenter, hairdresser)	7	7
Professional (e.g., Accountant, doctor, nurse, teacher)	8	8
Manager (e.g., General manager, farm manager)	9	9

If you are **CURRENTLY EMPLOYED** in either part-time or full-time work (including self-employment) please go to question 36 on the next page

If you are **NOT** currently employed please go straight to question 42 on page 17.

**For Those People Currently in Paid Work**

**36) How many hours do you currently work in paid employment per week?**

Hours per week

--	--	--

**37) Please indicate how much you agree or disagree with the following statements.**

(Tick ONE circle on each line)

	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
My job is usually interesting enough to stop me getting bored	1	2	3	4	5
It seems that my friends are more interested in their jobs	1	2	3	4	5
I consider my job rather unpleasant	1	2	3	4	5
I am often bored with my job	1	2	3	4	5
I feel fairly well satisfied with my present job	1	2	3	4	5
Most of the time I have to force myself to go to work	1	2	3	4	5
I feel that my job is just as interesting as any others I could get	1	2	3	4	5
I definitely dislike my work	1	2	3	4	5
I feel like I am happier in my work than most people	1	2	3	4	5
Most days I am enthusiastic about work	1	2	3	4	5
Each day of work feels like it will never end	1	2	3	4	5
I like my job better than the average worker does	1	2	3	4	5
My job is pretty uninteresting	1	2	3	4	5
I find real enjoyment in my work	1	2	3	4	5
I am disappointed that I ever took this job	1	2	3	4	5

**38) Please indicate how much you agree or disagree with the following statements.**

(Tick ONE circle on each line)

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I can financially afford to retire now	1	2	3	4	5
One reason I continue to work is because I cannot afford to retire	1	2	3	4	5
I worry about the standard of living I will have in retirement	1	2	3	4	5
I worry about having enough income in retirement	1	2	3	4	5
I am satisfied with what my family income will be in retirement	1	2	3	4	5
I feel secure that the government will financially support me in retirement	1	2	3	4	5
I feel pressure to retire	1	2	3	4	5

(Tick ONE circle on each line)

**40) At what age do you think you will retire completely?**

I think I will retire at age

Yes No Spouse/partner not working Not applicable

1 2 3 4

**For Those People Who Are Currently Retired**

Please answer the next questions if you are **CURRENTLY RETIRED** (either partly or completely). If you are **NOT** currently retired then please go to page 18.

**42) What was your MAIN reason for stopping or reducing work?** (Please tick ONE circle)

- |  |      |      |                                  |
|--|------|------|----------------------------------|
| Forced due to poor health                      | (1)  | (2)  | Wanted to do other things        |
| Forced due to disability or injury             | (3)  | (4)  | Don't need to work               |
| Forced by employer                             | (5)  | (6)  | Felt it was time to retire       |
| Made redundant                                 | (7)  | (8)  | Had care-giving responsibilities |
| Lacked skills to continue                      | (9)  | (10) | I relocated                      |
| Was unhappy at work                            | (11) | (12) | Business was sold                |
| Became eligible for New Zealand Superannuation | (13) | (14) | Other? (please specify)          |
- 

**43) If you consider yourself completely retired:**

**(a) How long have you been retired?**

<input type="text"/>	<input type="text"/>	Years	<input type="text"/>	<input type="text"/>	Months	OR	Tick if 'Not completely retired yet'	<input type="radio"/>
----------------------	----------------------	-------	----------------------	----------------------	--------	----	--------------------------------------	-----------------------

**(b) How satisfying did you find your previous work?** (Please tick ONE circle)

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

**(c) How long did it take you to get used to retirement?** (Please tick ONE circle)

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

**(d) How difficult has it been for you to adjust to retirement?** (Please tick ONE circle)

Very difficult	←————→			Not difficult at all
(1)	(2)	(3)	(4)	(5)

**(e) All in all, would you say that your retirement has turned out to be:** (Please tick ONE circle)

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

**You are now over half-way through the questionnaire. Time for a cuppa or a break?**



## ***Your Financial Wellbeing***

The next section asks about your financial circumstances and living costs. We know that a lot of people don't like to answer questions about their income, and that is very understandable. But having this information about New Zealanders in general is very important for the success of this study. So we would really appreciate it if you would agree to answer these questions.

Please be assured that your answers to these questions are completely confidential.

If you have any concerns about answering these questions then please feel free to contact us:

**Phone:** 0800-100-134

**Email:** NZLSA@massey.ac.nz

**44) What are ALL the ways you PERSONALLY got income in the last 12 months?**

Wages, salary, commissions, bonuses...etc, paid by my employer

Self-employment, or business I own and work in

Interest, dividends, rent, other investments
Regular payments from ACC or a private work accident insurer
New Zealand Superannuation or Veterans Pension
Transitional Retirement Benefit
Other superannuation, pensions, annuities (other than NZ Superannuation, Veterans Pension or War Pension)
Unemployment Benefit
Working for Families Tax Credits
Accommodation supplement
Domestic Purposes Benefit
Invalids Benefit
Student Allowance
Unsupported Child Benefit
Other government benefits, income support payments, or war pensions
Other sources of income, counting support payments from people who do not live in my household
No source of income during that time

**45) What are ALL the ways your HOUSEHOLD got income in the last 12 months?**

You may not know your household's exact income or all the sources of this income, but please give us your best estimate as this will be important information for us.

Wages, salary, commissions, bonuses...etc, paid by employer	1
Self-employment	1
Interest, dividends, rent, other investments	1
Regular payments from ACC or a private work accident insurer	1
New Zealand Superannuation or Veterans Pension	1
Transitional Retirement Benefit	1
Other superannuation, pensions, annuities (other than NZ Superannuation, Veterans Pension or War Pension)	1
Unemployment Benefit	1
Working for Families Tax Credits	1
Accommodation supplement	1
Domestic Purposes Benefit	1
Invalids Benefit	1
Student Allowance	1
Unsupported Child Benefit	1
Other government benefits, income support payments, or war pensions	1
Other sources of income, counting support payments from people who do not live in my household	1
No source of income during that time	1

1



The next few questions refer to your estimated personal and household income, and your current housing costs. We want to know about:

1. the range of incomes received by people in the study and how adequate they are to meet essential costs; and
2. housing costs because it is one of the biggest expenses people pay.

We would really appreciate it if you would agree to answer the next few questions. Please be assured that your answers to these questions are completely confidential.

**46) From all the sources you listed on the previous page, what is your total PERSONAL income? Complete ONE box only. Use either the before tax or after tax amount, and choose just one of the time periods (e.g., weekly or annually).**

(Complete ONE box only)

<b><u>BEFORE TAX PERSONAL INCOME</u></b>		<b>OR</b>	<b><u>AFTER TAX PERSONAL INCOME</u></b>	
Weekly	\$		Weekly	\$
Fortnightly	\$		Fortnightly	\$
Monthly	\$		Monthly	\$
Annually	\$		Annually	\$

**47) What is your total HOUSEHOLD income? Complete ONE box only. Use either the before tax or after tax amount, and choose just one of the time periods (e.g., weekly or annually).**

(Complete ONE box only)

<b><u>BEFORE TAX HOUSEHOLD INCOME</u></b>		<b>OR</b>	<b><u>AFTER TAX HOUSEHOLD INCOME</u></b>	
Weekly	\$		Weekly	\$
Fortnightly	\$		Fortnightly	\$
Monthly	\$		Monthly	\$
Annually	\$		Annually	\$

**48) Please indicate below how much your current housing costs are and how frequently you pay this amount.**

<b>HOME OWNERS</b>	If you own (freehold, leasehold, or under a "licence to occupy") your current residence, please include mortgage repayments, rates, insurance, lease costs and retirement village or body corporate fees.
<b>RENTERS or BOARDERS</b>	Please consider just your regular rental/board payments.

I pay \$\_\_\_\_\_ in housing costs.

I pay this amount every...(Please tick ONE circle below)

Week	Fortnight	Month	Quarter	Year	Other (Please specify below)
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6 _____

**49) For the following questions, please indicate whether or not you have (or have access to) the item:** (Tick ONE circle on each line)

	Yes, I have it	No, because I don't want it	No, because of the cost	No, for some other reason
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Telephone	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Washing machine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

At least two pair of good shoes

Suitable clothes for important or special occasions

Personal computer

Home contents insurance

Enough room for family to stay the night

**49) For the following questions, please indicate whether or not you do the activity:**

(Tick ONE circle on each line)

	Yes, I do it	No, because I don't want to	No, because of the cost	No, for some other reason
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keep the main rooms of your home adequately warm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Give presents to family or friends on birthdays, Christmas or other special occasions**

**Visit the hairdresser at least once every three months**

**Have holidays away from home for at least a week every year**

## Have a holiday overseas at least every three years

Have a night out for entertainment or socialising at least once a fortnight

**Have family or friends over for a meal at least once every few months**

**50) In the last 12 months, have you done any of these things not at all, a little, or a lot?**

(Tick ONE circle on each line)

Diagram illustrating the effect of the number of alternatives on the probability of choosing a specific alternative. Three columns represent 'Not at all', 'A little', and 'A lot' of alternatives. Each column shows a vertical stack of circles representing alternatives, with a shaded gray band indicating the probability of choosing a specific alternative. The probability is highest when there are 'A lot' of alternatives and lowest when there are 'Not at all' alternatives.

Gone without or cut back on fresh fruit and vegetables to help keep down costs

Continued wearing clothing that was worn out because you couldn't afford a replacement

Put off buying clothes for as long as possible to help keep down costs

Stayed in bed longer to save on heating costs

### Postponed or put off visits to the doctor to help keep down costs

NOT picked up a prescription to help keep down costs

Spent less time on hobbies than you would like to help keep down costs

Done without or cut back on trips to the shops or other local places to help keep down costs

**51) 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.**

**(a) Generally, how would you rate your material standard of living?** (Please tick ONE circle)

High	Fairly high	Medium	Fairly low	Low
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

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

Very satisfied	Satisfied	Neither satisfied nor dissatisfied	Dissatisfied	Very dissatisfied
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

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

Not enough	Just enough	Enough	More than enough
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**52) What assets do you and/or your partner own?** (Tick ALL that apply)

No assets	<input type="radio"/> 1	<input type="radio"/> 1	Any bank deposits or savings
Estate and trust funds	<input type="radio"/> 1	<input type="radio"/> 1	Any managed funds
A motor vehicle or vehicles	<input type="radio"/> 1	<input type="radio"/> 1	Any shares
Your own home	<input type="radio"/> 1	<input type="radio"/> 1	A rental property or properties
A holiday home	<input type="radio"/> 1	<input type="radio"/> 1	Other <u>major</u> assets (please specify below):
A business or businesses	<input type="radio"/> 1		
A farm or farms	<input type="radio"/> 1		

**53) Could you tell us the Government/Capital Valuation of your dwelling (including land), that is on your rates bill?**

Value \$ 

--	--	--	--	--	--	--	--

**54) Overall, and not counting the value of your family home, what do you think these assets would be worth after subtracting mortgages owing, loans and unpaid bills?**  
(Please tick ONE circle)

Loss	<input type="radio"/> 1	<input type="radio"/> 2	\$0
\$1 to \$5,000	<input type="radio"/> 3	<input type="radio"/> 4	\$5,001 to \$10,000
\$10,001 to \$25,000	<input type="radio"/> 5	<input type="radio"/> 6	\$25,001 to \$50,000
\$50,001 to \$100,000	<input type="radio"/> 7	<input type="radio"/> 8	\$100,001 to \$250,000
\$250,001 to \$500,000	<input type="radio"/> 9	<input type="radio"/> 10	\$500,001 to \$1,000,000
\$1,000,001 to \$1,500,000	<input type="radio"/> 11	<input type="radio"/> 12	\$1,500,001 to \$2,000,000
\$2,000,000 or more	<input type="radio"/> 13		

**55) Do you currently have a student loan?** (Please tick ONE circle)

No ☐ 1      Yes ☐ 2      → If yes, please indicate the amount of the loan below:

Value \$ 

--	--	--	--	--	--	--	--

**56) How many people inside and beyond your household, excluding yourself, are dependent on you for their financial support?**

Total number of people

--	--

'I have no dependents'

☐

**57) At what age did you, or others on your behalf, start saving for your retirement?**

Age

--	--

**AND/OR**

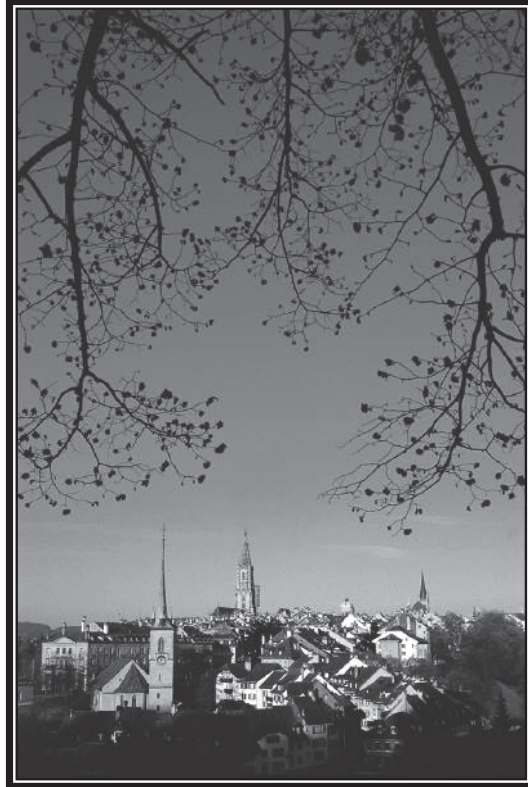
'I'm not currently saving for retirement'

☐

**58) Other than New Zealand Superannuation, please indicate what sources of financial support you and your partner (if applicable) currently have which will support you in your retirement years:**  
(Tick ALL that apply)

	Yourself	Your partner (if applicable)
None	<input type="radio"/>	<input type="radio"/>
Kiwisaver	<input type="radio"/>	<input type="radio"/>
Other employer sponsored superannuation	<input type="radio"/>	<input type="radio"/>
Overseas superannuation or pension	<input type="radio"/>	<input type="radio"/>
Other pension or superannuation	<input type="radio"/>	<input type="radio"/>
Personal savings	<input type="radio"/>	<input type="radio"/>
Personal investments	<input type="radio"/>	<input type="radio"/>

## ***Living in Your Neighbourhood***



The next section asks you about living in, and getting around, your neighbourhood.

**59) Please answer the next set of questions about your feelings of safety.**

(Tick ONE circle on each line)

	Yes	No
Do you ever walk alone in your neighbourhood during the day?	<input type="radio"/> 1	<input type="radio"/> 2
Do you ever walk alone in your neighbourhood at night?	<input type="radio"/> 1	<input type="radio"/> 2
Over the last 12 months, have you been in a situation in your <u>neighbourhood</u> when your safety was threatened by someone else?	<input type="radio"/> 1	<input type="radio"/> 2
Over the last 12 months, have you been in a situation in your <u>home</u> when your safety was threatened by someone else?	<input type="radio"/> 1	<input type="radio"/> 2

**60) Is getting to the shops difficult for you? Why is this? (Please tick ALL that apply)**

**Yes** → **Because**

- ☐ 1 The footpaths are inadequate
- ☐ 1 I do not feel safe
- ☐ 1 There is no public transport
- ☐ 1 There is public transport but the timetable is inappropriate
- ☐ 1 My health/disability makes walking or catching public transport difficult
- ☐ 1 Other reason (please specify):

---

**No** → **Because**

- ☐ 1 I can walk comfortably
- ☐ 1 I have my own transport
- ☐ 1 I can use public transport
- ☐ 1 Someone else takes me
- ☐ 1 Other reason (please specify):

---

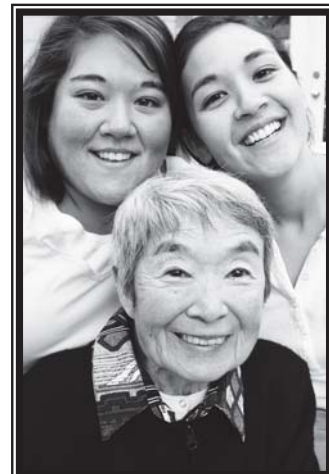
**61) Which other types of places do you have difficulty getting to: (Tick ALL that apply)**

N/A (I do not have difficulties)	<input type="radio"/> 1	<input type="radio"/> 1	Leisure activity
Medical centres	<input type="radio"/> 1	<input type="radio"/> 1	Friend's place
Church/Temple	<input type="radio"/> 1	<input type="radio"/> 1	Family member's place
Library	<input type="radio"/> 1	<input type="radio"/> 1	Other (Please specify):

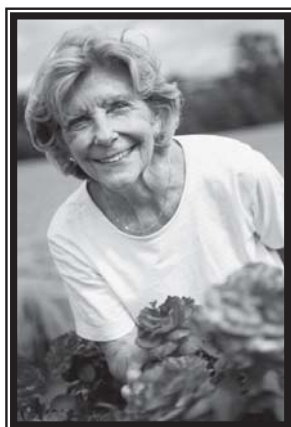
Whew! That was the hardest part! Thanks so much for helping with this information. Give yourself another break. We are nearly at the finish. We think you will enjoy our final questions.

---

## ***Your Personal Situation***



This last section asks about general information on who you are, where you are from, and who is in your household.





62) When were you born?

				19		
Day		Month			Year	

63) Are you (Please tick ONE circle)

Male	Female
<input type="radio"/>	<input type="radio"/>

64) Which one of these statements is true about you? (Please tick ONE circle)  
(Please answer for your most recent marriage or partnership)

I am legally married	<input type="radio"/>
I am in a civil union/de facto/partnered/opposite sex relationship	<input type="radio"/>
I am in a civil union/de facto/partnered/same sex relationship	<input type="radio"/>
I am divorced or permanently separated from my legal husband or wife	<input type="radio"/>
I am a widow or widower	<input type="radio"/>
I am single (but not a widow or widower)	<input type="radio"/>

65) What age is your partner?

			Years old	OR	Tick if question not applicable	<input type="radio"/>
--	--	--	-----------	----	---------------------------------	-----------------------

66) What is your highest educational qualification? (Please tick ONE circle)

No qualifications	<input type="radio"/>
Secondary school qualifications (e.g., School Certificate, University entrance, NCEA)	<input type="radio"/>
Post-secondary certificate, diploma, or trade diploma	<input type="radio"/>
University degree	<input type="radio"/>

67) (a) Which of the following best describes the type of residence that you live in?

House or townhouse – detached or 'stand alone'	<input type="radio"/>
House, townhouse, unit or apartment joined to one or more other houses, townhouses, units or apartments	<input type="radio"/>
Unit, villa or apartment in Retirement Village (licence to occupy)	<input type="radio"/>
Moveable dwelling (e.g., caravan, motor home, boat, tent)	<input type="radio"/>
Rest home or continuing care hospital	<input type="radio"/>
Other (Please specify below):	<input type="radio"/>

(b) Please indicate whether the residence that you live in is: (Please tick ONE circle)

Owned by yourself and/or spouse/partner with a mortgage	<input type="radio"/>
Owned by yourself or spouse/partner without a mortgage	<input type="radio"/>
Owned by a family trust	<input type="radio"/>
Rented	<input type="radio"/>
None of the above – you are a boarder	<input type="radio"/>
Other (Please specify below):	<input type="radio"/>

68) (a) In what year did you move to your current location of residence?

Year				
------	--	--	--	--

(b) Where did you move from (e.g., name of city, town or overseas country)?

(c) What was your main reason for moving to your current residence? (Please tick ONE circle)

- |                             |                       |                       |  |
|-----------------------------|-----------------------|-----------------------|--|
| To be near or with children | <input type="radio"/> | <input type="radio"/> | To be near or with other relatives or friends      |
| Change in marital status    | <input type="radio"/> | <input type="radio"/> | Health problems or to be closer to health services |
| Returning to family lands   | <input type="radio"/> | <input type="radio"/> | Work or retirement related                         |
| To free up equity           | <input type="radio"/> | <input type="radio"/> | Larger home  |
| Smaller home                | <input type="radio"/> | <input type="radio"/> | Easier maintenance of house and/or gardens         |
| Leisure activities          | <input type="radio"/> | <input type="radio"/> | Climate or weather                                 |
| Other (please specify):     | <input type="radio"/> |                       |  |

69) Please tick as many circles as you need to show all the people who live in the same household as you. Please also put in the NUMBERS of each category that you tick.

Number

My legal husband or wife	<input type="radio"/>	
My partner or de facto, boyfriend or girlfriend	<input type="radio"/>	
My son(s) and/or daughter(s)	<input type="radio"/>	
My parent(s) and/or parent(s)-in-law	<input type="radio"/>	
My sister(s) and/or brother(s)	<input type="radio"/>	
My flatmate(s)	<input type="radio"/>	
My grandchild(ren)	<input type="radio"/>	
My friend(s)	<input type="radio"/>	
My boarder(s)	<input type="radio"/>	
Other(s) (please specify):	<input type="radio"/>	
None of the above – I live alone.	<input type="radio"/>	

70) We would like to know whether you participate in other recreational activities. Please indicate below how often you have:

(Tick ONE circle on each line)

	Never	Once a year	Twice a year	4 times a year	Monthly	Weekly
Been a spectator at a sports event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gone to a concert, movie, play or other cultural event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gone to a restaurant, café, pub or bar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gone to the TAB, casino, horse or dog track, or similar	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gone to a barbeque, hangi, or similar event	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Gone to a library or museum	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Participated in an outdoor activity (walking, cycling, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

71) Please indicate below which ethnic group or groups you belong to: (Tick ALL that apply)

- |                      |                       |                       |         |
|----------------------|-----------------------|-----------------------|---------|
| New Zealand European | <input type="radio"/> | <input type="radio"/> | Niuean  |
| Māori                | <input type="radio"/> | <input type="radio"/> | Chinese |
| Samoan               | <input type="radio"/> | <input type="radio"/> | Indian  |
| Cook Island Māori    | <input type="radio"/> | <input type="radio"/> | Tongan  |
|                      | <input type="radio"/> |                       |         |

Other (e.g., Dutch, Japanese, Tokelauan)

(Please specify): \_\_\_\_\_

**72) Please indicate below which ethnic group you feel you identify with the most:** (Please tick ONE)

- |  |                       |                       |         |
|--|-----------------------|-----------------------|---------|
| New Zealand European                     | <input type="radio"/> | <input type="radio"/> | Niuean  |
| Māori                                    | <input type="radio"/> | <input type="radio"/> | Chinese |
| Samoan                                   | <input type="radio"/> | <input type="radio"/> | Indian  |
| Cook Island Māori                        | <input type="radio"/> | <input type="radio"/> | Tongan  |
| Other (e.g., Dutch, Japanese, Tokelauan) | <input type="radio"/> |                       |         |

(Please specify): \_\_\_\_\_

**73) Please answer the following questions about the ethnic group you said you most identify with.**

(Tick ONE circle on each line)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have spent time trying to find out more about my ethnic group, such as its history, traditions, and customs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a strong sense of belonging to my own ethnic group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I understand pretty well what my ethnic group membership means to me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have often done things that will help me understand my ethnic background better	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have often talked to other people in order to learn more about my ethnic group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a strong attachment towards my own ethnic group	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**74) In which language(s) could you have a conversation covering everyday things?**

- |  |                       |                       |         |
|--|-----------------------|-----------------------|---------|
| New Zealand European                     | <input type="radio"/> | <input type="radio"/> | Niuean  |
| Māori                                    | <input type="radio"/> | <input type="radio"/> | Chinese |
| Samoan                                   | <input type="radio"/> | <input type="radio"/> | Indian  |
| Cook Island Māori                        | <input type="radio"/> | <input type="radio"/> | Tongan  |
| Other (e.g., Dutch, Japanese, Tokelauan) | <input type="radio"/> |                       |         |

(Please specify): \_\_\_\_\_

**If you have Māori ancestry, please complete question 76 below.  
If you do not have Māori ancestry, please turn to question 77 on the next page**

**75) (a) Do you identify as Māori?**

Yes	No
<input type="radio"/> 1	<input type="radio"/> 2

**(b) How many generations of your Māori ancestry can you name? (Please tick ONE circle)**

1 generation (parents)	2 generations (grandparents)	3 generations (great-grandparents)	More than 3 generations
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**(c) Have you ever been to a marae; and if yes – how often over the past 12 months?**

(Please tick ONE circle)

Not at all	Once	A few times	Several times	More than once a month
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5

**(d) In terms of your involvement with your whanau, would you say that your whanau plays... (Please tick ONE circle)**

A very large part in your life	A large part in your life	A small part in your life	A very small part in your life
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

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

Yes	No	Not sure/don't know
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3

**(f) This question considers your contacts with people. In general, would you say that your contacts are with... (Please tick ONE circle)**

Mainly Māori	Some Māori	Few Māori	No Māori
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4

**(g) How would you rate your overall ability with Māori language? (Please tick ONE circle)**

Excellent	Very good	Good	Fair	Poor	Not applicable
<input type="radio"/> 1	<input type="radio"/> 2	<input type="radio"/> 3	<input type="radio"/> 4	<input type="radio"/> 5	<input type="radio"/> 6

**76) These are questions about your participation in organisations and clubs. Please indicate below how often you attend each organisation or club and whether you have a leadership role in any of these organisations or clubs (e.g., serve on the Trust Board, committee, or coach or mentor others, etc.).**

	How often do you participate in the following types of organisations or groups? Once a year 4 times a year Twice a year Weekly Monthly		Do you perform a committee or leadership role? Yes
Sports clubs		→	1
Community or service organisation that helps people		→	1
Trade union or professional associations		→	1
Political party		→	1
Religious or church organisations		→	1
Choir, drama or music society		→	1
Hobby or leisure-time association		→	1
School or Kohango Reo organisation		→	1
RSA, Workingman's Clubs		→	1
Women's organisations		→	1
An organisation of my ethnic group		→	1
Other ethnic organisations apart from my own		→	1
Any other club, lodge, group or similar organisation (Please specify):		→	1
		→	1

**77) In general, how happy or unhappy do you usually feel?**

Extremely unhappy	Pretty unhappy	Slightly unhappy	Slightly happy	Pretty happy	Extremely happy
0	1	2	3	4	5
6	7	8	9	10	

**78) All things considered, how satisfied are you with your life as a whole these days?**

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



### Request for an interview

This study is being done *by* New Zealanders *for* New Zealanders, to help us understand what factors might help New Zealanders have a better, active, and more fulfilling life. In addition to completing this questionnaire we are also very interested in interviewing you regarding your current life situation. You are under no obligation to be interviewed but if you would like to be interviewed then we would love to hear from you.

The interviews will be conducted between 1<sup>st</sup> September and 24<sup>th</sup> December 2010. If you are interested in being interviewed please tick the circle below and fill in your contact details so we will be able to contact you and arrange a time for an interview that suits you:

Please TICK here

**"Yes, I would like to be interviewed"**

☐

**Please note:** Your contact details will remain confidential and will not be used for any other purpose.

**Name:** \_\_\_\_\_

**Address:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Phone:** \_\_\_\_\_

**Email:** \_\_\_\_\_

**Please turn the page**

We have found that over the years people's circumstance might change (e.g., they move house) and that we can lose track of people if they don't let us know of their new address. To remedy this we would like you to nominate three people whom we can contact in the event that we do lose track of you. You do not have to do this, but it would help us. Please ensure that those you name are happy to act as contact people. We will only contact these people in the event that we cannot locate you.

Contact Person Number 1	
<hr/>	<hr/>
Surname	First Name
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>
<hr/>	<hr/>

Contact Person Number 2
<div><div></div><div></div></div>

Contact Person Number 3	
_____ ,	_____
Surname	First Name
_____	_____
_____	
_____	
_____	
	Email:





### Appendix 3: Interaction effect analyses

1. Binary Logistic Regression testing for interaction effects of social provision (SPS) gain on the relationship between economic standard of living (ELSI) loss and psychological wellbeing (MCS) loss.

	B	S.E.	Wald	df	<i>P</i>	Odds	95% C.I.	
							Lower	Upper
Economic Loss	.778	.226	11.889	1	.001	2.177	1.399	3.387
Social Provisions Gain	-.259	.332	.644	1	.422	.772	.411	1.452
<b>Economic Loss X Social Provisions Gain</b>	<b>-.989</b>	<b>1.165</b>	<b>.721</b>	<b>1</b>	<b>.396</b>	<b>.372</b>	<b>.038</b>	<b>3.647</b>
Constant	-1.293	.098	173.181	1	.000	.274		

2. Binary Logistic Regression testing for interaction effects of physical health (PCS) gain, on the relationship between economic standard of living (ELSI) loss and psychological wellbeing (MCS) loss.

	B	S.E.	Wald	df	<i>P</i>	Odds	95% C.I.	
							Lower	Upper
Economic Loss	.849	.202	17.614	1	.000	2.337	1.572	3.474
Physical Health Gain	.667	.224	9.101	1	.003	1.967	1.267	3.053
<b>Economic Loss X Physical Health Gain</b>	<b>-1.062</b>	<b>.564</b>	<b>3.548</b>	<b>1</b>	<b>.060*</b>	<b>.346</b>	<b>.114</b>	<b>1.044</b>
Constant	-1.466	.103	204.398	1	.000	.231		

Chi-square analysis examining the interaction between economic standard of living (ELSI) loss and physical health (PCS) gain on psychological wellbeing (MCS) loss

ELSI loss * PCS Gain * MCS loss	OR (95% CI)	Chi <sup>2</sup>	<i>P</i>
Main Effect N = 843	2.783 (1.620-4.780)	14.729	0.000
Physical Health - no gain N = 710	3.209 (1.784-5.773)	16.549	0.000
Physical Health gain N = 133	1.660 (0.396-6.951)	0.489	0.484

3. Binary logistic regression testing for interaction effects of economic standard of living (ELSI) gain on the relationship between social provisions (SPS) loss and psychological wellbeing (MCS) loss.

	B	S.E.	Wald	df	<i>P</i>	Odds	95% C.I.	
							Lower	Upper
Social Provisions Loss	.583	.278	4.405	1	.036	1.792	1.039	3.088
Economic Gain	-.174	.237	.541	1	.462	.840	.528	1.377
<b>Social Provisions Loss X Economic Gain</b>	<b>-.827</b>	<b>.751</b>	<b>1.212</b>	<b>1</b>	<b>.271</b>	<b>.437</b>	<b>.100</b>	<b>1.906</b>
Constant	-1.229	.097	159.035	1	.000	.292		

4. Binary logistic regression testing for interaction effects of economic standard of living (ELSI) gain on the relationship between social provisions (SPS) loss and psychological wellbeing (MCS) loss.

	B	S.E.	Wald	df	<i>P</i>	Odds	95% C.I.	
							Lower	Upper
Social Provisions Loss	.589	.254	5.355	1	.021	1.801	1.094	2.966
Physical Health Gain	.850	.196	18.806	1	.000	2.340	1.593	3.436
<b>Social Provisions Loss X Physical Health Gain</b>	<b>-1.255</b>	<b>.635</b>	<b>3.907</b>	<b>1</b>	<b>.048*</b>	<b>.285</b>	<b>.082</b>	<b>.990</b>
Constant	-1.386	.097	204.481	1	.000	.250		

Chi-square analysis examining the interaction between social provision (SPS) loss and physical health (PCS) gain on psychological wellbeing (MCS) losses.

SPS loss * PCS Gain * MCS loss	OR (95% CI)	Chi <sup>2</sup>	Phi	P
Main Effect N = 867	1.854 (1.135-3.031)	6.221	0.085	0.013
PH - no gain N = 727	2.359 (1.362 4.085)	9.836	0.116	0.002
PH gain N = 140	0.673 (0.220-2.054)	0.489	-0.059	0.484

5. Binary logistic regression testing for interaction effects of economic standard of living (ELSI) gain on the relationship between physical health (PCS) loss and psychological wellbeing (MCS) loss.

	B	S.E.	Wald	df	P	Odds	95% C.I.	
							Lower	Upper
Physical Health Loss	-.361	.200	3.250	1	.071	.697	.471	1.032
Economic Gain	-.235	.227	1.076	1	.300	.791	.507	1.232
<b>Physical Health Loss X Economic Gain</b>	<b>-2.080</b>	<b>1.061</b>	<b>3.842</b>	<b>1</b>	<b>.050*</b>	<b>.125</b>	<b>.016</b>	<b>1.000</b>
Constant	-1.094	.101	118.239	1	.000	.335		

Chi-square analysis examining the interaction between physical health (PCS) loss and economic standard of living (ELSI) gain on psychological wellbeing (MCS) loss.

PCS loss * ELSI Gain * MCS loss	OR (95% CI)	Chi <sup>2</sup>	P
Main Effect N = 867	0.702 (0.474-1.039)	3.153	0.076
ELSI - no gain N = 727	0.828 (0.550-1.247)	0.817	0.336
ELSI gain N = 140	0.103 (0.013 0.795)	6.835	0.009

6. Binary logistic regression testing for interaction effects social provision gains on the relationship between physical health loss and mental health loss.

	B	S.E.	Wald	df	<i>P</i>	Odds	95% C.I.	
							Lower	Upper
Physical Health Loss	-.351	.193	3.315	1	.069	.704	.483	1.027
Social Provisions Gain	-.229	.294	.608	1	.435	.795	.447	1.415
<b>Physical Health Loss X Social Provisions Gain</b>	<b>-.222</b>	<b>.846</b>	<b>.069</b>	<b>1</b>	<b>.793</b>	<b>.801</b>	<b>.153</b>	<b>4.202</b>
Constant	-1.036	.094	122.020	1	.000	.355		