The New Zealand Longitudinal Study of Ageing

Summary Report

- Measures -

Brendan Stevenson

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CONTENTS

Introduction

The scales and items used in the New Zealand Longitudinal Study of Ageing (NZLSA) were primarily drawn from internationally validated measures or measures developed in New Zealand. A small selection of questions was developed by the NZLSA team and is unique to the NZLSA study. A number of items were also adapted from the Health, Work and Retirement study (HWR), a longitudinal study begun in 2006 (also sampled in 2008) whose participants became part of NZLSA sample in 2010.

What follows is a brief description of the measures used in the two NZLSA survey waves (2010 and 2012). The question number from the paper-based questionnaires and interviews, and any relevant references are also provided.

The majority of the questions were employed across both data waves. A small proportion, however, were only asked in one survey wave, and a handful were modified versions of previous measures. This will be indicated where appropriate. Copies of survey questionnaires can be found on our website http://www.massey.ac.nz/hart/

Postal Survey Measures

Health and Wellbeing

Physical and Mental Health

Year	Question	Scale
2010	1 to 7	SF12v2
2012	1 to 7	SF12v2

The SF12v2 is a short health survey measure developed by QualityMetric. From a set of 12 questions, 8 raw scales are generated: Physical Functioning, Role Physical, Bodily Pain, General Health, Vitality, Social Functioning, Role Emotional, and Mental Health. These 8 scales are then standardised (z-scores) using means and standard deviations calculated from the Health, Work, and Retirement (HWR) 2006 study of older New Zealanders (Stephens, Alpass, Baars, Towers, & Stevenson, 2010) and the two primary scales *Physical health* and *Mental Health* generated using the New Zealand Health Survey Factor Coefficients (For further information see: Frieling, Davis, & Chiang, 2013; Scott, Sarfati, Tobias, & Haslett, 2000; J. Ware, Kosinski, Turner-Bowker, & Gandek, 2002; J. E. Ware, Jr., Kosinski, & Keller, 1996).

The SF12 scale scores were normed to the 2006 HWR means and standard deviations because the 2006 HWR survey remains the largest randomly selected cross-sectional survey of older community dwelling New Zealanders (n=6659) using this scale, and norming to these scores allows longitudinal comparisons of the SF12 scores across the HWR and NZLSA cohorts. Higher scores indicate better health.

Depression

Year	Question	Scale
2010	8	CES-D
2012	8	CES-D

The 10 item version of the Centre for Epidemiological Studies Depression Scale (CES-D 10) is a simple additive scale designed to measure depressive symptomatology in the general population (Irwin, Artin, & Oxman, 1999). A higher score indicates greater depressive symptomatology.

Happiness

Year	Question	Scale
2010	-	-
	78-79	Happiness Measures
2012	9 to 10	Subjective Happiness
	73	Happiness Measures

A measure of General Happiness, or the 'Happiness Measures' (Fordyce, 1988), was included in both the 2010 and 2012 surveys. The 4-item Subjective Happiness measure (Lyubomirsky & Lepper, 1999) was also included in NZLSA 2012 to enable a 2010 estimate of Subjective Happiness to be made. Higher scores indicate greater happiness.

Quality of Life

Year	Question	Scale
2010	13	CASP-12
	14	EUROHIS-QOL
	-	
2012	22	CASP-12
	24 (b)	EUROHIS-QOL
	10	ICECAP-A

A number of scales included in NZLSA capture different dimensions of quality of life.

The CASP-12 (Control, Autonomy, Self-realisation, Pleasure) is a subjective measure that attempts to assess a broad number of life domains (Wiggins, Netuveli, Hyde, Higgs, & Blane, 2008). The resulting four sub-scales are summed to give a single index. A higher score indicates a better quality of life.

The EUROHIS-QOL (Rocha, Power, Bushnell, & Fleck, 2012) is an 8 item scale developed from the 26 item World Health Organisation Quality of Life measure the WHOQOL-BREF (The WHOQOL Group, 1998). The EUROHIS-QOL is intended as a quality of life related "economic screening measure" (Rocha et al., 2012, p. 449) and was designed to complement other health-related measures of quality of life such as the SF12. A higher score indicates a better quality of life.

The Index of Capability (ICECAP) is a 5 item measure (Coast, Peters, Natarajan, Sproston & Flynn, 2008) based on Sen's Capability theory (Nussbaum, 2003; See Robeyns, 2003; Robeyns, 2005; Sen, 1992, 2002) with each item assessing conceptual attributes of: attachment, role, enjoyment, security, and control. ICECAP was intended as a broad measure of quality of life in "economic evaluation of health and social care interventions" (Coast et al., 2008, p. 968).

Alcohol Use

Year	Question	Scale
2010	9	AUDIT-C
2012	11	AUDIT-C

The Alcohol Use Disorders Identification Test alcohol consumption questions (AUDIT-C) can be used as a continuous scale (range 0-12; higher indicating greater alcohol-related risk), but is generally used as two binary indicators of Hazardous Drinking and Binge Drinking. The reasoning behind the thresholds used in NZLSA is set out below.

Bush et al. (1998) originally validated the AUDIT-C and recommended an AUDIT-C score of 3 or more as an indicator of hazardous drinking. However, this threshold was based on prior data showing poor psychosocial and health outcomes from populations prone to alcohol abuse who meet or exceed this threshold, such as treatment-seeking alcoholics

(Sanchez-Craig, Wilkinson, & Davila, 1995) and binge drinking students (Wechsler, Davenpot, Dowdall, Moeykens, & Castillo, 1994). Since this time the AUDIT-C has been used to indicate levels of hazardous drinking in much more diverse populations, including primary-care outpatients (e.g., Barnes et al., 2010) and general population samples (e.g., Rumpf, Hapke, Meyer, & John, 2002). However, screening instruments developed on abuse-prevalent populations are known to be less sensitive in detecting drinking patterns in the general population where prevalence is much lower (Cherpitel, 1998). Because poor sensitivity of a measure results in prevalence over-estimation, raising the standard AUDIT-C threshold for general population samples provides a more sensitive and specific screen (Bradley et al., 2003; Rumpf et al., 2002). Rumpf et al. (2002) advocated an AUDIT-C threshold of ≥ 5 for general population samples aged over 18 years, but researchers advocate a more stringent AUDIT-C threshold for older adults due to their increased sensitivity to the effects of alcohol (Aalto, Alho, Halme, & Seppa, 2011). Dawson et al. (2005) used a large US sample to evaluate the validity of different AUDIT-C thresholds to detect those meeting the DSM-IV diagnosis for having an alcohol use disorder. They found that a threshold of ≥ 4 better identified older drinkers irrespective of gender whose drinking could be classified as hazardous. Aalto et al (2011) further confirm that a threshold of ≥ 4 on the AUDIT-C has the best sensitivity and specificity to detect older heavy drinkers (irrespective of gender) as assessed via TimeLine Follow-Back interviews for drinking behaviour.

Smoking

Year	Question	Scale
2010	12	Smoking
2012	12a	Smoking

A question assessing current smoking status (current smoker/past smoker/never smoked) and quantity if a current smoker was derived from Quit Group & MoH 'Taking the Pulse' survey (Ministry of Health, 1999).

Physical Activity Levels

Year	Question	Scale
2010	10	Physical Activity Levels
2012	20	Physical Activity Levels

Physical activity was measured in NZLSA using a generic question sourced from the English Longitudinal Study of Ageing (ELSA) (English Longitudinal Study of Ageing, 2010).

Healthcare Utilisation

Year	Question	Scale
2010	-	Healthcare Utilisation
2012	13-15	Healthcare Utilisation

Based on items from the 1999 Ministry of Health 'Taking the Pulse' adult survey (Ministry of Health, 1999) and used by the HWR study, the questions asked about GP visits,

ED visits, and hospitalisations. An additional question was added on treatment by health providers (patient-provider interactions) sourced from the US Agency for Healthcare Research & Quality (AHRQ) Medical Expenditure Panel Survey (Agency for Healthcare Research and Quality, 2012).

Chronic Illness Checklist

Year	Question	Scale
2010	11	Illness Checklist
2012	16	Illness Checklist

The 25-item chronic illness checklist used in NZLSA 2010 was adapted from HWR (Towers, 2008). After reviewing responses to the 2010 questions, including common responses to the 'Other' text field, a reduced version (14-item) was used in 2012.

Cancer Treatment Status

Year	Question	Scale
2010	-	-
2012	16	Cancer Treatment Status

NZLSA 2012 uses the cancer treatment status item from HWR 2008 (i.e., currently being treated VS. finished treatment).

Personal Health Insurance

Year	Question	Scale
2010	-	-
2012	17	Personal Health Insurance

A question specific to NZLSA 2012 which asks "Do you have personal health insurance" (Yes/No).

Vison/Hearing Impairment

Year	Question	Scale
2010	-	-
	-	-
2012	18	Vision Impairment
	19	Hearing Impairment

The vision and hearing impairment questions are drawn from the NZ Disability Survey (Ministry of Health, 2005).

Driving

Year	Question	Scale
2010	-	-
2012	21	Driving Status & Frequency

This question was adapted from the HWR study (Taylor, Alpass, Stephens, & Towers, 2011) to address driving cessation.

Sex & Sexuality

Year	Question	Scale
2010	27	Sex & Sexuality
2012	23	Sex

NZLSA 2010 used a 3-item sub-scale from the LEIPAD measure of Quality of Life in older adults (De Leo et al., 1998) which ask about interest in sex, frequency of sexual contact and sexual orientation. NZLSA 2012 includes the first 2 items.

Mobility

Year	Question	Scale
2010	-	-
2012	24	Mobility

The mobility question was developed specifically for NZLSA 2012 and asks participants to rate their ability to move around on a 5-point likert scale (Very poorly – Very well). A tick list of assistive devices that may used to aid mobility is also included.

Canterbury Earthquake Effects

Year	Question	Scale
2010	-	-
2012	25	Earthquake Effects

The Canterbury Earthquake questions were developed following the series of earthquakes that struck the Canterbury region between September 2010 and December 2011. These questions assess exposure (resident in Canterbury during quake period), direct and indirect effects, and how the quakes affected the individual.

Whānau, Family & Friends

Social Support

Year	Question	Scale
2010	15	Social Provisions Scale
	19	Sources of Support
2012	-	-
	-	-

NZLSA 2010 used the 24-item additive Social Provisions Scale (Cutrona, Russell, & Rose, 1986) which provides a total social provisions score containing 6 sub-scales or 'provisions':

1. Attachment, a sense of emotional closeness and security, usually provided by a spouse or lover;
2. Social Integration, a sense of belonging to a group of people who share common interests and recreational activities, usually obtained from friends;
3. Reassurance of Worth, acknowledgement of one's competence and skill, usually obtained from co-workers;
4. Reliable Alliance, the assurance that one can count on others for assistance under any circumstances, usually obtained from family members;
5. Guidance, advice and information, usually obtained from teachers, mentors, or parent figures;
6. Opportunity for Nurturance, a sense of responsibility for the well-being of another, usually obtained from one's children.
A higher score indicates more support or provision of these social functions.
(Source: Cutrona et al., 1986, p. 48)

The Sources of Support measure was developed by Family Centre Social Policy Research Unit (2013) using Agneessens' social support typologies (Agneessens, Waege, & Lievens, 2006). This is a 5-item scale which asks participants to identify who provides them with various sources of support (e.g. partner, child, friend, colleague, no-one).

Social Networks

Year	Question	Scale
2010	16-18	Wenger Network Assessment Instrument
2012	-	-

The 8-item Wenger Network Assessment Instrument (Wenger, 1997; Wenger & Burholt, 2002; Wenger, Dykstra, Melkas, & Knipscheer, 2007) was used to derive five network types:
Locally integrated support network;
Wider-community focussed support network;
Local self-contained support network;
Local family dependent support network;
Private restricted support network.

Individuals are assigned a network type based on the type they score the highest on. This scoring protocol raises data analytic issues where more than one network type has the

same score or where the scores are too low to reliably place participants in any single network type. Given that a large proportion of participants remained 'unclassified' for the purposes of data analysis all five network types were used in our analyses (i.e. participants had scores for all five network types).

Loneliness

Year	Question	Scale
2010	20	Loneliness
2012	26	Loneliness

The De Jong Gierveld Loneliness scale (Gierveld, van Groenou, Hoogendoorn, & Smit, 2009) is an 11-item additive scale and includes are two sub-scales: Emotional Loneliness and Social Loneliness. The main loneliness scale can also be categorised into: 'Not lonely', 'Moderately lonely', 'Severely lonely', and 'Very severely lonely'. A higher score indicates higher loneliness.

Elder Abuse

Year	Question	Scale
2010	21	Vulnerability to Abuse Screening Scale (VASS)
2012	27	Vulnerability to Abuse Screening Scale (VASS)

This is an additive 12-item scale (Schofield & Mishra, 2003) that forms four separate scales/factors: Dependence, Dejection, Vulnerability, and Coercion. A higher score indicates higher levels of abuse.

Faith

Year	Question	Scale
2010	24-26	Religion & Faith
2012	28-29	Faith

The religion and faith questions were sourced from the Enhancing Wellbeing in an Ageing Society (EWAS) study conducted by the Family Centre Social Policy Research Unit and the University of Waikato Population Studies Centre (Waldegrave & Koopman-Boyden, 2010). NZLSA 2010 asked which religion participants identified with, the importance of faith, and how often they practiced religion. In 2012, only the importance of faith, and how often participants practiced their religion were asked. The importance of faith item was scored with higher scores signalling more importance. How often religion was practiced was reverse scored with a higher score indicating lower participation.

Discrimination

Year	Question	Scale
2010	22-23	Everyday Discrimination Scale
2012	30-31	Everyday Discrimination Scale

NZLSA used a modified version of the Everyday Discrimination Scale (C. B. Roberts, Vines, Kaufman, & James, 2008; Williams, Yan, Jackson, & Anderson, 1997). It is a simple additive scale, which can also be used as a binary variable dichotomised as 'Never experienced discrimination' and 'Have experienced discrimination'. A higher score indicates more discrimination.

Life Engagement/Purpose in Life

Year	Question	Scale
2010	-	-
2012	32	Life engagement Test (LET)

The life engagement test is designed to measure purpose in life and "provide an index of purpose in life by assessing the extent to which a person considers his or her activities to be valuable and important" (Scheier et al., 2006, p. 292). The scale is additive. A higher score is related to a greater sense of purpose.

Recreational Activities, Community Participation, and Volunteering

Year	Question	Scale
2010	71	Recreational Activities
	77	Participation in organisations and clubs
	-	-
2012	33	Recreational Activities
	34	Participation in organisations and clubs
	35	Volunteering

NZLSA 2010 used a 7-item 'recreational activities' checklist sourced from EWAS (Waldegrave & Koopman-Boyden, 2010). The question was modified in 2012: 'Gone to TAB, casino, horse or dog track, or similar' was removed and 'Gone to barbeque, hangi, or similar event' modified to 'Gone to barbeque, hangi, or similar event *away from home*' (italics added).

In 2010, a measure of participation in organisations and clubs was developed by The Family Centre Social Policy Research Unit (Lower Hutt) and the Health and Ageing Research Team (Massey University) for NZLSA. The question asked for frequency of participation in a list of clubs and organisations, and whether the participant performed a committee or leadership role within these clubs and organisations. For the 2012 survey this scale was shortened (from 13 items to 8 items) and split into three sections: (1) A frequency question for each item, and for the same items, (2) the number of hours (if any), period (week, month, or year) of participation, and (3) whether the participant performed a committee or leadership role.

Caring Commitments

Year	Question	Scale
2010	28	Unpaid Care
	29	Home Based Care
	30-32	Caring for Others
2012	36	Unpaid Care
	-	-
	37	Caring for Others

Unpaid Care has two items assessing frequency of unpaid care of grandchildren/mokopuna and other peoples' children/whāngai.

Home Based Care is a 7 item list of jobs or chores that the participant may receive support for. The question also assesses who pays for this support.

Caring for Others is a set of questions adapted from the Australian Women's Health study (Brown et al.,1996) and is designed to measure care 'burden' for participants providing for someone with a long-term illness, disability or frailty. Information about the person being cared for, frequency of care, and a checklist of major medical conditions or disabilities is collected.

Employment and Retirement

Occupation and Work Status

Year	Question	Scale
2010	35	Occupation
	33-34	Work Status
2012	38	Occupation
	39	Work Status

The Occupation question matches the 8 main categories used by Australian & New Zealand Standard Classification of Occupations (ANZSCO, 2006). An additional option was included with these 8 categories - 'not in paid employment OR retired'.

In NZLSA 2010 two columns were used so that participants could indicate their 'current occupation' and their 'main occupation between ages 30-65'. In NZLSA 2012 the two columns were used so that participants could indicate their current occupation and their spouse's current occupation.

Paid Work Hours

Year	Question	Scale
2010	36	Hours per Week
2012	40	Hours per Week

This is a generic question derived from HWR.

Job Satisfaction

Year	Question	Scale
2010	37	Job Satisfaction
2012	41a	Job Satisfaction (1 item)

The 2010 survey included a Job Satisfaction measure which is a 15-item additive scale designed to measure 'over-all' job satisfaction (Brayfield & Rothe, 1951). A higher score indicates greater satisfaction. In the 2012 survey a single item from this scale was used – "I feel fairly well satisfied with my present job".

Work/Family Conflict

Year	Question	Scale
2010	-	-
2012	41b	Work, Family, and Inter-role Conflict (1 item)

The complete Work, Family, and Inter-role Conflict measure (Kopelman, Greenhaus, & Connolly, 1983) was used in HWR 2008 and measured three domains: Work Conflict, Family Conflict, and Interrole Conflict. NZLSA 2012 used a single item from the Interrole Conflict sub-scale "My job makes it difficult to be the kind of spouse or parent I'd like to be". A higher score indicates greater role conflict.

Work Stress

Year	Question	Scale
2010	39	Work Stress
2012	42	Work Stress

Work Stress measures the degree of effort-reward imbalance or "the relation between efforts invested into job performance and rewards received in turn" (Siegrist, Wege, Puhlhofer, & Wahrendorf, 2009, p. 1006). It is a simple additive scale comprising 16-items and 3-subscales: Effort, Reward, and Over-commitment. The Effort and Reward sub-scales are used to form an Effort Reward Ratio (ERI) which is the final measure of effort/reward imbalance. A higher score on the ERI indicates more stress. A higher score on the Over-commitment sub-scale indicates higher over-commitment.

Anticipated Retirement Age

Year	Question	Scale
2010	40-41	Self-Assessed Retirement Age
2012	-	-

Based on the United States Health and Retirement Study (HRS, 2013) the first item asks the participant at what age they think they will retire and a second item asks whether they think their spouse/partner will retire at about the same time.

Anticipated Finances in Retirement

Year	Question	Scale
2010	38a-e	Anticipated Finances in Retirement
2012	43a-e	Anticipated Finances in Retirement

Anticipated Finances in Retirement is comprised of five items measuring the financial aspects of participants' self-assessed readiness to retire. The initial two were included in a study by Adams & Beehr (1998) and the latter three were derived from Keith's 1993 scale (Keith, 1993). These three measured chronic financial strain that assessed dissatisfaction or concern with family income and standard of living

Retirement Context Factors

Year	Question	Scale
2010	38f-g	Retirement Context Factors
2012	43f-g	Retirement Context Factors

Two items from the retirement context factors used by Naude, O'Driscoll, & Kalliath (2009): 'I feel secure that the government will financially support me in retirement' and 'I feel pressure to retire' were used in NZLSA 2010 & 2012.

Retirement Reasons

Year	Question	Scale
2010	42	Retirement Reasons
2012	44	Retirement Reasons

NZLSA used a thirteen item expanded version of the Health and Retirement Study reasons for retirement checklist (HRS, 2013).

Time Retired

Year	Question	Scale
2010	43a	Time Retired
2012	-	-

A generic question asking how many years (and months) the participant has been completely retired.

Retirement Satisfaction and Adjustment

Year	Question	Scale
2010	43b-e	Retirement Satisfaction & Adjustment
2012	44a-c	Retirement Satisfaction & Adjustment

HWR used five HRS items (HRS, 2013) which tap into retirement satisfaction and adjustment. NZLSA 2010 reduced this to 4 items based on high correlation between two

(keeping 'How long did it take to adjust to retirement' and dropping 'It took quite some time to adjust to retirement'). NZLSA 2012 kept only 3 items: (1) How satisfying did you find your previous work, (2) How difficult has it been to adjust to retirement, and (3) All in all, would you say that your retirement has turned out to be (with 3-point scale from very-to-not satisfying).

Financial Wellbeing

Sources of Income

Year	Question	Scale
2010	44-45	Sources of Income
2012	45	Sources of Income

NZLSA 2010 and 2012 incorporated a checklist (derived from the New Zealand Census: Statistics New Zealand, 2006) of all possible income sources for both personal and household income.

Income

Year	Question	Scale
2010	46	Personal Income
	47	Household Income
2012	46	Personal Income
	46b	Household Income

NZLSA 2010 and 2012 used open-ended responses where the participant had a choice of reporting before or after tax income across different time periods: weekly, fortnightly, monthly, annually. A final after-tax annual income is calculated for use in the dataset.

Student Loan

Year	Question	Scale
2010	56	Student Loan
2012	-	-

This question asks whether the participant has a student loan and its value.

Housing costs

Year	Question	Scale
2010	48	Housing Costs
2012	47	Housing Costs

This question assesses housing costs for home owners (these are mortgage, rates, insurance, etc.) and for renters or boarders (these are rental or boarding fees).

Capital Valuation

Year	Question	Scale
2010	54	Housing Valuation
2012	48	Capital Valuation

This question asks participants' for the current Government/capital valuation of their dwelling (including land).

Assets

Year	Question	Scale
2010	53	Asset Types
	55	Asset Value
2012	49	Asset Types
	50	Asset Value

Asset Types is a checklist of common assets the participant and/or their partner own. Asset Value asks for an estimate of the value of these assets, excluding the family home, on a thirteen point ordinal list of values: Loss, $0, $1 to $5,000, … $2,000,000 or more.

Dependents

Year	Question	Scale
2010	57	Number of Dependents
2012	51	Number of Dependents

This question asks for the total number of people inside and beyond the household, excluding themselves, who are dependent on the participant for financial support.

Retirement Finances

Year	Question	Scale
2010	58	Retirement Saving Age
	59	Retirement Financial Support
2012	52	Retirement Saving Age
	53	Retirement Financial Support

Retirement Saving Age is the age at which the participant or 'others on your behalf' started saving for retirement. The Retirement Financial Support question asks what sources of financial support the participant and their partner will have in retirement.

Economic Living Standards (ELSI)

Year	Question	Scale
2010	49	Ownership
	50	Participation
	51	Economising
	52	Self Ratings
2012	54	Ownership
	55	Participation
	56	Economising
	57	Self Ratings

The Economic Living Standards Index (ELSI) is a 25 item measure covering ownership of consumer goods, social participation, economising, and global self-ratings of living standards (Jensen, Spittal, Crichton, Sathiyandra, & Krishnan, 2002; Jensen, Spittal, & Krishnan, 2005). ELSI is particularly adept at discriminating between those in hardship or poverty (Parry, 2009). ELSI is an additive scale with higher scores indicating better living standards.

Elder Living Standards

Year	Question	Scale
2010	-	-
2012	58	LS-Cap

Whilst ELSI focused on the economic aspects of living standards, a measure of living standards based on Sen's capability approach (see Sen, 1992; Sen, 2000, 2002) was developed and piloted in NZLSA 2012. The overall living standards questions comprised 34 items scored using a 5-point likert scale and were mapped onto six domains: Health Care, Social Engagement, Contribution, Restriction, Security, and Enjoyment. A 25-item measure called the LS-Cap (Breheny et al., 2013) was formed from the NZLSA items, with a further reduced form with 6 items also developed and piloted by the HART research group in 2013. A higher score indicates a better standard of living.

Personal Situation

Demographics

Year	Question	Scale
2010	63	Date of Birth
	64	Gender
	65	Marital Status
	66	Partners Age
2012	59	Date of Birth
	60	Gender
	61	Marital Status
	-	-

Date of Birth in conjunction with the date the of Questionnaire completion was used to calculate Age. Date of birth and gender were asked again in 2012 as a secondary matching check (after participant ID) of participant data across waves. The Marital Status question was adapted from HWR to include same-sex relationships in NZLSA 2010 and 2012. NZLSA 2010 also asked the age of the participant's partner.

Education

Year	Question	Scale
2010	67	Highest Qualification
2012	62	Highest Qualification

NZLSA 2010 and 2012 asked participants for their highest qualification. This question has been coded differently by the New Zealand Census and by HWR over time. The table below summarises these approaches.

Measuring Education across Censuses, HWR, and NZLSA.

2006 Census	2001 and 1996 Census	HWR2006	HWR2008	NZLSA
No Qualification	No Post-School Qualification	No Qualification	No Qualification	No Qualification
Level 1 Certificate	Basic Vocational Qualification	Level 1: Certificate (School Cert)	Level 1, 2, 3 or 4 post-secondary certificate	Secondary school (e.g. School Cert, UE, NCEA)
Level 2 Certificate		Level 2: Certificate (e.g., 6th Form, City&Guilds basic)		
Level 3 Certificate		Level 3: Certificate (e.g., Bursary, City&Guilds trade)		
		Overseas Secondary School Qualification		
Level 4 Certificate	Skilled Vocational Qualification	Level 4: Certificate (Skilled Vocation)		Post-secondary certificate, diploma, trade diploma)
Level 5 Diploma/Certificate	Intermediate Vocational Qualification	Level 5: Diploma (Entry level)	Level 5 or 6 diploma	
Level 6 Graduate Certificate	Advanced Vocational Qualification	Level 6: Diploma (Advanced)		
Level 6 Diploma/Certificate				
Bachelor Degree	Bachelor Degree	Level 7: Bachelors, Grad Diploma	Bachelor degree	University Degree
Level 7 Graduate Diploma/Certificate				
Level 7 Diploma/Certificate				
Postgraduate Diploma/Certificate	Higher Degree	Level 8: Postgrad Diploma, Honours	Post-graduate or honours degree	
Bachelor Honours				
Masters Degree		Level 9: Masters	Masters degree	
Doctorate Degree		Level 10: Doctorates	Doctoral degree	

Household Residents

Year	Question	Scale
2010	70	Residents in Household
2012	63	Residents in Household

This question asks who lives in the same household as the participant and how many in each category (e.g., son/daughter, parent, flatmate). NZLSA 2012 sought further details by asking how many in each category were under/over 18 years of age.

Home Ownership

Year	Question	Scale
2010	68a	Residence Type
	68b	Residence Ownership
2012	64a	Residence Type
	64b	Residence Ownership

Residence Type is an extension of the New Zealand Census and includes 'Unit, villa, or apartment in Retirement Village (licence to occupy)' and 'Rest home or continuing care hospital'. While the initial sample taken from the Electoral role was only of community dwelling adults, there is the possibility that longitudinal participants may have moved into residential care between sample waves.

Residence Ownership was developed by NZLSA and is a simple checklist assessing whether the house the participant lives in is owned by a resident, in a family trust, rented, or other.

Ethnicity

Year	Question	Scale
2010	72	Multiple Ethnic Identification
	73	Ethnic Identify with Most
	74	MEIM
	75	Language
2012	65a	Multiple Ethnic Identification
	65b	Ethnic Identify with Most
	66	MEIM
	72	Language

Multiple Ethnic Identification is taken from the 2006 Census Question and lists the most common ethnic groups in New Zealand. Participants can choose more than one. Ethnic Identify with Most is an adaptation of the 2006 Census question asking which ethnic group the participant identifies most. Participants can choose one only.

The Multigroup Ethnic Identity Measure Revised (MEIM-R) is a simple additive six-item measure of ethnic group identity membership (Berry, Phinney, Sam, & Vedder, 2006; Phinney, 1992; Phinney & Ong, 2007; R. E. Roberts et al., 1999). There are two subscales of three items each: Exploration and Commitment. Commitment "assesses attachment, belonging, and understanding but not explicit attitude items, such as pride and feeling good about one's group", whilst exploration assesses the degree to which the individual is actively

exploring and engaging with their ethnic identity. The MEIM was designed to assess multiple ethnicities by asking which ethnicity a person identified with and running the MEIM-R for each nominated ethnicity.

The language question asks "in which language(s) could you have a conversation covering everyday things?".

Māori Culture and Connections

Year	Question	Scale
2010	76a	Māori Identification
	76b	Whakapapa
	76c	Marae Visits
	76d	Whānau Involvement
	76e	Māori Land Interest
	76f	Māori Contacts
	76g	Te Reo Māori
	-	-
	-	-
2012	67a	Māori Identification
	67b	Whakapapa
	67c	Marae Visits
	67d	Whānau Involvement
	67e	Māori Land Interest
	67f	Māori Contacts
	67g	Te Reo Māori
	67h	Māori/Family Land
	67i	Marae Roles

A set of questions covering participation in and identification with Māori culture was developed by researchers from the Māori household study Best Outcomes for Māori: Te Hoe Nuku Roa (Durie, 1995; Fitzgerald et al., 1996). The items "a" to "g" can be weighted and combined to form a measure of Māori Cultural Participation/Identity (Stevenson, 2004), where a higher score is equated to a more 'secure' Māori cultural identity. Item "h" (Māori/Family Land) and item "i" (marae roles) were added in NZLSA 2012 to assess: whether participants lived (or wanted to live) on Māori or Papakainga/family land; and what roles Māori were taking on their Marae (e.g. kai karanga, ringa wera).

Safety

Year	Question	Scale
2010	60	Safety
2012	68	Safety

Neighbourhood and home feelings of safety is a four-item yes/no measure derived from the EWAS study (Waldegrave & Koopman-Boyden, 2010). The first three items regarding neighbourhood safety may be combined to form a single measure (although not yet validated). The fourth item assesses whether the participant has been threatened in their home.

Transport and Access

Year	Question	Scale
2010	61	Access to Shops
	62	Access Difficulty
2012	69	Access to Shops
	70	Access Difficulty

These questions were sourced from the EWAS study (Waldegrave & Koopman-Boyden, 2010). Access to shops is a branched question, first asking whether participants had difficulty getting to the shops (yes/no), with a checklist of possible reasons why this is so (e.g. Yes-There is no public transport; No-I can walk comfortably). The access difficulty question has a checklist of common places participants may frequent, and asks if they have difficulty in getting to them. An additional item, Marae, was added in 2012.

Internal Migration

Year	Question	Scale
2010	69a	Year of move to current location
	69b	Previous location name
	69c	Reason for Moving
2012	71a	Moved in last 2 years
	-	-
	71b	Reason for Moving

These items were created by the NZLSA team to assess when participants had last moved location and why. NZLSA 2010 asked when the participant had first moved to their current location, where they had moved from, and the reason for their move. NZLSA 2012 updated this data by asking participants if they had moved within the last two years, and if so, why they had moved.

Face-to-Face Interview Measures

The participants for the face-to-face interviews were drawn from NZLSA participants who had agreed to be interviewed in their homes (or alternately a place of their choosing). A number of measures described below were also included in the postal surveys and may serve a number of purposes: as either an additional ID check such as date of birth (i.e. are the postal survey and face-to-face interview data matched to the same person); a validity check on information collected in the postal survey (e.g., personal income); or to account for the influence of mood on cognitive assessment (e.g., depression scale).

Personal Situation

Demographics

Year	Question	Scale
2010	1	Date of Birth
	3	Marital Status
2012	1	Date of Birth
	-	-

Date of Birth in conjunction with the date the interview was completed is used to calculate Age. The Marital Status question was adapted from HWR to include same-sex relationships in NZLSA 2010 and 2012.

Ethnicity

Year	Question	Scale
2010	2	Multiple Ethnic Identification
2012	-	-

Multiple Ethnic Identification is taken from the 2006 Census Question and lists the most common ethnic groups in New Zealand. Participants can choose more than one.

Household Residents

Year	Question	Scale
2010	4	Household Type
	5	Resident in Household
	6	Aged less than 18 years
2012	-	-
	-	-
	-	-

Household Type was a version of the HWR question and asks whether the participant: 'Live alone', 'Live with partner', 'Live with a partner and others', and 'Live with others but not a partner'. Resident in Household asks how many people live in the house and the last item asks how many people aged less than 18 years old live in the household (if any).

Education

Year	Question	Scale
2010	7	Highest Qualification
2012	-	-

NZLSA 2010 asked participants for their highest qualification.

Health and Wellbeing

Self-Rated Health

Year	Question	Scale
2010	8	Self-rated health
2012	2 + 17	Self-rated health

Self-rated health has its origins in the SF36 and is widely accepted measure of global health. The question was asked twice in 2012, once on its own and again as part of the ARPS (Alcohol Related Problems Scale) which is detailed below. Lower scores indicate better health; although it is usually inverted to ease interpretation.

Self-rated Memory

Year	Question	Scale
2010	9	Self-rated Memory
	10	Self-rated Memory retrospective
2012	3	Self-rated Memory
	4	Self-rated Memory retrospective

The self-reported memory questions were sourced from the HRS/AHEAD cognitive battery (Ofstedal, Fisher & Herzog, 2005). A 5-point likert scale asks participants to rate their memory (excellent to poor); a second question asks participants to rate their memory now compared to two years ago (better, the same, worse). Lower scores indicate better self-rated memory.

Depression

Year	Question	Scale
2010	43	CES-D
2012	6	CES-D

The 10 item version of the Centre for Epidemiological Studies Depression Scale (CES-D 10) is a simple additive scale designed to measure depressive symptomatology in the general population (Irwin, Artin, & Oxman, 1999). A higher score is related to greater depressive symptomatology.

Anxiety

Year	Question	Scale
2010	44	GAI
2012	5	GAI

The Geriatric Anxiety Inventory (GAI) was developed as a 20 item, dichotomously scored scale assessing anxiety (G. Byrne et al., 2010; Byrne & Pachana, 2011; Matheson et al., 2012) with a the ability to detect Generalized Anxiety Disorder (GAD), although thresholds for the New Zealand population have yet to be developed. A higher score is related to being more anxious.

Alcohol Related Problems Scale (ARPS)

Year	Question	Scale
2010	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
	-	-
2012	7-8	Diagnosed Medical Conditions
	9	Smoking
	10	Self-rated Health problems
	11-14	Medications
	15	Alcohol Consumption
	16	Health Limited Activities
	17	Self-rated Health

The ARPS (A. Fink et al., 2002; Arlene. Fink et al., 2002) is a comprehensive measure of alcohol consumption and alcohol-related health problems. NZLSA adapted the Australian version of the ARPS, modifying the medications section to match the New Zealand naming conventions. The measure consists of the following items:

- "Diagnosed Medical Conditions" is a checklist of fifteen commonly diagnosed health conditions.
- "Smoking" is a two item question assessing current and past smoking behaviour, including quantity smoked if a current smoker.
- "Self-rated Health Problems" is a twelve item checklist of common physical and mental health issues (e.g. 'Problems sleeping' & 'Feeling depressed').
- "Medications" asks how many medications the participant takes and their strength, and an eighteen item checklist of common medications.
- "The Alcohol Consumption" items assess quantity and frequency of alcohol consumption to assess hazardous and binge drinking, as well as alcohol-related risk behaviours (e.g. "…drive a car, truck, or other vehicle within 2 hours of having four or more drinks"). It has commonalities to the AUDIT-C asked in the postal questionnaire; however the quantity and binge questions use slightly different scales.

- The three-item Health limited activities and single-item Self-rated Health are the same as asked in the SF36 (Ware, Kosinski, & Dewey, 2000; Ware Jr et al., 1998).

Cognition

Addenbrooke's Cognitive Examination (ACE-R)

Year	Question	Scale
2010	11	Handedness
	12-15	Attention & Orientation
	16-18	Memory
	19-30	Language
	31-35	Visuospatial
	36-37	Recall & Recognition
2012	18	Handedness
	19-21	Attention & Orientation
	22-24	Memory
	25-31	Language
	32-34	Visuospatial
	35-36	Recall & Recognition

The ACE-R is a comprehensive assessment of cognition and includes a screen for dementia (94% Sensitivity & 89% specificity OR 84% Sensitivity & 100% specificity). (Mioshi, Dawson, Mitchell, Arnold, & Hodges, 2006 Arnold, & Hodges, 2006).

The ACE-R has been modified for use with New Zealanders, (the 'Kiwi' ACE-R; Taylor, 2008) and permission was obtained from the developers to use the modified version in the NZLSA face-to-face interviews. In accordance with suggestions from the developers, more site specific anterograde, retrograde and delayed recall memory components were modified to make the ACE-R more culturally acceptable. For example, using a New Zealand address in memory tasks and recalling the current New Zealand Prime Minister rather than the President of the United States of America. Other countries have also followed these guideline changes and have found little change to the psychometric properties of the measure (Alexopoulos et al., 2007; Garcia-Caballero et al., 2006; Konstantinopoulou et al., 2010).

HRS/AHEAD Cognitive Functioning Battery

Year	Question	Scale
2010	38	Memory
	39	Similarities
	40	Vocabulary
	41	Numeracy
	42	Delayed Recall
2012	-	-
	-	-
	-	-
	-	-
	-	-

NZLSA 2010 adapted measures from the HRS/AHEAD cognitive functioning battery (Ofstedal, Fisher & Herzog, 2005).

Employment, Wealth and Retirement

Sources of Income

Year	Question	Scale
2010	45	Sources of Income
2012	-	-

Derived from the 2006 Census, NZLSA 2010 incorporated a checklist of all possible income sources for the respondent, partner, child(ren), other family, and boarder.

Income

Year	Question	Scale
2010	46	Resident Income
2012	-	-

Developed by NZLSA, after identifying and assigning a code to all residents who had received income (as identified in the previous question), the amount (NZ$), before/after tax, and weekly/fortnightly/monthly/annually, responses were sought for these residents.

Assets

Year	Question	Scale
2010	47	Asset Type & Value
2012	-	-

Developed by NZLSA, Asset Types is a checklist of common assets the participant and/or their partner own. The question asks for: (1) value range (34 categories from loss to $2,000,001 or more); (2) exact value if known; (3) whether the particular asset lost value during the financial crisis of 2008/2009; and (4) the amount lost if known.

Financial Situation

Year	Question	Scale
2010	48	Self-rated Financial Situation
	49-50	Investment Loss
2012	-	-
	-	-

Both financial situation questions were developed by the NZLSA team.
Self-rated Financial Situation is a simple question asking participants to rate their overall current financial situation as 'better', 'the same', or 'worse' compared to when they

completed the postal questionnaire (a number of months prior). Investment loss, requiring a yes/no/not-applicable response, asks if participants lost any value from their investments during the 2008/2009 financial crisis. If yes details were recorded in question 47.

Future Housing Intentions

Year	Question	Scale
2010	51	Future Housing Intentions: Able to care for self
	52	Future Housing Intentions: Less able to care for self
2012	-	-
	-	-

These NZLSA question gave various future housing options (ranging from living in existing home to moving to a retirement/rest home) and a strongly agree – strongly disagree scale for the two contexts: 'able to take care of your daily living needs' and 'find it difficult to take care of your daily living needs'.

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