Health, Work, and Retirement Survey

Summary report for the 2006 data wave.

- Methodology -

Andy Towers.

A research Collaboration between

The School of
Psychology.
Massey University

The Health
Research Council
of New Zealand

The New Zealand
Institute for
Research on Aging

The Centre for Māori Health
Research and Development.
School of Māori Studies
Te Putahi-a-Toi.
Massey Univresity

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The sample

Population of interest

The population of interest for the study was New Zealanders aged 55 to 70, as this group is generally comprised of people in the later stages of work life and early stages of retirement. According to recent population estimates from Statistics New Zealand there are approximately 609,000 New Zealanders aged 55 to 70, with 47,400 of those identifying as Māori. In order to observe the trends in retirement wellbeing and independence in both the general population and the Māori population specifically, two specific sub-samples were used to reflect both these populations of interest.

Sample selection

A key feature underpinning the representative nature of this sample is the use of the nationally representative New Zealand Electoral Roll as the source for sample selection. Although voting is not compulsory in New Zealand, it is mandatory for all citizens who are eligible to vote in government elections (i.e., they are 18 or older, have citizenship, and have resided in country for one year or more) to be registered on the New Zealand Electoral Roll. As of the 31st March 2007, 96% of all New Zealanders eligible to vote in government elections were registered on the roll. To this end, the electoral roll provides health researchers with a database that almost exactly reflects the characteristics of the greater, usually resident, New Zealand adult population. In the current study equal probability sampling procedures were used to select both the general and Māori sub-samples for the HWR study. Both sub-samples were treated independently and random selection was used to select 55 to 70 year-old New Zealanders participants from each population of interest (the general and Māori respectively) to their respective sub-sample.

Sub-sample size and statistical power

The sizes of the general population and Māori sub-samples were estimated by drawing on information from previous health-focused longitudinal studies, response rate information from the HWR pilot study, previous health-related postal surveys the authors have been involved in, and Dillman's (2000) recommendations for large-scale representative postal surveys. Based on the above information and an estimated ten year study time involving five separate data collection waves, the HWR study will have at least 90% power to detect a moderate effect, where alpha=.05, and number of IVs=15 (Borenstein, Rothstein, & Cohen, 1997).

General population sample size.

A total of 5,260 adults aged 55 to 70 were randomly selected from the electoral roll to serve as the general population sub-sample. Individuals in institutions (prison, nursing homes, or dependent care) were excluded from the survey population. Response rates from previous studies, using the Dillman (2000) Tailored Design method, have ranged from 58 to 92% (mean=74%), while health based postal surveys

undertaken at Massey University (Baken & Stephens, 2005; Paddison, 2004) have elicited response rates of 60% and 55% respectively. This is considerably more than that obtained for the HWR pilot study (43%) using only two contact points. Therefore, assuming a conservative response rate estimate of 60%, an initial cross-sectional sample of N=3,156 was expected. With regard to continued participation, 54% of those who returned the pilot study questionnaire agreed to participate in future research. Assuming a conservative figure of 45%, 1,400 people were expected to participate in future data waves. Clearly attrition rates were important for the proposed age range of the study. The Health and Retirement Study interviewed adults between the ages of 60 to 70 at baseline with further telephone interviews occurring biennially (Heeringa & Connor, 1995). They experienced as overall attrition rate of 21% over a ten year period (response rates over the subsequent four waves of data collection ranged from 91.8% to 93.5%). Given a sampling error of ±3% of the true population value, a Z statistic of 1.96 (95% confidence interval) and using a conservative estimate of 25% attrition across four subsequent waves of data collection (due to death, contact failure, inability to respond or refusal to respond) a sample size of N=1,065 was expected for the general population sub-sample for the final wave of data collection (as recommended by Dillman (2000).

Māori population sample size.

While Māori currently make up 7.8% of the general population aged 55 to 70 years, there were problems inherent in using only the Māori respondents from the general population sample as a specific sub-sample of Māori through which explore health, work and retirement factors. Specifically, given the estimated general population sample willing to participate in the longitudinal study (N=1,420 as indicated above), statistics indicate that only 101 Māori participants could be expected to be included in that number and approximately 76 would remain at wave five. In addition, if disaggregated into age bands, sub-sample sizes at wave five for 55-59 year olds, 60-64 year olds and 65-70 year olds would be 31, 24 and 21 respectively. Furthermore, the Māori response to the HWR pilot questionnaire (N=3) equates to only 3.5% of the general population across these age bands (rather than the true figure of 7.8%) and if repeated in the large-scale general population survey would more than halve the estimated sub-sample sizes at wave 5. Therefore, due to the likelihood of a drastically reduced Māori participation rate, Māori were over-sampled to maximise participant recruitment.

The target population for the proposed over-sampling included all Māori adults in New Zealand, aged 55 to 70 years (N= 47,436). 7,780 Māori adults aged 55 to 70 were randomly selected from the New Zealand Electoral Roll using the Māori descent indicator on the combined electoral roll dataset. The rationale for using the Māori descent indicator for those who chose to register on the electoral roll was based on problems of categorising Māori identity. It has been recently established by researchers at Massey University (Te Hoe Nuku Roa, 2002), that people of Māori descent do not always agree with traditional census categorisations, and often prefer to align themselves with a range of different groups. The use of the electoral roll was a way to invite those who have made a specific identification, as being of Māori descent, to participate in this study. As with the general sample, individuals in institutions (prison, nursing homes, or dependent care) were excluded from the survey population.

As noted above, the Dillman (2000) Tailored Design method has produced response rates ranging from 58 to 92%. A previous health-related postal survey using this method (Paddison, 2004) achieved a response rate of 44% for Māori. Similarly, a response rate of 46% was achieved in the HWR pilot study. Using a conservative response rate estimate of 40%, an initial cross-sectional sample of N=3,112 was expected. With respect to longitudinal participation, 54% of those who returned the pilot study questionnaire agreed to participate in future research. Assuming a conservative figure of 45%, N=1,400 participants were expected to take part in future data waves. Given a sampling error of ±3% of the true population value, a Z statistic of 1.96 (95% confidence interval), and based on an attrition rate of 25% across four subsequent waves of data collection (see above for estimate of attrition), a final sample size of N=1,039 was expected for the Māori sub-sample for the fifth data wave (as recommended by Dillman (2000).

The Questionnaire

The six sections of the postal questionnaire were designed to gather information on individual factors central to retirement, well-being and independence. The questionnaires intended for Māori participants (in both sub-samples) contained one further section for detailing 'Whakapapa/Whanaungatanga' (a translation for which might read *genealogy/relationships*). The composition of the questionnaire is presented below in Table 1 and is broken down by section and sub-topic:

Table 1. *The Sections, Sub-Topics, and Measures Used in the Health, Work and Retirement Study Questionnaire.*

Section topic	Sub-topic	Measures used and source
1. Health	General and mental health status	• SF36 Health Survey (Ware, Kosinski, & Dewey, 2000)
	Chronic health conditions	• Diagnosed Illnesses (HWR, 2006)
	Alcohol consumption	• AUDIT-C (World Health Organization, 2001)
	Health service use	• Healthcare utilisation (Ministry of Health, 1999)
	Tobacco use	• HWR (2006)
2. Physical Activity	Inactivity levels	• Australian Women's Health Study
	Brisk walking/Moderate/Vigorous Physical activity levels	• NZPAQ-Short Form (SPARC, 2004)
	7-day activity level	• NZPAQ_Short Form (SPARC, 2004)
	Intention to adopt exercise	• Stage of Exercise Adoption (Marcus, Rakowski, & Rossi, 1992; also used by SPARC, 2004)
3. Social Support	Social networks	• The Network Assessment Instrument (Wenger, 1994)
	Social support levels	• The Social Provision Scale (Russell & Cutrona, 1984)
	Volunteerism	• HWR (2006)
	Care-giving levels	• Australian Women's Health Study
	Isolation and trust levels	• Ministry of Social Development (2005)
	Forms of contact	• HWR (2006)

Section topic	Sub-topic	Measures used and source
4. Work status & attitudes	Commitment to career	• Career Commitment Scale (Blau, 1985)
	Career satisfaction	• Career Satisfaction Scale (Greenhaus, Parasuraman, & Wormley, 1990)
	Job satisfaction	• Job Satisfaction Scale (Warr, Cook, & Wall, 1979)
	Work involvement	• Work Involvement Scale (Kanungo, 1982)
	Perceived workplace support	• Work Social Support Scale (Evans & Steptoe, 2001)
	Employment related stress	• HWR (2006)
	Orientation towards leisure	• Leisure Orientation (Taylor & Shore, 1995)
	Future work intentions	• USA Health and Retirement Study
5. Retirement status & attitudes	Retirement: • Status • Reason for retirement • Spousal intentions • Expected living standards • Post-retirement work intentions	• USA Health and Retirement Study
	Anticipation of financial concerns	• Anticipated Finances in Retirement Scale (Adams, 1999; Adams, & Beehr, 1998)
	Retirement adjustment	• Retirement Adjustment Scale (Taylor & Shore, 1995)
	Retirement expectations	• Retirement Expectation Inventory Gee & Baillie, 1999)
	Positive and negative aspects of retirement	• USA Health and Retirement Study
	Extent of retirement planning	• US Health and Retirement Study
	Expected role in retirement	• HWR (2006)
6. Socio-demographic information	Qualification level	• Statistics New Zealand secondary level qualification recorder
	Assets/liabilities/sources of income	• New Zealand Household Savings Survey (2001)
	Living standards	• Economic Living Standards Indicator
	Other demographics: • Age • Gender • Ethnicity • Location of residence • Financial dependents • Occupation/employment • Marital status • Household income	
7. Whakapapa/ Whanaungatanga *(genealogy/relationships)*[1]	Cultural identity	• Te Hoe Nuku Roa (1996)

[1] This section only appears in the survey intended for Māori participants.

Survey Methodology

The postal survey used the Tailored Design method described by Dillman (2000) to maximise response rates and participation. Dillman advocates a structured approach to survey design (see Table 2), which incorporates multiple contact points between researcher and participants in order to maximise response rates. Prior to the initial posting all participants were assigned a unique code in order to identify their specific questionnaire. This made it possible to distinguish responders from non-responders at each stage of the posting schedule and to narrow the fourth and fifth postings to non-responders only.

Table 2. *The Dillman Structured Approach to Survey Design.*

Point of contact	Posting procedure and content	Weeks after initial contact
1	A brief pre-notice letter was sent to potential participants informing them that they had been randomly selected from the electoral roll to participate in the current study, that a questionnaire would be arriving soon and that their participation in the research would be greatly appreciated.	-
2	The questionnaire and a free-post return envelope were sent. This was accompanied by a detailed cover letter explaining the premise of the study, who was involved, participants rights and expectations, and points of contact in case they had queries. Finally, all questionnaires also contained a consent form on which participants could provide their consent to participate in the longitudinal study and be involved in face-to-face interviews.	1
3	A postcard was sent to everyone in the sample, thanking those who had responded and encouraging those who had not responded to do so.	3
4	A replacement questionnaire was sent to all non-respondents to encourage participation.	6
5	A final contact (postcard) was sent to all non-respondents again encouraging non-respondents.	11

Response rates

Overall response rates.

In total, 13,045[1] 55 to 70-year olds from around New Zealand received a questionnaire (5,264 in the general sub-sample, and 7,781 in the Māori sub-sample). Approximately 210 individuals from the general sub-sample and 341 from the Māori sub-sample were excluded from the study as they were never able to participate (e.g., they were unable to be contacted, deceased, or had been institutionalised). This lowered the potential sample from 13,045 to 12,494 (5,054 for the general sub-sample and 7,440 for the Māori sub-sample respectively).

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[1] During the course of the posting schedule four individuals from the general sub-sample and one from the Māori sub-sample requested extra questionnaires for family members and friends interested in taking part in the study. In the interests of increasing participation the five interested parties were assigned ID numbers and welcomed to participate.

Postal surveys were returned by 6,662 participants with an overall return rate of 53%. Specifically, the general sub-sample return rate was 62% of the potential general sub-sample, and the Māori sub-sample return rate was 48% of the potential Māori sub-sample.

Regional variation in response rates.

In accordance with the dispersion of the New Zealand population, 77% of the responses were from those living in the North Island compared to 22% from the south island. The remainder of sample were residing overseas. However, while the bulk of responses were from northern centres, a review of the regional response rates broken down by District Health Board shows that, overall, the average response rate for South island centres was over 10% greater than their Northern counterparts (see figure 1).
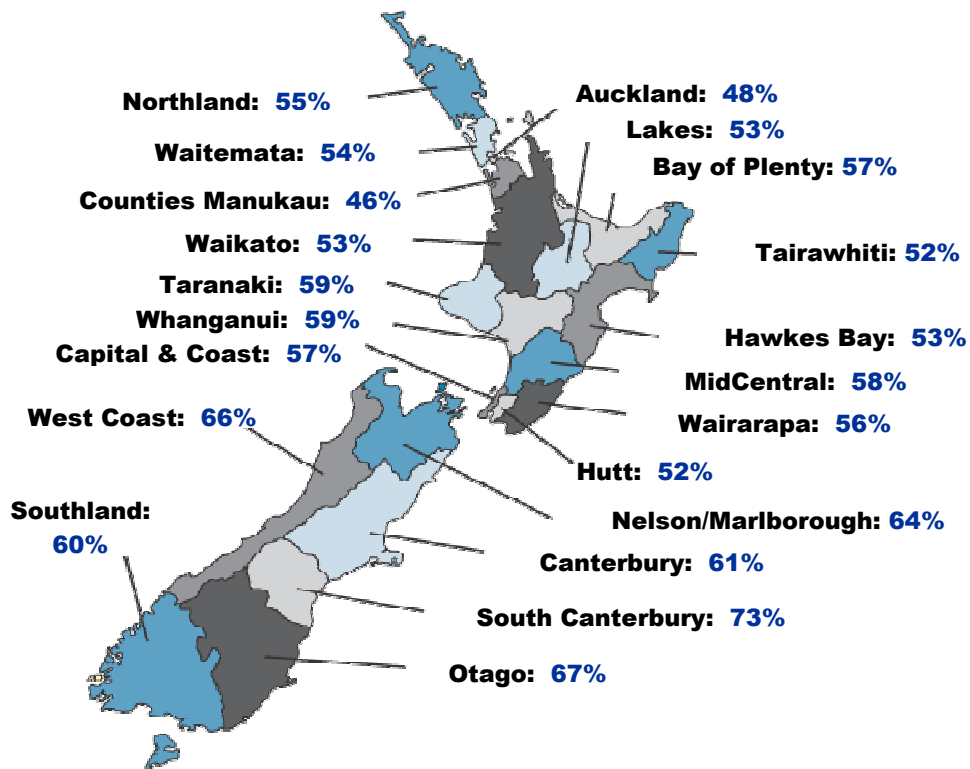

Northland: 55%
Auckland: 48%
Lakes: 53%
Waitemata: 54%
Bay of Plenty: 57%
Counties Manukau: 46%
Waikato: 53%
Tairawhiti: 52%
Taranaki: 59%
Whanganui: 59%
Hawkes Bay: 53%
Capital & Coast: 57%
MidCentral: 58%
Wairarapa: 56%
West Coast: 66%
Hutt: 52%
Southland: 60%
Nelson/Marlborough: 64%
Canterbury: 61%
South Canterbury: 73%
Otago: 67%

Figure 1. Average regional response rates for the HWR study by District Health Board (DHB) area.

When the regional response rates are further defined by sub-sample, further patterns emerge. Figure 2 shows the response trends for both sub-samples when regions are listed from north to south, and though both response rates trend upwards the further south the region is, there are obvious similarities and differences between the two sub-samples.
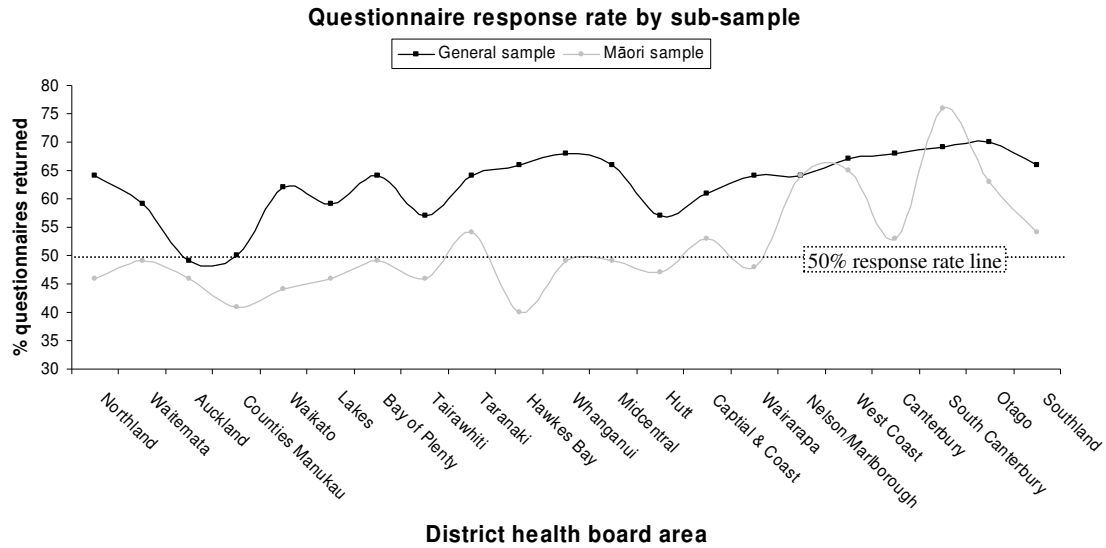

Questionnaire response rate by sub-sample

Figure 2. Average regional response rates by DHB region for general and Māori sub-samples.

First, both sub-samples had their poorest response rates in the North Island. However, while this was limited to Auckland and Counties Manukau for the general population sub-sample, the Māori sub-sample had relatively poor response rates over the majority of the North Island centres with rates often well below 50%. Conversely, the response rates for the South Island centres were consistently above 50% for both sub-samples, and in some cases the response rate for the Māori sub-sample either matched or exceeded that of the general population sub-sample.

Data Considerations

Ethnicity

Many participants in the current study affiliated with more than one ethnic group. However, for the purposes of comparison to national data, participants were bound to one ethnic affiliation only, and this was accomplished using guidelines suggested by the Ministry of Health (New Zealand Health Survey report, 2004). Specifically, a single ethnicity was accorded when a single ethnicity was indicated, but when more than one group affiliation was indicated, ethnicity was assigned using certain priority rules. The rules are provided below in rank order such that the first rule is applied, and subsequent rules apply to those participants who have not been assigned to a specific ethnic group on the basis of prior rules:

1. If Māori was one of the groups reported by a respondent, then the respondent was assigned to 'Māori '
2. If a Pacific ethnic group was one of the groups reported, the respondent was assigned to 'Pacific'
3. If an Asian ethnic group was one of the groups reported, the respondent was assigned to 'Pacific'
4. If a MELAA ethnic group was one of the groups reported, the respondent was assigned to 'MELAA'
5. If New Zealand European or Kiwi or New Zealander ethnic group was one of the groups reported, the respondent was assigned to 'New Zealand European'
6. If Other was reported as the main ethnic group (which included non-respondents to the question), the respondent was assigned to MELAA

Post-stratification weighting

Due to the over-sampling of Māori, a post-stratified weighting variable was calculated to account for known discrepancies between the sample and the population. The computation of the weighting variable was based on the population estimates provided by Statistics New Zealand for the 55 to 70-year-old age group. Each individual was then assigned a sample weight according to their primary ethnicity (see Table 3).

Table 3. Calculations for Sample Weights.

Ethnicity	2006 General Population 55-70 Yrs		2006 HWR General and Māori Sample combined		Sample Ethnicity weights
	Count	**Proportion of total count**	**Count**	**Proportion of total count**	**(Pop proportion/ Sample proportion)**
NZ European	424,713	0.697	3085	0.475	*1.468*
Māori	47,436	0.078	3117	0.479	*0.162*
Pacifika	19,383	0.032	52	0.008	*3.974*
Asian	31,257	0.051	83	0.013	*4.015*
MELAA	2,076	0.003	5	0.001	*4.427*
Other	84,855	0.139	159	0.024	*5.690*
Total	609,720	1	6501	1	

Note: 161 individuals did not affiliate with any ethnic group. These individuals are assigned a weighting value of 1 to ensure their inclusion in future analyses.

Summary

6,662 people took part in the first wave of the HWR study reflecting an overall response rate of 53%. Of these 6,662 individuals, 3117 (47% of the entire HWR sample) identified their primary ethnicity as Māori and 3545 (53%) identified their primary ethnicity as non-Māori. After considering factors such as attrition, effect size, and sampling error, statistical power was estimated to be in excess of 90% for each of the five data waves. The HWR therefore utilises a representative sample of New Zealanders aged 55 to 70 with sufficient statistical power to examine relationships between work, retirement, social support, health, and well-being in later life, for the following ten years of data collection.

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