

'Ripple effects' on older people of the Canterbury Earthquakes: Results from a national longitudinal study

Sally Keeling, Fiona Alpass, Chris Stephens, & Brendan Stevenson

Ripples

The timing of the 2010 and 2012 surveys conducted by the New Zealand Longitudinal Study of Ageing provides a clear "before and after" dimension to the exploration of the impacts of the Canterbury earthquakes, on the study population of older people. Our data shows some effects (after controlling for baseline differences) on measures of living standards, as well as on physical and mental health, according to location, and degrees of recorded direct and indirect exposure to the Canterbury earthquakes. In particular, the aspects of control and self-realisation within the quality of life measure show different trends based on location and exposure to earthquake effects. Other psychosocial measures of loneliness and depression also show regional differences. These differences are not unidirectional or consistently negative, to the extent that some exposure suggests positive outcomes on some measures. The relevance and value of these findings in terms of policy will be further enhanced by our future ability to continue to track such effects over the longer term, in light of the scale and duration of the Canterbury recovery process, and of other emerging phases of this country's exposure to a potentially hazardous seismic environment.

Participants

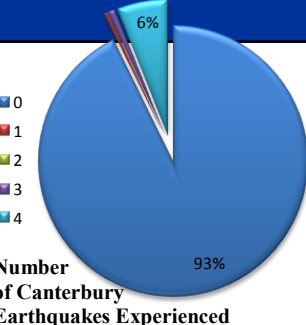
NZLSA comprises participants of the Health, Work, and Retirement (HWR) longitudinal Study from 2006 & 2008; the NZLSA Pilot study; the Retirement Planning Study; and a 'top-up' sample designed to extend the age range. NZLSA surveyed its participants in 2010 & 2012:

	2010	2012
Age:	50-90	52-87
General Population:	2237	2035
Māori Descent Over-Sample:	1074	949

	n	Suffered earthquake effects
Christchurch	240	89%
Canterbury	186	66%
South Island	415	30%
North Island	2140	18%
Total	2981 ¹	30%

¹Totals may differ due to missing responses

Direct and Indirect Effects



Of all NZLSA respondents in 2012, 7.5% experienced at least one of the main earthquake events; 6.2% experienced all four of the earthquakes.

On a 5 point scale from 'Not true for me at all' to 'Definitely true for me', of those participants experiencing effects of the earthquakes, the following proportion reported that the following was 'Definitely true':

- 11% had suffered direct effects;
- 39% provided personal support to family & friends
- 16% experienced physical or emotional distress
- 51% experienced Other Effects

How did suffering the effects of the Christchurch earthquakes affect participants over and above changes that may have occurred independently of the earthquakes?

Compared to others, those suffering the effects of the earthquakes and living in:

The North Island

Reported that their economic living standards did not change, whilst those suffering no earthquake effects had theirs rise.

The South Island

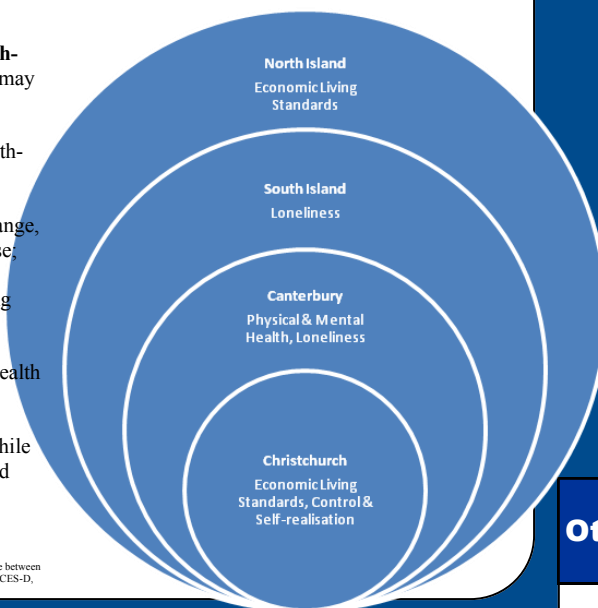
Had the greatest increase in the proportion of those saying they weren't lonely;

Canterbury

Found that physical health reduced more, while mental health & Loneliness increased less than others;

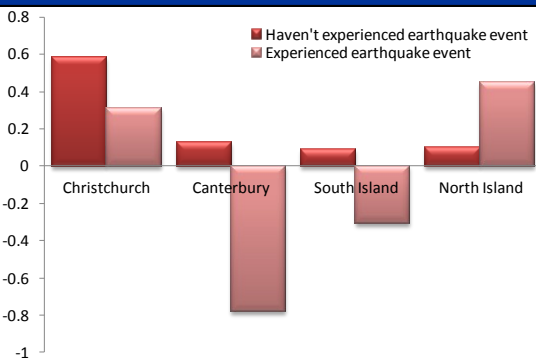
Christchurch

Had economic Living Standards rise marginally more, while sense of control over their lives & self-realisation reduced more than others.



¹ANOVA of 2010 measures of gender, age, economic living standards (ELSI), mental & physical health (SF12), depression (CES-D), quality of life (CASP12), loneliness (De Jong Gierveld); change between 2010 & 2012 in ELSI, SF12, CES-D, CASP12, & loneliness; Affected by Earthquake X change in ELSI, SF12, CES-D, CASP12, & loneliness.

Less (and more) Depressed



The CES-D^c was designed to screen for major depression in older adults (Irwin, Artin, & Oxman, 1999).

Generally there was an increase in reported depression, but there were indications that participants who had experienced the earthquakes experienced a smaller increase in depression. Those in the North Island however who experienced earthquakes reported being more depressed.

Interestingly those in the South Island and excluding those in Christchurch reported being less depressed than anybody else.

References

- ^aCASP-12: Wiggins, R. D., Netuveli, G., Hyde, M., Higgins, P., & Blane, D. (2008). The Evaluation of a Self-Enumerated Scale of Quality of Life (CASP-19) in the Context of Research on Ageing: A Combination of Exploratory and Confirmatory Approaches. Social Indicators Research, 89(1), 61-77. doi: 10.1007/s11205-007-9220-5
- ^bDe Jong Loneliness Scale: Gierveld, J. D., van Groenou, M. B., Hoogendoorn, A. W., & Smit, J. H. (2009). Quality of Marriages in Later Life and Emotional and Social Loneliness. Journals of Gerontology Series B: Psychological Sciences and Social Sciences, 64(4), 497-506. doi: 10.1093/geronb/gbn043
- ^cSF12: Ware, J. E., Jr., Kosinski, M., & Keller, S. D. (1996). A 12-Item Short-Form Health Survey: Construction of Scales and Preliminary Tests of Reliability and Validity. Medical Care, 34(3), 220-233.
- ^dCES-D: Irwin, M., Artin, K. H., & Oxman, M. N. (1999). Screening for depression in the older adult: criterion validity of the 10-item Center for Epidemiological Studies Depression Scale (CES-D). Arch Intern Med, 159(15), 1701-1704.
- ^eELSI: Jensen, J., Spittal, M., Crichton, S., Sathiyandra, S., & Krishnan, V. (2002). The Direct Measurement of Living Standards: The New Zealand ELSI Scale. Nga Whakauranga Ahaatanga Noho. Wellington: Ministry of Social Development.
- Davey, J. Earthquake preparedness in an ageing society. Report to EQC

- NZLSA traced differential reported earthquake effects by region across several health, social and economic domains.
- While only 7.5% of NZLSA participants directly experienced at least one of the Canterbury major earthquakes, an average of 30% reported in 2012 that they had experienced earthquake effects (ranging from 89% in Christchurch to 18% in the North Island).
- Nearly 40% of the NZLSA national sample provided personal support to family and friends in Christchurch.
- Increased social connection within and beyond the Canterbury region appears to bring benefits to participants who suffered earthquake effects, reflected in reduced increases in loneliness measures.
- However deteriorating mental health scores (including reductions in sense of control and self-realisation and increases in depression) also varied by region and having experienced an earthquake event.

The New Zealand Longitudinal Study of Ageing (NZLSA)

The New Zealand Longitudinal Study of Ageing (NZLSA) was established in 2007 and combines two research teams who have worked on two highly regarded research projects investigating the health and ageing of New Zealanders: The Health, Work, & Retirement Longitudinal Study (HWR) based at Massey University and Enhancing Wellbeing in an Ageing Society (EWAS) a research collaboration between the Family Centre and Waikato University.

NZLSA contains measures of:

- Economic participation (e.g. meaning of work, employment, retirement)
- Social participation (e.g. family support, social capital, civic participation)
- Intergenerational transfers (e.g. family care, income, wealth and knowledge)
- Resilience and health (e.g. control, coping, physical, emotional, cognitive)

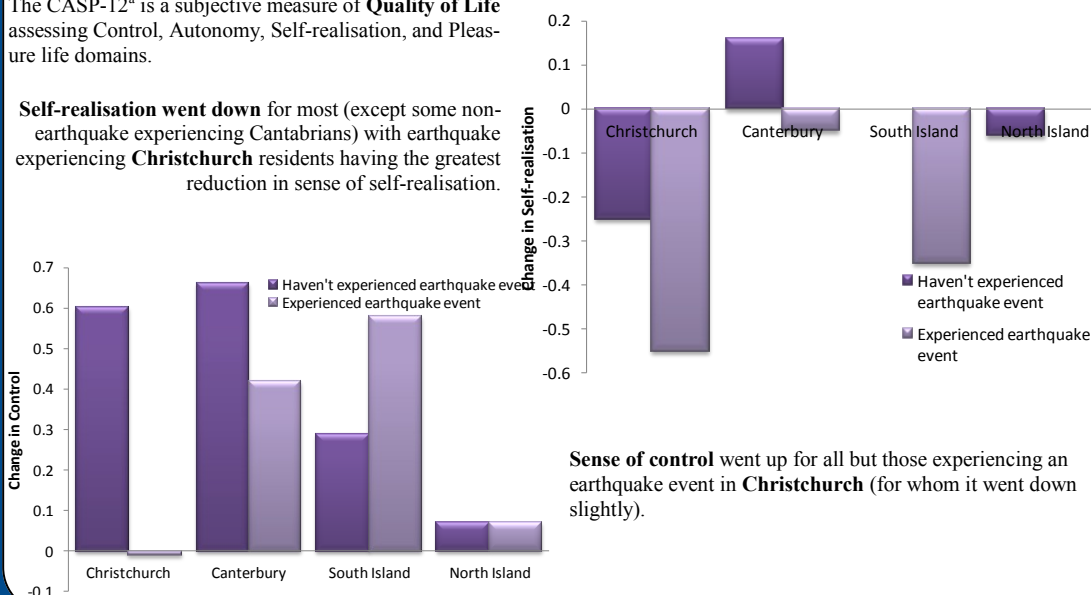
The Health and Ageing Research Team (HART)

HART was established in 2004 in the School of Psychology, Massey University. Among the projects HART has led, is a longitudinal study of older New Zealanders begun in 2006 which has encompassed numerous research partners (Research Centre for Māori Health and Development; New Zealand Institute for Research on Ageing; Family Centre Social Policy Research Unit; University of Otago, Christchurch), four discrete data collection waves, and over 8000 participants. HART data from the 2012 data collection included a number of Christchurch earthquake specific questions allowing changes in participant status due to the Christchurch earthquakes to be assessed.

Lower sense of Control and Self-Realisation

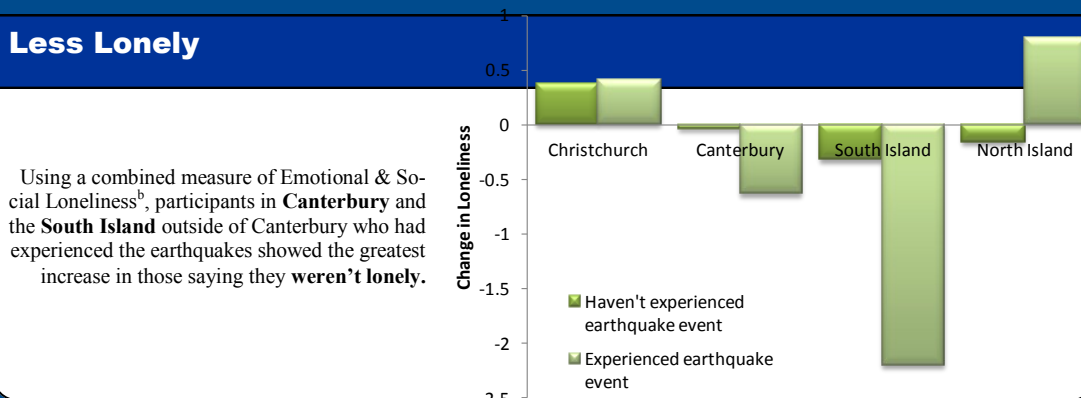
The CASP-12^a is a subjective measure of **Quality of Life** assessing Control, Autonomy, Self-realisation, and Pleasure life domains.

Self-realisation went down for most (except some non-earthquake experiencing Cantabrians) with earthquake experiencing **Christchurch** residents having the greatest reduction in sense of self-realisation.



Less Lonely

Using a combined measure of Emotional & Social Loneliness^b, participants in **Canterbury** and the **South Island** outside of Canterbury who had experienced the earthquakes showed the greatest increase in those saying they **weren't lonely**.



Other Effects: What the participants said

Canterbury earthquakes brought it home how it can happen here, in Wellington. I worry about the family and each quake now I feel it could be the big one whereas before I was a bit blasé about them.

Family and friends live in Chch - great grand daughter born Feb 22, granddaughter alone in house in Chch - sister in law's house damaged

Family members affected by the events in Chch - grandsons relocated to another school

I have many relatives living in Chch including our only son, therefore we have been very concerned about the safety and well being of family

I was part of a team of Building Inspectors sent to Chch after major quakes

Many of my friends were affected. I lived in Canterbury 9 years ago and left many friends there

My family and grandchildren have moved to Perth - their home was one of the RED ZONE area

Acted as a volunteer (victim support) with a Southland group sent to ChCh to help in February 2011

I grew up in Christchurch - many family and friends live there. Aunty suffered CVA during 15 June quake and uncle died three weeks after 22 February quake. Family and friends have damaged homes. Most significant buildings in my childhood were damaged: family homes, churches and Lancaster Park, as well as my own first home

...local area in North Island, we raised \$27,000 for earthquake relief

I broke both arms 1 week after the Feb 22 earthquake - put the fall down to "earthquake brain"

Have now moved into a bedsit at my elder daughter's. My house at [Named] Road is in the Red Zone.

I supported my youngest daughter, her husband and 2 youngest boys. I paid for school uniforms and books etc. & also help with food. Daughter in return has helped me by doing tasks I can no longer manage

I was present 22 February 2011 and in building damaged, suffered severe trauma and required leave for 3 - 4 weeks to recover on return to Auckland - now recovered.

Insurance costs have increased considerably, meaning less money to live on with pension

We have decided not to retire there because of quakes

Made redundant as a direct result of business closure/earthquake

Moved out of my home of 32 years so I could pay my bills (house ok, just rented it for the money). Moved for work but not as much work now and think I am almost unemployed ... it's a big worry

Relocation of Canterbury residents to Auckland put more restraints on availability of wheelchair friendly housing in the private sector than before earthquakes. Father (84) has been caring for my mother (82) who has gone into care in Nov 2011. I went down and reroofed and clad outside of family home in Chch, & 3x down with Red Cross with rescue/recovery phase.



Further information is available at <http://hart.massey.ac.nz>

