

RESILIENCE
TO NATURE'S
CHALLENGES

Kia manawaroa –
Ngā Ākina o
Te Ao Tūroa

INCLUSIVE DISASTER RESEARCH IN AOTEAROA NEW ZEALAND

Sourcebook & Reference Guide

*Resilience to Nature's Challenges (RNC) Research Program
Inclusive Urban Communities | Ngā Hapori Taone Whakauru*



Inclusive Disaster Research in Aotearoa New Zealand. Sourcebook and Reference Guide

Contributing Authors:

Louise Baumann, *Waipapa Taumata Rau University of Auckland, Aotearoa New Zealand.*

Te Kerekere Roycroft, *Waipapa Taumata Rau University of Auckland, Aotearoa New Zealand.*

Loïc Le Dé, *Auckland University of Technology, Aotearoa New Zealand.*

JC Gaillard, *Waipapa Taumata Rau University of Auckland, Aotearoa New Zealand.*

@Inclusive Urban Communities Ngā Hapori Taone Whakauru

<https://resiliencechallenge.nz/project/inclusive-urban-communities/>

Resilience to Nature's Challenge (RNC) Research Program –
Inclusive Urban Communities | Ngā Hapori Taone Whakauru

National
SCIENCE
Challenges

RESILIENCE
TO NATURE'S
CHALLENGES

Kia manawaroa
– Ngā Ākina o
Te Ao Tūroa



Urban



UNIVERSITY OF
AUCKLAND
Waipapa Taumata Rau
NEW ZEALAND

AUT

NEW ZEALAND



TABLE OF CONTENTS

Introduction	4
I. General literature, Social Vulnerability assessment & factors influencing exposure, experience and recovery	6
II. Gender Identity, Sexual Orientation, Sex Characteristics and Relationship Status	12
A. Women, femininity, and motherhood	13
B. Men and masculinity	18
C. Queer, trans and non-binary gender identities and sexual orientation	19
D. Relationship status: Domestic violence and disasters	20
III. Ethnicity, Nationality, Immigration Status & Cultural Factors	22
A. General - Culturally and Linguistically Diverse communities	23
B. Māori Communities and Iwi	24
C. Pacific Islanders Communities	34
D. Southeast Asian Communities	35
E. African Communities	36
F. Resettled Refugee Communities	38
G. Tourists	41
H. International Students	41
IV. Age	42
A. Children and youth	43
B. Elderly people	56
V. Physical & Mental Health Status, Chronic Diseases and Disability	64
A. People with disability and chronic illness	65
B. People living with addictions	74
C. Big bodied people and weight	76
D. Mental health service users	78
VI. Income, Housing situation, Living area	80
A. Low-income communities and households	81
B. People experiencing homelessness	83
C. People living in prisons	85
D. Rural communities	85
VII. Occupation	88
A. Frontline and rescue workers, First responders, Police Force, Emergency department staff	89
B. Doctors, Hospital staff, Nurses, Medical Students	91
C. Social workers	95
D. Teachers and University Staff	97
E. Students	100
F. Business Owners	101
G. Sex Workers	101
H. Interpreters	102

Introduction

Fostering the inclusion of diverse people and communities has become a central focus of policies and practices geared towards reducing the risk of disaster. In its most recent National Strategy (National Disaster Resilience Strategy Rautaki ā-Motu Manawaroa Aituā, 2019), the National Emergency Management Agency (ex-Ministry of Civil Defence & Emergency Management) stresses the importance of adopting a whole-of-society, participatory and inclusive approach to disaster risk reduction (DRR) and resilience building. But how do we ensure that the unique and diverse experiences, needs and capacities of New Zealanders are recognized and integrated in DRR? This sourcebook/introductory bibliographic guide takes a step forward in this direction by compiling existing research dealing with inclusion and DRR in Aotearoa New Zealand. It has been specifically developed for an audience of practitioners and scholars, with the aim of supporting the development and implementation of (more) inclusive research-informed DRR practices in the country.

The document is divided into seven main sections: 1) General/Social Vulnerability Assessment ; 2) Gender Identity, Sexual Orientation, Sex Characteristics and Relationship Status; 3) Ethnicity, Nationality, Immigration Status & Cultural Factors; 4) Age; 5) Physical & Mental Health Status, Chronic Diseases and Disability; 6) Income, Housing situation and Living area; and 7) Occupation. Each of these sections includes academic articles, reports, Master dissertations and PhD thesis documenting different aspects of inclusion in DRR. Many also include recommendations for more inclusive practices.

Although this reference guide uses broad social categories (e.g. ‘women’, ‘Māori communities’, ‘people with disabilities’) to organise the existing bibliography, none of them should be considered homogeneous as people’s social identities and experience of hazards are never solely shaped by a single socio-economic characteristic but instead by the complex interaction of different socio-economic and cultural factors. This intersectional dimension of vulnerability and capacity is often formally or informally emphasised in the literature.

Different steps were involved to compile the references and create this sourcebook. Initial references were identified through keyword research on Scopus and Google Scholar and were completed by systematic review of each article’s bibliography. Search terms included key words for the title of each section (e.g., for the first section: women*, men*, LGBTIQ*), disaster key words (e.g. disaster*, earthquake*, flood*) and geographical location (New Zealand* and Aotearoa*). References have been sorted in chronological order. Abstracts and weblinks to the resources have also been included. This reference guide is inevitably incomplete and unexhaustive. It is part of an ongoing initiative from the Inclusion stream of the Resilience to Nature Challenge’s and we aim to update it in the future.

Please email any suggestions and/or additional resources to: baumloui@gmail.com and troy874@aucklanduni.ac.nz

Tīmatanga

Kei te arohia nuitia te kauawhitia o ngā tāngata kanorau me ngā hāpori kanorau i roto i ngā tikanga here me ngā mahi e anganui ana ki te whakaitihia o ngā tūpono aituā. I tā Te Rākau Whakamarumarau rautaki ā-motu hou katoa (arā, te Rautaki ā-Motu Manawaroa Aituā, 2019), ko te whakahau a taua umanga rā, ka mahi ana tātou ki te whakaiti i te tūpono aituā, ki te whakapakari rānei i te manawaroa, me aro ki te pāpori whānui, me whai kia whai wāhi te katoa, me kauawhi i te katoa. Engari i roto i ngā mahi whakaiti tūpono aituā, me pēwhea tā tātou āta whakaaro ki ngā wheako, ki ngā matea, me ngā raukaha o ngā tāngata o Aotearoa, me tā tātou āta whakauru i aua āhuatanga – he āhuatanga e ahurei ana, e kanorau ana hoki? Mā tēnei pukapuka rauemi, rārangi rangahau whakataki rānei, e paneke tātou i tērā ara, nā te kohikohi i ngā rangahau e pā ana ki te kauawhitia o te katoa i roto i ngā mahi whakaiti tūpono aituā. Kua āta whakaritea te pukapuka hei pānui mā te hunga kaimahi me te hunga kairangahau, hei hāpai i te whanaketanga me te whakatinanatanga, i roto i Aotearoa, o ētehi mahi whakaiti tūpono aituā e arahina ana e te rangahau, e kaha (ake) ana hoki te kauawhi i ngā tāngata kanorau i roto i aua mahi.

E whitu ngā wāhanga matua o te pukapuka nei: 1) Te Arotake i te Whakaraeraetanga Whānui/ā-Pāpori; 2) Ngā Tuakiri ā-Ira, ngā Aronga Hōkakatanga, ngā Āhuatanga Taihema, me ngā Hononga Taupiri; 3) Ngā Tuakiri ā-Whakapapa, ngā Tuakiri ā-Motu, ngā Tūnga i Raro i te Ture ā-Manene, me ngā Āhuatanga ā-Ahurea; 4) Te Pakeketanga; 5) Te Hauora ā-Tinana me te Hauora ā-Hinengaro, ngā Mate Tauroa, me te Hauātanga; 6) Te Whiwhinga Pūtea, te Nohoanga me te Nui o te Whare Noho; 7) Tūmomo Mahi. Kei tēnā, kei tēnā o ēnei wāhanga he tuhinga rangahau, he pūrongo, he tuhinga roa tohu paerua, he tuhinga roa tohu kairangi hoki, e whakaatu ana i ētehi āhuatanga o te kauawhitia o te katoa i roto i ngā mahi whakaiti tūpono aituā. Ka mutu, he nui ngā tūtohunga kei ēnei tuhinga e kaha ake ai te kauawhitia o ngā tāngata katoa i roto i aua mahi.

Kei roto i ēnei wāhanga matua, kua whakarōpūngia ngā tohutoro rangahau o roto i tēnei pukapuka kia hāngai ki ētehi rōpū whānui o te pāpori (hei tauira, ‘ngā wāhine’, ‘ngā hāpori Māori’, ‘ngā tāngata hauā’). Heoi, kua tātou e pōhēhē he ōrite te katoa o ngā tāngata o roto i tētehi rōpū. He maha kē ngā pūtahitanga o ngā āhuatanga ohāpori me ngā āhuatanga ahurea o te ao o te tangata ka pā atu ki tōna tuakiri ā-pāpori, ki ōna wheako hoki o ngā mōrearea. I roto i ngā tuhinga rangahau, he nui ngā kōrero tōtika me ngā kōrero autaki e miramira ana i ēnei pūtahitanga o ngā āhuatanga ka pā atu ki te whakaraeraetanga me te raukaha.

Anei te tukanga i whāia ai hei whakaemiemi i ēnei tohutoro, e whakaritea ai tēnei puka rauemi. I kimihia tuatahitia ngā tuhinga rangahau i tētehi rapunga kupu matua rā roto i Google Scholar me Scopus, kātahi ka āta tirohia ai te rārangi tohutoro o tēnā tuhinga, o tēnā tuhinga. I tīkina atu ētehi o ngā kupu rapu i ngā upoko o ngā wāhanga o te pukapuka (hei tauira, mō te wāhanga tuatahi: women*, men*, LGBTIQ*), ā, ko ētehi atu kupu rapu he kupu e pā ana ki ngā aituā (hei tauira, disaster*, earthquake*, flood*), he ingoa wāhi rānei (New Zealand*, Aotearoa*). Kua whakaraupapatia ā-wā ngā tohutoro ki ngā tuhinga i kōwhiritia. Kāore e kore, he tuhinga atu anō kāore anō kia rārangitia i konei; e taea te pēwhea. Engari he wāhanga tēnei mahi nō te ia “Inclusion” o Kia manawaroa – ngā Ākina o te Ao Tūroa, ā, ka rere tonu taua ia. Ko tā mātou whāinga he whakahou i te rārangi nei ā tōna wā.

Tēnā, mehemea he whakaaro rānei, he rauemi anō rānei hei tāpiri mai, īmeratia ki: baumloui@gmail.com me troy874@aucklanduni.ac.nz

I.

GENERAL/SOCIAL VULNERABILITY ASSESSMENT



Journal Article: Khan, S. (2012). Vulnerability assessments and their planning implications: a case study of the Hutt Valley, New Zealand. *Natural Hazards*, 64(2), 1587-1607. <https://link.springer.com/article/10.1007/s11069-012-0327-x>

An understanding of vulnerability is not only crucial for the survival of the exposed communities to extreme events, but also for their adaptation to climate change. Vulnerability affects community participation in hazard mitigation, influences emergency response and governs adaptive capacity for the changing environmental and hazards characteristics. However, despite increased awareness, assessments and understanding of the processes that produce vulnerability, disaster risks prevail. This raises questions on the effectiveness of vulnerability assessments and their applications for hazard mitigation and adaptation. The literature includes a range of vulnerability assessment methods, wherein frequently the selection of any particular method is governed by the research objectives. On the other hand, hazard mitigation plans and policies even though mention vulnerability, their implementation pays less attention to the variations in its nature and underlying causes. This paper explores possible reasons for such gaps by exploring a case study of the Hutt Valley, New Zealand. It brings out the limitations of different vulnerability assessment methods in representing the local vulnerability and challenges they bring in planning for the vulnerability reduction. It argues that vulnerability assessment based on any particular method, such as deprivation index, principle component analysis, composite vulnerability index with or without weight, may not reveal the actual vulnerability of a place, and therefore, a comprehensive vulnerability assessment is needed.

Journal Article: Mutch, C., & Marlowe, J. (2013). Lessons from disaster: the power and place of story. *Disaster Prevention and Management*, 22(5), 385-394. <https://www.emerald.com/insight/content/doi/10.1108/DPM-10-2013-0172/full/html>

This article argues for taking account of the human stories of disaster response and recovery. It is set in the context of the 2010/2011 Canterbury, New Zealand, earthquakes which caused major damage to the city of Christchurch and surrounding districts. It outlines the importance of storytelling and the ethics of using this approach in sensitive contexts. The articles that follow in this special cross-disciplinary issue are discussed and four themes are examined in depth: response and recovery phases; the notion of community; crisis leadership; and researching in disaster contexts. Purpose – The purpose was to view the human experiences of the Canterbury earthquakes through a varied set of disciplinary lenses in order to give voice to those who experienced the trauma of the earthquakes, especially groups whose voices might not otherwise be heard. Design/methodology/approach – The research designs represented in this special issue, and discussed in this introductory article, cover the spectrum from open-ended qualitative approaches to quantitative survey design. Data-gathering methods included video and audio interviews, observations, document analysis, and questionnaires. Data were analysed using thematic, linguistic and statistical tools. Findings – The themes discussed in this introductory article highlight that the Canterbury response and recovery sequence follows similar phases established in other settings such as Hurricane Katrina and the Australian bushfires. The bonding role of community networks was shown to be important, as was the ability to adapt formal and informal leadership to manage crisis situations. Finally, the authors reinforce the important protocols to follow when researching in sensitive contexts.

Masters Dissertation: Yanicki, S. R. (2013). A Tale of Two Suburbs: Earthquake recovery and civil society in Christchurch. (Master Dissertation, University of Canterbury) <http://ir.canterbury.ac.nz/handle/10092/8730>

This study followed two similarly affected, but socio-economically disparate suburbs as residents responded to and attempted to recover from the devastating 6.3 magnitude earthquake that struck Christchurch, New Zealand, on February 22, 2011. More specifically, it focuses on the role of local churches, community-based organisations (CBOs) and non-governmental organisations (NGOs), here referred to broadly as civil society, in meeting the immediate needs of local residents and assisting with the longer-term recovery of each neighbourhood. Despite considerable socioeconomic differences between the two neighbourhoods,

civil society in both suburbs has been vital in addressing the needs of locals in the short and long term following the earthquake. Institutions were able to utilise local knowledge of both residents and the extent of damage in the area to a) provide a swifter local response than government or civil defence and then help direct the relief these agencies provided locally; b) set up central points for distribution of supplies and information where locals would naturally gather; c) take action on what were perceived to be unmet needs; and d) act as a way of bridging locals to a variety of material, informational, and emotional resources. However the findings also support literature which indicates that other factors are also important in understanding neighbourhood recovery and the role of civil society, including: local leadership; a shared, place-based identity; the type and form of civil society organizations; social capital; and neighbourhood- and household-level indicators of relative vulnerability and inequality. The intertwining of these various factors seems to influence how these neighbourhoods have coped with and taken steps in recovering from this disaster. It is recommended that future research be directed at developing a better understanding of how this occurs. It is suggested that a model similar to Yasui's (2007) Community Vulnerability and Capacity model be developed as a useful way to approach future research in this area.

Journal Article: Rowney, C., Farvid, P., & Sibley, C. G. (2014). 'I laugh and say I have earthquake brain!': Resident responses to the September 2010 Christchurch earthquake. *New Zealand Journal of Psychology*, 43(2), 4-13. https://www.researchgate.net/publication/286619197_I_laugh_and_say_I_have_'Earthquake_Brain'_Resident_responses_to_the_September_2010_Christchurch_Earthquake

This paper reports on a qualitative analysis of 191 Christchurch residents' written responses to the September earthquake of 2010. The data comes from Wave II of the New Zealand Attitudes and Values Survey (NZAVS) collected in November and December of 2010. When completing the NZAVS, participants in the Canterbury region were given the opportunity to provide open-ended responses about how the earthquake affected them. Qualitative responses were analysed using inductive thematic analysis, and common themes in participant's responses were identified. Four main themes emerged: psychological impacts; material/financial impact; coping strategies; and "the silver lining". These themes are presented and discussed alongside their implications for disaster research. A series of recommendations for future disaster relief are provided. We hope that this research may provide a voice for some of the participants in the broader NZAVS project who experienced the 2010 Christchurch earthquake. These are voices that need to be heard.

Report: Beban, J. G., & Gunnell, S. (2019). Incorporating social vulnerability into land use planning and local government processes for managing natural hazards and climate change in New Zealand. *UrbanEdge Planning LTD*. <https://www.ehinz.ac.nz/assets/Social-Vulnerability-Indicators/Incorporating-Vulnerability-into-Land-use-Planning-Final.pdf>

Natural disasters experienced around the world continue to highlight that certain groups within society are more vulnerable to the impacts of disasters than others. Social factors such as low income, lack of insurance and poor housing quality are known to increase the impact of natural hazards on people that live with these conditions, and make their recovery more difficult (Chang et al., 2015). Vulnerability of populations is also linked to exposure, for example development that is located on a floodplain or in a coastal zone, as well as susceptibility to natural hazards, such as those that are young, elderly or suffer physical or mental health problems. Land use planning has a key role to play in reducing exposure and susceptibility to hazards by managing the location and design of activities, for example by avoiding development on hazard prone land or setting minimum floor levels to mitigate the risk of flooding. In this way land use planning can contribute to reducing the vulnerability and improving the resilience of the wider community. Social vulnerability indicators have the ability to support the management of natural hazard risk and the effects of climate change by providing an evidence base upon which to rely when making land use planning decisions. Social vulnerability indicators can also assist in emergency management, by enabling the targeting and prioritising of preparedness initiatives and emergency

response and recovery efforts. Yet while the use of quantitative indices to assess the vulnerability of different communities to disasters is well established in research and practice (Chang et al., 2015), their application in local government processes in New Zealand is limited. Therefore, the focus of this study is to consider potential pathways to incorporate social vulnerability indicators into civil defence emergency management and land use planning at a local government level in New Zealand, with the aim of making vulnerable communities more resilient to the impacts of natural hazards and climate change.

Masters Dissertation: Hawkins, J. (2019). An Inclusive Approach for Enhancing Disaster Risk Reduction: An Investigation Into Developing Effective and Suitable DRR Strategies for Local Communities Throughout New Zealand. (Masters dissertation, University of Auckland) <https://researchspace.auckland.ac.nz/handle/2292/48552>

Disaster risk reduction (DRR) is a framework that aims to minimise the threat, occurrence or impacts of disaster events at the local level (i.e. the community). DRR aims to reduce these factors in three ways: directly influencing the hazard, decreasing the exposure of people and assets to hazards, and enhancing the capacities of the local community which aid the ability to cope in response to a disaster. Capacities are knowledge-sets, skills and resources of individuals that can be used to respond to impacts from a hazard event. Present-day DRR is typically reliant on a top-down approach. A top-down approach includes external intervention where capacities are provided. This emphasises structural solutions to local problems, creating and reinforcing the notion that people affected by disasters are 'victims'. As a result, outside actors such as scientists, governments and Non-Governmental Organisations (NGOs) justify their intervention through emergency management activities. Although a top-down approach has its benefits, DRR should focus on building a bottom-up approach that utilises local capacities and resources. This is because disasters are a local issue, therefore only the community themselves fully understand the opportunities and risks associated with a hazard event. Local capacities and resources can then be further enhanced by the inclusion of top-down capacities and resources. Gaillard and Mercer (2012) suggest that the inclusion of both top-down and bottom-up approaches is one way towards enhancing local DRR. Participation of the local community in developing DRR is essential to achieve an inclusive approach to DRR that utilises both top-down and bottom-up actors. Gaventa and Cornwall (2006) highlight that knowledge, action and consciousness are required to achieve participation. These components are interlinked and essential towards achieving participation. If one of these components are not present, then the participation of a stakeholder may be compromised. This investigation focusses on a case study in New Zealand. New Zealand's DRR policies rely upon the Civil Defence Emergency Management to work with communities in their region, in guiding them through the planning process. Therefore, New Zealand is an example of where local DRR may be enhanced by including top-down and bottom-up stakeholders in the planning process. One example of a bottom-up stakeholder in New Zealand communities are Marae. If utilised in the DRR planning process, Marae could provide a unique range of benefits to the current state of local DRR.

Journal Article: McBride S. K., Becker J. S., Johnston D. M. (2019). Exploring the barriers for people taking protective actions during the 2012 and 2015 New Zealand ShakeOut drills. *International Journal of Disaster Risk Reduction*, 37, 101150. <https://www.sciencedirect.com/science/article/pii/S2212420918313888>

To reduce future earthquake injuries and casualties, it is important that people understand how their behavior, during and immediately following earthquake shaking, exposes them to increased risk of injury or death. Research confirms that protective actions can reduce injuries and that prior training can help prepare people to take appropriate actions. In this paper, we examine barriers to participation in the ShakeOut drills in New Zealand. Through citizen science research, volunteers observed people performing the drills in 2012 and 2015. Observers reported how long it took to perform the drill and why they thought some people may not have completed it. Our findings illustrate that children, elderly, and those with both mental and physical disabilities struggled with the drill. Furthermore, embarrassment was a reported leading cause for non-

participation; we recommend more inclusive messaging to address potential causes of embarrassment.

1

Journal Article: Hall, K. H. Doolan-Noble, F. McKinlay, E. Currie, O. Gray, B. Gray, L. Richard, L. Stubbe, M. Jaye, C. (2020). Ethics and equity in the time of Coronavirus. *Journal of Primary Health Care*, 12(2), 102-106. https://www.publish.csiro.au/HC/fulltext/HCv12n2_ED2

'He waka eke noa. We're all in this together.' This is an advertising slogan from the New Zealand (NZ) government during lockdown. It implies that we all have been sharing, and will share, equal risks and burdens during this time of the coronavirus pandemic. Unfortunately, there are many ways this pandemic not only reveals but also amplifies the health inequities in society, resulting in people already at risk of poor health outcomes carrying greater burdens and risks during these times. We are not all equally in this together. Our waka (canoe) has different sections, from steerage to first class.

Journal Article: Horspool, N., Elwood, K., Johnston, D., Deely, J., & Ardagh, M. (2020). Factors influencing casualty risk in the 14th November 2016 MW7.8 Kaikōura, New Zealand earthquake. *International Journal of Disaster Risk Reduction*, 51, 101917. <https://www.sciencedirect.com/science/article/abs/pii/S2212420920314199>

The November 14, 2016 MW7.8 Kaikōura Earthquake was one of the largest earthquakes to occur in New Zealand in the past 100 years and resulted in two deaths and 618 injuries. Understanding the context and cause of casualties from earthquakes is important for informing risk reduction activities such as building codes, education of protective actions, and casualty modelling. Data on casualties (deaths and injuries) from the Kaikōura earthquake were sourced from New Zealand's publicly funded accidental injury insurance scheme. Casualties were compared to a control group of uninjured people using a case-control design. Odds ratios were calculated through multivariate logistic regression to quantify the influence of individual, seismological and contextual factors on casualty risk. Females were twice as likely to be injured than males, and injury risk increased 30% with every 10 year increase in age. People were 2.9 times more likely to be injured if they were in non-residential buildings, and injury risk increased 2.2 times for every unit increase in MMI shaking intensity. Thirty-seven percent of casualties were from falls, 44% were from actions of people during shaking and 8% were due to being hit by contents. Nine percent of people were injured after shaking stopped during evacuations, or clean-up. The results indicate that in regions with a well-regulated building industry with modern building codes such as New Zealand, casualties are dominated by non-fatal injuries, and the number of these injuries are determined by the behaviour of individuals during and immediately following earthquake shaking.

Journal Article: Mason, K., Lindberg, K., Haenfling, C., Schori, A., Marsters, H., Read, D., & Borman, B. (2021). Social vulnerability indicators for flooding in Aotearoa New Zealand. *International Journal of Environmental Research and Public Health*, 18(8), 3952. <https://www.mdpi.com/1660-4601/18/8/3952>

Social vulnerability indicators are a valuable tool for understanding which population groups are more vulnerable to experiencing negative impacts from disasters, and where these groups live, to inform disaster risk management activities. While many approaches have been used to measure social vulnerability to natural hazards, there is no single method or universally agreed approach. This paper proposes a novel approach to developing social vulnerability indicators, using the example of flooding in Aotearoa New Zealand. A conceptual framework was developed to guide selection of the social vulnerability indicators, based on previous frameworks (including the MOVE framework), consideration of climate change, and a holistic view of health and wellbeing. Using this framework, ten dimensions relating to social vulnerability were identified: exposure; children; older adults; health and disability status; money to cope with crises/losses; social connectedness; knowledge, skills and awareness of natural hazards; safe, secure and

healthy housing; food and water to cope with shortage; and decision making and participation. For each dimension, key indicators were identified and implemented, mostly using national Census population data. After development, the indicators were assessed by end users using a case study of Porirua City, New Zealand, then implemented for the whole of New Zealand. These indicators will provide useful data about social vulnerability to floods in New Zealand, and these methods could potentially be adapted for other jurisdictions and other natural hazards, including those relating to climate change.

II.

**GENDER IDENTITY,
SEXUAL ORIENTATION,
SEX CHARACTERISTICS
& RELATIONSHIP
STATUS**



Women, femininity and motherhood

Journal Article: Gordon, L. (2013). Preserving family and community: Women's voices from the Christchurch earthquakes. *Disaster Prevention and Management*, 22(5), 415–424. <https://www.emerald.com/insight/content/doi/10.1108/DPM-10-2013-0175/full/html>

The purpose of this paper is to highlight and report on women's work during and after the Christchurch earthquakes. The paper reports findings of some of a large number of life history interviews conducted with Christchurch women in 2012. Three specific sets of roles for women are identified, arising from the interviews that were undertaken. The first role is in keeping families together, meeting a range of diverse family needs and supporting all family members. The second role is in working with, and leading, post-quake services to offer disaster relief. Finally, a third role is in working in a range of ways to engage with and beautify communities and improve their lives. Women's work is often unseen in the post-earthquake environment. But this lack of visibility should not imply that women are not active in earthquake recovery. As far as the authors are aware, this is the first life history study of women undertaken to understand the impact of the earthquakes on their lives.

2

Journal Article: True, J. (2013). Gendered violence in natural disasters: Learning from New Orleans, Haiti and Christchurch. *Aotearoa New Zealand Social Work*, 25(2), 78-89. <https://doi.org/10.11157/anzswj-vol25iss2id83>

Why are women so vulnerable to violence and death as a result of disaster compared with men? This article investigates how global environmental forces in the form of natural disasters from floods, droughts and famines to earthquakes, tsunamis and hurricanes affect women and men differently. Disasters are known to have direct and indirect impacts on gender-based violence particularly against women and girls, revealing a pattern of heightened violence and vulnerability in their aftermath. These gendered impacts are directly relevant to social work theory, practice and advocacy, which seek to promote social wellbeing and to prevent violence in homes and communities during and in the aftermath of disasters. The article argues that women's unequal economic and social status relative to men before a disaster strikes determines the extent of their vulnerability to violence during and after a crisis. If gender-based violence and women's particular needs are not addressed in disaster preparedness, disaster recovery plans and humanitarian assistance, then women and girls' vulnerability will increase. The article offers some lessons based on primary research of responses to the 2010-2011 Christchurch earthquakes against the backdrop of what we know about the responses to an earthquake of similar magnitude in Haiti in 2009. It draws implications from this research for social work theory, practice and advocacy, highlighting the importance of ensuring that future disaster planning and decision making is gender-sensitive.

Report: Gordon, L., Sutherland, J., & Du Plessis, R. (2014). *Movers and shakers: Women's stories from the Christchurch earthquakes.* <https://apo.org.au/node/39763>

At the National Council of Women's first Christchurch meeting after the devastating 22 February 2011 earthquake, members raised questions about the need to record women's experiences of the quakes and their aftermath. At the time, the media was full of recovery, demolition and rebuilding stories, but there was not much about looking after ageing parents, getting children to relocated schools across crumbling roads, or trying to juggle increased family and work responsibilities. The NCWNZ Christchurch Branch responded to these concerns by setting up a small committee, which came to be known as the Post-Earthquake Strategy Team, or PEST. This committee met a few times, usually on the weekends, and this research project is the largest and most enduring outcome of that group's work. The Women's Voices Research Committee took on the task of recording a range of women's earthquake stories. We were aware of material written about earthquakes during 1800s in the region, but these records, while tantalising, were disappointingly short. We thought that, through recording the earthquake stories of Christchurch women, we could create a much

more detailed and lasting record of these quakes. Over thirty women volunteered to be trained to interview other women about their quake experiences. At training workshops they interviewed one another about their earthquake experiences. Their stories are available in the NCWNZ Women's Voices archive on UC CEISMIC as 'interviewer profiles'. This report draws on these stories as well as those of the women they interviewed.

Report: Gordon, L. (2014). There is always someone worse off.. The unheard voices of women from the Christchurch earthquakes and beyond. National Council of Women of New Zealand, Christchurch Branch. <https://globethics-prod.openrepository.com/handle/20.500.12424/3861107>

This study used a life story interview approach to find out about women's experiences of the Christchurch earthquakes. After the devastating 6.3 magnitude quake in Christchurch on 22 February 2011, the media gave much attention to heroic stories of rescue, the comments of decision-makers, or people who were quake 'victims'. The Women's Voices project was initiated in 2011 by the Christchurch Branch of the National Council of Women of New Zealand to ensure that women's everyday stories of endurance, day-to-day support for families, friends and neighbours, and informal and formal community activities were also documented. This report presents the stories of women interviewed in 2013 during the second stage of this project. A further report will combine these findings with material from interviews conducted in late 2011 and 2012. Interviewers used a life story approach to find out about women's earthquake experiences. Open-ended questions about their lives before the quakes; their quake experiences; the impacts of the quakes; their situation at the time of the interview; and their aspirations for their families/whānau, neighbourhoods and Christchurch as a city were used to elicit the stories analysed in this report. The University of Canterbury Human Ethics Committee reviewed and approved the information sheets, interview guidelines and consent processes. Participants first consented to have their stories recorded and only consented to the use of their stories once they had received the written summaries of their interviews. They had the opportunity to use their own names, or pseudonyms. Some of them chose to use both their given names and family names. This report, based on interview summaries reviewed, revised and approved by participants, uses only their first names (including pseudonyms). Many of the women whose experiences are included in this report chose to have their full stories included in the NCWNZ Women's Voices Archive located in the UC CEISMIC QuakeStudies digital archive. Some of them also agreed to the recordings of their interviews being publicly accessible. Search the website for the names of the women in this report and read a fuller account of their earthquake experiences. Information associated with each story indicates how this information can be used. Many women consented to the use of their stories in reports, books, articles, exhibitions and museum installations. This report considers key themes in these earthquake stories. It also shows how specific women spoke about their experiences and made sense of what happened to them and others. The research is an attempt to make their voices accessible, for them to be heard, and for action to be taken on the issues relating to response, recovery and rebuilding that they identify.

Journal Article: Du Plessis, R., Sutherland, J., Gordon, L., & Gibson, H. (2015). 'The confidence to know I can survive': resilience and recovery in post-quake Christchurch. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 10(2), 153-165. <https://doi.org/10.1080/1177083X.2015.1071712>

This paper explores the relevance of terms such as resilience and recovery when analysing earthquake stories recorded for the Women's Voices/Ngā Reo o Ngā Wahine Project after the sequence of earthquakes and aftershocks in Christchurch, New Zealand's second-largest city, in 2010–2011. While the media focused on stories of victims, the heroic work of rescue teams, police, army and firefighters, or the deliberations of national and local politicians, the National Council of Women of New Zealand wanted to ensure that women's everyday quake experiences were recorded for posterity. The outcome was an oral history project that documented the stories of women all over the city, both beneficiaries

of earthquake support and those active in assisting others. Their narratives illustrate how resilience in the face of natural hazard events, such as this earthquake sequence, requires effort, ingenuity and imagination, but also the activation of multiple actor networks and relevant technologies. These 'insider stories' also highlight the ways in which expectations of 'resilience' can obscure vulnerability after natural hazard events and the complex and uneven processes associated with 'recovery'. The relevance of critical reflections on discourses of resilience is explored through attention to the stories of specific women.

Report: Kenney, C. (2015). Five Māori women community leaders volunteer to reduce earthquake impact on elderly residents in Eastern Christchurch. In *UNDRR (Eds.), Women's Leadership in Risk-Resilient Development: Good Practices and Lessons Learnt* (pp. 65-70). United Nations Office for Disaster Risk Reduction . https://www.preventionweb.net/files/42882_42882womensleadershipinriskresilien.pdf?_gl=1*12e0isl*_ga*Mzc0NDA2ODkxLjE2Nzk5OTc3NTA.*_ga_D8G5WX-P6YM*MTY3OTk5Nzc0OS4xLjEuMTY3OTk5ODU0NS4wLjAuMA..

In Eastern Christchurch, following the 2010-2011 Christchurch earthquakes, elderly Māori residents with health issues and limited socio-economic resources were further marginalised through isolation in unsafe homes, which affected their psychosocial and functional wellbeing. In response, five Māori women, acknowledged as community leaders in the same Eastern suburbs, collaborated to facilitate social and material support for their elders. News of the project spread locally, prompting expansion of the initiative to address support issues faced by the wider elderly community in Eastern Christchurch. The initiative has also received international recognition. Addressing the 2013 World Social Science Fellows seminar on decision making in times of uncertainty, the women's leadership collective outlined their communitarian approach to addressing the needs of the elderly. Key factors in the initiative's success have been the Māori women's collectivised approach to leadership, as well as the enactment of traditional cultural values and practices offering a counterpoint to more commonly applied 'command-and-control' approaches for managing Disaster Risk Reduction (DRR).

Journal

Article: McMANUS, R. (2015). Women's voices: Solace and social innovation in the aftermath of the 2010 Christchurch earthquakes. *Women's Studies Journal*, 29(2), 22-41. <http://hdl.handle.net/10092/14403>

The Canterbury earthquakes and the rebuild are generation-defining events for 21st century Aotearoa/New Zealand. This article uses an actor network approach to explore 32 women's narratives of being shaken into dangerous disaster situations and reconstituting themselves to cope in socially innovative ways. The women's stories articulate on-going collective narratives of experiencing disaster and coping with loss in 'resilient' ways. In these women's experiences, coping in disasters is not achieved by talking through the emotional trauma. Instead, coping comes from seeking solace through engagement with one's own and others' personal risk and resourcefulness in ways that feed into the emergence of socially innovative voluntary organisations. These stories offer conceptual insight into the multivalent interconnections between resilience and vulnerabilities and the contested nature of post-disaster recovery in Aotearoa/New Zealand. These women gave voice to living through disasters resiliently in ways that forged new networks of support across collective and personal narratives and broader social goals and aspirations for Aotearoa/New Zealand's future.

Journal Article: Hargest-Slade, A. C., & Gribble, K. D. (2015). Shaken but not broken: Supporting breastfeeding women after the 2011 Christchurch New Zealand earthquake. *Breastfeeding Review*, 23(3), 7-13. <https://search.informit.org/doi/10.3316/informit.653723294038420>

The 2011 Christchurch New Zealand earthquake adversely affected large numbers of people and resulted in many mothers and infants evacuating the city. In the town of Timaru, an emergency day-stay breastfeeding service assisted evacuee women. The service was established after media messaging alerted mothers to the importance of breastfeeding and the location of breastfeeding assistance. The local hospital provided rooms for the breastfeeding support service, which delivered counselling to mothers experiencing breastfeeding challenges. The vulnerability of infants in emergencies demands that governments and aid organisations plan to support their wellbeing and access to safe food and liquid. Plans should be developed in accordance with the Emergency Nutrition Network's Operational guidance on infant and young child feeding in emergencies and include breastfed and formula-fed infants. Many countries have existing health resources and personnel with the expertise to support infant feeding in emergencies. However, only comprehensive pre-emergency planning can ensure that infants are protected.

2

Masters Dissertation: Jennings, A. (2017). Understanding the post disaster effects on mothers after the 2010 and 2011 Christchurch earthquakes in New Zealand. (Master dissertation, Massey University). <http://hdl.handle.net/10179/12487>

The city of Christchurch in the South Island of New Zealand experienced two large earthquakes in September 2010 and February 2011. The most depictive of these earthquakes was in February which resulted in 185 casualties. The purpose of this study was to explore the post disaster experiences of mothers and consider factors which helped or hindered their recovery. A qualitative study was utilised in order to understand the post disaster experiences of mothers and their coping resources. Data collected via semi-structured interviews with six mothers, using open-ended questions, which focused on personal, environmental and psychological impacts of the earthquakes to understand their experience. Topics included the immediate experience of the event, factors which impacted on their recovery, their community experience and roles in the wider recovery effort. Data was analysed using thematic analysis. Key findings were established from themes within the research which underpinned experiences for mothers; these included care of children, the importance of social networks, the role of the community and mothers' evolving role in the wider recovery effort. Core characteristics of resilience, such as adaptability, flexibility, optimism and coping skills, were portrayed by participants, which became paramount in supporting their post disaster recovery. These findings underpinned practice approaches for social workers when working with mothers post disaster and highlighted the significance of the social workers' role in promoting the involvement of women within their community and in future disaster management planning and discussions.

Journal Article: Jennings, A., Stanley-Clarke, N., & Yeung, P. (2018). Qualitative research: Mothers as active contributors to post-earthquake recovery in Christchurch. *Aotearoa New Zealand Social Work*, 30(3), 19-30. <https://doi.org/10.11157/anzswj-vol30iss3id496>

An understanding of mothers as a subset of women who are active contributors to a recovery effort is crucial to building disaster resilience. This study explored the post-disaster experiences of mothers from the two Christchurch earthquakes in 2010 and 2011 to consider factors which both helped and hindered their recovery. This research was a qualitative study involving semi-structured interviews with six married mothers who were present during the 2010 and 2011 Christchurch earthquakes. Interviews focused on understanding the personal, environmental and psychological impacts of the earthquakes. Data were analysed using thematic analysis. Three key findings were established, highlighting: 1) Elements of resilience are essential for recovery; 2) mothers playing a constructive and proactive role in their community post-disaster; and 3) the importance of a sense of belonging to enhance post-disaster recovery. While participants were affected practically and psychologically by the earthquakes, core characteristics of resilience such as positivity, hope, flexibility and adaptability were portrayed in supporting their post-disaster recovery. These mothers played an active role in the recovery of their community and felt a clear sense of belonging which enhanced their recovery. Based on the findings of this study, social work skills such as utilising an emancipatory or strengths-based approach to intervention alongside a sound understanding of community participation can harness strengths through a sense of belonging, purpose and opportunity for pro-activity in disaster recovery

Journal Article: Maidment, J., Tudor, R., Campbell, A., & Whittaker, K. (2019). Women's place-making through craft in post-earthquake Christchurch. *Aotearoa New Zealand Social Work*, 31(1), 17-30. <https://doi.org/10.11157/anzswj-vol31iss1id557>

There is little research on the role of creative arts and craft in disaster recovery. This article reports findings about the emergent role of crafting from research conducted after the 2010–2011 series of earthquakes in Christchurch and surrounding districts in Aotearoa New Zealand. In particular, the article focuses on the significance and differing interpretations of the notion of place expressed by participants through their craftwork, in this case led by women and mediated by the post-earthquake geographic and temporal context. This qualitative research included nine individual interviews and five focus group interviews with crafters from Christchurch and surrounding districts. There were 35 participants in total, 33 were women. Applied thematic analysis was used to code the data and identify themes. These themes included connection to place, the symbolism of craft, the healing experience of craft groups and places for women. The notion of place was evident across all three themes. The findings from the research demonstrate differing ways in which the significance of place was reflected in the craftwork. Participants interpreted the concept of place in descriptive, symbolic, and therapeutic ways. More understanding about the way creative endeavours like crafting can be used to help ameliorate the impact of natural disasters is needed. Social work practitioners are encouraged to explore place-based wellbeing during their work with service users and to include aspects of artistry, craft and creativity.

Men and masculinity

Doctoral Thesis: Rushton, A. (2021) But What About the Men? Storying Rural Men's Experiences and Perspectives of the 2016 Kaikōura/Waiiau Earthquake, Aotearoa New Zealand. (Doctoral Thesis, Massey University) <http://hdl.handle.net/10179/16546>

This thesis explores 19 rural men's perspectives and experiences of the 2016 Kaikōura/Waiiau earthquake, and critically examines their daily realities in the wake of the disaster. One research participant was Māori, and another was a British migrant, the other seventeen participants were Pākehā [European descent]. The qualitative research was underpinned by a feminist epistemology framed by social constructionism and an interpretivist approach to research. Feminist methodology informed data collection. Semi-structured interviewing was used to gather men's earthquake stories and identify the subtleties and gendered elements of men's experience. This doctoral research identifies that rural men's realities in the aftermath of the Kaikōura/Waiiau earthquake were fundamentally shaped by place, spaces and temporalities. Furthermore, place-specific hegemonic masculinity informed men's behaviours and practices in response and recovery. Participants drew on meanings of, and attachment to place to navigate and cope with adversity and distress. Emotions related to the earthquake were evident throughout the interviews, inferring continuing trauma and anxieties. Nevertheless, men attempted to sustain representations of Antipodean, hegemonic masculinity by actively silencing distress and challenges. The study demonstrates that the research participants' earthquake experiences were underpinned by multiple, intersecting metaphysical spaces and temporalities that in some cases, complicated and disrupted recovery. The research contributes to an understanding of complexities in relation to men's personal experiences of disasters. Suggestions are provided for the inclusion of how localised sets of understandings about masculinities shape response and recovery in national and international disaster policies and practices.

Journal Article: Rushton, A., Phibbs, S., Kenney, C., & Anderson, C. (2021). 'I wouldn't trade this country of ours for anything': place, identity and men's stories of the 2016 M7. 8 Kaikōura/Waiiau earthquake. *Social & Cultural Geography*, 1-19. ['I wouldn't trade this country of ours for anything' place identity and men's stories of the 2016 M78 KaikouraWaiiau earthquake](https://www.researchgate.net/publication/350574298)

There is an emerging area of research that examines men's personal disaster accounts, including how gender identities and sets of understandings about masculinities shape response and recovery. This paper adds to the literature through providing a geographic enquiry into men's sense of place and identifying the impacts of the Kaikōura/Waiiau (7.8 Mw) earthquake sequence on rural men. Faceto-face interviews were conducted with 19 men across Marlborough and North Canterbury who experienced the earthquake. Findings explored how rural masculine identities, exemplified in the Southern Man trope, were integral to rural men's earthquake stories. Drawing on Bourdieu's concepts of habitus, capital and doxa and using field as a geographic metaphor for place, the research identified that participants relied upon rural skills and local knowledges to navigate the changing dynamics of place. More broadly, this paper illustrates how post-disaster impacts on individuals and communities may be traced through examining a gendered sense of place.

Journal Article: Rushton, A., Phibbs, S., Kenney, C., & Anderson, C. (2021). 'She'll be right': the place of gendered emotions in disasters. *Gender, Place & Culture*, 1-23. ['She'll be right' the place of gendered emotions in disasters](https://www.researchgate.net/publication/349871019)

This paper draws on the geographies of emotion and masculinities literature to explore rural men's experiences of the 2016 Kaikoura/Waiiau earthquake in Aotearoa, New Zealand. Qualitative semi-structured interviews were conducted with 19 men affected by the earthquake. Geographies of emotion enable reflection on the social context and individual circumstances of those impacted by natural hazard events, thereby contributing to understanding the way local constructions of gender influence people's experiences of disasters. The paper highlights how emotions are present regardless of how antipodean notions of hegemonic masculinity, reflecting stoicism and reserve, shape disaster responses. The research identified that two years on from the earthquake, men were still emotional when talking about the earthquake, yet attempted to silence their emotional distress. Through an analysis of emotion, men's hidden vulnerabilities and capacities, which are linked to sets of understandings about masculinities in place, are captured. This research illustrates the value of undertaking analysis of men's emotions in disaster spaces.

Queer, trans and non-binary gender identities and sexual orientation

Journal Article: McKinnon, S., Gorman-Murray, A., & Dominey-Howes, D. (2017). Remembering an epidemic during a disaster: Memories of HIV/AIDS, gay male identities and the experience of recent disasters in Australia and New Zealand. *Gender, Place & Culture*, 24(1), 52-63. <https://www.tandfonline.com/doi/abs/10.1080/0966369X.2016.1249352>

Memory is increasingly understood as a source of both vulnerability and resilience within the experience of disasters associated with natural hazards. In this article, we investigate how members of marginalised populations impacted by disasters in Australia and New Zealand drew on forms of memory tied to their minority identity. Gay men, along with other sexual and gender minority groups, experience increased vulnerability in disaster contexts resulting from discrimination and stigmatisation. We draw on interviews with two gay men, each of whom had lived through the crisis of HIV/AIDS beginning in the 1980s and who had, more recently, been seriously impacted by a disaster associated with a natural hazard. Memories of HIV/AIDS informed these men's experiences of the later disaster in ways which bolstered resilience but which conversely resulted in feelings of vulnerability and isolation.

Book Chapter: Gorman-Murray, A., & McKinnon, S. (2018). 'Does it matter?': Relocating fragments of queer heritage in post-earthquake Christchurch. In *Gender and Heritage* (pp. 239-252). Routledge. <https://www.taylorfrancis.com/chapters/edit/10.4324/9781315460093-15/matter-an-drew-gorman-murray-scott-mckinnon>

This chapter outlines the most destructive disasters to strike the country, causing massive damage to buildings and infrastructure, as well as 185 deaths and many more non-fatal injuries. It describes fragments of queer heritage in post-earthquake Christchurch and to explore lesbian, gay, bisexual and trans (LGBT) and mainstream responses to the loss of queer heritage. The chapter analyses the data through five thematic frames: Displacement, ambivalence, invisibility, reminding and remembering. The spatial metaphor—heritage—is suggestive of the flow of power in heritage practice. Iain Robertson argues that 'mainstream manifestations of heritage' are 'nationalist, top-down, commercial and tourism-focussed perspectives' that are concerned with 'visitors, audience and consumption'. Queer heritage—the heritage of LGBT communities—neatly exemplifies heritage. Given

the centrality of heritage to the city's pre-disaster identity, the fate of historically or architecturally significant buildings and places was of considerable public concern in post-earthquake Christchurch.

Journal Article: Gorman-Murray, A., McKinnon, S., Dominey-Howes, D., Nash, C.J., & Bolton, R., (2018). Listening and learning: Giving voice to trans experiences of disasters. *Gender, Place & Culture*, 25, 166–187. https://ses.library.usyd.edu.au/bitstream/handle/2123/21636/Listening_and_learning_giving_voice_FINAL.pdf?sequence=1&isAllowed=y

This article gives voice to trans experiences of disasters, investigating their specific vulnerabilities and resilient capacities. We draw on findings from a project on lesbian, gay, bisexual and trans (LGBT) experiences of recent Australian and New Zealand disasters. We present and analyse trans voices from a survey conducted across multiple case study sites and insights from interview data with a trans person who experienced the 2011 Brisbane floods. Conceptually, to provide a robust understanding of trans experiences of disasters, we bring socially sensitive disaster studies into conversation with trans geographies. Disaster studies have begun to examine LGBT experiences, with some suggestion that trans people are most vulnerable. We advance this work by focusing on trans lives. Trans geographies, in turn, underline the importance of space, place and the body in understanding trans lives, and the need to examine the lived reality of trans people's everyday geographies rather than embodiment as an abstract concept. Applying these insights to the trans voices in our project, we examine four themes that highlight impediments to and possibilities for trans-inclusive disaster planning: apprehension with emergency services and support; concerns about home and displacement; anxiety about compromising the trans body; and the potential of trans and queer interpersonal networks for capacity building. We offer suggestions for trans-inclusive disaster planning and preparedness, and indicate how the insights from trans experience can enrich disaster planning and preparedness for wider social groups.

Relationship Status: Domestic violence and disasters

Book Chapter: Houghton, R. (2009). Everything became a struggle, absolute struggle': post-flood increases in domestic violence in New Zealand. *Women, gender and disaster: Global issues and initiatives*, 99-111. <https://books.google.com/books?hl=fr&lr=&id=0dKGAwAAQBAJ&oi=fnd&pg=PA99&dq=+Everything+became+a+struggle,+absolute+struggle%E2%80%99:+post-flood+increases+in+domestic+violence+in+New+Zealand&ots=yg3OwR0VDt&sig=deq9rLK9Vr8-RMR2VT8gk9jsfqk>

Every year New Zealand experiences many potentially damaging natural hazard events as a consequence of its location on the western margin of the Pacific Ocean. Floods, earthquakes, landslides and even volcanic eruptions are becoming more and more common; and numerous studies have been completed on the level of public awareness, preparedness and perception of national hazards. However, little research has been done on the day-to-day realities faced by those who have recently experienced an event and particularly little on the specific experiences of women. Hazard events can have a multitude of downstream effects. If mild, these can provide distraction or even entertainment and potentially no significant disruption to everyday life. At the other end of the spectrum, a declared national disaster can completely disrupt everyday life leading to evacuation, perhaps even families being deprived of belongings, food, sanitation and privacy, and potentially also lead to permanent migration. The gravity of impact does vary with each family and even with each individual, but a number of common patterns have been identified by researchers. For example, some international studies show an increase in the rate of domestic violence in affected areas. This correlation is yet to be established for New Zealand and is the topic of this chapter. I report in this chapter a study conducted on possible changes in domestic violence reporting the wake of major flooding, as reported by organisations involved with families affected by abuse.

Journal Article: Houghton, R. (2009). Domestic violence reporting and disasters in New Zealand. *Regional Development Dialogue*, 30(1), 79-90. https://www.researchgate.net/publication/287162743_Domestic_violence_reporting_and_disasters_in_New_Zealand

This article reports on a study undertaken in New Zealand on the rates of domestic violence reporting during disasters. The study involved five case studies of communities after three disasters. The case studies showed a significant increase in the number of domestic violence cases being worked on in the months surrounding the disaster for many agencies. One organization in particular, the Women's Refuge, was found to consistently have the largest increases and the most sizeable impacts. Despite this common occurrence, there are no provisions in either government emergency planning or planning by domestic violence agencies to cope with the impact of future events. The first section of this article will discuss the increase in domestic violence cases - first for the Women's Refuge, and second for other agencies in the domestic violence field. In the second section, two of the major areas of concern for the Women's Refuges will be examined, with specific examples. Natural disasters impact in two ways, both on the clients of the agencies and on the agencies and their staff members, who may also be under stress as a direct consequence of the emergency. These issues highlight the need for domestic violence considerations to be included in disaster risk reduction (DRR) policies, and for domestic violence agencies to be aware of the adverse impact a disaster may have on their workloads and ability to do this work. Thus, in the context of this issue, DRR initiatives have yet to mainstream a particular element of the gender problematic - domestic violence; conversely, those who work in the highly gendered field of domestic violence have yet to mainstream disaster preparedness and risk reduction into their work.

Doctoral Thesis: Houghton, R. (2010). "We Had to Cope With What We Had": Agency Perspectives on Domestic Violence and Disasters in New Zealand. (Doctoral Thesis, Victoria University of Wellington) <http://hdl.handle.net/10063/1159>

Under an over-arching feminist framework, this thesis utilises disaster sociology and domestic violence theory to examine the complex and multi-faceted relationship between domestic violence and disasters. The applicability of previously published theories was tested through a postal survey of communities affected by 17 Civil Defence emergencies in New Zealand and in 5 detailed case studies (taken from the 17 surveyed communities) relating to the impact of Civil Defence emergencies on domestic violence and disaster response agencies in New Zealand. The case studies involved the collection of reporting statistics from Women's Refuge, interviews with representatives of agencies working in domestic violence response and disaster management, and analyses of case file summaries from the Women's Refuge national database across the five affected geographic areas. These methods provided both quantitative and qualitative data on domestic violence reporting during disasters in New Zealand.

III.

**ETHNICITY,
NATIONALITY,
IMMIGRATION STATUS
& CULTURAL FACTORS**



General - Culturally and Linguistically Diverse communities

Report: Christchurch Migrant Inter-Agency Group. (2011). *Christchurch Migrant Inter-Agency Group: Lessons learned following the earthquakes of 22 February 2011*. Christchurch Migrant Inter-Agency Network, Christchurch. <https://quakestudies.canterbury.ac.nz/store/object/318214>

This document discusses the 'lessons learned' as a result of the work undertaken by the Christchurch Migrant Inter-Agency group, set up to support migrants and refugees following the February 22 earthquake in 2011. Its purpose is to provide a record of key events and responses in the immediate aftermath period and to offer some candid discussion and insight with respect to their success or otherwise. Some recommendations have also been made on the basis of these "learnings". In particular this discussion document provides a record of the special challenges that migrant associations and migrant support agencies had to face at this time of crisis in the hope that the documented learnings will lead to improved outcomes for culturally and linguistically diverse (CALD) communities throughout New Zealand. This is vital not only in times of civil emergency, but also in the rebuild period and beyond, so that all individuals, regardless of ethnicity, have equal access to information and services. Although only a snapshot, the capture and documentation of this information is intended as an invitation to reflect collaboratively on the decisions that were made in the civil emergency and recovery period. It is hoped that any discussion generated by this report will reduce some of the barriers to an efficient response should future disasters hit other New Zealand regions; and that the report itself can become a reference for decision-makers when evaluating their effectiveness in major crisis contexts. Note that this document is not intended to critique the actions of the various earthquake response systems that operated in 2011; some comment on them, however, is unavoidable. It is recognized that this situation was extreme and a 'first' for many organisations and individuals. We believe however, that it is important to acknowledge where things could have been done better and to learn from both the successes and the failures. This report begins with an introduction and background to the establishment of the Migrant Inter-Agency Group and the sub-groups responsible for key areas of work. This is followed by an outline of the main issues faced and the lessons learned when responding to these. A summary and several recommendations are made at the conclusion of the report.

Report: Wylie, S. (2012). *Best practice guidelines: Engaging with culturally and linguistically diverse (CALD) communities in times of disaster*. Community Language Information Network Group (CLING), Christchurch <https://crs.org.nz/clings-best-practice-guidelines-for-communicating-with-cald-communities>

This report is part of a process initiated by the Community Language Information Network Group (CLING) established in Christchurch as part of the inter-agency framework for response to the Canterbury earthquakes. The purpose of the process is to learn from experience to date and to develop guidelines that can be used in the long process of recovery in Christchurch, as well as to assist agencies in other areas – central and local government as well as civil society organisations – to be better prepared to communicate with culturally and linguistically diverse communities in the event of a civil emergency. With the increasing diversity of our society, it is vital that government and community organisations have the necessary capability to communicate effectively with all their diverse communities, especially, but not only, in circumstances of civil emergency. The key message of the report, compiled for CLING with the support of the Christchurch City Council by social researcher Sarah Wylie, is that "if you want to communicate well with CALD communities following disaster, don't wait until something really bad happens. Get to know them now – build a relationship with CALD communities based on mutual trust, respect and understanding". The Human Rights Commission acknowledges the work of CLING and all the agencies and individuals that have contributed their experience to this report. As noted in the report, the Commission has identified as one of the top ten race relations priorities for 2012 "developing central and local government capability to communicate with culturally and linguistically diverse communities in the Christchurch earthquake recovery, and in the event of future civil emergencies elsewhere". We have

also raised the matter with the United Nations Human Rights Committee, which this year is examining New Zealand's compliance with the International Covenant on Economic, Social and Cultural Rights. We can expect the Committee to highlight the importance of respect for human rights in the Christchurch rebuild, including the importance of communication with diverse communities. It is my hope that this report will contribute to the ongoing process of learning from the Canterbury earthquakes, not just in Christchurch but throughout New Zealand, and that all of us will be better prepared and capable as a result to communicate effectively with the culturally and linguistically diverse communities in our midst.

Māori Communities and Iwi

Report: Hudson, J. & Hughes, E. (2007). *The role of marae and Māori communities in post disaster recovery: A Case study.* Wellington GNS Science. <https://www.massey.ac.nz/massey/fms/Colleges/College%20of%20Humanities%20and%20Social%20Sciences/Psychology/Disasters/pubs/GNS/2007/SR%202007-015%20Role%20of%20marae%20and%20Maori%20in%20post%20disaster%20recovery.pdf?95B6AF8E0A-3DE135C41BF0740108E7EA>

This report presents the findings, discussion and conclusions drawn from research into the role of Poupatate Marae and the Māori community in the Manawatu District of the Manawatu-Wanganui Region during the February 2004 flood. In particular, the study examines the effectiveness of various approaches in providing information, reducing stress and anxiety, and facilitating an effective recovery process. Our intention is that the study contributes to improving emergency policy development, planning and management, particularly with respect to marae and Māori communities.

Journal Article: King, D. N. T., Goff, J., & Skipper, A. (2007). Māori environmental knowledge and natural hazards in Aotearoa - New Zealand *Journal of the Royal Society of New Zealand*, 37 (2), 59-73. <https://doi.org/10.1080/03014220709510536>

Based on a long and close association with the land and its resources, Māori have developed a detailed knowledge of local natural hazards. This includes oral histories and traditions that record past catastrophic hazard events, place names that designate areas that are high hazard risk, and environmental indicators that inform about the safety and viability of activities linked to changes in the environment. Māori Environmental Knowledge is a valuable and neglected area of information on natural hazards and provides a unique source of expertise that can contribute to contemporary natural hazards management and mitigation in New Zealand.

Masters Thesis: Proctor, E-M. (2011). *Toi tu te Whenua, toi tu te Tangata: A holistic Māori Approach to Flood Management in Pawarenga.* (Master Dissertation, Waikato University) <https://hdl.handle.net/10289/5078>

This thesis is a study of how tikanga Māori principles could be used in practice in the management of natural hazards and in particular flooding in a rural area, Pawarenga. The aim was to investigate and document Te Uri O Tai Hapū preferred strategies for reducing flood risk in Pawarenga and to consider opportunities to use tikanga Māori principles and values in emergency response. The identification of key concepts and principles of tikanga Māori customs and their connections to whānau and hapū of Te Uri O Tai is key to this study. (...) Two major organising themes were identified: resilience and vulnerability. Participants described a broad range of strengths inherent in the community that enabled them to respond to crises such as flood events. A number of cultural, social, physical, economic and political vulnerabilities were

also identified; most of these were fundamental aspects of people's daily lives and did not prevent them from responding positively when floods occurred, but may have limited the scope of their responses. Tikanga was not a subject that participants felt comfortable talking about, but from the descriptions of how people actually responded during floods I was able to see examples of how tikanga was used.

Masters Dissertation: Rae, H. T. (2013). *Kia tahuri i te riu, kia tika: Indigenous participation in earthquake recovery planning: Insights from Taiwan and Canterbury. (Master Dissertation, University of Otago).* <https://ourarchive.otago.ac.nz/handle/10523/4147>

The aim of the research is to investigate the extent of indigenous participation in earthquake recovery planning. A case study approach was utilised to guide this investigation, with a deep study into the extent of indigenous participation in the 921 Earthquake and Christchurch Earthquake recoveries. The case study approach was conducted in three stages of data collection and analysis. The first stage involved identifying and collecting relevant secondary data, while the second stage entailed conducting semi-structured interviews with individuals who have experience of earthquake recovery planning and indigenous participation in Taiwan and Canterbury. The third stage involved analysing the collected data for themes conducive to understanding the extent of indigenous participation in earthquake recovery planning. The research finds that indigenous participation is indeed enabled in earthquake recovery planning. Moreover, it illustrates that participation is more empowering for indigenous peoples than ever before in colonial history. The extent of indigenous participation varies depending on the willingness of a government to both recognise participation as a process that ensures efficiency in planning and address indigenous claims for self-determination.

3

Journal Article: Kenney, CM., & Phibbs, SR. (2014). Shakes, rattles and rollouts: The untold story of Māori engagement with community recovery, social resilience and urban sustainability in Christchurch, New Zealand. *Procedia Economics and Finance*, 18, 754-762. [https://doi.org/10.1016/S2212-5671\(14\)00999-X](https://doi.org/10.1016/S2212-5671(14)00999-X)

On September 4, 2010 a 7.1 magnitude earthquake struck the Canterbury region of New Zealand, heralding a sequence of earthquakes, which included a fatal 6.2 earthquake centred under Christchurch City on February 22, 2011. In response, local Māori recovery initiatives were collaborative, effective and shaped by cultural values, including the principle 'aroha nui ki te tangata' (extend love to all). Disaster sector stakeholders are increasingly recognising the value of community-led initiatives that facilitate social resilience. In contrast, cultural approaches to facilitating community resilience receive minimal acknowledgement. The Māori response to the Christchurch earthquakes and subsequent recovery process constitutes an exemplar of best practice. The Joint Centre for Disaster Research in partnership with the Christchurch Iwi (tribe) Ngāi Tahu, conducted research to identify, and document the ways Māori cultural factors facilitated community resilience in response to the earthquakes. A Māori qualitative research methodology has shaped the community-based participatory research design. Māori research participants' views were ascertained through semi-structured and focus group interviews. Dialogical and narrative interviewing approaches were used to foster community engagement, as well as capture Māori understandings and practices associated with disaster management, recovery and resilience. Data analysis drew on social theories, risk perspectives and indigenous epistemological concepts. Analysis of the results suggest that New Zealand's disaster response policies may be enhanced by the integration of Māori approaches to facilitating disaster risk mitigation, community recovery and social resilience. This paper documents the different levels of support that were extended to whānau (families), communities and responding agencies. The cultural principles that underpin the extension of support are examined in relation to Bruno Latour's theories about how technologies shape action and Putnam's ideas on social capital. The impact of cultural support strategies on social resilience is addressed and the relevance to national and local authority disaster recovery strategies outlined.

Journal Article: Lambert, S. (2014). Māori and the Christchurch earthquakes: the interplay between Indigenous endurance and resilience through a natural disaster. *MAI Journal*, 3(2), 165-180.
<https://researcharchive.lincoln.ac.nz/handle/10182/7285>

The disastrous earthquakes that struck Christchurch in 2010 and 2011 seriously impacted on the individual and collective lives of Māori residents. This paper continues earlier, predominantly qualitative research on the immediate effects on Māori by presenting an analysis of a survey carried out 18 months after the most destructive event, on 22 February 2011. Using a set-theoretic approach, pathways to Māori resilience are identified, emphasising the combination of whānau connectivity and high incomes in those who have maintained or increased their wellbeing post-disaster. However, the results show that if resilience is used to describe a “bounce back” in wellbeing, Māori are primarily enduring the post-disaster environment. This endurance phase is a precursor to any resilience and will be of much longer duration than first thought. With continued uncertainty in the city and wider New Zealand economy, this endurance may not necessarily lead to a more secure environment for Māori in the city.

Journal Article: Lambert, S. (2014). Indigenous Peoples and urban disaster: Māori responses to the 2010-12 Christchurch earthquakes. *Australasian Journal of Disaster and Trauma Studies*, 18(1), 39-48.
<https://researcharchive.lincoln.ac.nz/handle/10182/6670>

Indigenous Peoples retain traditional coping strategies for disasters despite the marginalisation of many Indigenous communities. This article describes the response of Māori to the Christchurch earthquakes of 2010 and 2012 through analyses of available statistical data and reports, and interviews done three months and one year after the most damaging event. A significant difference between Māori and ‘mainstream’ New Zealand was the greater mobility enacted by Māori throughout this period, with organisations having roles beyond their traditional catchments throughout the disaster, including important support for non-Māori. Informed engagement with Indigenous communities, acknowledging their internal diversity and culturally nuanced support networks, would enable more efficient disaster responses in many countries.

Book Chapter: Kenney, CM. (2015). Five Māori women community leaders volunteer to reduce earthquake impact on elderly residents in Eastern Christchurch. In *Women’s Leadership in Risk-Resilient Development*. (pp. 65 - 70). Bangkok, Thailand: United Nations Office for Disaster Risk Reduction
<https://www.undrr.org/publication/womens-leadership-risk-resilient-development-good-practices-and-lessons-learned>

In Eastern Christchurch, following the 2010-2011 Christchurch earthquakes, elderly Māori residents with health issues and limited socio-economic resources were further marginalised through isolation in unsafe homes, which affected their psychosocial and functional wellbeing. In response, five Māori women, acknowledged as community leaders in the same Eastern suburbs, collaborated to facilitate social and material support for their elders. News of the project spread locally, prompting expansion of the initiative to address support issues faced by the wider elderly community in Eastern Christchurch. The initiative has also received international recognition. Addressing the 2013 World Social Science Fellows seminar on decision making in times of uncertainty, the women’s leadership collective outlined their communitarian approach to addressing the needs of the elderly. Key factors in the initiative’s success have been the Māori women’s collectivised approach to leadership, as well as the enactment of traditional cultural values and practices offering a counterpoint to more commonly applied ‘command-and-control’ approaches for managing Disaster Risk Reduction (DRR).

Journal Article: Kenney, CM (2015). Community-led disaster risk management: a Maori response to Ōtautahi (Christchurch) earthquakes. *Australasian Journal of Disaster and Trauma Studies*, 19(1), 9-20. <http://hdl.handle.net/10092/12402>

Since September 2010, a series of earthquakes have caused widespread social, financial and environmental devastation in Christchurch, New Zealand. Anecdotal evidence suggests that local Māori responded effectively to facilitate community recovery and resilience. Cultural technologies that are protective in times of adversity have previously been noted in Māori communities but rarely documented. An ongoing research project conducted in partnership with the local Christchurch Iwi (tribe) Ngāi Tahu, has been identifying and documenting the ways Māori cultural factors have facilitated disaster risk reduction and management in response to the earthquakes.

Journal Article: Kenney, CM., & Phibbs, S. (2015). A Māori love story: Community-led disaster management in response to the Ōtautahi (Christchurch) earthquakes as a framework for action. *International Journal of Disaster Risk Reduction*, 14, 46-55. <https://www.sciencedirect.com/science/article/pii/S2212420915000059>

Within the disaster response and research sectors, there is increasing recognition of the value of community-led initiatives that facilitate emergency management, risk reduction and community resilience. In contrast, the value of cultural approaches to disaster management and recovery is rarely acknowledged. The Māori disaster management response to the Christchurch earthquakes and subsequent urban recovery process constitutes an exemplar of best practice. During the emergency management phase, Māori risk management initiatives were collaborative, effective and shaped by kaupapa (cultural values), specifically the value, 'aroha nui ki te tangata' (extend love to all people). In this article, the potential value of Māori kaupapa-based technologies for shaping contextually relevant disaster management and risk reduction strategies is considered. The discussion draws from research findings arising from two projects conducted by the Joint Centre of Disaster Research in partnership with Te Rūnanga o Ngāi Tahu (resident Māori tribe) that address Māori disaster-related concerns, including factors that facilitate community recovery. An overview of the Māori emergency response, including perceived hindrances, is provided as background. Drawing upon frameworks provided within Actor-Network Theory cultural technologies that facilitate community well-being and recovery are identified and the ways in which technologies were operationalised within the emergency context, outlined. With reference to the Hyogo Framework for Action the applicability of integrating Māori technologies into national civil defence emergency management policies is also discussed and recommendations are proposed for adapting and implementing these technologies as a component of integrated disaster risk reduction at the local, national and international levels.

Report: Lambert, S., Wilkie, M., Shadbolt, M. (2015) . *Kia Manawaroa: Surviving disaster: Experiences of Tangata Whaiora through the 2010-2012 Ōtautahi/Christchurch earthquakes.* <https://researcharchive.lincoln.ac.nz/handle/10182/10264>

This report presents research on the affects of the Ōtautahi/Christchurch earthquakes of 2010 to 2012 on the city's Tangata Whaiora community, 'people seeking health' as Māori frame mental health clients. Drawing on the voices of 39 participants of a Kaupapa Māori provider (Te Awa o te Ora), this report presents extended quotes from Tangata Whaiora, their support staff (many of whom are Tangata Whaiora), and managers as they speak of the events, their experiences, and support that sustained them in recoveries of well-being through the worse disaster in Aotearoa/New Zealand in three generations. Ōtautahi contains a significant urban Māori population, many living in suburbs that were seriously impacted by the earthquakes that began

before dawn on September 4th, 2010, and continued throughout 2011 and 2012. The most damaging event occurred on February 22nd, 2011, and killed 185 people and severely damaged the CBD as well as many thousands of homes. The thousands of aftershocks delayed the rebuilding of homes and infrastructure and exacerbated the stress and dislocation felt by residents. The tensions and disorder continue for numerous residents into 2014 and it will be many years before full social and physical recovery can be expected. This report presents extended excerpts from the interviews of Tangata Whaiora and their support staff. Their stories of survival through the disaster reinforce themes of community and whānau while emphasising the reality that a significant number of Tangata Whaiora do not or cannot draw on this supports. The ongoing need for focused responses in the area of housing and accommodation, sufficiently resourced psycho-social support, and the value of Kaupapa Māori provision for Māori and non-Māori mental health clients cannot be overstated. The report also collates advice from participants to other Tangata Whaiora, their whānau, providers and indeed all residents of places subject to irregular but potentially devastating disaster. Much of this advice is relevant for more daily challenges and should not be underestimated despite its simplicity.

Report: Lambert, S. (2015). *Networks of Support for Māori Mental Health: The response and recovery of Tangata Whaiora through the Ōtautahi earthquakes.* <https://researcharchive.lincoln.ac.nz/handle/10182/7529>

This report presents the experiences of Tangata Whaiora (Mental health clients) through the disastrous earthquakes that struck Ōtautahi/Christchurch in 2010-11. It further analysis these experience to show how the social networks of these individuals, their whānau, supporting staff respond and recover to a significant urban disaster. The disaster challenged the mental health of those individuals who are impacted and the operations of organisations and networks that support and care for the mentally ill. How individuals and their families navigate a post-disaster landscape provides an unfortunate but unique opportunity to analyse how these support networks respond to severe disruption. Tangata Whaiora possess experiences of micro-scale personal and family disasters and were not necessarily shocked by the loss of normality in Ōtautahi as a result of the earthquakes. The organic provision of clear leadership, outstanding commitment by staff, and ongoing personal and institutional dedication in the very trying circumstances of working in a post-disaster landscape all contributed to Te Awa o te Ora's notable response to the disaster.

Journal Article: Lambert, S. (2015). Indigenous communities and disaster research: Maori and the Christchurch earthquakes of 2010-2011. *Third Sector Review*, 21(2), 31-48. <https://researcharchive.lincoln.ac.nz/handle/10182/7932>

This paper presents insights into the impacts on Māori of the Christchurch 2010-11 earthquakes. Three topics are discussed. The first is the role of Indigenous Knowledge in disasters. If such knowledge is to be integrated with Western science to build societal resilience, which systems are these integration processes building the resilience of, and for whom? The second issue is the role of Indigenous culture in the response to disasters. A concern is the reification of culture as a necessary and sufficient condition for Indigenous resilience. Lastly, the ethical, practical and logistical challenges of working with Indigenous individuals and collectives post-disaster are discussed.

Journal Article: Phibbs, S., Kenney, CM., & Solomon, M. (2015). Ngā Mōwaho: an analysis of Māori responses to the Christchurch earthquakes. *Kōtuitui : New Zealand Journal of Social Sciences Online*, 10(2), 72-82. <https://doi.org/10.1080/1177083X.2015.1066401>

Since September 2010, a series of earthquakes have caused widespread social, financial and environmental devastation in Christchurch, New Zealand. Anecdotal evidence suggests that local Māori responded effectively to facilitate community recovery and resilience. However, the form, content and extent of that response has not been adequately recognised or documented. This qualitative research project, conducted in partnership with Te Rūnanga o Ngāi Tahu, has documented the way in which Māori cultural factors have facilitated disaster risk reduction and management in response to the earthquakes. This paper explores sets of understandings about marginalisation and inclusion within the narratives of 70 Māori community members who contributed to this research. Forms of marginalisation expressed in participants' narratives include delayed linkages to the formal emergency management infrastructure, difficulties integrating Māori volunteers into the mainstream response as well as enduring barriers to Māori engagement within Civil Defence, illustrated in a lack of Māori representation as well as tikanga Māori within emergency planning. We argue that the knowledge, principles and practices embedded within Māori responses to the Christchurch earthquakes may be contextually relevant for national and regional policy development in the area of disaster risk management, response and recovery.

Journal Article: Lambert, S. (2016). Post-disaster Indigenous Mental Health Support: Tangata Whaiora networks after the 2010-2012 Ōtautahi/Christchurch Earthquakes. *MAI Review*, 5(1), 76-91. <https://researcharchive.lincoln.ac.nz/handle/10182/7293>

This paper identifies and analyses the networks of support for tangata whaiora (mental health clients) utilising a kaupapa Māori health service following the Ōtautahi/Christchurch earthquakes in Aotearoa New Zealand from 2010 to 2012. Semi-structured interviews were undertaken with 39 participants, comprising clients (Māori and Pākehā), staff, managers and board members of a kaupapa Māori provider in the city. Selected quotes are presented alongside a social network analysis of the support accessed by all participants. Results show the significant isolation of both Māori and Pākehā mental health clients post-disaster and the complexity of individuals and collectives dealing with temporally and spatially overlapping hazards and disasters at personal, whānau and community level.

Journal Article: Kenney, CM. (2016). Kaumātua Day: A Māori community-led approach to addressing the health and wellbeing needs of elderly Maori following the Canterbury earthquakes. *Māori Health Review*, 63, 4-4. <https://www.researchreview.co.nz/mh/Pages/Article/Maori-Health-Review-Issue-63/Kaumata-Day-a-Maori-community-led-approach-to-ad.aspx>

Within the disaster response and research sectors, there is increasing recognition of the value of community-led initiatives that facilitate emergency management, mitigate health risks as well as foster community well-being. In contrast, the value of culture-based approaches to addressing disaster recovery has rarely been acknowledged. Recent kaupapa Māori research conducted in Christchurch suggests that Māori response initiatives were characterised by collaborative accountability, authority, agency, and actions, because within a Māori paradigm, a hierarchically-structured 'command and control' approach to facilitating community recovery has proven to be ineffective. Māori-led responses in Canterbury were found to be consistently shaped by kaupapa (cultural values) and highly effective in addressing the needs of local communities. Research findings may be usefully drawn upon to enhance public health and emergency management policies and practices. When the Canterbury earthquakes commenced, Ngāi Tahu, as kaitiaki, had an obligation to ensure the wellbeing of all Christchurch residents. After the February 22nd earthquake

in 2011, a national Māori Recovery Network was established, and Te Rūnanga o Ngāi Tahu coordinated community support. The eastern suburbs of Christchurch were most severely impacted by the earthquakes. As these suburbs are home to the majority of urban Māori, many Kaumātua were disproportionately affected with reduced access to basic necessities, sanitation, power, transport and support from frontline responders. Māori elders with significant health and mobility issues were particularly marginalised, due to isolation in unsafe homes. Access to appropriate and culturally acceptable health services was also very limited. Consequently, Māori elderly experienced increased rates of illness and a corresponding deterioration in psychosocial wellbeing. In response, five Māori women with community leadership and service expertise collaborated to develop a community-led initiative, 'Kaumātua Day', in order to facilitate psychosocial and material support for elderly Māori living in the eastern suburbs. Seed funding was accessed from both the Todd and Tindall Foundations and the initiative was implemented in March 2012, in accordance with Māori collective values. Specific Kaumātua Day goals included: 1. Reducing social isolation by supporting elderly residents to meet several times a month; and 2. Supporting social connectedness by facilitating group aspirations, entertainment, dinners and opportunities for intergenerational socialisation; and 3. Facilitating access to material, social and health resources/services for those who were mobility impaired, geographically/socially isolated and/or experiencing elder abuse. Since inception, Kaumātua engagement with the initiative has gradually increased. Currently, approximately 170 Māori elders participate on a semi-regular basis. Due to the initiative's effectiveness, Kaumātua Day has expanded to provide outreach services for the wider elderly community in Eastern Christchurch. Key factors in the initiative's success include the Māori collectivised approach to leadership as well as the enactment of traditional cultural values and practices, which offer a counterpoint to commonly applied 'command-and-control' approaches to managing the health risks of elderly Māori who reside in post-disaster contexts.

Journal Article: Kenney, C. M., & Phibbs, S. (2016). Whakaoranga Ōtautahi: A pre-emptive Māori approach towards actioning the Sendai framework for disaster risk reduction in Christchurch, New Zealand, *Haznet*, 8(2), 48-52. <http://haznet.ca/wp-content/uploads/2016/11/haznet-fall-2016-reduced-3.pdf>

The 2010-2011 Canterbury earthquakes caused extensive damage in Christchurch, New Zealand. Anecdotal evidence suggested that Māori responded effectively to facilitate community recovery and resilience. As Māori cultural attributes that are protective in times of adversity had rarely been documented, research was conducted in partnership with the Christchurch Iwi (tribe) Ngā Tahu, to explore and record how Māori cultural factors facilitated disaster risk reduction and community recovery following the earthquakes. Research findings suggest that Māori values linked with understandings of cultural identity act as key strengths during adversity by promoting social behaviours and practices that facilitate community resilience. Therefore, the Māori approach to earthquake recovery is an exemplar of best practice in accordance with the Sendai Framework for Disaster Risk Reduction (2015). This globally accepted framework requires emergency management infrastructure engagement with local communities to embed cultural diversity in the creation of disaster management policies and implementation of recovery practices.

Book Chapter: Gabrielsen, H., Procter, J., Rainforth, H., Black, T., Harmsworth, G., & Pardo, N. (2017). Reflections from an indigenous community on volcanic event management, communications and resilience. In *Observing the volcano world* (pp. 463-479). Springer, Cham. https://link.springer.com/chapter/10.1007/11157_2016_44

Ngāti Rangī, an indigenous tribe of Aotearoa New Zealand, live on the southern flanks of their ancestral mountain, Ruapehu, an active volcano. Ruapehu has erupted and caused lahars within living memory, and nearby Tongariro erupted as recently as 2012. Ngāti Rangī and other tribes affiliated to these mountains

are intimately connected to and familiar with the moods, signs, and language of the mountains and have valuable knowledge to contribute to decision-making and warning systems during volcanic events. To date this knowledge or mātauranga Māori has been somewhat under-utilised, and Ngāti Rangī have not always been included in decision-making processes during volcanic events. But communication is improving, and Ngāti Rangī have begun a journey of building their own monitoring, information collection, and communication systems. Past and present monitoring, warning systems, communications and tribal civil defence resources are examined to determine how Ngāti Rangī and their tribal knowledge can be better recognised, communications with governmental volcanic hazard management agencies improved to ultimately work together to improve outcomes for the tribe and local community.

Journal Article: Langer, E. L., & McGee, T. K. (2017). Wildfire risk awareness and prevention by predominantly Māori rural residents, Karikari Peninsula, Aotearoa New Zealand. *International Journal of Wildland Fire*, 26(9), 820-828. https://www.researchgate.net/publication/319522477_Wildfire_risk_awareness_and_prevention_by_predominantly_Maori_rural_residents_Karikari_Peninsula_Aotearoa_New_Zealand

Worldwide, people use fire for a variety of purposes. Although researchers have learned how fire is used in many parts of the globe, relatively little is known about wildfire risk awareness and prevention activities by fire users. This paper presents results of a qualitative study in the Far North, Aotearoa New Zealand, where fire is used by residents primarily for burning vegetation on rural properties and household rubbish. Semi-structured interviews and a focus group were completed with 25 predominantly Indigenous Māori residents to examine residents' wildfire risk awareness, fire use and wildfire prevention. Participants' high level of awareness of the local wildfire risk was due to their understanding of the local environment, past wildfires, attachments to land, information passed down within Māori whānau (extended families), and the local rural fire force. Awareness of the local wildfire risk, attachments to land, and efforts by the local fire force and residents encouraged participants to use fire safely, and abide by and carry out wildfire prevention initiatives. However, there was evidence of fire use contravening fire prevention regulations, including burning during restricted seasons without a permit and in prohibited seasons. Recommendations are provided to encourage safe fire use in Northland and beyond.

Report: Saunders, W. (2017). *Setting the scene: the role of iwi management plans in natural hazard management* (pp. 1-21). GNS Science, Te Pū Ao. https://www.researchgate.net/publication/320411008_Setting_the_Scene_The_Role_of_Iwi_Management_Plans_in_Natural_Hazard_Management

The purpose of this report is to set the context for further research investigating the role of iwi management plans (IMPs) in natural hazard management. An IMP is a resource management plan prepared by an extended Māori kinship group or authority. IMPs provide an opportunity to include information on natural hazards, their preferred management options, action points for reducing risks, and engagement processes to assist with the transfer of natural hazard science and mitigation measures. They provide a valuable strategic tool for natural hazard management, however their potential influence and role is uncertain. IMPs are legislated under the Resource Management Act (RMA), and therefore have the potential to provide very strong guidance to users of IMPs. IMPs can contribute to the co-management and/or co-governance tools available to both iwi and local government by providing important guidance as to priorities, issues, actions, and engagement processes. The following research stages will review how councils and others use IMPs, to assess if they are being used to their full potential. This report forms the first stage in a four-stage research programme: Stage 2 will investigate how natural hazards are incorporated into IMPs in the Bay Of Plenty region; Stage 3 will explore the relationship between IMPs, science translation, and council use of natural hazard information within IMPs; and Stage 4 will provide a summary discussion of the findings, and a potential alternative planning framework to strengthen the links between mātauranga Māori, IMPs, councils, and scientists/researchers.

Journal Article: Carter, L. H., & Kenney, C. M. (2018). A tale of two communities: B-race-ing disaster responses in the media following the Canterbury and Kaikōura earthquakes. *International journal of disaster risk reduction*, 28, 731-738 . <https://doi.org/10.1016/j.ijdrr.2018.01.037>

New Zealand media reports have shaped public discourses on the role of community stakeholders in responding to the devastation caused by the 2010–2011 Canterbury earthquakes and the Kaikōura Earthquake in 2016. Anecdotal evidence has also suggested that Māori disaster management responses to both contexts received differing levels of media attention and thus inconsistent recognition within the public domain. Iwi (Māori tribes) have historically enacted kaitiakitanga (cultural guardianship) for their respective regions. Contemporary iwi remain obligated to ensure the wellbeing of local Māori as well as the broader community and environment during adversity, and act accordingly. Media stories pertaining to Māori responders' actions in the aftermath of 2016 Kaikōura earthquakes, have highlighted the effectiveness of such community-led responses as well as the importance of maintaining a unified and well integrated approach to recovery management. In contrast, very few media reports provide comment on the Māori earthquake recovery response to the 2010–2011 Christchurch earthquakes. In this article, the ways in which Māori responses were represented by the media following both natural hazard events, are examined. Media conceptualisations of Māori disaster management leadership are explored through drawing on content and thematic analyses while constructions of Māori cultural identity are considered in the context of disaster management practices. Tensions pertaining to public recognition and legitimatisation of Māori response capabilities are also documented and will inform refinement of media approaches to disaster communication as well as national emergency management policy and protocols.

Book Chapter: Potangaroa, R., & Kipa, M. (2018). The Maori Response to a Seismic 'Swan'. In *Asia-Pacific Security Challenges* (pp. 139-164). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-61729-9_7

This chapter looks at this Maori Black Swan Event (BSE) and examines its nature against current definitions and specifically against the New Orleans's Lower 9th Ward response. It then considers how Maori managed with a study of the Maori community at Rapaki just outside Christchurch following the 2011 earthquake. The existence and the current management of this BSE in New Zealand and how Maori manage should be recognised in disaster plans. That is not happening. Moreover, the sense by both authors is that this work will resonant with other ethnic responses in New Zealand such as Pacific Islanders, SE Asians and Chinese.

Report: Saunders, W. (2018). *Investigating the role of iwi management plans in natural hazard management: a case study from the Bay of Plenty region*. GNS Science, Te Pū Ao. <https://resiliencechallenge.nz/outputs/investigating-the-role-of-iwi-management-plans-in-natural-hazard-management-a-case-study-from-the-bay-of-plenty-region/>

This report forms the second stage in a four-stage research programme investigating the role of iwi management plans in natural hazard management. Iwi management plans provide a valuable strategic tool for natural hazard management. However, their potential influence and role is uncertain. To assist in our evaluation, a case study was undertaken in the Bay of Plenty Region. Of the 29 iwi management plans lodged with the Bay of Plenty Regional Council, we analysed 21 for their natural hazard provisions, linkages to other plans and policies, and consultation process. Only six of these analysed plans referenced natural hazards. This occurred to different degrees. Some had specific and explicit information on natural hazard risks and climate change, while others were more general. Based on the content of these six plans, four were analysed in more detail. This research has shown that iwi management plans are extremely valuable resources that document iwi issues, actions, and aspirations. The four plans that were further analysed were well structured, written for ease of use by council staff, and comprehensive

in the way they addressed natural hazards and climate change. They have huge potential to influence policy and decision making, if used to their full potential. This stage of the research has raised further questions, from a land use planning and emergency management perspective, and from a sharing of knowledge perspective. This research is based on the Bay of Plenty plans only; it will not reflect iwi management plans elsewhere in the country, many of which may include natural hazard policies.

Report: Saunders, W., & Kaiser, L. H. (2019). *Analysing processes of inclusion and use of natural hazard information in iwi and hapū management plans: case studies from the Bay of Plenty*. GNS Science, Te Pū Ao. https://natlib.govt.nz/records/42672446?search%5Bi%5D%5Bsubject_text%5D=Ai-tu%C4%81+%28Taiao%29&search%5Bpath%5D=items

This report provides case studies of iwi and hapū management plan's (IHMPs) inclusion of natural hazard information in the Bay of Plenty region by addressing the relationship between IHMPs, council policies and actions, and the accessibility of science knowledge to inform IHMPs. This report consists of three components, the first provides an outline of the research methodologies, kaupapa Māori research principles, project design, participants and research questions (section two). The second, (section three) summarises the key research findings from an iwi/hapū perspective, council perspective and consultant perspective. Based on those findings, the final section of this report provides recommendations on how iwi/hapū and council relationships can be enhanced in the development and implementation of IHMPs to both better incorporate natural hazards information; and ensure that IHMPs are useful, usable and used by all parties.

Journal Article: Yumagulova, L., Phibbs, S., Kenney, C. M., Yellow Old Woman-Munro, D., Christianson, A. C., McGee, T. K., & Whitehair, R. (2021). The role of disaster volunteering in Indigenous communities. *Environmental Hazards*, 20(1), 45-62. <https://doi.org/10.1080/17477891.2019.1657791>

Drawing on Māori (Aotearoa-New Zealand), First Nations (Canada), and Navajo Nation (U.S.), case studies and practitioners' experiences, this article addresses a gap in our understanding of the role of volunteers in emergencies and disasters in Indigenous communities. Enablers and challenges to effective volunteering in these Indigenous communities are discussed. Cultural enablers of volunteering include building capacity during non-emergency times, using all senses when volunteering, and supporting locally emergent psychosocial recovery institutions that are based on cultural understanding and trust. Resolving systemic barriers to volunteering would require institutional and organisational changes through governance, coordination and training. Practical recommendations for supporting volunteer management in Indigenous communities are made.

Book Chapter: Lambert, S. (2022). Critical Indigenous Disaster Studies: Doomed to Resilience?. In *Critical disaster studies: Social science reflections on a decade of disaster experiences in Christchurch, New Zealand*, Palgrave Macmillan, Singapore. https://www.researchgate.net/profile/Simon-Lambert-13/publication/358579682_Critical_Indigenous_Disaster_Studies_Doomed_to_Resilience/links/620df9e86c472329dcedad56/Critical-Indigenous-Disaster-Studies-Doomed-to-Resilience.pdf

In a world of increasing complexity and interconnectedness, societies are faced with endless and all-encompassing risks. And in these times, Indigenous communities are at greater risk than their non-Indigenous neighbours, and seemingly at more risk than their own ancestors. This chapter (re)examines the experiences of Māori in the city of Ōtautahi Christchurch during the extended period of seismic activity that destroyed

many residential and commercial properties and significantly disrupted social and cultural networks in 2011. This disaster provides a regrettable but unique opportunity to understand how a disaster affects urban Indigenous communities in the 21st Century, a demographic that is rapidly increasing. The earthquakes exposed more than geological fault lines. Māori continued to respond to and recover from the disasters of colonisation, neoliberal marginalisation, and structural racism. Two fault lines are drawn in sociological space; the first framed as tradition and glossed as ancestry; the second, all too modern neoliberalism.

Book Chapter: Phibbs, S., Kenney, C., & Solomon, M. (2022). Māori Community Response and Recovery Following the Canterbury Earthquake Sequence. In *A Decade of Disaster Experiences in Ōtautahi Christchurch* (pp. 187-210). Palgrave Macmillan, Singapore. https://link.springer.com/chapter/10.1007/978-981-16-6863-0_9

In the aftermath of the February 2011 Christchurch Earthquake, Māori organised rapidly to address the urgent needs and longer-term recovery concerns of the wider community. This chapter summarises the Māori community response to the Canterbury earthquake sequence, documents how Māori have leveraged on the recovery in order to implement programmes that address vulnerabilities in the areas of housing, income and employment within the Māori community. It tracks how research conducted in Ōtautahi following the 2011 earthquakes has informed local recovery initiatives, the national disaster resilience strategy, as well as responses to the Kaikōura earthquake in 2016 and the terrorist attack in 2019.

Pacific Islanders Communities

Journal Article: Marlowe, J., Neef, A., Tevaga, C. R., & Tevaga, C. (2018). A new guiding framework for engaging diverse populations in disaster risk reduction: Reach, relevance, receptiveness, and relationships. *International Journal of Disaster Risk Science*, 9(4), 507-518.

<https://link.springer.com/article/10.1007/s13753-018-0193-6>

In urban environments characterized by rich diversity across language, migration status, demographic profiles, and usage of different forms of media, there can be significant challenges to ensuring that particular disaster risk reduction (DRR) communications reach those potentially affected. This article presents a study with 20 Pacific Island community leaders and connectors about their communities' perspectives and anticipated responses to natural hazards in Auckland, New Zealand. Home to the largest population of Pacific people in the world, Auckland provides the basis for understanding the complexities of delivering disaster information across numerous community groups. The rich cultural and linguistic backgrounds of multiple Pacific communities living in this city highlight the need to consider the complexities of disaster messaging related to natural hazards. In particular, the article forwards the importance of incorporating the guiding concepts of reach, relevance, receptiveness, and relationships into a DRR approach with culturally and linguistically diverse groups. These concepts are presented as an embedded guiding framework that can helpfully inform disaster communication.

Southeast Asian Communities

Journal Article: Ikeda, M. M., & Ozanne, A. G. (2016). Human Security, social competence and natural disasters in Japan and New Zealand: A case study of Filipino migrants. *Japan Social Innovation Journal*, 6(1), 42-60. https://www.jstage.jst.go.jp/article/jsij/6/1/6_42/article/-char/ja/

This study applies a human security perspective in analyzing the consequences of the 2010/11 Canterbury (New Zealand) earthquakes and the 2011 Great East Japan earthquake and tsunami. It explores different factors that shape the vulnerability and resilience of individuals to natural hazards. We hypothesize that individuals differ in their vulnerability to- and capacity to recover from- disasters resulting from their demographic, social and economic characteristics. We take a closer look at how these disasters have affected the lives of a group of Filipino migrants and how they are able to cope with and recover from these calamitous experiences. Our analysis indicates that during natural disasters social competence (awareness, attitude, knowledge, communication skills) and social networks are very important mechanisms for coping and building resilience.

Report: Grayman, J. H., Neef, A., & Ngin, C. (2019). *Disaster preparedness and resilience among Auckland's southeast Asian communities*. The University of Auckland. https://www.academia.edu/en/40032517/Disaster_Preparedness_and_Resilience_among_Auckland_s_Southeast_Asian_Communities

Based on interviews with 34 Aucklanders originally from five Southeast Asian countries, the study found that participants generally have a relatively accurate understanding of disaster risk in Auckland. Many of them refer to floods as a major hazard, which is consistent with data about Auckland's hazard risk. In addition, they are aware that volcanic eruption and earthquakes have the ability to cause large-scale destruction in Auckland, yet recognise that the likelihood of occurrence for these hazards remains low. Some participants state that their past experiences with tsunami, storms, and floods make them more receptive to early warning alerts and inform their attitudes to disasters and hazards. However, there is a wide range of reported attitudes to disaster preparedness. Some participants report taking preparedness programmes and early warning systems very seriously, some show indifference, and some others avoid discussing the topic entirely, out of fear or dismissal. Due to their distinct cultural backgrounds or past experiences in disasters in their home countries, the Southeast Asian communities in Auckland have capabilities that may differ from those of majority groups in Aotearoa New Zealand.

Journal Article: Ngin, C., Grayman, J. H., Neef, A., & Sanunsilp, N. (2020). The role of faith-based institutions in urban disaster risk reduction for immigrant communities. *Natural Hazards*, 103(1), 299-316. <https://www.proquest.com/docview/2430530381?pq-origsite=gscholar&fromopenview=true>

Drawing on interviews with Cambodian and Thai communities in Auckland, New Zealand, this paper examines the role of Buddhist temples in disaster preparedness, response and recovery and the hindrances to optimising this role. We found that among the communities, Buddhist temples are identified as sites of community organisation and information dissemination and would likely serve as important sites for seeking assistance during a major crisis. We thus argue that Buddhist temples have a role to assist their members to prepare for, respond to and recover from a major disaster. This is possible because these institutions are faith-bonded centres for regular congregations, reciprocity, charity and cultural attachment. However, their bridging and linking social capital, which is pivotal for performing this role, may be impeded by language barriers, generational divides, member exclusivity, personal conflicts and political divisions. We conclude that the role of faith-based institutions in disaster risk reduction in urban immigrant

communities in the Global North should be examined in a more nuanced manner, particularly regarding their internal and external ruptures. A good understanding of these complexities would enable interventions to maneuver through the tensions and cater for diverse interests and values of affected communities.

Journal Article: Zhang, C., Le Dé, L., & A Charania, N. (2021). Transnational migration and disaster risk reduction: Insights from Chinese migrants living in Auckland, New Zealand. *Asia Pacific Viewpoint*, 62(3), 331-344. <https://onlinelibrary.wiley.com/doi/abs/10.1111/apv.12309>

Migrants can be disproportionately impacted by disasters due to their increased vulnerability. Knowledge of Chinese migrants' perceptions and experiences in the face of hazards and disasters is limited. This qualitative descriptive study explored Chinese migration in relation to disasters and disaster risk reduction in New Zealand. Semi-structured interviews with 22 Chinese migrants living in Auckland were conducted and data were thematically analysed. Participants displayed strong transnationalism via the creation of 'mini-China' and conceptions of China as their 'mother' country and New Zealand their 'step-mother' country. Chinese migrants compared their experiences of disasters in China to those in New Zealand, with many expressing difficulties with accessing information and not trusting New Zealand government authorities, particularly given how the approach contrasts to China's more 'hands on' approach. Fear of losing life and property and responsibility to their family were key factors underpinning Chinese migrants' decision to prepare for a disaster. Participants shared insights to guide disaster risk reduction efforts from a community level and expressed a willingness to participate in disaster preparedness organised by agencies involved in disaster risk reduction. The findings indicate capacities of Chinese migrants that planners can leverage and highlight important cultural nuances that need attention in future planning.

African Communities

Journal Article: Odiase, O., Wilkinson, S., & Neef, A. (2019). South African community in Auckland: natural hazards and the resilience to a potential disaster event. *Disaster Prevention and Management: An International Journal*, 29(3), 390-404. <https://doi.org/10.1108/DPM-02-2019-0052>

The purpose of this paper is to investigate the resilience of the South African community in Auckland to a potential hazard event. The research collected data from both primary and secondary sources. The research used parametric and non-parametric analytical procedures for quantitative data and a general inductive approach to qualitative data analysis and a three-step coding cycle for interviews. A content analytical process of theme formation was used to analyse secondary materials. The research discussed findings in line with related studies on community resilience. The aggregate community resilience index was above average on the scale of 1–5. The highest and lowest contributions to the resilience of the South African community came from communication and information and physical capacities of the community. Although the highest contribution came from the communication domain, there is a need to sensitise the community on the importance of real-time information for resilience. Community ability to respond as a first responder and to access diverse sources was low because of a lack of interest in disaster risk reduction activities and membership of associations. Intervention in the economic domain and affordable housing is needed to assist low-income earners in coping with a potential disaster and enhance future resilience. The practical resilience of the community is limited to the time of this research. The state of resilience might change in longitudinal research due to changes in resources and ecosystem. The research did not consider institutional and natural domains because its focus was to predict resilience at the individual level. At-risk societies could enhance their resilience through a periodic audit into its resources, identify indicators of low resilience and carry out interventions to address potential vulnerabilities. Besides the importance of resource in resilience, the research illuminates the need to address the question of who is

resilient and resources distribution in the community. The issues are imperative in community resilience as they underpinned the personal ability to preparedness, response and recover from a disaster. Although the research provides insight into the resilience of the South African community, it constitutes preliminary research towards a further understanding of the resilience of the South African community in Auckland.

Journal Article: Odiase, O., Wilkinson, S., Neef, A. (2020). Risk of natural hazards and the coping capacity of the South African community in Auckland. *International Journal of Disaster Resilience in the Built Environment*, 11(3), 343-357. https://www.researchgate.net/publication/338592181_Risk_of_natural_hazards_and_the_coping_capacity_of_the_South_African_community_in_Auckland

The risks of natural hazards such as flooding, earthquakes, tsunami, landslides, tornado, coastal erosion and volcano are apparent in Auckland because of its vulnerability to multiple risks. The coping capacity of individuals serves as a precursor to the adaptation to inherent challenges. The purpose of this paper was to examine the coping capacity of the South African community in Auckland to a disaster event. This study gathered information from both primary and secondary sources. Interviews and survey were the main sources of primary data. The research used parametric and nonparametric statistical tools for quantitative data analysis, and the general inductive process and a three-step coding process to analyse qualitative data. The research findings are discussed in line with existing studies. The results indicated that the aggregate coping capacity of the community was above average on the scale of 1-5 with communication and economic domains having the highest and least capacities, respectively. An improvement in disaster response activities and economic ability among the vulnerable population should be considered in future policy to enhance coping capacity. The study was limited to the time of the investigation. The practical coping capacity of the community during challenges will be determined. This study excludes the roles of institutions and the natural environment in coping capacity because the unit of analysis was the individual members of the community. The research is a pioneer study on the coping capacity of the South African community in Auckland.

Journal Article: Odiase, O., Wilkinson, S., & Neef, A. (2020). Disaster risk and the prospect of enhancing the resilience of the african community in Auckland. *Risk, Hazards & Crisis in Public Policy*, 11(2), 188-203. <https://onlinelibrary.wiley.com/doi/abs/10.1002/rhc3.12190>

Many urban communities have emerged in Auckland as a result of international migration. A significant concern for these communities is the relocation from an environment of known risks and familial support to an unfamiliar environment. The concern is essential because of the hazardous landscape of Auckland and the expected impact of climate change, which is anticipated to increase the vulnerability of at-risk communities. This research investigates how the African community could enhance its resilience to the challenges that may be posed by a potential disaster. Interviews with participants from two African communities were the source of data collection. The interview data were analyzed using the general inductive method for qualitative data analysis. The research discusses emergent themes in line with prior research on community resilience. This research suggests an improvement in community risk awareness, compensation mechanism, capacity building, and community cohesion to improve resilience. The success of these findings depends on the extent to which government agencies address them in future planning for resilience.

Journal Article: Odiase, O., Wilkinson, S., & Neef, A. (2020). Urbanisation and disaster risk: the resilience of the Nigerian community in Auckland to natural hazards. *Environmental Hazards*, 19(1), 90-106. <https://doi.org/10.1080/17477891.2019.1661221>

Community resources and the ability to organise them in times of challenges are essential in resilience. This study investigated the resilience of the Nigerian community in Auckland to the risk of natural hazards. Auckland has a multi-hazard landscape and an increasing rate of urbanisation which encompasses diverse communities and nationalities. The study examined five resources, the social, economic, communication, disaster competency and physical resources to determine the resilience of the Nigerian community to natural hazards in Auckland. The study collected data from both secondary and primary sources. The primary source included information from surveys and interviews; and secondary data from existing literature and documents in the public domain. The research used both parametric and non-parametric methods and themes identification for analysis. A community resilience index was created to calculate the current resilience status of the Nigerian community. Research findings suggested policy interventions to enhance indicators of low resilience. Enhancing resilience in the community depends on how the government addresses these indicators in future community resilience planning.

Resettled Refugee Communities

Journal Article: Osmán, M., Hornblow, A., Macleod, S., & Coope, P. (2012). Christchurch earthquakes: How did former refugees cope? *The New Zealand Medical Journal*, 125(1357), 113-121. <https://journal.nzma.org.nz/journal-articles/christchurch-earthquakes-how-did-former-refugees-cope>

This study investigated how former refugees now living in Christchurch (Canterbury Province, New Zealand) communities coped after the 4 September 2010 and subsequent earthquakes. A systematic sample of one in three former refugees from five ethnic groupings (Afghanistan, Kurdistan, Ethiopia, Somalia and Bhutan) was selected from a list of 317 refugees provided by the Canterbury Refugee Council and invited to participate in the study. Seventy-two out of 105 potential participants completed a 26 item questionnaire regarding the impact of the quakes, their concerns and anxieties, coping strategies and social supports. The methodology was complicated by ongoing aftershocks, particularly that of 22 February 2011. Three-quarters of participants reported that they had coped well, spirituality and religious practice being an important support for many, despite less than 20% receiving support from mainstream agencies. Most participants (72%) had not experienced a traumatic event or natural disaster before. Older participants and married couples with children were more likely to worry about the earthquakes and their impact than single individuals. There was a significant difference in the level of anxiety between males and females. Those who completed the questionnaire after the 22 February 2011 quake were more worried overall than those interviewed before this. Overall, the former refugees reported they had coped well despite most of them not experiencing an earthquake before and few receiving support from statutory relief agencies. More engagement from local services is needed in order to build trust and cooperation between the refugee and local communities.

Journal Article: Marlowe, J. (2013). Resettled refugee community perspectives to the Canterbury earthquakes: Implications for organizational response. *Disaster Prevention and Management*, 22(5), 434–444. <https://www.emerald.com/insight/content/doi/10.1108/DPM-01-2013-0019/full/html?queryID=23%2F5411656>

This research project examined resettled refugees' perspectives on the Canterbury Earthquakes to better understand the organisational implications for disaster preparedness and response with culturally and linguistically diverse groups. The method of data collection for this exploratory pilot study involved conducting semi-structured focus group discussions during January 2012 with the Bhutanese, Afghani and Ethiopian communities. The project was conducted in partnership with Refugee Services Aotearoa which is New Zealand's primary refugee resettlement organisation. The participant comments identify the importance of local ethnic community responses to a natural disaster. The need for a pre-established meeting centre(s) and community liaisons with key support organisations was highlighted as vital. Central to recovery is how organisations can work alongside refugee communities in disaster preparedness and response opportunities. The paper offers insight into the additional considerations of disaster risk reduction strategies with refugee background communities – a group that is relatively under-researched in disaster contexts.

Journal Article: Marlowe, J., & Lou, L. (2013). The Canterbury earthquakes and refugee communities. *Aotearoa New Zealand Social Work*, 25(2), 58-68. <https://search.informit.org/doi/abs/10.3316/informit.622846886262727>

The Canterbury earthquakes and subsequent aftershocks have presented a number of challenges for resettled refugee communities living in this region. These events highlight the need to recognise the diversity within culturally and linguistically diverse (CALD) populations for effective disaster preparedness and response initiatives. This paper presents a pilot study of focus groups conducted with the Ethiopian, Afghan and Bhutanese communities about their perspectives and responses to this particular disaster. The participant comments illustrate both the forms of resilience and potential vulnerabilities within these distinct communities and reveal how social work can play an important role in disaster risk reduction strategies.

Journal Article: Marlowe, J. (2014). A social justice lens to examine refugee populations affected by disasters. *Advances in Social Work and Welfare Education*, 16(2), 46-59. <https://search.informit.org/doi/abs/10.3316/informit.820978529776496>

The pedagogical implications of encouraging social work students to consider the intersections of social justice with communities affected by disasters are considerable. This focus is key as disasters can impact upon vulnerable groups in disproportionate ways. The Canterbury earthquakes, which have been characterised by four major events and thousands of subsequent aftershocks, provide a setting to examine a number of sensitising questions that can help orient social work students to a social justice frame. This paper presents reflections on conducting research with resettled refugee groups living in Christchurch to demonstrate how a social justice model can be pedagogically applied in disaster contexts. Using Finn and Jacobson's "just practice" model, it breaks down the complexities of social justice into five workable components that students could use to critically envisage and constructively respond to a disaster event involving culturally and linguistically diverse populations.

Journal Article: Marlowe, J., Bogen, R. (2015). Young people from refugee backgrounds as a resource for disaster risk reduction. *International Journal of Disaster Risk Reduction*, 14(2), 125–131. <https://doi.org/10.1016/j.ijdrr.2015.06.013>

Young people from refugee backgrounds represent an important resource for disaster risk reduction within their respective communities. This paper presents a qualitative study with young people from refugee backgrounds and their experiences of the 2010–2011 Canterbury earthquakes in New Zealand. The interviews and focus group discussions with these participants highlighted their capacities as cultural brokers and mediators, as they ensured that their respective communities had access to disaster related information that was translated and interpreted. Thus, young people from refugee backgrounds represent a bridge that can connect people from their ethnic communities to key disaster information through their linguistic capital, digital literacies and social networks to support the recovery process. As part of the recovery effort, these young people also emphasized the need for more inclusive social and recreational spaces to be able to meaningfully participate in the (re)imagining of the city. This paper discusses how young people from refugee backgrounds can offer leadership within their communities and can play integral roles in disaster risk reduction.

Journal Article: Marlowe, J. (2015). Belonging and disaster recovery: Refugee-background communities and the Canterbury earthquakes. *British Journal of Social Work*, 45(1), 188–204. https://academic.oup.com/bjsw/article-abstract/45/suppl_1/i188/2472212

The role of belonging in post-disaster environments remains an under-theorised concept, particularly regarding refugee populations. This paper presents a qualitative study with 101 refugee-background participants from varying communities living in Christchurch, New Zealand, about their perspectives and responses to the Canterbury earthquakes of 2010–11. Participants spoke of how a sense of belonging as individuals and as a wider community was important in the recovery effort, and highlighted the multiple ways in which they understood this concept. Their comments demonstrate how belonging can have contextual, chronological and gendered dimensions that can help inform effective and resonant disaster responses with culturally and linguistically diverse populations. This analysis also illustrates how the participants' perspectives of belonging shifted over time, and discusses the corresponding role of social work in supporting post-disaster recovery through the concepts of civic, ethno and ethnic-based belonging.

Journal Article: Uekusa, S., & Matthewman, S. (2017). Vulnerable and resilient? Immigrants and refugees in the 2010–2011 Canterbury and Tohoku disasters. *International Journal of Disaster Risk Reduction*, 22, 355–361. https://www.researchgate.net/profile/Steve-Matthewman-2/publication/313696715_Vulnerable_and_Resilient_Immigrants_and_Refugees_in_the_2010-2011_Canterbury_and_Tohoku_Disasters/links/59d560c7a6fdcc87469566c7/Vulnerable-and-Resilient-Immigrants-and-Refugees-in-the-2010-2011-Canterbury-and-Tohoku-Disasters.pdf

This article explores how immigrants and refugees, who are linguistic minorities, experienced the 2010–2011 disasters in Canterbury, New Zealand and Tohoku, Japan. The focus is on their perceived social vulnerabilities and resilience to disasters. Previous research has found that linguistic minority immigrants and refugees are socially vulnerable as they occupy a position of relative deprivation compared to majority groups. However, findings drawn from in-depth interviews demonstrate the fluid, complex and contextual nature of social vulnerabilities in disasters, suggesting that people may be simultaneously vulnerable and resilient. Their resilience arises partly from the everyday inequalities that they already confront, and partly because of previous experiences of disasters. Wars, conflicts, displacement and everyday hardships have given them “earned strength”. We supplement this concept with work on social capital to help disaster researchers re-conceptualize both the social vulnerability approach and its connections to disaster resilience thinking.

Journal Article: Marlowe, J., Jehan, F., Udahehuka, M., Mizero, A., Jaduram, R., Rotstein, J., Zeba Alam, Z., Nkessah, Z., Osman, M., Aung, S., & Jwaied, S. A. (2022). Disaster communications with resettled refugees: Six principles of engagement. *International Journal of Disaster Risk Reduction*, 67(102672), 1-9. <https://reader.elsevier.com/reader/sd/pii/S2212420921006336?token=7923F09B-619240B9EE02A7567C7093F1599ACOD77349649EB6DCE5A96CCD2AE879621961AECD075FCAA8E86625CD4D81&originRegion=us-east-1&originCreation=20220815045826>

While offering critical protections, refugee resettlement can present a challenge for disaster communications as the people being settled may have limited linguistic competencies of the host language, social capital networks, and awareness of local hazards. Presenting three case studies of resettled refugees living in different geographic locations across New Zealand, we outline six principles of disaster communications to improve engagement with culturally and linguistically diverse groups. Across the three studies, we implemented a research design of working with refugee-background research assistants to conduct interviews and focus groups with 175 people from refugee backgrounds (51 interviews and 21 focus groups) about their perspectives of and potential responses to natural hazards and disaster events. As the three sites are characterised by differential exposure to disaster risk, we discuss the implications for disaster communications and examine how culture, linguistic competencies, gender, age, geography and other social locations have relevance for disaster communication approaches.

Tourists

Journal Article: Fountain, J., & Cradock-Henry, N. A. (2020). Recovery, risk and resilience: Post-disaster tourism experiences in Kaikōura, New Zealand. *Tourism Management Perspectives*, 35 (100695). <https://www.sciencedirect.com/science/article/abs/pii/S2211973620300623>

Tourists are essential to a destination's social and economic recovery following disaster, reducing future risk and enhancing resilience. Drawing on the results of visitor surveys in Kaikōura, New Zealand, we analyse visitors' experiences and their consideration of natural hazard risk and response abilities in relation to a damaging earthquake in the region in 2016. Despite widespread national media and significant disruption, findings suggest the disaster had very little impact on visitors' perceptions and experiences and did not translate into greater preparedness. Instead, tourists reported only limited knowledge about what to do or where to go in the event of a natural hazard event. Results suggest tourists' resilience—and Kaikōura's resilience as a whole—would be enhanced by improving knowledge sharing and awareness building. Furthermore, by considering tourists as part of a linked social-ecological system, targeted interventions to improve understanding of natural hazards can support long-term recovery trajectories and minimize future losses.

International Students

Journal Article: Thorup-Binger, C., & Charania, N. A. (2019). Vulnerability and capacities of international students in the face of disasters in Auckland, New Zealand: a qualitative descriptive study. *International Journal of Disaster Risk Reduction*, 39 (101136). <https://www.sciencedirect.com/science/article/abs/pii/S2212420918311014>

International migration is a worldwide phenomenon, with an increased presence of international students (i.e., short-term migrants) residing in host countries for limited periods of time. Migrants may be exposed to hazards in their host country that they may not be aware of. Specific knowledge of short-term migrants' vulnerability and capacities in the face of disasters is limited. The purpose of this research was to explore the vulnerability and capacities of international students in the event.

IV.

AGE



Children and youth

Journal Article: Ronan, K. R. (1997). The effects of a series of volcanic eruptions on emotional and behavioural functioning in children with asthma. *The New Zealand Medical Journal*, 110 (1042), 145-147.
<https://europepmc.org/article/med/9152356>

The aim of this research was to determine whether children with asthma experienced disruptions in emotional and behavioural functioning following a series of volcanic eruptions. Multitrait, multimethod assessment was carried out with children living in the volcanic area. Self reports, teacher reports, and parent reports were collected on 118 children and addressed issues related to psychiatric disruptions resulting from the eruptions. Asthma was reported by 30% of the sample and this figure compares favourably with previous findings with other New Zealand samples. These asthmatic children were compared with a group of nonasthmatic children on a range of psychiatric symptoms following the volcanic eruptions. Asthmatic children reported, and were observed by parents and teachers, to manifest greater levels of eruption related distress when compared to a group of nonasthmatic children. Children with asthma were found to have significantly higher symptom scores on several indices including those related to eruption-related general distress and context-specific problems (eg, upset at home, upset when eruptions were discussed). Additionally, these children perceived their parents to be significantly more upset than the parents themselves reported. It is important to note that asthmatic children, while clearly more distressed, did not as a group evidence clinical levels of posttraumatic stress disorder symptomatology.

Journal Article: Finnis, K., Standring, S., Johnston, D., & Ronan, K. (2004). Children's understanding of natural hazards in Christchurch, New Zealand. *The Australian Journal of Emergency Management*, 19 (2), 11-20.
<https://search.informit.org/doi/abs/10.3316/informit.370460141768698>

Children need to understand and be prepared for natural hazard events as much as adults. Children are vectors of hazard education, having the ability to educate those around them. This study investigated natural hazard risk perceptions, levels of preparedness and participation in education programmes of children from a school in Christchurch, New Zealand. Although hazard education programmes had been attended by a majority of the children, hazard awareness was only fair and reported levels of household preparedness were low. Continuing hazards education is needed to increase understanding of hazards and to improve household preparation in the Christchurch community.

Journal Article: Ronan, K. R., Crellin, K., Johnston, D. M., Finnis, K., Paton, D., & Becker, J. (2008). Promoting child and family resilience to disasters: Effects, interventions, and prevention effectiveness. *Children Youth and Environments*, 18(1), 332-353.
<https://www.jstor.org/stable/10.7721/chilyoutenvi.18.1.0332>

This paper combines the findings of research aimed at assisting children, youth, and families to more effectively cope with the effects of disasters with a review of the relevant literature. We briefly review the effects of disasters on children, summarizing theory and research on risk and protective factors, interventions following a hazardous event, and promoting children's resilience. We also look at the role of preventive interventions in assisting children and their families to prepare both physically and psychologically for disasters. Finally, we summarize findings from evaluation of school-level hazards education programs in New Zealand. Based on promising research to date, we highlight factors that may underpin hazard intervention effectiveness.

Journal Article: Finnis, K. K., Johnston, D. M., Ronan, K. R., & White, J. D. (2010). Hazard perceptions and preparedness of Taranaki youth. *Disaster Prevention and Management: An International Journal*, 19(2), 175-184. <https://www.emerald.com/insight/content/doi/10.1108/09653561011037986/full/html>

Purpose – The purpose of this paper is to examine the relationship between participation in hazard education programs and levels of hazard awareness, risk perceptions, knowledge of response-related protective behaviour and household preparedness. Design/methodology/approach – A questionnaire examining various measures including participation in hazard education programmes, risk perceptions and household preparedness was delivered under teacher guidance to high school students in three different locations in the Taranaki Region of New Zealand. A total of 282 valid questionnaires were returned. Data were analysed by means of chi-squared, t-test and ANOVA. Findings – Students who have participated in hazard education programmes are more likely to have better knowledge of safety behaviours and higher household preparedness. However, even with hazard education, some aspects of hazard awareness and the uptake of family emergency plans and practices were found to be poor. Overall, hazard education was found to be beneficial and helps to create potentially more-resilient children and communities. Research limitations/implications – The research is limited to the views of the students. The study would benefit from a parallel study of parents or caregivers to give a more accurate report of household preparedness and family emergency plans and practices. The research highlights areas of change for future hazard education programmes and provides support for the continued inclusion of this topic in the curriculum. Originality/value – The paper offers insight into the effectiveness and benefit of incorporating hazard education into the school curriculum in New Zealand.

Report: Tipler, K., Tarrant, R.A.C., Coomer, M.A., & Johnston, D. M. (2010). *School children's access to hazard education: An investigation according to socio-economic status.* GNS Science Report. https://www.massey.ac.nz/massey/fms/Colleges/College%20of%20Humanities%20and%20Social%20Sciences/Psychology/Disasters/pubs/GNS/2010/SR_2010-035_Hazard-education.pdf?1F87B25A8E9D8C1B41477C87A2FD5A33

The present study investigated hazard education and preparedness in relation to socioeconomic status (SES) in 22 Wellington schools; SES was determined by the decile rankings of the schools comprising the study. Schools in the lower deciles of the present study generally reported lower levels of hazard education and preparedness than schools in the upper deciles. Although the sample size was small, trends were consistent with previous studies of hazard preparedness in schools where there is growing evidence that children and their families from lower SES areas are: (1) not as well prepared to cope with disasters as children and their families from higher SES areas; and that (2) children from lower SES families do not achieve the same levels of educational achievement as children from higher SES families. Thus, greater efforts and resources are required for hazard preparedness for children from lower SES families. Ensuring that schools in lower SES communities are supported in their hazard preparedness efforts can have positive repercussions for families and the wider community by enhancing their ability to respond effectively to hazard events. As well as extra support for schools in low SES areas, there is a need for a comprehensive investigation of hazard education and preparedness in schools to identify the nature of current hazard education programmes. Alongside this, there is a need for a systematic evaluation of learning outcomes to assess the efficacy of current programmes in relation to children's preparedness levels.

Report: Johnston, D., Ronan, K., Finnis, K., Leonard, G., & Forsyth, J. (2011). *Children's understanding of natural hazards in Te Anau, New Zealand, following the 2003 earthquake*. GNS Science Report. https://acquire.cqu.edu.au/articles/journal_contribution/Children_s_understanding_of_natural_hazards_in_Te_Anau_New_Zealand_following_the_2003_earthquake_/13460975

A survey was undertaken at Te Anau Primary School seven months after the Mw 7.2 Fiordland earthquake of August 2003. The questionnaire was designed to assess children's level of awareness, risk perceptions, factual knowledge and physical preparedness for hazards and mass emergencies (i.e. floods, earthquakes, snow and wind storms, and fires). It also assessed children's prior exposure to specific hazards and to education programmes about hazards. Their responses were compared with those of children in other regions taking part in similar studies. Children identified earthquakes and building fires as the hazards most likely to affect them, with earthquakes most likely to occur in the future. About a half of the children reported some level of fear when talking or thinking about earthquakes and around 30% believed it would upset their parents. Parents, teachers and friends were only "somewhat" able to help children feel less upset. Almost all the children had felt the August 2003 earthquake or its aftershocks, with many also reporting seeing a house on fire or a wind-storm. The actions they took during the earthquake show that two thirds know the recommended safety actions for this situation. Most also know the correct actions to take if floods, house fires and wind-storms occur. Most of the children have participated in hazard education at school and have discussed it with parents, and many have practiced for an emergency at home. Recommended preparedness measures were variably reported by children, with most saying their households have items such as torches, fire extinguishers, smoke alarms and first aid kits but fewer reporting strapping of water cylinders, correct storage of breakable items and stored food/water for three days. Te Anau children have reported similar to higher numbers of earthquake preparedness plans and practices compared with children from other regions.

Journal Article: Sawrey, R., Waldegrave, C., Tamasese, T. K., & Bush, A. (2011). After the earthquakes: Immediate Post-disaster work with children and families. *New Zealand Journal of Psychology (Online)*, 40(4), 58. <https://www.psychology.org.nz/journal-archive/NZJP-Vol.40-No.4-Distributionfinalpp58-63.pdf>

Following the recent major Christchurch earthquakes, a huge amount of work has been carried out by a range of volunteers and professionals throughout the Canterbury area. We were able to make a small contribution to these initiatives. Our team had the privilege of being involved in a special project offering a series of workshops to frontline workers in Christchurch, based on work we delivered to affected communities in Samoa after the 2009 tsunami. In March and April 2011 we delivered 14 workshops in Christchurch for a range of helping professionals and volunteers. Those attending were private practitioners as well as volunteers and staff personnel from a broad range of NGO's, including social service agencies, schools, health centres, local churches, refugee and migrant services, and Salvation Army volunteers. A total of 790 participants attended the 14 workshops. In this paper we first present some general principles and cautions regarding psychological support following the trauma of disaster. Next, our work in Samoa will be presented, noting the importance of avoiding re-traumatising and focusing on building the resilience of those affected. Some of the innovative approach with families and children in Samoa will be summarised, focusing on some principles for guiding post disaster intervention and a particularly helpful therapeutic technique called double listening. Finally we explain how this experience was translated into training in Christchurch: the workshop objectives will be identified, then some of the content of the workshop will be presented, bearing in mind that a 3-hour workshop is being outlined within the context of a brief paper. Finally, a brief summary of the outcomes of the workshops will be outlined.

Masters Dissertation: King, T. (2012). Children and natural disasters: an investigation of cognitions, knowledge and emotions in Wellington year 5 students (*Master dissertation, Massey University*)
<https://mro.massey.ac.nz/handle/10179/3593>

The aim of the present study was to examine children's cognitions (thoughts, expectations, beliefs and values), knowledge (education and experience), and emotions (feelings) regarding natural disasters. The sample consisted of 30 Year 5 students (9-10 years) from four primary schools in the Wellington Region. Schools were ethnically, socioeconomically and geographically diverse. Students participated in a 60 minute focus group, consisting of three to five students in each group. Focus groups used open ended questions to facilitate conversation, guided by the interviewer. Thematic analysis was used to explore the data and identify key themes, based on guidelines suggested by Braun and Clarke (2003). The analysis identified that many students believe an earthquake to be the most likely disaster to occur in Wellington, and many of the students discussed having serious fears about this. Students also identified a number of positive coping methods for use when experiencing fears about disasters, suggesting some ability to protect themselves from negative emotions. Students displayed pride in preparation and were able to clearly identify a number of positive preparatory behaviours, as well as behaviours during and after a disaster. Students were held a great deal of general knowledge about disasters, such as different types, as well as the causes of some disasters, and had knowledge of a large number of current events, which they had largely viewed on television and discussed in classes. Participants discussed having been involved in emergency management classes and drills within their schools, and had an interest in improving these classes to make themselves feel better prepared for a disaster. Overall, students had considerable interest in disasters, which provides an opportunity to foster preparedness in young New Zealanders.

Journal Article: Bateman, A., Danby, S., & Howard, J. (2013). Everyday preschool talk about Christchurch earthquakes. *Australian Journal of Communication*, 40(1), 103-122.
<https://eprints.qut.edu.au/56175/>

This article investigates young children's interactions with their peers and teachers following the events of the Christchurch earthquakes in New Zealand on September 2010 and February 2011. Drawing on conversation analysis and psychological literature, we focus on one outdoor excursion to visit a broken water pipe caused by the earthquake to show how the teacher and children mutually accomplished trouble telling and storying. A particular feature of talk was the use of pivotal utterances to transition from talking about the damaged environment, to talking about reflections of actual earthquake events. This article shows how teachers initiate and prompt children's informal and spontaneous story telling as an interactional resource for discussing traumatic events.

Masters Dissertation: Carter, A. L. (2013). Helping, caring and learning: strengths in new entrants settling into and learning in primary school in post-earthquake Christchurch. (*Master Dissertation, University of Canterbury*)
<http://dx.doi.org/10.26021/4222>

Christchurch has experienced a series of over 13,500 earthquakes between September 2010 and January 2012. Some children who have been exposed to earthquakes may experience post-traumatic stress disorder symptoms (PTSD) including difficulty concentrating, feeling anxious, restlessness and confusion. Other children may be resilient to the effects of disaster. Western models of resilience relate to a child's social support and their capacity to cope. The Māori model of wellbeing relates to whanau (family), wairua (spiritual connections), tinana (the physical body) and hinengaro (the mind and emotions). Children's concepts of helping, caring and learning may provide insight into resilience without introducing the topic of earthquakes into the conversation, which in itself may provoke an episode of stress. Many researchers have studied the effects of earthquakes on children. However, few studies have examined positive outcomes and resilience or listened to the children's voices. The objective of this study was to listen to the voices of children who experienced the Canterbury earthquake period in order to gain a

deeper understanding of the ideas associated with resilience. Individual interviews were conducted with 17 five year-old participants during their first term of primary school. After the interviews, the teacher shared demographic information and reports on the children's stress and coping. Six children were identified as New Zealand European and eleven children identified as New Zealand Māori.

Masters Dissertation: Connolly, M. J. (2013). The impacts of the Canterbury earthquakes on educational inequalities and achievement in Christchurch secondary schools. (Master Dissertation, University of Canterbury). <https://ir.canterbury.ac.nz/handle/10092/7903>

The impacts of the Canterbury earthquakes on educational inequalities and achievement were analysed over 2009-2012. The baseline year was 2009, the year before the first earthquake, while 2012 is seen as the recovery year as no schools closed due to seismic events and there was no state intervention into the education of the region. National Certificate of Educational Achievement (NCEA) results levels 1-3 from thirty-four secondary schools in the greater Christchurch region were graphed and analysed. Regression analysis indicates; in 2009, educational inequalities existed with a strong positive relationship between a school's decile rating and NCEA achievement. When schools were grouped into decile rankings (1-10) and their 2010 NCEA levels 1-3 results were compared with the previous year, the percentage of change indicates an overall lower NCEA achievement in 2010 across all deciles, but particularly in lower decile schools. By contrast, when 2011 NCEA results were compared with those of 2009, as a percentage of change, lower decile schools fared better. Non site sharing schools also achieved higher results than site sharing schools. State interventions, had however contributed towards student's achieving national examinations and entry to university in 2011. When NCEA results for 2012 were compared to 2009 educational inequalities still exist, however in 2012 the positive relationship between decile rating and achievement is marginally weaker than in 2009.

Journal Article: King, T. A., & Tarrant, R. A. (2013). Children's knowledge, cognitions and emotions surrounding natural disasters: An investigation of year 5 students, Wellington, New Zealand. *Australasian Journal of Disaster and Trauma Studies*. 2013(1), 1-11. <https://mro-ns.massey.ac.nz/bitstream/handle/10179/11350/KING%20and%20TARRANT-%20AJDTS-Vol%201-2013-Published%20version.pdf?sequence=1&isAllowed=y>

New Zealand schools have a responsibility to ensure that children are informed about potential natural disasters and are prepared with protective strategies. The present study aimed to investigate children's knowledge, cognitions, and emotions concerning natural disasters, with a particular focus on earthquakes and tsunami. Thirty Year-5 school students (aged 9-10 years) from the Wellington region of New Zealand participated in researcher-led focus groups. The children were generally well informed, demonstrating an understanding of causes, characteristics, and potential consequences of earthquakes and tsunami. Thoughts and expectations regarding natural hazards, earthquakes, centred on the unpredictability of natural disasters and on the expectation that there would be significant earthquakes in their region in the future. However, the children demonstrated assurance that the school and family were prepared with emergency supplies, and that they themselves and their families knew strategies for keeping safe in a disaster event. The children discussed these reassurances as a factor in reducing their fear of disasters, fear being the predominant negative emotion discussed by the children. The children indicated that learning at school had contributed to discussions with friends and family, this finding suggesting that disaster education at school is a critical component of children's education and that this education has a flow-on effect at home and in the wider community.

Journal Article: Mutch, C. (2013). "Sailing through a river of emotions": Capturing children's earthquake stories. *Disaster Prevention and Management*. 22(5), 445-455.
<https://www.emerald.com/insight/content/doi/10.1108/DPM-10-2013-0174/full/html>

The three case studies reported in this paper are drawn from a wider project in which schools in Canterbury, New Zealand, were invited to tell the stories of their experiences of the 2010/2011 earthquakes. The purpose of this paper is to capture the stories for the schools, their communities and for New Zealand's historical record. The approach taken was qualitative and participatory. Each school had control over their project design and implementation. The researchers were partners and facilitators in assisting each school to reach its goal. In these three case studies approximately 100 participants including principals, teachers, students and families were engaged in generating data to create tangible and long-lasting end products. The two themes from the data highlighted in this paper are: first, the importance of providing emotional processing opportunities for children without severe post-trauma symptoms to support their recovery and second, the ways in which children can be engaged and given a voice in research that concerns them. The paper contributes to the wider collection of research on and about the Canterbury earthquakes by giving voice to children and highlighting the role of schools in post-disaster response and recovery. The "continuum of engagement" described here is a new and original model.

Report: Canterbury Earthquake Recovery Authority (CERA). (2014). *Youth wellbeing survey 2013*. CERA, Christchurch.
<https://quakestudies.canterbury.ac.nz/store/object/524689>

This report has been prepared for the agencies partnering in the CERA Youth Wellbeing Survey. It presents a high-level overview of results from a survey of young people living in greater Christchurch aged 12 to 24 years who chose to participate in the online survey. It is very important to note that these results do not represent the views of all young people. The views and experiences of those who chose to participate in the survey may differ greatly from the total population therefore interpretation of the results must be done with caution and in the context of representing the views of the group who chose to participate in the survey. The aim of the survey is to measure the progress of earthquake recovery by collecting data on self-reported wellbeing, and to provide young people with an opportunity to have their voice heard. This information will be used to assist CERA and the partnering agencies in their future decision making, and will sit alongside the results of the CERA Wellbeing Survey of the adult population (for people aged over 18 years). CERA, the partnering agencies and Nielsen would like to sincerely thank those who took the time to respond to this survey.

Report: Child Poverty Action Group. (2014). *Children and the Canterbury earthquakes*. Child Poverty Action Group, Auckland.
<https://www.cpag.org.nz/publications>

It is now more than three years since the first earthquake on 4 September 2010. Recently, Christchurch journalist Beck Eleven asked a number of young people between the ages of 10 and 20 to write about their lives in Christchurch. Each was able to write, in their own words, about any aspect of their life in their city and they were neither asked nor had to reference the earthquake. As Christchurch continues the slow grind towards recovery, what is it like for the children still living here? To help answer this question, this paper will first briefly consider the international research into how children and young people are affected by natural disasters and how the Canterbury earthquakes fit within this framework. In particular, or at least where possible, how this has affected Christchurch's most vulnerable children. The second part of this paper will focus on two issues; housing and schools in post-earthquake Christchurch. These have been chosen for a number of reasons. First, long-term difficulties after a natural disaster are more likely to be present in children who have lost their homes and are forced to relocate, and in children whose schools are disrupted in some way, for example, by having to move or introduce changes to the school day or programme.

Secondly, getting both these issues right postdisaster plays an important part in a child's recovery, and third, because for many Christchurch children home and school have yet to return to pre-earthquake "normal".

Journal Article: Mutch, C., & Gawith, E. (2014). The New Zealand earthquakes and the role of schools in engaging children in emotional processing of disaster experiences. *Pastoral Care in Education*, 32(1), 54–67. <https://www.tandfonline.com/doi/abs/10.1080/02643944.2013.857363>

The earthquakes that rocked the city of Christchurch and surrounding districts in Canterbury, New Zealand, were to take their toll on families, schools and communities. The places that had once represented safety and security for most children were literally and figuratively turned upside down. Rather than reinforce the trauma and continue to frame children as passive victims, the study reported here aimed to help children reframe their experiences through active engagement in participatory research projects. This article reports on three schools drawn from a UNESCO-funded project in which schools recorded their earthquake stories. While children were the centre of each of the school's earthquake stories, schools engaged children to different extents in their chosen projects. These three schools exemplify different places along a continuum of children's engagement in research on their own experiences. In one school, children, families, teachers and the principal all contributed to an illustrated book of their experiences. In another school, children created a series of mosaic panels to record the community's story before, during and after the earthquakes. In the third school, children became documentary makers and interviewed other children about their earthquake experiences. In all cases, children found their projects positive and helpful activities, enabling them to put their experiences into a broader context. This article argues that schools have an important role to play in providing emotional processing activities which help children gain perspective and distance as part of their recovery from large-scale disaster events.

Masters Dissertation: Burley, J. S. (2015). Parents' need for and experiences of teen triple P following the Christchurch earthquakes. (Master Dissertation, University of Canterbury). <http://ir.canterbury.ac.nz/handle/10092/11334>

Triple P parenting programmes have provided promising results for children and families in recent years. The aim of the current project was to explore the experiences of families leading up to participating in a Teen Triple P programme three years following the Christchurch earthquakes and their need for assistance in the management of their teenagers. Parents were interviewed prior to the commencement of the Teen Triple P programme and after its completion. Parents were also asked to complete a journal entry or engage in two brief telephone conversations with the researcher outlining their experiences with the Teen Triple P programme. These outlined the perceived fit of the programme to the needs of the family. Parents provided insight into their family's experiences of the Christchurch 2010 and 2011 series of earthquakes and the perceived impact this had on their lives and the management of their teenagers. The results indicated that parents felt more positively about their parenting behaviours post-programme and were able to identify changes in their teen and/or family that they felt were as a response to participation in Teen Triple P. Parents provided rich descriptions of their earthquake experiences and the immediate and long-term impacts they endured both individually and as a family. Parents did not feel that the earthquakes fed into their decision to do a Teen Triple P Programme. The results helped improve our understanding of the effectiveness of Teen Triple P as a parenting programme as well increased our understanding of the challenges and needs of families in post-earthquake Christchurch.

Journal Article: Freeman, C., Nairn, K. & Gollop, M. (2015). Disaster impact and recovery: what children and young people can tell us. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 10(2), 103-115. <https://www.tandfonline.com/doi/abs/10.1080/1177083X.2015.1066400>

Christchurch's earthquakes revealed children's vulnerability to disaster but also their ability to respond and play an active role in recovery. We argue that children's voices need to be heard and given priority in the recovery process because the disaster impacts on them and their families in ways that are not recognised or well understood. We report the findings of a study undertaken with 94 Christchurch children. Its aim was to give voice to children's experiences of post-earthquake Christchurch and in doing so contribute to postdisaster recovery. The experiences of these Christchurch children offer other children, parents, government and agencies valuable insights into how to manage the recovery process in ways that best meet children's needs. In the post-disaster recovery period, decision-makers need to recognise children as authentic actors in the recovery process and should commit to hearing children's voices throughout the rebuilding. Children and young people's resilience and positive commitment to Christchurch are assets that should be capitalised on in the longer-term recovery process.

Masters Dissertation: Gillman, S. H. (2015). Descriptions of coping with commonly occurring events by highly self-regulated boys living in earthquake-affected Christchurch. (Master Dissertation, University of Canterbury). <http://ir.canterbury.ac.nz/handle/10092/10409>

Children are often overlooked in the aftermath of a natural disaster, and children's use of coping strategies plays an important part in their post-disaster adaptation (Vernberg, La Greca, Silverman, & Prinstein, 1996). The aim of this qualitative study was to explore the coping strategies of children with adequate self-regulation skills and minimal behaviour problems, living in Christchurch following the major 2010 and 2011 earthquakes. This aim was achieved through the use of semi-structured interviews with five seven-year-old children, their parents, and their teachers. These interviews were analysed using Directed Content Analysis and results showed that children most often reported using active and adaptive coping strategies, followed by avoidant strategies. Results in the current literature regarding children's coping suggest that children exposed to natural disasters are able to utilise strategies that involve some personal control over their environment and emotions, through the use of active and adaptive coping strategies. Findings from this study contribute to the current understanding of children's use of coping strategies when faced with commonly occurring childhood upsets. Further research is required regarding the outcomes associated with the use of effective coping strategies following traumatic events.

Journal Article: Pine, N. S., Tarrant, R. A., Lyons, A. C., & Leathem, J. M. (2015). Rolling with the shakes: an insight into teenagers' perceptions of recovery after the Canterbury earthquakes. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 10(2), 116-125. <https://www.tandfonline.com/doi/abs/10.1080/1177083X.2015.1068183>

Natural disasters are harmful worldwide events that inflict multiple psychosocial impacts on disaster exposed individuals. A significant proportion of affected individuals are teenagers (13–18 years old) who, compared with adults, have been historically overlooked in disaster research. The literature is particularly sparse concerning teenagers' recovery from natural disasters, specifically what recovery means to them and the contributing factors towards their positive recovery. Therefore, the aim of the current study was to gain deeper insight into this largely unexplored area by conducting five focus groups with teenagers (16–18 years) who experienced at least one of the Canterbury, New Zealand, earthquakes since and including the initial September 2010 earthquake. This study directly asked teenagers about their recovery over the three years after the initial earthquakes, with data being analysed using thematic analysis. Two main themes were identified: (1) perceptions of recovery, with three sub-themes (i) knowledge and being less frightened, (ii) talking about the earthquakes and (iii) shift in perspectives; and

(2) contributing factors to recovery, with three sub-themes (i) participation in the community response, (ii) returning to school and (iii) the rebuild of Christchurch. These factors provide insight into how we can better support the recovery process for disaster exposed teenagers to reduce long-term distress.

Journal Article: Ronoh, S., Gaillard, J. C., & Marlowe, J. (2015). Children with disabilities and disaster preparedness: a case study of Christchurch. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 10(2), 91-102. <https://www.tandfonline.com/doi/abs/10.1080/1177083X.2015.1068185>

An estimated seven million children with disabilities worldwide are affected by disasters annually. This significant figure emphasises the particular vulnerability of these children in facing natural hazards. However, their needs as well as their capacity and role in disaster risk reduction have largely been overlooked by researchers and policymakers. This paper draws on a case study in Christchurch to identify insights, realities, possibilities and obstacles in relation to the involvement in disaster preparedness of children with diverse disabilities. It reports on findings from focus group discussions and semi-structured interviews with children who have disabilities, their teachers and caregivers to explore children's preparedness and potential responses to a disaster. The findings indicate a considerable variation in how children with disabilities access available resources and perceive, face and cope with natural hazards. This paper shows their potential contribution to disaster preparedness and provides further suggestions for policy and practice.

Journal Article: Liberty, K., Tarren-Sweeney, M., Macfarlane, S., Basu, A., & Reid, J. (2016). Behavior problems and post-traumatic stress symptoms in children beginning school: A comparison of pre-and post-earthquake groups. *PLoS currents*, 22(8). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5419821/>

Literature reviews caution that estimating the effects of disasters on the behavior of children following a disaster is difficult without baseline information and few studies report the effects of earthquakes on young children. In addition the relationship between age at the time of disaster and consequential behavior problems have not been reported for young children who experience disaster-related stress during a developmentally sensitive period. Behavior problems and symptoms of post-traumatic stress (PTS) were reported for two groups of children from nearby neighborhoods during their first term at school, using the Behavior Problem Index by teacher report, following approved informed consent procedures. Data on one group, "Pre-EQ" (N=297), was collected four years before the beginning of the earthquakes on children born 2001-2002. Data on the second group, "Post-EQ" (N=212), was collected approximately three to four years after the beginning of the earthquakes on children born 2007-2009 and living in heavily damaged neighborhoods. The Post-EQ group had significantly more children from high socioeconomic neighborhoods but no other significant differences on main demographic characteristics. The mean behavior problem score was significantly higher in the Post-EQ group (Mean =6.11) as compared to the Pre-EQ group (Mean = 3.78). PTS symptoms were also significantly higher in the Post-EQ group (Mean =2.91) as compared to the Pre-EQ group (Mean=1.98) and more children had high PTS scores (20.9% v. 8.8%, OR= 2.73, 95%CI =1.57, 4.76). Model testing identified that a younger age at the time of exposure was the only significant predictor of high numbers of PTS symptoms in the Post-EQ group. Discussion: Rates of teacher-reported behavior problems in young children more than doubled following the Christchurch earthquakes. Younger children may be more vulnerable to the effects of earthquakes that occur during a developmentally sensitive period. Additional research is needed to consider the effects of age and duration of disaster effects to better understand the effects of disasters on children, their families, and communities.

Doctoral Thesis: Mooney, M. F. (2016). Getting through: children and youth post-disaster effective coping and adaptation in the context of the Canterbury earthquakes of 2010-2012. (Doctoral Thesis, Massey University). <https://mro.massey.ac.nz/handle/10179/10339>

The study aims to understand how children cope effectively with a disaster, and to identify resources and processes that promote effective coping and adaptation. The context is the 2010–2012 Canterbury earthquake disaster in New Zealand. This qualitative study explores coping strategies in forty-two children from three age groups: five, nine and fifteen year-olds (Time 1). It draws on data from semi-structured interviews with the children, their parents, teachers and principals of five schools in Canterbury. Two schools in Wellington, a region with similar seismic risk, served as a useful comparison group. All children were interviewed twenty months after the first earthquake (T1) during an ongoing aftershock sequence, and six selected children from Christchurch were interviewed again (Time Two), three years after the initial earthquake. Findings have identified multiple inter-connected coping strategies and multi-level resources in the children and in their immediate contexts; these were fundamental to their post-disaster adaptation. Children who coped effectively used a repertoire of diverse coping strategies adapted to challenges, and in a culturally appropriate and flexible manner. Coping strategies included: emotional regulation, problemsolving, positive reframing, helping others, seeking support, and —getting o. Although emotional regulation was important in the immediate aftermath of an earthquake, children adapting positively used heterogeneous combinations of coping strategies and resources. Proximal others provided coping assistance through modelling and coaching. Intra and interpersonal resources, such as self-efficacy and supportive parental and teacher relationships that promoted children’s effective coping are identified and discussed. Children who coped effectively with the disaster appeared to have a larger coping repertoire and more practise in use than children in the Wellington comparison group, who were coping essentially with age appropriate challenges. By Time Two, all children in the cohort reported coping effectively, that they were stronger from their experience and had shifted their focus so that their coping skills were now employed for everyday challenges and for moving on with their lives, rather than focused on managing disaster events. Findings suggest that children can be coached to learn effective coping. Key recommendations are made for effective interventions for children and caregivers around children’s effective coping and adaptation, and avenues for future research are detailed.

Masters Dissertation: Norton, T. (2016). Parenting adolescents following a natural disaster: evaluation of group teen triple-P in post-earthquake Christchurch, New Zealand. (Master Dissertation, University of Canterbury). <http://ir.canterbury.ac.nz/handle/10092/12287>

Programme interventions for people who have experienced natural disasters are limited. To investigate whether Group Teen Positive Parenting (GTPPP) programme promoted family functioning in the aftermath of disaster, 14 parents and nine adolescents, self-reported measures of family functioning and adjustment prior to and after the intervention. It was found that GTPPP enhanced parenting competence, parental wellbeing, decreased conflict between parents and their adolescents. These findings suggest that GTPPP may provide a practical way of supporting families after a natural disaster.

Masters Dissertation: Dobson, E. M. (2017). The prenatal effects of the Christchurch earthquake on executive function at five years of age. (Master dissertation, Massey University). <https://mro-ns.massey.ac.nz/handle/10179/12697>

Despite the frequency of earthquakes, particularly in New Zealand, little is known about the long-term effects that they can have on vulnerable populations, such as mothers and unborn babies. This study looks at the way in which a major earthquake can impact on neurodevelopment, specifically the executive function (EF) abilities of children five years following the disaster. The aims of this study were to determine if prenatal earthquake exposure had an effect on EF, to determine how timing of exposure influenced EF, if there were

different EF outcomes for boys and girls, and how maternal perceptions of severity influenced the child's EF. Children from two groups (mothers from Christchurch who experienced the earthquakes and mothers from Dunedin and Timaru who did not) had their EF measured by a self-administered parent questionnaire, the Behaviour Rating Inventory of Executive Function Second Edition (BRIEF 2). Maternal demographics and earthquake severity experiences were gathered through a second self-administered questionnaire. This study found that children who prenatally experienced the earthquake had significantly worse scores on the measures of emotional control and emotional regulation than the standardised average provided by the BRIEF 2. Exposure during the third trimester was associated with the most significant increases in EF compared to children exposed during the second trimester and the standardised average. In addition to emotional control and emotional regulation difficulties, Christchurch boys also exhibited significantly higher scores on the Shift scale. Results also showed that the worse someone close to the mother was injured, the higher the child's scores on the Inhibit, Organisation, and Emotional Control scale, and the Behaviour Regulation index (BRI) were. Also, children of mothers who reported more significantly injuring themselves in the earthquake had higher Emotional Regulation (ERI) scores. Children whose mothers reported being overall extremely stressed by the earthquake had the largest mean difference in emotional control and ERI scores compared to the standardised average. Despite the small group sizes and continuing aftershocks the variations in trimester and maternal perception of stress indicates that prenatal exposure to a natural disaster does impact EF.

Journal Article: Mooney, M., Tarrant, R., Paton, D., Johal, S., & Johnston, D. (2017). Getting through: Children's effective coping and adaptation in the context of the Canterbury, New Zealand, Earthquakes of 2010-2012. *Australasian Journal of Disaster and Trauma Studies*, 21(1), 19-30.
<https://mro.massey.ac.nz/handle/10179/11348>

Children may experience distress and can become vulnerable as the result of a disaster. However, recent research suggests that children experiencing such adversity can address adversity by employing their capacities to adapt. The present study investigates how children coped effectively with a disaster, the Canterbury, New Zealand earthquakes of 2010-2012, and identifies strategies, processes, and resources that promoted effective coping and adaptation. Semistructured interviews took place with 38 children from three different age groups, with 31 parents, and with 11 teachers and principals from five Canterbury schools. Children were interviewed twenty months after the first earthquake, during an ongoing aftershock sequence, and six selected children were interviewed again sixteen months later. Thematic analysis of interview data identified multiple, inter-connected coping strategies and resources in the children that were fundamental to their post-disaster adaptation. Children coping effectively employed a repertoire of diverse coping strategies in a flexible and pertinent manner. Three key strategies employed by the children were emotional regulation, positive reframing, and problem-solving. Sixteen months later, the children had shifted their focus away from coping with earthquakes to coping with everyday problems. It is expected that findings from this study will contribute to future interventions for promoting effective coping and adaptation by children.

Doctoral Thesis: Ronoh, S. K. (2017). Children with Disabilities and Disaster Risk Reduction in New Zealand. (Doctoral Thesis, University of Auckland).
<https://www.eqc.govt.nz/assets/Publications-Resources/1402-Children-with-disabilities-and-DRR-in-NZ.pdf>

The global rise in the number of disasters is largely due to the interplay between environmental and human factors. Children and especially children with disabilities are disproportionately impacted by disasters, with an estimated seven million children affected worldwide annually. Children with disabilities can have increased vulnerabilities because of mobility difficulties, pre-existing medical conditions, existing socio-economic barriers, and policies that fail to recognise the diverse needs of this group. Indeed, researchers and practitioners have historically overlooked the experiences and needs of children, particularly so

for those with disabilities, who are disproportionately affected by natural hazards and disasters. Their capacities, needs, and, importantly, potential roles in disaster risk reduction (DRR) have received little consideration from researchers and policy makers. This thesis draws on the findings of a multi-case study of three New Zealand schools working with children having diverse disabilities. The schools are in the regions of Canterbury, Hawke's Bay and Auckland. It aims to generate new information to help inform DRR and give direction and provide a holistic framework towards the development of an inclusive approach to DRR. This orientation aims to specifically integrate the experiences, perspectives and needs of children with disabilities. Although grounded in disaster studies, this thesis frequently draws upon the wider scholarship related to children, participatory approaches, and disability. The central goal of the study is to assess and interpret the experiences of children with disabilities in dealing with natural hazards, and to identify their actual and potential contribution to DRR. It presents the use of flexible participatory tools which support a sustained continuum of engagement among children with diverse disabilities, skills, and experiences. Crucially, this work offers a bridge and conceptual framework that recognises communication as a two-way process between adults and children by requiring adults to learn how children express their views, thus according to participants a voice in DRR research.

Journal Article: Ronoh, S., Gaillard, J. C., & Marlowe, J. (2017). Children with disabilities in disability-inclusive disaster risk reduction: Focussing on school settings. *Policy Futures in Education*, 15(3), 380-388.
<https://journals.sagepub.com/doi/abs/10.1177/1478210317694500>

Every year, worldwide, disasters affect approximately seven million children with disabilities, highlighting their potential vulnerability. Although there is a growing move internationally to promote the rights of children with disabilities, they still receive little attention from disaster risk reduction (DRR) researchers and policy makers. They are often excluded in DRR initiatives and are portrayed as 'helpless' in disaster contexts. This policy brief draws on a multiple case study of three schools supporting children with disabilities in three New Zealand regions. Through the voice of both children and adult participants, the study identifies associated gaps and constraints to disability-inclusive DRR. It makes recommendations that acknowledge diversity and ensure that those marginalized can become stakeholders in the DRR process.

Journal Article: Ronoh, S. (2017). Disability through an inclusive lens: disaster risk reduction in schools. *Disaster Prevention and Management: An International Journal*. 26(1), 105-119.
<https://www.emerald.com/insight/content/doi/10.1108/DPM-08-2016-0170/full/html>

Purpose – The purpose of this paper is to use an inclusive lens to explore pathways and considers, through the voices of children and adult participants, the complexities in implementing effective disaster risk reduction (DRR) in schools comprising children with disabilities. It identifies obstacles and suggests policy recommendations that consider their needs in DRR. *Design/methodology/approach* – This paper draws on a case study of two schools supporting children with disabilities in the New Zealand regions of Hawke's Bay and Auckland, each with differing experiences of past natural hazards and disasters. Data from children's workshop activities, participant observation, semi-structured interviews, workshop photographs, school safety and policy documents were coded in Nvivo software to categorize data and to identify themes for cross-case analysis and discussion. *Findings* – The research reveals three key pathways that schools can take in promoting inclusiveness in DRR. They are the provision of safe and accessible school building designs and facilities, avenues for children's involvement and leadership in DRR initiatives, and in decision-making processes. Schools also offer opportunities for a collaborative effort towards inclusiveness in DRR within the school and with other stakeholders. *Research limitations/implications* – Based on the findings, the paper suggests four broad policy recommendations for consideration towards strengthening the role of schools in disability-inclusive DRR. *Originality/value* – The paper contributes to ongoing DRR efforts and adds new information to the disaster literature on the role of schools in disability-inclusive DRR.

Journal Article: Ronoh, S., Gaillard, J. C., & Marlowe, J. (2017). Bridging the Participatory Gap: Children with Disabilities and Disaster Risk Reduction. *International Journal of Mass Emergencies & Disasters*, 35(3), 271-297. <https://doi.org/10.1177/028072701703500307>

Disaster risk reduction (DRR) needs to be inclusive. However, potentially vulnerable groups such as children with disabilities are often excluded. Their perceptions and views are overlooked due to existing structural forms of exclusion and lack of inclusive methods that enable children to effectively contribute to DRR. This paper provides an insight into understanding the complexities of DRR participation among twenty-seven children with disabilities from three case study schools in New Zealand. It explores the notion of 'participation' through flexible participatory tools. It involved mapping of safe and unsafe areas of their class and the school during a disaster, and proportional piling activities representing identified potential natural hazards in their region. The approach was able to accommodate and permit a sustained continuum of engagement among children with diverse disabilities, capacities and experiences. Crucially, it offers a bridge that recognizes communication as a two-way process between adults and children, where adults learn how children express their views, thus according them a voice in DRR.

Journal Article: Pine, N. S., Tarrant, R. A., Lyons, A. C., & Leathem, J. M. (2018). Teenagers' perceptions of volunteering following the 2010–2011 Canterbury Earthquakes, New Zealand. *Journal of Loss and Trauma*, 23(5), 366-380. https://www.researchgate.net/publication/328681502_Teenagers'_Perceptions_of_Volunteering_Following_the_2010-2011_Canterbury_Earthquakes_New_Zealand

Limited research exists of teenagers' involvement in the response phase of a natural disaster. There is little, for example on volunteering, and of specifically what motivates teenagers to volunteer and the activities they participate in. Therefore, this study investigated teenagers' involvement and perceptions of volunteering following the 2010–2011 Canterbury, New Zealand, earthquakes. Six focus groups were conducted with 31 teenagers aged 16–18 who had experienced the earthquakes. The data were analyzed using thematic analysis leading to four themes, namely sense of control, sense of purpose, shift in perspective, and restrictions. Findings emphasize the importance of organizing youth focused volunteer groups, due to volunteering potentially reducing teenagers' psychological distress post disaster.

Report: Carass, C., Downie, R., Eggleton, P., & Stent, M. (2020). *Youth Engagement in Post-Earthquake Christchurch*. University of Canterbury. https://www.canterbury.ac.nz/media/documents/oexp-science/geography/community-engagement/geog402/2020/GEOG402_Youth-Engagement-in-post-quake-Christchurch.pdf

An overall success identified from global literature recognises treating youth with respect and as valued citizens aids in enhancing the success of urban planning and development for both youth and society more widely. The post-earthquake context of Christchurch, New Zealand demonstrates the importance of meaningfully engaging with youth in the midst of undertaking a large-scale disaster recovery. To understand how youth engagement could be done better in Christchurch, we focus our research on certain themes of youth engagement. These themes are international youth engagement exemplars, the issues faced in engaging youth in postearthquake Christchurch, and the relationships with mental and physical health. Through this we conclude that financial and institutional assistance is crucial to the success of youth-driven and focused projects. We also support the assertion in global literature of respect and recognition of youth opinions as key to youth engagement success.

Journal Article: Fadgen, T. P., Kozu, S., & Prescott, D. E. (2020). Protecting Children in Foster Care during Natural Disasters: A Comparison of the United States, Aotearoa New Zealand, and Japan. *Children, Youth and Environments*, 30(1), 1-24. <https://muse.jhu.edu/article/848955/summary>

While all children are vulnerable in a natural disaster, children who are in foster care because of maltreatment are particularly vulnerable. In the immediate aftermath of a disaster, governments that do not specifically plan for these children may be unable to account for their welfare or location, and foster parents may not have access to government resources. This paper provides a comparative analysis of international law and policy approaches in the United States, Aotearoa New Zealand, and Japan as a means of improving foster children's safety and welfare after a natural disaster. The aim of this article is to draw attention to the gap in comparative scholarly research in the area of disaster planning for children in foster care and to propose possible directions for future research.

Journal Article: Mooney, M., Tarrant, R., Paton, D., Johnston, D., & Johal, S. (2021). The school community contributes to how children cope effectively with a disaster. *Pastoral Care in Education*, 39(1), 24-47. <https://www.tandfonline.com/doi/abs/10.1080/02643944.2020.1774632>

The Canterbury, New Zealand, earthquake disaster of 2010–2011 had a major impact on children. The present study aims to increase understanding of schools' contributions to children's recovery by examining how this core context fosters children's effective coping in a disaster. The study uses a phenomenological approach to investigate the disaster experience from the children's (n = 32) own viewpoint and from that of their parents (31), teachers (6), and school principals (5). The schools in the study proved a stable, supportive environment for children providing routine, consistency, and a sense of safety and security. Teachers were a trusted source of support for children, and they coached children to cope. Teachers and schools also continually kept channels open between children and their families, including maintaining contact with parents during aftershocks to reassure them their children were safe. Peer contact was also important for children to share their experiences and gain support from one another. Principals considered welfare and put in place support mechanisms for staff and the children. Understanding how a school context and the relationships within that context promote effective coping in children facing a disaster is critical for developing more effective psychosocial support, and intervention strategies for children. In view of the school's key role, support to schools and teachers, including further training for education professionals, is needed throughout a disaster cycle if children's positive adaptation and coping is to be fostered.

Elderly People

Masters Dissertation: Tuohy, R. (2009). Older adults' experiences of a flood disaster: Making sense of an extraordinary event. (Master Dissertation, Massey University). <https://mro.massey.ac.nz/handle/10179/1094>

Disasters occur within the routines of everyday life and have a disruptive and destructive impact on human lives. To understand how older individuals make sense of a disaster, nine older adults in Kaitaia, New Zealand were interviewed about their experience of a flood they experienced in July 2007. These interviews were conducted with four residents living in a rest home and five pensioners living independently who were evacuated from their homes. The two groups differed in the levels of support and assistance received before, during, and after the disaster. The rest home residents experienced little disruption and did not require relocation; the pensioners experienced major disruption and relocation. Thematic analysis was used to describe how these older adults' accounted for their experiences of the flood. The narratives were influenced by the participants' identity as either dependent rest home residents or pensioners living independently in

the community. The analysis revealed that their accounts of the disaster were incorporated and integrated into the personal and social context of each person's life story. Narrative themes that emerged from the analysis for the pensioner group were: coping with limited assistance, the importance of treasured possessions, and social support and community. The pensioner themes reflected their vulnerability to a disaster and the challenges they faced during the post disaster recovery phase. Themes for the rest home residents were ageing and dependency, and the importance of protection, care, and trust. These themes reflected the dependent world of the rest home residents and the security of being cared for.

Report: Carswell, S. (2011). *What we have learnt: Aged care provider learnings on responding to the February earthquake in Canterbury*. Eldernet and Canterbury District Health Board. <https://eldernet-resources.s3.ap-southeast-2.amazonaws.com/resources/files/oEwMxnGRd-PjkCb8ClxXewOTFiIqZ5hdOScUQ8Mvh/2012-08%20What%20we%20have%20learnt%20.pdf>

This report shares learnings from interviews with over 105 participants from 70 aged care organisations in Canterbury, predominantly in Christchurch. Owners, managers (head office and facility managers) and staff generously shared their experiences of the February 22nd 2011 earthquake, the challenges they faced and what helped them. They reflected on what they had learnt and provided suggestions for enhancing emergency preparedness and response. The findings from these interviews are shared to inform future planning and to provide insights into what worked well in a large scale emergency. This report is not intended to be a guide or to replace emergency response plans. The questions included at the beginning of sections have been added to stimulate thinking about how prepared you are to respond to an emergency. An overwhelming sentiment expressed by interviewees was 'Be prepared, it can happen.' Many acknowledged that you cannot be prepared for every eventuality but from their experience they stress it is extremely important for organisations and individuals to take responsibly and be as prepared as possible.

Journal Article: Tuohy, R., & Stephens, C. (2011). Older adults' narratives about a flood disaster: Resilience, coherence, and personal identity. *Journal of Aging Studies*, 26(1), 26-34. <https://www.sciencedirect.com/science/article/abs/pii/S0890406511000582>

Older adults are a vulnerable group in a disaster and are more at risk of adverse effects as a result. This paper draws on the use of narrative theory in health and gerontology studies to examine how a disruptive disaster was storied. Narrative interviews were conducted with nine older adults aged over 65 years who had recently experienced a flood disaster. The participants' narratives about the disruptive event were integrated with past personal events that spanned more than seven decades. The disaster became a reference point for previous challenging experiences, which created biographical continuity, coherence and order over time. Furthermore, the disaster stories were about biography and identity, and showed how older adults made sense of the flood from a life-course perspective. The use of narrative approaches provides an insight into how the flood disaster was experienced, and reveals how four older adults storied their experiences of a significant life challenge.

Report: Carswell, S. (2012). *What we have learnt (Report 2): Aged care sector response to the Canterbury earthquakes – residents’ perspectives and emergency assistance*. Eldernet and Canterbury District Health Board. <https://eldernet-resources.s3.ap-southeast-2.amazonaws.com/resources/files/oEwMxnGRd-PjkCb8ClxXewOTFiqZ5hdOScUQ8Mvh/2012-08%20What%20we%20have%20learnt%20.pdf>

This is the second report in the series ‘What we have learnt –Aged care sector response to the Canterbury earthquakes’. The first report focused on the emergency response of aged care residential facilities (rest homes, hospitals, dementia units and retirement villages) and home support services and was based on interviews with managers and staff from 70 organisations. This report expands on those findings by, firstly, providing feedback from older people living in rest homes and retirement villages about what worked well for them and their suggestions for emergency planning and response. The second half of the report provides a snapshot of some of the emergency assistance that was provided to the aged care sector to identify what worked well and areas for improvement. The research aims to contribute towards emergency planning and preparedness in response to a large scale disaster and may be of interest to a number of different audiences including older people, aged care sector, government agencies and community organisations. Interviews and focus groups were conducted with 63 older people. Interviews and consultations were conducted with 14 stakeholders who were in key positions at the Canterbury District Health Board, Christchurch City Council/Civil Defence Emergency Management, Age Concern, Help4U, Retirement Villages Association and Grey Power.

Journal Article: Goldstraw, P., Strivens, E., Kennett, C., Lie, D., Geddes, J., & Thwaites, J. (2012). The care of older people during and after disasters: A review of the recent experiences in Queensland, Australia and Christchurch, New Zealand. *Australasian Journal on Ageing*, 31(2), 69–71. <https://psycnet.apa.org/record/2012-15500-001>

Two major disasters hit Australasia in February this year. Physicians in Geriatric Medicine were involved, yet disaster management is not core knowledge for geriatricians. However, the experience and evidence described indicates we should increase our awareness of the issues for older people at times of disaster. Earthquakes are difficult to predict, which reduces the ability to pre-emptively plan and where applicable relocate those who are most vulnerable, such as older people. Thankfully, in the case of this recent disaster, the Canterbury District Health Board (CDHB) had established disaster response strategies following the larger, but less devastating magnitude 7.1 earthquake of 4 September 2010. While The Princess Margaret Hospital (TPMH) does not have an emergency department, the arrival of injured members from the community necessitated the rapid establishment of an acute triage facility. The rapid establishment by the CDHB of a ‘vulnerable persons group’ was vital for coordinating this response, and this group continues to play a major role in the ongoing repatriation of evacuees. (PsycINFO Database Record (c) 2016 APA, all rights reserved)

Journal Article: Annear, M., Wilkinson, T., & Keeling, S. (2013). Psychological challenges among older adults following the Christchurch earthquakes. *Journal of Disaster Research*, 8(3), 508-511. <https://www.fujipress.jp/jdr/dr/dsstr000800030508/>

This article highlights immediate psychological challenges faced by older adults in the city of Christchurch, New Zealand, following an atypical sequence of earthquakes. Data are derived from a study of active ageing that coincided with the disasters. Participants included 355 community dwelling older adults who completed surveys, and a subgroup of 67 of these individuals who used activity diaries in the weeks following two major earthquakes.

Report: Davey, J., & Neale, J. (2013). *Earthquake preparedness in an ageing society: Learning from the experience of the Canterbury Earthquakes*. Victoria University of Wellington.
<https://ageconcerncan.org.nz/wp-content/uploads/2017/01/Earthquake-preparedness-ageing-society.pdf>

The ageing of the New Zealand population and substantial growth in the 85 plus age group mean that, in the future, very large numbers of very old people will be living in mainstream housing – in their own homes - many alone or with a spouse of similar age, many suffering from chronic illness or some level of disability and in need of support. This scenario must be central to future planning for disaster relief and recovery. International literature emphasises the vulnerability of older people and in many natural disasters they have been found to have suffered disproportionately. Most of the research, carried out by psychologists and health professionals, concentrates on mental health and psycho-social impacts. But there is considerable evidence that older people display both resilience and vulnerability in challenging situations. Authors note the need to take a proactive approach to meeting the needs of older people in the face of their self-effacement and stoicism. Research findings stress the benefit of pre-disaster public information and the need for mutual and self-help in communities. Coordination among relief organisations and identification of vulnerable people by both specialised (for older people) services and general services (power supply, for example) are seen as essential. The Canterbury earthquakes, beginning in September 2010, sparked a lot of interest among the research community. A great deal of this is not yet available as published reports or does not focus on/separate out older people. Few experiences and initiatives in the immediate aftermath of the earthquakes or in the recovery period have been fully documented or evaluated. The authors have brought together material from a range of sources – reports from public, private and voluntary sector organisations, expert opinions, media items and meeting proceedings. The report is relevant to the EQC and other organisations concerned with disaster recovery. As they look to the future in an ageing population, they need to consider age-appropriate forms of preparedness and public education, immediate responses, short and long-term housing, support and care services and measures to ensure social connectedness and psychological wellbeing.

Journal Article: Heppenstall, C. P., Wilkinson, T. J., Hanger, H. C., Dhanak, M. R., & Keeling, S. (2013). Impacts of the emergency mass evacuation of the elderly from residential care facilities after the 2011 Christchurch earthquake. *Disaster Medicine and Public Health Preparedness*, 7(4), 419-423.
https://www.researchgate.net/publication/258525805_Impacts_of_the_Emergency_Mass_Evacuation_of_the_Elderly_From_Residential_Care_Facilities_After_the_2011_Christchurch_Earthquake

Objective: The 2011 earthquake that devastated Christchurch, New Zealand, led to the closure and evacuation of 7 residential care facilities and the partial evacuation of 2 more. Altogether, 516 elderly persons were evacuated. The emergent nature of the disaster was unexpected and largely unplanned for. This study explored the evacuees' experiences and identified lessons learned for future disaster planning. Methods: This qualitative study used a general inductive method. Semistructured interviews with evacuees were held in 4 centers throughout New Zealand. Their informal caregivers were also identified and interviewed. Answers were coded and grouped for key themes to provide lessons learned for future disaster planning. Results: We conducted 50 interviews with older people and 34 with informal caregivers. Key themes that emerged were resilience and factors that promoted resilience, including personal attitudes, life experiences, enhanced family support, and social supports. Areas of concern were (1) the mental health of evacuees: 36% reported some symptoms of anxiety, while 32.4% of caregivers reported some cognitive decline; and (2) communication difficulties during the evacuations. Conclusions: Older people were remarkably resilient to the difficult events, and resilience was promoted by family and community support. Anxiety was reported by older people, while informal caregivers reported cognitive issues. Communication difficulties were a major concern.

Journal Article: Annear, M., Keeling, S., & Wilkinson, T. (2014). Participatory and evidence-based recommendations for urban redevelopment following natural disasters: Older adults as policy advisers. *Australasian Journal on Ageing*, 33(1), 43-49. <https://onlinelibrary.wiley.com/doi/abs/10.1111/ajag.12053>

Aim: To develop community-generated recommendations to inform urban environmental remediation following earthquakes in Christchurch, New Zealand, and share these with local decision-makers during a participatory action research process. Methods: This study employed three focus group discussions to critique mixed-methods and multiphase results and develop evidence-based recommendations. Participants included 30 volunteers and 8 knowledgeable advisers aged 65 years and older. Results: Participant recommendations addressed the remediation of earthquake-affected suburbs, access to transportation, age-friendly design, safer communities, resilient support agencies, and restoration of resources for social and cultural activities. Conclusion: Older collaborators identified salient barriers to active ageing and options for post-earthquake redevelopment that had not previously been considered in research or policy. Independently living older adults are well placed to work with researchers to develop recommendations to improve the urban environment following natural disasters as well as in times of relative stability.

Journal Article: Tuohy, R., Stephens, C., & Johnston, D. (2014). Older adults' disaster preparedness in the context of the September 2010–December 2012 Canterbury earthquake sequence. *International Journal of Disaster Risk Reduction*, 9(0), 194-203. <https://www.sciencedirect.com/science/article/abs/pii/S2212420914000491>

Older adults are a population group identified to be at greater risk to negative outcomes in a disaster. However, there is limited contemporary research about independent older adults' disaster preparedness from an age specific perspective. The Canterbury earthquakes, which occurred in New Zealand, provided an opportunity to conduct 10 qualitative narrative interviews with a sample of participants aged between 66 and 86 years. Thematic analysis assisted in coding and interpretation of patterns across the dataset, and three central themes were identified: personal protection, practical preparedness, and social preparedness. The findings provide future practical direction for age specific preparedness planning during non-disaster times, which will also assist with improving outcomes for independent older adults during and after a disaster event.

Report: Stevenson, B., & Keeling, S. (2015). *Tracking the health and wellbeing of older New Zealanders affected by the Canterbury earthquakes*. Health and Ageing Research Team, Massey University. <https://www.eqc.govt.nz/assets/Publications-Resources/2342-Tracking-health-wellbeing-older-NZers-affected-Canty-eqs.pdf>

This research presents finding from a study that explored the effects of these earthquakes on the health and wellbeing of older people. Participants in this study were from the Health, Work and Retirement longitudinal survey cohort comprised of a nationally representative sample of older New Zealanders. In particular data from the 2012 and 2014 waves were investigated to address the following four aims: 1) explore the 'ripple effects' reported from the earthquakes; 2) identify any groups whose health and wellbeing changed over the four years from the beginning of these events; 3) identify what factors have been most protective to those directly affected by the earthquakes; 4) analyse subgroups affected in different ways, taking into account pre-existing circumstances. Main findings: 1) Effects of the earthquake were reported by older people across different regions of New Zealand and these effects persisted over three years following the events. These effects generally decreased with greater distance from the most directly affected regions of NZ and over time. 2) Diverse types of effects were reported. While the

effects of loss of life, injury and providing social support decreased, emotional and economic impacts were more likely to be reported in the longer term. 3) While the health and wellbeing of older people varied over time, there was no effect of exposure to earthquake effects on health. There was a short term benefit on emotional loneliness for those affected by the earthquake. 4) There were no demographic predictors of reporting effects, when residence within the most affected area was accounted for. 5) This report provides an overview of the effects of the Canterbury earthquakes in the broader New Zealand population. Further work examining predictors and consequences within Christchurch and Canterbury regions will be conducted to identify socio-demographic risk factors for local health and wellbeing impacts.

Journal Article: Tuohy, R., Stephens, C. and Johnston, D. (2015). Disaster preparedness: older adults' perspectives. *International Journal of Emergency Management*, 11(1), 46–61.
<https://doi.org/10.1504/IJEM.2015.069516>

This paper focuses on age-specific disaster preparedness for older adults in order to reduce the disproportionate negative outcomes experienced by older adults during and after a disaster. Semi-structured interviews (16) were conducted in New Zealand with independent older adults living in the community. Thematic analysis provided rich detail about older adults' personal, social and cultural influences on preparedness. Age-specific challenges revealed practical and functional demands around the nature of preparedness actions associated with caring for a dependent spouse, reduced physical mobility, and loss of driving skills. Social networks and opportunities for interaction, together with socio-cultural norms of independence influenced how older adults negotiated disaster preparedness in non-disaster times. These results are discussed within a socio-cultural context, and suggest that age-specific planning for this vulnerable population group needs to account for the dual challenges older adults face: managing everyday independence, and personal responsibility for adopting and maintaining disaster preparedness.

Journal Article: Tuohy, R., & Stephens, C. (2015). Older adults' meanings of preparedness: a New Zealand perspective. *Ageing & Society*, 36(3), 613-630.
<https://doi.org/10.1017/S0144686X14001408>

Contemporary Western social policy encourages older adults to maintain independence in the community. Socio-cultural norms of independence have recently become associated with successful ageing. Personal autonomy and self-responsibility are cultural markers by which older adults increasingly define their lives and identity. Many older adults seek to remain independent within their communities, while coping with age-related decline, and living alone with decreased social connectedness. These characteristics have also been associated with personal and social vulnerability and explain why older adults are at higher risk of experiencing disproportionate negative outcomes during disasters. This paper describes findings from narrative interviews with a sample of independent community-dwelling New Zealand older adults. The interviews sought to explore their views about disaster preparedness. However, within their accounts was a collective and bigger story about personal preparedness, and social relationships in later life, which extended beyond the context of preparing for a future disaster event. Older adults identified age-specific preparedness as a way to maintain independence in the everyday context of their lives. Concerns about health influenced their choices and actions as they evaluated and prioritised goals and strategies to maintain independence and wellbeing. Social relationships were also considered an important resource to support independence. Understanding the role of preparedness in the everyday lives of older adults has implications for improving the disproportionate negative outcomes this vulnerable age group can experience during a disaster. Therefore, health, gerontology and emergency management have much in common when considering older adults' preparedness during non-disaster times.

Journal Article: Alpass, F., Keeling, S., Stevenson, B., Allen, J., & Stephens, C. (2016). Ripples of recovery and resilience: Tracking the effects of the Canterbury earthquakes on older New Zealanders. *Australasian Journal of Disaster & Trauma Studies*, 20(2), 117-124. https://www.massey.ac.nz/~trauma/issues/2016-2/AJDTs_20-2_Alpass.pdf

Participants from the longitudinal Health, Work and Retirement study of older New Zealanders (N=1,970), were surveyed in 2010, before the 2010 and 2011 Canterbury earthquake events, and again in 2012 and 2014. A variety of direct and indirect effects of the earthquakes were reported by older people across all of New Zealand and these persisted over three years. Although over a quarter of the study's participants reported effects of the earthquakes, these effects reduced with both physical and temporal distance from the earthquake events. Provision of social support to family and friends was widely reported, but decreased over time. Emotional and economic impacts were more likely to be reported in the longer term. After taking into account general changes in the health and wellbeing of older people over time, there was no effect of exposure to earthquake effects on health. However, there was a short term benefit on emotional loneliness for those affected by the earthquakes, with those who had experienced the earthquakes more likely to report reduced loneliness in 2012. This study is a reminder that through family and social connectedness, older people in New Zealand can be part of post-disaster recovery and resilience, in ways that are not simply related to immediate exposure.

Journal Article: Keeling, S. (2017). Lessons learned from older people in Christchurch, New Zealand, in the 2010-2011 earthquake sequence. *Innovation in Aging*, 1(1), 998. <https://doi.org/10.1093/geroni/igx004.3617>

From the perspective of six years after the earthquake sequence which hit the city of Christchurch, New Zealand, this paper reviews a series of research studies on the effects experienced by older people. Immediate, medium and longer term effects show that lessons can be drawn from how these played out over time, and in relation to different sub-groupings of older people. First, the experiences of relocated rest home and hospital residents within the first year related to disrupted support links with family and carers. Second, older community residents reported both short-term negative mental health effects but also demonstrated immediate and longer term resilience through engagement in reconstruction and social support networks. Supportive ties are reported nationally as well as locally. Finally, other national processes for sharing the learning from these events will be discussed, following the metaphor of major ripple effects extending across a relatively small national population.

Journal Article: Allen, J., Brown, L. M., Alpass, F. M., & Stephens, C. V. (2018). Differential impact of the 2010-2011 Canterbury Earthquake series health status in older adults. *Innovation in Aging*, 2(1), 628-629. <https://doi.org/10.1093/geroni/igy023.2344>

The influence of existing vulnerabilities on the medium to long term effects of disasters are examined in this study of older adults living through the 2010–2011 Canterbury earthquake series. Data were provided by participants responding to the New Zealand Health, Work and Retirement longitudinal surveys conducted in 2010, 2012 and 2014 (n = 428; aged 50–83) who lived in the Canterbury region during the 2010–2011 earthquakes. Latent profile growth analyses were used to identify respondents who had similar physical and mental health profiles pre- and post-disaster. Groups were compared in terms of demographic factors, medium- and long-term impact of the earthquakes. Groups did not differ in their experiences of threat or disruption, however those in poorest health reported greatest distress and a more negative overall impact of the earthquake. Results suggest existing vulnerabilities were associated with medium and long-term distress of older adults post-disaster.

Journal Article: Allen, J., Brown, L. M., Alpass, F. M., & Stephens, C. V. (2018). Longitudinal health and disaster impact in older New Zealand adults in the 2010–2011 Canterbury earthquake series. *Journal of Gerontological Social Work*, 61(7), 701-718. <https://www.tandfonline.com/doi/abs/10.1080/01634372.2018.1494073>

Pre-existing longitudinal studies of people affected by disasters provide opportunities to examine the effects of these events on health. Data used in the current investigation were provided by participants in the New Zealand Health, Work and Retirement longitudinal surveys conducted in 2010, 2012 and 2014 (n = 428; aged 50–83), who lived in the Canterbury region of New Zealand during the 2010–2011 earthquakes. Latent profile growth analyses were used to identify groups of respondents who had similar pre–post-disaster physical and mental health profiles. These groups were compared in terms of demographic factors, personal impact of the earthquakes assessed in 2012 and the overall negative–positive impact of the earthquake assessed in 2014. There was little evidence of change in health status overtime. Groups did not differ in their experiences of threat or disruption, however those in poorest health reported greatest distress and a more negative overall impact of the earthquake. Although results suggest little impact of disasters on health of surviving older adults, pre-disaster vulnerabilities were associated with distress. Social workers and agencies responsible for disaster response can play a key role in pre-disaster planning and assessment of vulnerabilities of older adults to enhance potential for positive outcomes post-disaster.

V.

**PHYSICAL AND
MENTAL HEALTH
STATUS, CHRONIC
DISEASES AND
DISABILITY**



People with disability and chronic illness

Report: Phibbs, S., Woodbury, E., Williamson, K., & Good, GA. (2012). *Issues experienced by disabled people following the 2010-2011 Canterbury earthquake series: Evidence based analysis to inform future planning and best practice guidelines for better emergency preparedness*. GNS Science Report. https://ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=IE18424878

This research project identifies issues experienced by the disabled community in the Canterbury earthquake series. This research will inform future guidelines and assist emergency planners to better protect and serve the disabled community. This research report will be made available to the National Welfare Coordination Group and partner agencies, including the Ministry of Civil Defence & Emergency Management (MCDEM). This report is based on the results of a quantitative survey and on interviews with 23 disabled people about their experiences during and after the 2010 and 2011 greater Christchurch earthquakes. While there are many significant ways in which the earthquakes affected the people interviewed, this report focuses on areas of their lives where they were further disabled by the earthquakes and which could be ameliorated by further planning, investment, or by attitudinal changes. This report discusses the preparedness of individuals, the preparedness and responsiveness of communities, organisations, and welfare centres. Consideration of key areas of concern for the people interviewed is provided, including access to information, housing, mobility and transport, and health during and after the earthquakes. Additionally, coping strategies and resilience are discussed, along with suggested strategies for effective planning for disabled people in disasters and civil emergencies. The people interviewed for this report were not, on the whole, prepared for emergency situations such as the 2010 and 2011 greater Christchurch earthquakes. While many disabled people received and provided support within their family and social networks, those who did not have strong pre-existing networks were left extremely vulnerable after the earthquakes. Few people anticipated a disaster on the scale of the February 2011 earthquake and as a result institutional responses were ad hoc and highly variable with some disabled people receiving excellent support and others none at all. In some cases, government organisations were either slow to meet the needs of people with impairments, or failed to understand or respond to their stated needs.

Report: Ministry of Civil Defence & Emergency Management. (2013). *Including people with disabilities: Information for the CDEM sector*. Ministry of Civil Defence & Emergency Management, Wellington. <https://www.civildefence.govt.nz/cdem-sector/guidelines/including-people-with-disabilities/>

Following the Canterbury earthquakes, the Office for Disability Issues approached the Ministry of Civil Defence & Emergency Management (MCDEM) to co-facilitate a national Disability Symposium (the Symposium). The purpose of the Symposium was to learn from the experiences of people with disabilities during the Canterbury earthquakes. The Symposium was held in Christchurch in May 2012 for people with disabilities local to Canterbury, health and disability service providers, DPOs, and people from a range of organisations working in emergency management including CDEM and emergency services. The Symposium was hosted by Ngai Tahu and the Disabled Person's Assembly Christchurch and Districts, and organised in partnership with a number of government and non-government organisations. During the Symposium, certain aspects of how CDEM agencies work with people with disabilities were acknowledged as needing improvement. The Director of CDEM is committed to providing guidance on disability inclusive emergency management for the CDEM sector. MCDEM guidance aims to support CDEM organisations to improve their engagement with people with disabilities before, during, and following an emergency, by including the following information in the relevant MCDEM documents: the importance of working in partnership with people with disabilities, DPOs and, where relevant, other disability organisations with advocacy, information, and service provider functions to find out what is needed; specific issues related to disability inclusive CDEM and how to address them, and where to get more information.

Book Chapter: Mitchell, J. (2014). The Canterbury earthquakes. In *Crises, Conflict and Disability: Ensuring Equality*, 134-142. https://books.google.co.nz/books?hl=fr&lr=&id=zjBEAwAAQBAJ&oi=fnd&pg=PA134&dq=The+Canterbury+Earthquakes:+Preparedness,+Response+and+Recovery,+in+Crises,+Conflict+and+Disability:+Ensuring+Equality%3B&ots=JxBCNeuTpJ&sig=4zQCcZDEInqYS8i8z-Rf_uT98ss&redir_esc=y#v=onepage&q=The%20Canterbury%20Earthquakes%3A%20Preparedness%2C%20Response%20and%20Recovery%2C%20in%20Crises%2C%20Conflict%20and%20Disability%3A%20Ensuring%20Equality%3B&f=false

This chapter briefly cites examples from different agencies and individuals to examine preparedness, emergency responses and the recovery process with particular reference to people with disabilities.

Journal Article: Phibbs, S., Good, G., Severinsen, C., Woodbury, E., & Williamson, K. (2014). What about us? Reported experiences of disabled people related to the Christchurch earthquakes. *Procedia Economics and Finance*, 18, 190-197. <https://www.sciencedirect.com/science/article/pii/S2212567114009307>

Internationally there is limited research on the experiences of people with disabilities during and following a major disaster. This research explores the reported experiences of disabled people related to the 2010-2011 Christchurch, New Zealand earthquake series. Methods: Qualitative inquiry involving purposive sampling and face to face interviews with 23 disabled people living in Christchurch during the earthquakes. The qualitative research was followed by a pilot quantitative survey involving 25 disabled people living in Christchurch during the earthquakes and 10 people who work in the disability sector. Qualitative interview material was analysed using thematic analysis while quantitative data was analysed using descriptive statistics. Results: Disabled people preferred to shelter in place as their homes are organised to suit their specific needs. Our research suggests that urban disaster risk reduction strategies are needed that enhance opportunities for disabled people to maintain autonomy in an emergency situation. Key factors identified by participants that increase earthquake vulnerability among disabled people include a lack of personal disaster preparedness, public information that is not disability accessible and social isolation. Resilience was enhanced through disaster preparedness planning and good support networks. Implications: Individuals, communities and responding agencies could learn from the experiences of disabled people in order to improve preparation and response to disasters for vulnerable groups. Disaster recovery should be seen as an opportunity to reduce risk through avoiding recreating the conditions of vulnerability that may have existed previously.

Masters Dissertation: Nicholls, J. (2015). Ready to Roll: New Zealand Wheelchair Users' Preparedness for Emergencies. (Master Dissertation, University of Otago). <https://ourarchive.otago.ac.nz/handle/10523/6167>

People with disabilities are disproportionately affected by emergency situations compared to the general population, with higher mortality rates and increased vulnerability to disrupted infrastructure and services. The 2010-2011 Canterbury earthquakes highlighted issues regarding personal and organisational preparedness for people with disabilities in New Zealand (NZ). The Ready to Roll study investigates issues of emergency preparedness by wheelchair users in NZ, seeks their opinions about a proposed register of vulnerable people for use in emergencies, and also surveys information communication technology (ICT) use patterns amongst this group to determine whether such technology could augment emergency response planning. (...) A nationwide survey of adult, community dwelling wheelchair users was conducted using SurveyMonkey™ or a postal questionnaire. Survey questions were developed through a process of engagement with disabled people. A snowball sampling recruitment method using Disabled Persons Organisations and disability service providers was used to disseminate the survey. Results: The key findings from the 101 people who completed the survey revealed less than 30% had an emergency plan and less than

20% were planning for their disability related needs. Personal preparedness barriers identified included the need for assistance from someone else to carry out planning activities (n = 50), lack of disability relevant information (n = 37), limited accessibility to information (n = 24), cost (n = 23), and being unable to stockpile medications (n = 20) or consumables (n = 11). Ninety participants supported the concept of a Disabled Persons Emergency Response Register but fewer (n = 76) thought they would personally participate in such an initiative. The participants of this study reported high levels of internet engagement including internet searches, emails and downloading/installing software (n= 91), online financial transactions (n = 84) and using social media (n = 80). Seventy nine participants were currently smart phone users.

Journal Article: Phibbs, S., Good, G., Severinsen, C., Woodbury, E., & Williamson, K. (2015). Emergency preparedness and perceptions of vulnerability among disabled people following the Christchurch earthquakes: Applying lessons learnt to the Hyogo Framework for Action. *Australasian Journal of Disaster and Trauma Studies*, 19, 37-46. https://trauma.massey.ac.nz/issues/2015-IRDR/AJDTs_19-IRDR_Phibbs.pdf

Internationally there is limited research on the experiences of people with disabilities during and following a major disaster. The overall aim of this research was to explore how the Christchurch earthquakes impacted upon disabled people. This paper reports on findings from the research relating to emergency preparedness and perceptions of vulnerability among disabled people who were living in Christchurch over the extended period in which the earthquakes occurred. Qualitative inquiry was carried out, involving purposive sampling and face to face interviews with 23 disabled people and four agency representatives living in Christchurch during the earthquakes. The qualitative research was followed by a pilot quantitative survey involving 25 disabled people living in Christchurch during the earthquakes and 10 people who work in the disability sector. Qualitative interview material was analysed using thematic analysis while quantitative data was analysed using descriptive statistics. All findings are related to sections of the Hyogo Framework for Action. The research identified that prior to the September earthquake, disabled people were not prepared for an emergency. Following the earthquake most people took steps to ensure that they were better prepared. However, few disabled people were able to prepare for an emergency without support. Vulnerability was discussed by participants in relation to personal safety, communication, housing, transport and financial hardship. A lack of community preparedness alongside insufficient structures to assist disabled people in the disaster response or recovery phases increased exposure to risk. It was relevant to discuss findings with reference to the Hyogo Framework for Action's emphasis on vulnerable communities, given that this international document was under review at the time of writing. Our research suggests that disabled people are more likely to be impacted in a civil emergency and are less likely to be prepared. Emergency preparedness management needs to engage with disabled people in the community and have specific policies to assist disabled people prior to and in the event of a disaster.

Journal Article: Ronoh, S., Gaillard, J. C., & Marlowe, J. (2015). Children with disabilities and disaster preparedness: a case study of Christchurch. *Kōtuitui: New Zealand Journal of Social Sciences Online*, 10(2), 91-102. <https://doi.org/10.1080/1177083X.2015.1068185>

An estimated seven million children with disabilities worldwide are affected by disasters annually. This significant figure emphasises the particular vulnerability of these children in facing natural hazards. However, their needs as well as their capacity and role in disaster risk reduction have largely been overlooked by researchers and policymakers. This paper draws on a case study in Christchurch to identify insights, realities, possibilities and obstacles in relation to the involvement in disaster preparedness of children with diverse disabilities. It reports on findings from focus group discussions and semi-structured interviews with children who have disabilities, their teachers and caregivers to explore children's preparedness and potential responses to a disaster. The findings indicate a considerable variation in how children with disabilities

access available resources and perceive, face and cope with natural hazards. This paper shows their potential contribution to disaster preparedness and provides further suggestions for policy and practice.

Masters Dissertation: Ryan, M.E. (2015). The effects of the Christchurch earthquakes of 2010 and 2011 on the quality of life of children and adolescents with disabilities. (Master Dissertation: University of Canterbury). <https://ir.canterbury.ac.nz/handle/10092/10741>

This study explored the effects of the Canterbury earthquakes of 2010 and 2011 on different areas of quality of life (QOL) for children and adolescents with disabilities. Using a survey developed from the Quality of Life Instrument for People with Developmental Disabilities – Short Version (QOL-PDD-SV) (Brown, Raphael & Renwick, 1997) and The World Health Organisation Quality of Life - (WHOQOL)-BREF, parents or caregivers were asked to identify what level of importance and satisfaction their child or adolescent placed on areas of QOL including physical health, psychological health - stress levels and coping ability, attachment to their neighbourhood, friends, family, leisure activities, community access and schooling. They were also asked to determine what level of impact the earthquakes had had on each area of their child or adolescent's life and overall quality of life in the aftermath of the earthquakes. A total of 31 parents of 22 males and 9 females between the ages of 2.5 years to 19 years of age (mean age: 12.6 years) responded. The results were collated and analysis was run to measure for the effect of age, gender and geographical location. The results found that the earthquakes affected nearly every area of QOL for the children and adolescents. The biggest impact on the children's psychological health and their ability to cope it was observed that younger children (<13) were more likely to record improved or lessened effects from the earthquakes in psychological health areas. However, the areas of social belonging and friendships were the least affected by the earthquakes. Female children were more likely to indicate higher scores for social belonging after the earthquakes. Many parents observed that their children developed improved coping skills over the earthquake period. The findings in this study offer a better understanding of how earthquakes can affect the quality of life children and adolescents with disabilities.

Report: Ventom, T. (2015). The Christchurch IHC earthquake reflection group: An account of the processes put in place by IHC Advocacy following the Canterbury earthquake in 2011. IHC Christchurch Earthquake Reflection Group. <https://quakestudies.canterbury.ac.nz/store/object/252361>

Disabled people were not prepared for an emergency prior to the Christchurch September earthquake. Following the earthquake most people took steps to ensure that they were better prepared. However, few disabled people were able to prepare for an emergency without additional support. It has been identified that a lack of accessible information and equipment are a barrier to individual preparedness. The workshops that have been developed have provided some guidelines on how to create an individual emergency plan as well as making a connection to local Civil Defence. Based on research and feedback from the "Shaken but not Stirred" workshops it has been identified that there is a need to develop a more coordinated approach to pilot emergency preparedness. Disasters have many effects, some are predictable and some are not. The workshops have lessened the uncertainty and stresses related to natural disasters and prepare the people we support with some resources, advice and support to be better organised. There are a number of exciting new initiatives underway with Civil Defence and great collaboration with the cities Earthquake Leadership Group, Civil Defence, Arts Integrated, CERA, The All Right Campaign, Disability Organisations and Services happening. These initiatives can be used as a model for other areas to adopt and are examples of building collaboration within the community. IHC Self Advocacy takes an inclusive and participative approach to emergency preparedness and will strive towards providing an effective, innovative and reliable response to emergency planning as outlined in this plan.

Journal Article: Bourke, J. A., Hay-Smith, E. J. C., Snell, D. L., & Schluter, P. J. (2017). Community inclusion of wheelchair users during the long-term recovery phase following the 2010/2011 Canterbury earthquakes. *International Journal of Disaster Risk Reduction*, 23, 169-177. <https://doi.org/10.1016/j.ijdrr.2017.05.004>

Research exploring how people living with disability experience community inclusion during the medium to long-term recovery following natural disasters is scant. Yet such information is vital to ensure that recovering communities are inclusive of all members within the population. This study explored the perspectives of people with specific functional needs, wheelchair users, regarding their experience of community inclusion in the four years following the 2010/2011 earthquakes in Christchurch, New Zealand. Thirteen adult wheelchair users were interviewed one-to-one and then invited to attend a group interview. The group interview presented a summary of the interview data for discussion to help clarify and prioritise elements of community inclusion. All data were subjected to thematic analysis. Four interrelated themes described the key elements of the participants' experience of community post-earthquakes: 1) earthquakes magnified barriers, 2) community inclusion requires energy, 3) social connections are important, and 4) an unprecedented opportunity for change. Findings emphasized the need for recovery energies at a local and national level to move from conceptualizing disability in terms of individual vulnerability, to instead, focusing on reducing environmental barriers that inhibit community inclusion. Of critical importance is creating pathways for people who experience disability to be co-creators of this change.

Report: Campbell, L. (2017). *Preparing, Responding and Recovering from Disasters, the Canterbury Earthquake Series and The Disability Sector*. Lebern and Associates. <https://storage.googleapis.com/wzukusers/user-22006432/documents/5a307c32a3c20l-C41Heg/Preparing%20Responding%20Recovering%20from%20Cant%20EQ%20Events%20Disability%20Sector%20final%20report%20Oct%202017.pdf>

The New Zealand Red Cross commissioned the Earthquake Disability Leadership Group Trust to undertake a brief research scoping project focused on the 2010/2011 Canterbury earthquake events and the Canterbury Disability Sector. The project used two methods to collect the data to achieve the project's purpose – review and synthesis of the literature and in-depth interviews with a purposeful sample of respondents. The findings from this project will inform the New Zealand Red Cross' future decisions and activities concerning the development of best practice resources for inclusive and accessible disaster reduction, readiness, response and recovery activities related to the disability sector. Several themes emerged in the findings: Build back better: Use the disaster as an opportunity to enhance the social, economic, environmental and physical conditions for local communities; Participation and inclusion: Sustainable solutions that benefit everyone in communities emerge if people with disabilities are included in emergency management and disaster risk reduction planning and implementation; Collaboration: Following disasters, disability-inclusive response, recovery and regeneration activities require the contributions of a diverse range of stakeholders for collective impact; Diversity within disability: Effective disability-inclusive disaster risk reduction and emergency management strategies require recognition of the needs and capabilities of the diverse range of lived experiences of people with disabilities; Knowledge acquisition and knowledge management: More is required to draw on lessons learned from international post-disaster research and further develop New Zealand-based research to ensure effective disability-inclusive and accessible emergency management and disaster risk reduction strategies are implemented. Based on the evidence collated from the review of the pertinent literature and from the interviews with Canterbury Disability Sector stakeholders, a number of recommendations for future actions are listed.

Journal Article: Dunn, J.A., Nicholls, J.M., Snell, D.L., & Nunnerley, J.L. (2017). New Zealand wheelchair users' preparedness for emergencies. *Australasian Journal of Disaster and Trauma Studies*, 21(1), 1-18. <https://doi.org/10.1016/j.ijdr.2017.05.004>

People with disabilities are disproportionately affected by emergency situations. They experience higher mortality rates and greater vulnerability than the general population due to disrupted infrastructure and services. Although personal preparedness has been identified as one of the most effective ways to mitigate the emergency-related risks, personal preparedness among people with disabilities is reported to be low. The aim of this study was to investigate emergency preparedness of wheelchair users in New Zealand and to compare their preparedness levels with those of the general population. A nationwide survey of adult, community dwelling wheelchair users was conducted. Of 101 participants, less than 30 percent had made emergency preparations for a future emergency which is substantially lower than the rate reported among the general New Zealand population. Fewer than 20 percent of survey participants were planning for their disability specific needs. Personal preparedness barriers identified included the need for assistance from someone else to carry out planning activities (50%), lack of disability relevant information (37%), limited accessibility to information (24%), cost (23%), and being unable to stockpile medications (20%) or consumables (11%). Overall, participants reported lower levels of personal emergency preparedness and a higher incidence of barriers to preparedness than reported by the general New Zealand population. A comprehensive plan of further work and research could enable genuinely inclusive emergency planning for future emergency events in New Zealand. To achieve this outcome, emergency planners, responders and researchers must partner with disabled people so that planning meets the emergency related needs of disabled New Zealanders.

Journal Article: Good, G. A., & Phibbs, S. (2017). Disasters and disabled people: have any lessons been learned?. *Journal of Visual Impairment & Blindness*, 111(1), 85-87. <https://www.proquest.com/docview/1867278463?pq-origsite=gscholar&fromopenview=true>

November 14th has been a reminder that Kiwis should be prepared for any future disaster, according to Acting Civil Defence Minister Gerry Brownlee, which raises the question: Were we better prepared this time? It seems that lessons learned from the 2010 and 2011 earthquakes in New Zealand helped disabled people, including those with visual impairments, in the recent, November 2016, earthquakes.

Doctoral Thesis: Ronoh, S. K. (2017). Children with Disabilities and Disaster Risk Reduction in New Zealand. (Doctoral Thesis, University of Auckland). <https://www.eqc.govt.nz/assets/Publications-Resources/1402-Children-with-disabilities-and-DRR-in-NZ.pdf>

The global rise in the number of disasters is largely due to the interplay between environmental and human factors. Children and especially children with disabilities are disproportionately impacted by disasters, with an estimated seven million children affected worldwide annually. Children with disabilities can have increased vulnerabilities because of mobility difficulties, pre-existing medical conditions, existing socio-economic barriers and policies that fail to recognise the diverse needs of this group. Indeed, researchers and practitioners have historically overlooked the experiences and needs of children, particularly so for those with disabilities, who are disproportionately affected by natural hazards and disasters. Their capacities, needs, and, importantly, potential roles in disaster risk reduction (DRR) have received little consideration from researchers and policy makers. This thesis draws on the findings of a multi-case study of three New Zealand schools working with children having diverse disabilities. The schools are in the regions of Canterbury, Hawke's Bay and Auckland. It aims to generate new information to help inform DRR and give direction, and provide a holistic framework towards the development of an inclusive approach to DRR. This orientation aims to specifically integrate the experiences, perspectives and needs of children with disabilities. Although grounded

in disaster studies, this thesis frequently draws upon the wider scholarship related to children, participatory approaches and disability. The central goal of the study is to assess and interpret the experiences of children with disabilities in dealing with natural hazards, and to identify their actual and potential contribution to DRR. It presents the use of flexible participatory tools which support a sustained continuum of engagement among children with diverse disabilities, skills, and experiences. Crucially, this work offers a bridge and conceptual framework that recognises communication as a two-way process between adults and children by requiring adults to learn how children express their views, thus according participants a voice in DRR research.

Journal Article: Ronoh, S. (2017). Disability through an inclusive lens: disaster risk reduction in schools. *Disaster Prevention and Management: An International Journal*, 26(1), 105-119. https://www.researchgate.net/profile/Steve-Ronoh/publication/313361984_Disability_through_an_inclusive_lens_disaster_risk_reduction_in_schools/links/5fa99f7d92851c-c286a09643/Disability-through-an-inclusive-lens-disaster-risk-reduction-in-schools.pdf

Purpose – The purpose of this paper is to use an inclusive lens to explore pathways and considers, through the voices of children and adult participants, the complexities in implementing effective disaster risk reduction (DRR) in schools comprising children with disabilities. It identifies obstacles and suggests policy recommendations that consider their needs in DRR. Design/methodology/approach – This paper draws on a case study of two schools supporting children with disabilities in the New Zealand regions of Hawke’s Bay and Auckland, each with differing experiences of past natural hazards and disasters. Data from children’s workshop activities, participant observation, semi-structured interviews, workshop photographs, school safety and policy documents were coded in Nvivo software to categorize data and to identify themes for cross-case analysis and discussion. Findings – The research reveals three key pathways that schools can take in promoting inclusiveness in DRR. They are the provision of safe and accessible school building designs and facilities, avenues for children’s involvement and leadership in DRR initiatives, and in decision-making processes. Schools also offer opportunities for a collaborative effort towards inclusiveness in DRR within the school and with other stakeholders. Research limitations/implications – Based on the findings, the paper suggests four broad policy recommendations for consideration towards strengthening the role of schools in disability-inclusive DRR. Originality/value – The paper contributes to ongoing DRR efforts and adds new information to the disaster literature on the role of schools in disability-inclusive DRR.

Journal Article: Ronoh, S., Gaillard, J. C., & Marlowe, J. (2017). Children with disabilities in disability-inclusive disaster risk reduction: Focussing on school settings. *Policy Futures in Education*, 15(3), 380-388. <https://journals.sagepub.com/doi/full/10.1177/1478210317694500>

Every year, worldwide, disasters affect approximately seven million children with disabilities, highlighting their potential vulnerability. Although there is a growing move internationally to promote the rights of children with disabilities, they still receive little attention from disaster risk reduction (DRR) researchers and policy makers. They are often excluded in DRR initiatives and are portrayed as ‘helpless’ in disaster contexts. This policy brief draws on a multiple case study of three schools supporting children with disabilities in three New Zealand regions. Through the voice of both children and adult participants, the study identifies associated gaps and constraints to disability-inclusive DRR. It makes recommendations that acknowledge diversity and ensure that those marginalized can become stakeholders in the DRR process.

Masters Dissertation: Moore, C. (2018). Accessibility and resilience in post-earthquake Christchurch: will increased universal accessibility lead to a more resilient Christchurch?. (Master Dissertation, University of Canterbury). <http://dx.doi.org/10.26021/8126>

This research examines the connection between accessibility and resilience in postearthquake Christchurch. This research will provide my community partner with a useful evidence base to help show that increased accessibility does create a more resilient environment. This research uses an in-depth literature review along with qualitative interview approach discussing current levels of accessibility and resilience in Christchurch and whether or not the interview participants believe that increased accessibility in Christchurch will make our city more resilient to future disasters. This research is important because it helps to bridge the connection between accessibility and resilience by showing how accessibility is an important aspect of making a city resilient. In Christchurch specifically, it is a great time to create an accessible and inclusive environment in the postearthquake rebuild state the city is currently in. Showing that an accessible environment will lead to a more resilient city is important will potentially lead to accessible design being included in the rebuild of places and spaces in Christchurch.

Journal Article: Hay, K., & Pascoe, K. M. (2019). Disabled people and disaster management in New Zealand: Examining online media messages. *Disability & Society*, 34(2), 253-275. https://www.researchgate.net/profile/Kathryn-Hay/publication/329876182_Disabled_people_and_disaster_management_in_New_Zealand_examining_online_media_messages/links/5c54ee3e92851c22a3a2625a/Disabled-people-and-disaster-management-in-New-Zealand-examining-online-media-messages.pdf

This article explores how disability and disabled people were portrayed in New Zealand online media between 2006 and 2016, with specific reference to disasters. Following a process of content analysis, the findings indicated that post disaster, persistent advocacy was required and ensuring accessibility, immediately following a disaster as well as in the recovery phase, was a significant issue. Disabled people were also primarily presented as a vulnerable cohort and the wide-ranging issues highlighted in the media suggest they currently have minimal voice in the four disaster management stages of risk reduction, readiness, response and recovery. This article emphasises the utilisation of relationships, skills and knowledge between individuals and Disabled People's Organisations to strengthen the disability and disaster management discourse and activity. Increased inclusion of disabled people across all phases of disaster management will assist with the New Zealand government meeting its aspiration of a non-disabling society, especially during future disaster events.

Report: Jones, R. & Nichols-Dunsmuir, A. (2020). Covid 19's impact on disabled people in NZ: Knowing and responding. Earthquake Disability Leadership Group. <https://www.dlcanterbury.co.nz/projects>

The purpose of this paper is to distil the main themes arising from the experiences reported by disabled people and their whanau in Canterbury, from meetings, reports, surveys and the media. Importantly, it identifies possible policy responses to both redress the current situation, and to embed into future planning for emergency situations. The paper documents peoples' experiences, and the main ways the emergency response 'system' (egs services, funding etc.) did or did not respond. We believe that these two perspectives understood together will provide a foundation for future improvements.

Journal Article: Bourke, J. A., Nichols-Dunsmuir, A., Begg, A., Dong, H., & Schluter, P. J. (2022). Understanding the longer-term health, wellbeing, and sense of community for disabled people following the 2010–2011 Canterbury earthquakes: A repeated cross-sectional study. *International Journal of Disaster Risk Reduction*, 67(102649). <https://www.sciencedirect.com/science/article/abs/pii/S2212420921006105>

Disabled people are disproportionately affected following disasters. Research exploring disability in disaster contexts is primarily focused on short to medium timeframes. Evidence on longer-term health and wellbeing outcomes is scant. In 2010–2011 Canterbury experienced a series of devastating earthquakes. In September 2012, the Canterbury Earthquake Recovery Authority initiated a population representative cross-sectional Wellbeing Survey, which has been administered at 12 time-points as of November 2020. This study analysed the pattern of disabled and non-disabled people responses over time across four variables: wellbeing, quality of life, sense of community, and stress. Observed mean changes were modelled and compared using fractional polynomial curves. Valid responses were available from 30,736 participants in total over the 12 time-points, of whom 18.4 % experienced disability. Significant time patterns and sustained group differences were observed across all four variables, with mean scores for those with a disability being 13.4 (95 % CI: 12.6, 14.2) lower in wellbeing, 0.54 (95 % CI: 0.51, 0.57) lower for quality of life, 0.34 (95 % CI: 0.30, 0.37) lower in stress, and by November 2020, 0.14 (95 % CI: 0.10, 0.18) lower in sense of community scores compared to their non-disabled counterparts. There appeared to be little difference in mean sense of community scores between groups immediately after the earthquake, suggesting a potential halo effect. Overall, these data suggest that the health and wellbeing outcomes for disabled people are significantly worse than non-disabled people. Findings emphasise the need for recovery efforts to focus on ameliorating significantly worse health and wellbeing outcomes experienced by disabled people.

Masters Dissertation: Kearns, N. (2022). Stories from a Hazardscape: Living with Chronic Illness in Petone, Aotearoa New Zealand. (Master Dissertation, Massey University). <https://mro.massey.ac.nz/handle/10179/17594>

This study set out to improve understanding of people’s experience of living with a chronic illness in Petone, a hazard prone environment, and how this may matter to their ongoing health and wellbeing. The narratives of eight people with a range of chronic illnesses and who had lived in Petone were analysed and interpreted through applying a critical narrative methodology as well as a Foucauldian lens to their stories. Semi-structured face-to-face narrative interviews were conducted, enabling people to share their stories of life in Petone with a chronic illness. Analysis of the eight people’s stories was guided by the Narrative Orientated Inquiry model. The premise behind this model is that narratives function as a meaning making process that occur within social, psychological, and cultural contexts (Hiles, Cermák, & Chrz, 2009; E. G. Mishler, 1995; Riessman, 2008). The model incorporates this concept of narrative into each stage making it possible to carry out a deeper analysis of the contents of stories and exposing 4 N Kearns 2022 the functioning of storytelling (e.g. social processes), which is important to how people structure and organise behaviour and experience (Hiles, Čermák, & Chrz, 2017)

People living with addictions

Journal Beckert, L., Erskine, N., Rhodes, B., Stevenson, S., & Daley, V. (2012). Earthquake rattled
Article: Christchurch residents reach for cigarettes. *European Respiratory Journal*, 40(4517).
https://erj.ersjournals.com/content/40/Suppl_56/4517.short

The magnitude 7.1 Canterbury earthquake in September 2010 and associated aftershocks have caused untold damage, drastically changed residents' living, working, social conditions and taken the lives of 184 people. Aim: To assess the impact of the Christchurch earthquakes on changes in smoking status and tobacco consumption of current smokers. Methods: Semi-structured interviews in public locations with high pedestrian flow, including two city malls and the central bus exchange. The interviews were carried out 15 months after the first major earthquake. A total of 1001 people were interviewed. Results: At the August 2010 point (prior to any earthquakes) 589 (58.9%) had smoked cigarettes or tobacco at some point in their lives; 400 (40.9%) never smoked and three participants (0.3%) were not sure. Of the 319 people who were not smoking in August 2010, 76 (23.8%) had smoked at least one cigarette since the September earthquake, 29 (38.2%) of whom had smoked more than 100 cigarettes. Of the 273 participants smoking in August 2010, 86 (31.5%) had since decreased consumption, 94 (34.4%) had not changed, deletion and 93 (34.1%) had increased consumption. Of the 86 people who decreased, six (7.0%) attributed the earthquake and subsequent lifestyle as a reason to reduce smoking. Of the 93 people who increased, 53 (57.0%) attributed the earthquake and subsequent lifestyle changes as a reason to increase smoking. Conclusion: The prevalence of smoking in Christchurch has increased in the 15 months following the first major quake in Sept 2010. 28% of people not smoking prior to the earthquakes smoked one or more cigarettes and people smoking prior to the earthquakes increased their consumption.

Journal Blake, D., & Lyons, A. (2016). Opioid substitution treatment planning
Article: in a disaster context: Perspectives from emergency management and health professionals in Aotearoa/New Zealand. *International Journal of Environmental Research and Public Health*, 13(1122), 2-14.
<https://www.mdpi.com/1660-4601/13/11/1122>

Opioid Substitution Treatment (OST) is a harm reduction strategy enabling opiate consumers to avoid withdrawal symptoms and maintain health and wellbeing. Some research shows that within a disaster context service disruptions and infrastructure damage affect OST services, including problems with accessibility, dosing, and scripts. Currently little is known about planning for OST in the reduction and response phases of a disaster. This study aimed to identify the views of three professional groups working in Aotearoa/New Zealand about OST provision following a disaster. In-depth, semi-structured interviews were conducted with 17 service workers, health professionals, and emergency managers in OST and disaster planning fields. Thematic analysis of transcripts identified three key themes, namely "health and wellbeing", "developing an emergency management plan", and "stock, dose verification, and scripts" which led to an overarching concept of "service continuity in OST preparedness planning". Participants viewed service continuity as essential for reducing physical and psychological distress for OST clients, their families, and wider communities. Alcohol and drug and OST health professionals understood the specific needs of clients, while emergency managers discussed the need for sufficient preparedness planning to minimise harm. It is concluded that OST preparedness planning must be multidisciplinary, flexible, and inclusive.

Journal Article: Blake, D. (2018). Opioid substitution treatment and disasters: perspectives from Aotearoa New Zealand. *Australian Journal of Disaster Resilience Monograph*. https://openaccess.wgtn.ac.nz/articles/journal_contribution/Opioid_substitution_treatment_and_disasters_perspectives_from_Aotearoa_New_Zealand/14198696

In Aotearoa New Zealand, disaster risk management (DRM) aspires to protect the lives and livelihoods of people and places. It does this by encouraging people and communities to be disaster ready, while ensuring reduction of potential and actual harm from a disaster, responding immediately and directly following a disaster, and recovering so that there is ongoing regeneration and resiliency for the people and communities impacted by a disaster.

Journal Article: Blake, D., Pooley, S., & Lyons, A. (2020). Stigma and disaster risk reduction among vulnerable groups: Considering people receiving opioid substitution treatment. *International Journal of Disaster Risk Reduction*, 48(101588), 1-7. <https://www.sciencedirect.com/science/article/abs/pii/S2212420919307113?via%3Dihub>

This work explores the ways in which stigma influences how people engage with disaster risk reduction. It specifically addresses the experiences and perceptions of stigma for people who receive Opioid Substitution Treatment (OST), a successful harm reduction strategy that reduces illicit drug use, risk of overdose and criminal activity. Unfortunately, while receiving OST people endure stigma because of their perceived or assumed history of drug use, which positions them as socially deviant and unacceptable. During a disaster or emergency, forms of social stigma from health and emergency management personnel have implications for access to treatment such as OST. Drawing on semi-structured interviews with 21 people receiving OST from services in four major cities in Aotearoa New Zealand, an interpretive analysis was applied to better understand how stigma matters to their lived experience. Four key themes, namely “Experiences of stigma”, “Discrimination from health professionals”, and “Disasters and emergency management” and “Support within disaster contexts” were identified in their talk. We conclude that it is vital that medications and other necessary treatments are made accessible to those who need them to maintain health and wellbeing. It is important to be aware that stigmatising beliefs manifest in disaster-response settings which have consequences for people who are already more vulnerable than others. Therefore we suggest that appropriate education and training be provided.

Masters Dissertation: Rijnink, A. (2021). Social vulnerability in disasters: accessibility to the Needle Exchange Programme for people who inject drugs. (Master dissertation, Massey University). <https://mro.massey.ac.nz/handle/10179/17302?show=full>

Disasters can create and exacerbate existing health disparities. This thesis foregrounds the marginalised voices of people who inject drugs (PWID) on the West Coast of the South Island, Aotearoa New Zealand, to afford critical insight into the social elements that uphold and reinforce disproportionate health care accessibility in disaster settings. Specifically, this thesis explores accessibility to the Needle Exchange Programme (NEP), a life-enhancing social service supporting PWID to obtain clean injection products that reduce the risk of contracting blood-borne viruses (BBVs) and other harmful health effects. NEPs are peer-led and offer psychosocial support, making the service an empowering and judgement-free space for PWID. Given the importance of NEPs, the research asks: What elements enable and hinder accessibility to NEP services in disaster settings for PWID? The research particularly focused on understanding how stigma influences accessibility to NEP services during a disaster or emergency. To address these questions, interpretive phenomenological analysis and social stigma theory is applied. This methodology provides a detailed analysis of the experiences and perceptions of 14 participants, comprising of one NEP staff member and 13 PWID. The findings reveal that social vulnerability for PWID is upheld and reinforced by a complex network of psychological, social, and structural mechanisms. Accessing safe equipment in disaster situations requires PWID to adopt preparedness and proactiveness behaviours, access to psychosocial support from

peers and NEP staff, and resilient social and environmental infrastructure. Prevailing barriers include the cost of injecting equipment, even though it is highly subsidised, and road networks that are vulnerable to natural hazards. Additionally, social stigma prevented PWID from feeling comfortable picking up NEP products in public locations, including NEP-based pharmacies and emergency centres. These findings substantiate earlier vulnerability research efforts foregrounding the social needs of people facing disproportionate social barriers in disasters. Moreover, these barriers reflect systems of power that ordinarily uphold social exclusion and access to health care, which continue in emergencies. This thesis reveals strategies to overcome some of these barriers by providing a strategic map to guide inclusive emergency management practices and other forms of accessibility to ensure the wellbeing of PWID in the Aotearoa New Zealand disaster landscape.

Big-bodied people and weight

Journal Article: Gray, L., Rushton, A., & Hobbs, M. (2020). "We only have the one": Mapping the prevalence of people with high body mass to aid regional emergency management planning in Aotearoa New Zealand. *International Journal of Disaster Risk Reduction*, 51(101859). <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7486187/>

People have been left behind in disasters directly associated with their size, shape, and weight and are disproportionately impacted in pandemics. Despite alignment with known vulnerabilities such as poverty, age, and disability, the literature is inaudible on body mass. Emergency managers report little or no information on body mass prevalence. This exploratory study aimed to illustrate population prevalence of high body mass for emergency planning. Methods: Cross-sectional data from the New Zealand Health Survey were pooled for the years 2013/14–2017/18 (n = 68 053 adults aged ≥15 years). Height and weight were measured and used to calculate body mass index. The prevalence of high body mass were mapped to emergency management boundary shapefiles. The resulting maps were piloted with emergency managers. Results: Maps highlight the population prevalence of high body mass across emergency management regions, providing a visual tool. A pilot with 14 emergency managers assessed the utility of such mapping. On the basis of the visual information, the tool prompted 12 emergency managers to consider such groups in regional planning and to discuss needs. Conclusions: Visual mapping is a useful tool to highlight population prevalence of groups likely to be at higher risk in disasters. This is believed to be the first study to map high body mass for the purposes of emergency planning. Future research is required to identify prevalence at a finer geographical scale. More features in the local context such as physical location features, risk and vulnerability features could also be included in future research.

Journal Article: Gray, L., Becker, J., MacDonald, C., & Johnston, D. (2020). Disaster risks identified by people with high body mass: A qualitative study. *Obesity Reviews*, 13118, 269-269. https://www.researchgate.net/publication/344134218_Disaster_risks_identified_by_people_with_high_body_mass_A_qualitative_study

BACKGROUND: People have been left behind in disasters in direct association with their size, shape and weight (Gray & MacDonald, 2016) and experience difficulties taking protective action (McBride et al, 2019). However, little research has been conducted to understand disaster risks and preparedness actions from the perspective of people with very high body mass. METHOD: Semi-structured interviews were undertaken with people living with very high body mass in Aotearoa New Zealand about their experiences, perceptions about risks and actual preparedness. Emergency management personnel were also interviewed to gain insight into planning perspectives, knowledge and priorities. Interviews were audio recorded, transcribed, coded and analysed. RESULTS: People with high body mass perceived they had additional needs in the event of a disaster in terms of mobility, fear of falling, clothing, transport, accommodation, toileting and being left behind. Only one participant could be described as 'well prepared', while most expressed their reluctance to take disaster preparedness actions, not wishing to "poke the bear". Interviewees felt that

emergency management personnel should be aware of their needs, yet some emergency managers had little experience, knowledge and understanding of people with very high body mass. **CONCLUSION:** Despite increasing numbers of people living with very high body mass globally (NCD, 2016), few considerations are visible in emergency planning. To be able to assess risks and make safe, equitable and appropriate plans, good understanding of people's needs and an awareness of one's own beliefs and biases is required.

Journal Article: Gray, L., Becker, J. S., MacDonald, C., & Johnston, D. (2022). Sizing up disaster risk reduction: A qualitative study of the voices of big bodied people in Aotearoa New Zealand. *International Journal of Disaster Risk Reduction*, 102922. <https://doi.org/10.1016/j.ijdr.2022.102922>

The principles of disaster risk reduction includes understanding of disaster risk in all dimensions including meaningful inclusion of marginalised populations. This research sought to hear and record the voices of big bodied people to answer the question "What are the experiences, perceptions and preparedness for disasters of big bodied people and/or their families?" and inform DRR considerations in Aotearoa New Zealand. Purposive sampling recruited seventeen people identifying as big bodied. Qualitative semi-structured interviews were conducted between October 2018 and April 2020. One interview was conducted via Zoom™ during the COVID-19 pandemic, all others were in person. Audio recordings of the interviews were transcribed and data were reflexively thematically analysed. Three main themes were identified: Being big in a disaster; Harsh realities; and Ready or not. Advocacy is required to ensure that the concerns and needs of BBP particular to size, shape and weight are heard and included in DRR and disaster planning. Emergency managers should be supported to ensure that engagement with BBP is appropriate, not stigmatising, or discriminatory.

Journal Article: Gray, L., MacDonald, C., Becker, J. S., & Johnston, D. (2022). A qualitative study of emergency management considerations for big-bodied people in Aotearoa New Zealand. *International Journal of Disaster Risk Reduction*, 67(102646). <https://doi.org/10.1016/j.ijdr.2021.102646>

Due to their circumstances and resources before, during and following disaster events, some people have higher risk of harm in disaster requiring specific disaster planning considerations. The prevalence of big bodied people (BBP) is increasing in many countries and BBP are potentially at higher risk in disasters in direct relation to their size, shape and weight. This study explores planning considerations by emergency management, health, humanitarian and resource sector (EMs) for BBP in New Zealand. Qualitative semi structured interviews explore EM considerations particular to BBP. A purposive sampling recruitment technique was employed. Fifteen EM individuals were interviewed in-person or via Zoom between July 2018–April 2021. Interviews were audio recorded and transcribed. Data were thematically analysed. Five themes were identified: Prioritising People; Overlooked and left behind; Whose job is it anyway?; Practical and resource issues; The way forward. Participants were readily able to identify a range of 'groups' likely to be at higher risk in disasters, however BBP were not identified as at-risk and no specific planning was in place. A one size approach was more likely to overlook specific needs of BBP with lack of clarity over who would be responsible for planning. While concerning that BBP were not currently included in planning, emergency managers were open to education. The EMs interviewed expressed a desire for information, education and training to build the knowledge base concerning this sector of the population.

Mental Health service users

Report: Lambert, S. J. (2015). *Networks of Support for Māori Mental Health: The response and recovery of Tangata Whaiora through the Ōtautahi earthquakes.* Lincoln University and Ngā Pae o te Māramatanga. <https://researcharchive.lincoln.ac.nz/handle/10182/7529>

This report presents the experiences of Tangata Whaiora (Mental health clients) through the disastrous earthquakes that struck Ōtautahi/Christchurch in 2010-11. It further analysis these experience to how show the social networks these individuals, their whānau, supporting staff respond and recover to a significant urban disaster. The disaster challenged the mental health of those individuals who are impacted and the operations of organisations and networks that support and care for the mentally ill. How individuals and their families navigate a post-disaster landscape provides an unfortunate but unique opportunity to analyse how these support networks respond to severe disruption. Tangata Whaiora possess experiences of micro-scale personal and family disasters and were not necessarily shocked by the loss of normality in Ōtautahi as a result of the earthquakes. The organic provision of clear leadership, outstanding commitment by staff, and ongoing personal and institutional dedication in the very trying circumstances of working in a post-disaster landscape all contributed to Te Awa o te Ora's notable response to the disaster.

Journal Article: Hogg, D., Kingham, S., Wilson, T. M., & Ardagh, M. (2016). The effects of relocation and level of affectedness on mood and anxiety symptom treatments after the 2011 Christchurch earthquake. *Social Science & Medicine*, 152, 18-26. <https://doi.org/10.1016/j.socscimed.2016.01.025>

In this longitudinal study, we compare the effects of different types of relocation and level of affectedness on the incidence and relapse of mood and anxiety symptom treatments identified by publicly funded care or treatment one year before and one and two years after the '2011 Christchurch earthquake' in New Zealand. Based on a subset of Christchurch residents from differently affected areas of the city identified by area-wide geotechnical land assessments (no to severe land damage) 'stayers', 'within-city movers', 'out-of-city movers' and 'returners' were identified to assess the interaction effect of different levels of affectedness and relocation on the incidence and relapse of mood and anxiety symptom treatments over time. Health and sample information were drawn from the New Zealand Ministry of Health's administrative databases allowing us to do a comparison of the pre-/post-disaster treatment status and follow-up on a large study sample.

Journal Article: Calder, K., Begg, A., D'Aeth, L., Turner, S., Fox, C., Nobes, B., Pope, K., & Bell, C. (2022). Evaluation of the All Right? Campaign for tangata whaiora/mental health service users in Canterbury, New Zealand. *Health Promotion International*, 37(1), daab102. <https://academic.oup.com/heapro/article-abstract/37/1/daab102/6311440>

All Right? is a wellbeing campaign developed in response to the devastating Canterbury earthquakes of 2010 and 2011. Vulnerable groups post-disaster include people with a prior history of or unresolved mental illness. This research focussed on the reach and impact of All Right? specifically for tangata whaiora/mental health service users. Evaluation objectives were primarily focussed on assessing the extent which mental health service users engaged with All Right? and to determine the impact of this interaction. Both qualitative and quantitative methods were used to gather data. Findings indicated that mental health service users responded to All Right? to a greater extent than the general target population, e.g. about one-third (37%) of respondents to a population based Christchurch survey agreed that they had done activities as a result of what they had seen or heard of the All Right? campaign compared with approximately two-thirds (68%) of respondents to the mental health service users' survey. One of the key factors facilitating mental health

service users' engagement with All Right? appears to be that the campaign was directed at whole-of-population level, therefore engagement was not defined by being a mental health service user. Engagement was also likely to be facilitated by the campaigns perceived impact of reducing mental illness-related stigma. This research concluded that population-wide wellbeing campaigns in the post-disaster context, when done well, can positively impact the wellbeing of the overall population, including mental health service users.

VI.

**INCOME,
HOUSING SITUATION
& LIVING AREA**



Low-income communities and households

Journal Article: Dorahy, M. J., Rowlands, A., Renouf, C., Hanna, D., Britt, E., & Carter, J. D. (2015). Impact of average household income and damage exposure on post-earthquake distress and functioning: A community study following the February 2011 Christchurch earthquake. *British Journal of Psychology*, 106(3), 526-543. <https://pure.qub.ac.uk/en/publications/e50aa882-3864-4f71-863d-468fe10a23a4>

Posttraumatic stress, depression, and anxiety symptoms are common outcomes following earthquakes, and may persist for months and years. This study systematically examined the impact of neighborhood damage exposure and average household income on psychological distress and functioning in 600 residents of Christchurch, New Zealand, 4-6 months after the fatal February, 2011 earthquake. Participants were from highly affected and relatively unaffected suburbs in low, medium and high average household income areas. The assessment battery included the Acute Stress Disorder Scale, the depression module of the Patient Health Questionnaire (PHQ-9), and the Generalized Anxiety Disorder Scale (GAD-7), along with single item measures of substance use, earthquake damage and impact, and disruptions in daily life and relationship functioning. Controlling for age, gender and social isolation, participants from low income areas were more likely to meet diagnostic cut-offs for depression and anxiety, and have more severe anxiety symptoms. Higher probability of acute stress, depression and anxiety diagnoses was evident in affected versus unaffected areas, and those in affected areas had more severe acute stress, depression and anxiety symptoms. An interaction between income and earthquake effect was found for depression, with those from the low and medium income affected suburbs more depressed. Those from low income areas were more likely post-earthquake to start psychiatric medication and increase smoking. There was a uniform increase in alcohol use across participants. Those from the low income affected suburb had greater general and relationship disruption post-quake. Average household income and damage exposure make unique contributions to earthquake related distress and dysfunction.

Journal Article: Blake, D., Marlowe, J., & Johnston, D. (2017). Get prepared: Discourse for the privileged?. *International Journal of Disaster Risk Reduction*, 25, 283-288. <https://www.sciencedirect.com/science/article/pii/S221242091730242X>

Being prepared for a disaster is an important strategy for reducing physical, social, psychological and cultural harm. Preparedness practices mitigate the immediate impacts of a disaster while also enabling people to respond to and cope with any ongoing consequences. However, not all people have the ability to prepare. This paper queries how preparedness discourses impact on people without financial means, capacity or support to prepare. The work situates preparedness within a neoliberal system that is preoccupied with risk management as an economic cost reducing exercise. It highlights that without the ability to feel safe and achieve ontological security in a disaster, people can experience instability and mental health is compromised. It questions disaster preparedness texts that produce a form of structural violence, preventing the ability to have needs met, while privileging agency to some and denying it to others. Government documents and preparedness websites from Aotearoa/New Zealand are outlined to highlight the frequently ignored preparedness needs of vulnerable groups. The role of research in preparedness activities is also discussed. People working in the emergency management space should contest the socio-political conditions that produce increased risk for disadvantaged groups.

Journal Article: Blake, D., Becker, J. S., Hodgetts, D., & Elwood, K. J. (2021). The Impact of Earthquakes on Apartment Owners and Renters in Te Whanganui-a-Tara (Wellington) Aotearoa New Zealand. *Applied Sciences*, 11(6818), 1-16. <https://www.mdpi.com/2076-3417/11/15/6818>

Apartment dwelling is on the increase in many cities in Aotearoa New Zealand, including those in earthquake-prone regions. Hence it is important that people working in disaster management and housing improve their understanding on how the living situations of apartment dwellers influence their disaster management practices. This knowledge is crucial for efforts to promote safety and preparedness. This paper explores what enables and constrains apartment dwellers in their ability to prepare for an earthquake. Eighteen people were interviewed who resided in Te Whanganui-a-Tara (Wellington) two years after the 2016 7.8 magnitude (Mw) Kaikoura earthquake. Of central concern was people's ability to prepare for disasters and access knowledge about building and structural safety and how this knowledge mattered to what apartment dwellers were able to prepare for. We found that the agency to prepare was dependent on whether people owned or rented their dwellings. We report on participant accounts of dealing with body corporations, landlords, emergency kits, other emergency items, and evacuation plans.

Journal Article: Elers, C., Jayan, P., Elers, P., & Dutta, M. J. (2021). Negotiating health amidst covid-19 lockdown in low-income communities in Aotearoa New Zealand. *Health Communication*, 36(1), 109-115. <https://doi.org/10.1080/10410236.2020.1848082>

Aotearoa New Zealand's public health crisis communication approach amidst the COVID-19 pandemic effectively mobilized the nation into swift lockdown, significantly reducing community transmission. This communication approach has been applauded around the world. How did communities situated amongst the "margins of the margins" in Aotearoa New Zealand navigate through the existing structural barriers to health during the pandemic? In this study, we use a culture-centered analysis to foreground the structural context of disenfranchisement amidst the COVID-19 lockdown. Drawing on in-depth interviews with participants in a larger ethnographic project on poverty and health across three communities in Aotearoa New Zealand, we attend to the ways in which health is negotiated amidst the COVID-19 outbreak and lockdown response at the "margins of the margins." The narratives point out that health communication interventions to prevent COVID-19 in the context of Aotearoa New Zealand furthered the marginalization of communities at the margins, and community voices were largely erased from the enactment of interventions. With the extant structures failing to recognize these aspects of everyday struggles of health at the margins, the health and access challenges were further magnified during COVID-19. Our attention to communication situated in relationship to structures builds a register for health communication scholarship in the context of COVID-19 that is committed to disrupting the behaviorally based hegemonic health communication literature and transforming the unequal terrains of health experiences.

People experiencing homelessness

Journal Article: Gaillard, J. C., Walters, V., Rickerby, M., & Shi, Y. (2019). Persistent precarity and the disaster of everyday life: homeless people's experiences of natural and other hazards. *International Journal of Disaster Risk Science*, 10(3), 332-342. <https://link.springer.com/article/10.1007/s13753-019-00228-y>

Knowledge of how homeless people deal with natural hazards and disasters is sparse and there is a remarkable absence of homeless people in policies and practices for disaster risk reduction (DRR). This article aims at filling this gap by exploring the lives of homeless people in two New Zealand cities that are exposed to natural hazards. It shows that natural hazards are of marginal concern to homeless people in comparison to the everyday hazards that they experience and that make their everyday life a disaster in itself. The disaster of everyday life is created and compounded by homeless people's precarious lifeworlds. The article, nonetheless, shows that homeless people's vulnerability to natural hazards remains high as they lack power to control the processes that shape their everyday lives, to prepare for large-scale events, and to be represented in DRR policy. Therefore, the article ultimately argues that disaster policies require greater attention to be paid to the power structures that create persistent precarity and the ways in which this is experienced in everyday life.

Masters Dissertation: St Martin, M. (2021). Homeless People in the Face of Hazards and Disasters: Auckland as a Case Study. (Master Dissertation, Auckland University of Technology). <http://orapp.aut.ac.nz/handle/10292/14029>

Homeless people are disproportionately vulnerable to hazards and disasters because of different intersecting factors, including lack of access to resources, mental health issues and marginalization. Unfortunately, there is limited research focusing on homeless people in the face of hazards and disasters. We know little about homeless people's experiences facing hazards and the mechanisms they utilize to overcome them. The same can be said concerning our understanding of the limits of their access to resources vital to preparing and responding to the disasters of their everyday lives. This is also the case when responding to large-scale events that can pose a substantially larger burden on their already precarious and difficult situation. The aim of the study was to gain a better understanding of homeless people's experiences in terms of their preparation and response to both daily and large-scale disasters. More specifically, the objectives of this Master's Dissertation were to understand the mechanisms homeless people utilize to overcome the effects of hazards and disasters in an urban setting. In addition, the research examined what role the Government and local organizations play before, during and after the disaster, and how those experiencing homelessness view their performance. Homelessness is a growing problem in New Zealand. In parallel, the country is prone to a multitude of natural and human-induced hazards such as floods, storms, earthquakes, fires, tsunamis and epidemics. The research focused on Auckland, the largest city in New Zealand and where the majority of homeless people live. The study was conducted after the Sky City fire in the Auckland CBD and during the COVID-19 pandemic. 10 semi-structured interviews were conducted with homeless people from Auckland's CBD utilizing a qualitative descriptive approach and were then thematically analyzed. The findings indicate that homeless people perceived the daily hazards of everyday life as more threatening than large-scale disasters. The findings also suggest that those experiencing homelessness are substantially more resourceful and resilient than often suggested in the literature. The participants in this study demonstrated a strong sense of community amongst the homeless, and that sense of belonging to a community increased their resilience to hazards. The findings also highlight that resource allocation for the homeless has significantly improved in recent years, especially in response to the recent and ongoing COVID-19 pandemic still plaguing the country at the time of the interviews. The participants had an overwhelmingly positive view of the performance of both the Government and the organizations tasked with assisting the homeless in their daily struggle with hazards and disasters. This was especially the case in response to the pandemic where it was revealed that the vast majority of those who wanted temporary housing were able to receive it. The study concludes by highlighting the importance of the Government and organizations creating a

pathway for those in temporary accommodation to attain permanent housing and continued access to resources in the community. Lastly, it emphasizes the need for a better understanding of homeless people's strengths and weaknesses in the face of the hazards and disasters to adequately tackle disaster risk.

Masters Dissertation: Sundararaj, A. (2021). Disaster Risk Reduction Policies and Homelessness in New Zealand: Key Informant Perceptions during COVID-19. (Master Dissertation, Auckland University of Technology). <https://openrepository.aut.ac.nz/handle/10292/14803>

Resilience in its simplest form, is defined as the ability to function under stress and adapt to change. To create a resilient community all members of society need to be integrated, including those that are vulnerable and marginalised. Increasingly research has identified the homeless as highly vulnerable to disaster. The academic literature suggests that people experiencing homelessness are more at risk in the face of hazards because of their inaccessibility to access adequate resources and means of protection. The question of how those that are homeless are navigating through a disaster, and whether policies and actions are effective, point to a longstanding gap. The COVID-19 pandemic has brought the issue of homelessness to the forefront of public health and DRR. The pandemic provides an opportunity to assess how DRR policies interact with the issue of homelessness. Focusing on New Zealand, this research aims to investigate the extent to which the homeless are integrated into DRR policies and frameworks across the country. Semi-structured interviews were conducted with key informants (KIs) working in the fields of public health, local government agencies, emergency response agencies and Non-Governmental Organizations (NGOs). The findings demonstrate that there is a lack of policies at the central government level which address homelessness as a standalone issue, let alone addressing homelessness within the wider context of DRR. The study finds that in New Zealand, there is no clear lead agency in charge of the homeless during a disaster. This lack of clarity has led to ambiguity in terms of legislative action, coordination and allocation of resources and funding. The findings also suggest that the definition of homelessness can be broadly applied across several categories, but it is rough sleepers that garner the most attention due to their visibility. This has caused the direction of policies and initiatives to focus mostly on rough sleepers as opposed to other types of homelessness. The onset of the COVID-19 allowed outreach workers and local authorities to quickly move rough sleepers into emergency accommodation. In what seemed to be a course of action that solved homelessness, the research instead highlights the overriding priority of public health in the face of a global pandemic. The research concludes that in New Zealand, there is a need for DRR policies and frameworks that are inclusive to the homeless.

People living in prisons

Journal Article: Le Dé, L., & Gaillard, J. C. (2017). Disaster risk reduction and emergency management in prison: A scoping study from New Zealand. *Journal of Contingencies and Crisis Management*, 25(4), 376-381. <https://onlinelibrary.wiley.com/doi/abs/10.1111/1468-5973.12165>

This research note provides insights on disaster risk reduction (DRR) and emergency management in New Zealand prisons. It draws upon a scoping study that explores the exposure of prisons and identifies vulnerabilities and capacities of prisoners. This study also documents policies and practices for DRR and emergency management. It reveals that increasing awareness at the national level and improved DRR policies and emergency management initiatives may still prove insufficient to deal with increasing exposure and the particular vulnerability of a quickly growing number of inmates. The intrinsic capacities of these inmates also remain untapped. This research note further highlights the critical lack of collaboration between stakeholders of prison management, DRR and emergency management in New Zealand.

Rural communities

Journal Article: Smith, W., Davies-Colley, C., Mackay, A., & Bankoff, G. (2011). Social impact of the 2004 Manawatu floods and the 'hollowing out' of rural New Zealand. *Disasters*, 35(3), 540-553. <https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1467-7717.2011.01228.x>

The Manawatu floods of 2004 have had significant, long-lasting social consequences. This paper draws on findings from a series of detailed surveys of 39 farm households directly affected by the floods and 17 individuals directly involved in managing the flood recovery programme. The nature of the impact on rural families highlights how the 'hollowing out' of rural New Zealand has changed the capacity of rural communities to respond to natural hazards and increased their sense of isolation. In addition, the floods exposed the vulnerability of rural communities. This is shown to have implications for policies designed to build resilience and improve responses to adverse events, including the need to support local, community initiatives on self-reliance and mutual support. Approaches to manage better long-term flood risks should be designed within a context of ongoing rural decline that has compromised the health of both individuals and communities.

Journal Article: Smith, W., Kelly, S., & Owen, S. (2012). Coping with Hazards: A Comparison of Farmers' Responses to Drought and Flood in the Manawatu, New Zealand. *International Journal of Mass Emergencies & Disasters*, 30(1), 82-110. <https://doi.org/10.1177/028072701203000104>

Research on natural disasters has generally focused on specific hazard agents, often related to the disciplinary basis of those researchers concerned. Equally, social impacts have frequently been related to the composition and structure of the specific population involved. There have been few attempts to synthesise findings and few comparative studies. This paper explores the social impact of flood and drought on an agricultural region in New Zealand. It highlights the differential impact of floods and drought on farms as both businesses and family homes. The paper uses a range of published and unpublished sources as well as the findings drawn from interviews with 23 farm households that experienced prolonged drought in the summer of 2008. Eleven households had been interviewed previously as part of a larger study of 44 households that experienced severe flooding in February 2004. The remaining 12 households provide a comparison group that while having experienced the drought was not directly impacted by the earlier flood. Six officials, including community leaders and others involved in drought and flood relief were also interviewed. The interviews were conducted in the period June-October, 2008.

The results confirm the importance of the characteristics of the hazard in explaining its impact but also highlight the need to better understand the contextual factors involve when interpreting its social impact.

Journal Article: Whitman, Z. R., Wilson, T. M., Seville, E., Vargo, J., Stevenson, J. R., Kachali, H., & Cole, J. (2013). Rural organizational impacts, mitigation strategies, and resilience to the 2010 Darfield earthquake, New Zealand. *Natural Hazards*, 69(3), 1849-1875. http://trauma.massey.ac.nz/issues/2012-1/AJDTS_2012-1_Kachali.pdf

The 4 September 2010 Mw 7.1 'Darfield' earthquake and associated aftershock sequence affected the central Canterbury Plains of New Zealand's South Island, an area of high-intensity agricultural production, supported by rural service towns. With rural organizations exposed to intense ground shaking that caused widespread critical service outages, structural and non-structural damage to built infrastructure, as well as ground surface damage from flooding, liquefaction or surface rupture, the event represented a unique opportunity to study the impacts of a major earthquake and aftershock sequence on farming and rural non-farming organizations. This paper analyses the short-term impacts to 56 farming organizations and compares them to the impacts to 22 rural non-farming organizations four months following the event. The most commonly cited direct impacts to farming organizations were disruption to electrical services, water supply disruption and structural damage. For rural non-farming organizations, the most common direct impacts were non-structural damage, electricity disruption, and damage to equipment. The effect of stress on farmers was the greatest 2 organizational challenge while rural non-farming organizations cited maintaining cash flow to be of greater significance. In terms of mitigating the effects of the event, farming organizations cited well-built buildings and insurers to be helpful generally, and their neighbors to be most helpful specifically in areas of higher intensity shaking. Rural non-farming organizations utilized lenders or insurers, and showed very little use of neighbor relationships. In summary, this study emphasizes the fact that farming and rural non-farming organizations are impacted and respond to an earthquake in ways that are fundamentally distinct.

Journal Article: Cradock-Henry, N. A., Fountain, J., & Buelow, F. (2018). Transformations for resilient rural futures: the case of Kaikōura, Aotearoa-New Zealand. *Sustainability*, 10(6), 1-19. <https://doi.org/10.3390/su10061952>

On 14 November 2016, a magnitude (Mw) 7.8 earthquake struck the small coastal settlement of Kaikōura, Aotearoa-New Zealand. With an economy based on tourism, agriculture, and fishing, Kaikōura was immediately faced with significant logistical, economic, and social challenges caused by damage to critical infrastructure and lifelines, essential to its main industries. Massive landslips cut off road and rail access, stranding hundreds of tourists, and halting the collection, processing and distribution of agricultural products. At the coast, the seabed rose two metres, limiting harbour-access to high tide, with implications for whale watching tours and commercial fisheries. Throughout the region there was significant damage to homes, businesses, and farmland, leaving owners and residents facing an uncertain future. This paper uses qualitative case study analysis to explore post-quake transformations in a rural context. The aim is to gain insight into the distinctive dynamics of disaster response mechanisms, focusing on two initiatives that have emerged in direct response to the disaster. The first examines the ways in which agriculture, food harvesting, production and distribution are being reimagined with the potential to enhance regional food security. The second examines the rescaling of power in decision-making processes following the disaster, specifically examining the ways in which rural actors are leveraging networks to meet their needs and the consequences of that repositioning on rural (and national) governance arrangements. In these and other ways, the local economy is being revitalised, and regional resilience enhanced through diversification, capitalising not on the disaster but the region's natural, social, and cultural capital. Drawing on insights and experience of local stakeholders, policy- and decision-makers, and community representatives we highlight the diverse ways in which these endeavours are an attempt to create something new, revealing also the barriers which needed to be overcome to reshape local livelihoods. Results reveal that the process of transformation as

part of rural recovery must be grounded in the lived reality of local residents and their understanding of place, incorporating and building on regional social, environmental, and economic characteristics. In this, the need to respond rapidly to realise opportunities must be balanced with the community-centric approach, with greater recognition given to the contested nature of the decisions to be made. Insights from the case examples can inform preparedness and recovery planning elsewhere, and provide a rich, real-time example of the ways in which disasters can create opportunities for reimagining resilient futures.

Masters Dissertation: Fraser, B. (2020). Temporal drivers of disaster risk and resilience in rural New Zealand. (Master Dissertation, University of Canterbury) <https://ir.canterbury.ac.nz/handle/10092/101468>

The aim of this research is to draw together a cohesive summary that investigates the drivers and outcomes of rural disaster risk and resilience over multiple dimensions in the rural sector. This involves addressing the following objectives: Identify temporal drivers of change in rural communities, identify available data that can be used to characterize these drivers, and evaluate the impacts of a dynamic, changing rural environment on rural disaster resilience. To achieve these objectives, a review of rural literature, and New Zealand data was undertaken to gather rural indicator datasets. These indicators were visualised, primarily using geospatial analysis. The results are discussed through the lens of the Treasury Living Standards Framework, to quantify the potential impacts of this change on disaster resilience. The methodological findings of this thesis reveal that the availability and quality of data for rural decision makers is challenged by the nature of rural research and data collection in New Zealand. Additionally, available data does not currently reflect the true nature of New Zealand rural communities. The findings of this research reveal that rural communities in New Zealand have undergone significant change in the past 50 years. Key changes such as demographic shifts, land use change, and long term, multi-dimensional impacts from service rationalisation, such as the closure of schools and medical centres have impacted the disaster resilience of New Zealand's rural communities.

VII.

OCCUPATION



Frontline and rescue workers, First responders, Police Force and Emergency department staff

Journal Article: Richardson, S., & Ardagh, M. (2013). Innovations and lessons learned from the Canterbury earthquakes emergency department staff narratives. *Disaster Prevention and Management*, 22(5), 405–414. <https://doi.org/10.1108/DPM-09-2013-0167>.

Purpose – The purpose of this paper is to identify innovations and lessons learned from interviews with members of the multidisciplinary healthcare team who participated in the response to the 22 February earthquake, affecting the Canterbury region of New Zealand’s South Island. Design/methodology/approach – Narratives from individual staff members who were associated with the Christchurch Hospital Emergency Department response were recorded and analysed. This data, together with other contextual documents have been used to identify the responses of healthcare workers to an unexpected natural disaster. Perspectives were sought from a range of individuals, including allied health professionals, social workers, Maori health workers, orderlies, medical and nursing staff. Findings – The individual as well as the organisational responses to the earthquake events are significant, and need to be considered in relation to future planning and responses. In particular, the importance of encouraging and supporting a culture which values innovation and responsiveness was identified. While specific, practical responses to the earthquake disaster are noted, it is also important to acknowledge the implication for individuals of an acute, unanticipated event. Research limitations/implications – The findings from this study have the potential to illuminate possible responses in other crisis situations, and to guide the development of targeted support measures in response to disaster events. Originality/value – Little documentation has occurred to date relating the experiences of health care responders who are not only reacting to a natural disaster, but are also part of it. This is a unique and valuable perspective that has relevance within a number of settings.

Journal Article: Snell, D. L., Surgenor, L. J., Dorahy, M. J., & Hay-Smith, E. C. (2014). Coping and adjustment in New Zealand Police staff 12-18 months after the Canterbury earthquakes: A directed qualitative content analysis. *New Zealand Journal of Psychology*, 43(3), 5-13. <https://www.psychology.org.nz/journal-archive/NZJP-Vol-3-2014.pdf#page=5>

Following a significant earthquake police are a large first responder group involved in victim recovery, civil emergencies and community support. They are also exposed to the everyday work and non-work related disruptions associated with the disaster. Conservation of resources (COR) theory offers a framework for understanding longer-term health outcomes associated with disasters in this group. Using a mixed methods approach we surveyed coping resources and psychological health outcomes in police (sworn and non-sworn) working during the 2010-2011 earthquakes in Christchurch (New Zealand). Free text responses (n = 322) from the quantitative survey were subject to a directed qualitative content analysis. Initial data coding used four categories derived from COR theory then inductively grouped into a typology of losses and gains. Resource losses included on-going issues with insurance providers, damage and threat of loss to home, financial insecurity, and loss of social connectedness, lack of employer recognition and job threat. Resource gains included enhanced self-efficacy, posttraumatic growth and pride in contributing as police during the critical periods. COR theory was conceptually a good fit for the data, and underscored the dominance of disaster-associated day-to-day resource losses. Implications for staff support and wellbeing, and foci of future welfare interventions are considered.

Journal Article: Surgenor, L.J., Snell, D.L. and Dorahy, M.J. (2015). Posttraumatic stress symptoms in police staff 12-18 months after the Canterbury earthquakes. *Journal of Trauma and Stress*, 28(2), 162-166.
<https://doi.org/10.1002/jts.21991>

Understanding posttraumatic stress disorder (PTSD) symptoms in police first-responders is an underdeveloped field. Using a cross-sectional survey, this study investigated demographic and occupational characteristics, coping resources and processes, along with first-responder roles and consequences 18 months following a disaster. Hierarchical linear regression (N = 576) showed that greater symptom levels were significantly positively associated with negative emotional coping ($\beta = .31$), a communications role ($\beta = .08$) and distress following exposure to resource losses ($\beta = .14$), grotesque scenes ($\beta = .21$), personal harm ($\beta = .14$), and concern for significant others ($\beta = .17$). Optimism alone was negatively associated ($\beta = -.15$), with the overall model being a modest fit (adjusted $R^2 = .39$). The findings highlight variables for further study in police.

Journal Article: Shepherd, D., McBride, D., & Lovelock, K. (2017). First responder well-being following the 2011 Canterbury earthquake. *Disaster Prevention and Management: An International Journal*, 26(3), 286-287.
https://www.researchgate.net/publication/315997171_First_responder_wellbeing_following_the_2011_Canterbury_earthquake

Purpose: The role of first responders in mitigating the effects of earthquakes is vital. Unlike other disasters, earthquakes are not single events, and exposure to dangerous and trauma-inducing events may be ongoing. Understanding how first responders cope in the face of such conditions is important, for both their own well-being as well as the general public whom they serve. The paper aims to discuss these issues. Design/methodology/approach Using questionnaires, this study measured posttraumatic stress disorder (PTSD), psychological resilience, and reactive coping styles in a sample of first responders active during the 2011 Canterbury earthquake in New Zealand. Findings The prevalence of PTSD was similar to that reported in the literature. Psychological resilience, but not disaster exposure, was found to be associated with PTSD. Maladaptive coping strategies best predicted resiliency, but there were significant gender differences. Originality/value These findings can inform those managing first responder disaster workers through the consideration of preventive and treatment interventions.

Journal Article: McBride, D., Porter, N., Lovelock, K., Shepherd, D., Zubizaretta, M., & Burch, J. (2018). Risk and protective factors for the course of post-traumatic stress disorder in frontline workers after the Christchurch, New Zealand earthquake. *Disaster Prevention and Management: An International Journal*, 27(2), 193-206.
<https://www.emerald.com/insight/content/doi/10.1108/DPM-09-2017-0226/full/html>

Purpose – The purpose of this paper is to describe risk and protective factors for symptoms of post-traumatic stress disorder (PTSD) experienced over a 1.5-year period among both frontline and “non-traditional” responders to the 2010 and 2011 earthquakes in Christchurch, New Zealand. Design/methodology/approach – A longitudinal survey administered to Christchurch workers with referents from the city of Hamilton at 6, 12 and 18 months after the 2011 earthquake. Potential risk and protective determinants were assessed by questionnaire items at baseline and over time, the outcome being PTSD as assessed by the PTSD Checklist-Civilian version. A longitudinal latent class analysis identified groups with similar trajectories of PTSD. Findings – A total of 226 individuals, 140 (26 per cent) from Christchurch and 86 (16 per cent) from Hamilton, participated at baseline, 180 at 12 and 123 at 18 months, non-traditional responders forming the largest single group. Two latent classes emerged, with PTSD (21 per cent)

and without PTSD (79 per cent), with little change over the 18-month period. Class membership was predicted by high scores in the Social Support and Impact of Events scale items, Health-related Quality of Life scores being protective. PTSD scores indicative of distress were found in females, and predicted by burnout risk, behavioural disengagement and venting. Practical implications – Non-traditional responders should be screened for PTSD. Social support should be considered with the promotion of adaptive coping mechanisms. Originality/value – The strength was longitudinal follow-up over an 18-month period, with demonstration of how the potential determinants influenced the course of PTSD over time.

Doctors/Hospital staff/Nurses/Medical Students

Journal Article: Richardson, S., Ardagh, M., Grainger, P. and Robinson, V. (2013). A moment in time: emergency nurses and the Canterbury earthquakes. *International Nursing Review*, 60(2), 188-195.
https://www.researchgate.net/publication/236926163_A_moment_in_time_Emergency_nurses_and_the_Canterbury_earthquakes

Aim: To outline the impact of the Canterbury, New Zealand (NZ) earthquakes on Christchurch Hospital, and the experiences of emergency nurses during this time. Background: NZ has experienced earthquakes and aftershocks centred in the Canterbury region of the South Island. The location of these, around and within the major city of Christchurch, was unexpected and associated with previously unknown fault lines. While the highest magnitude quake occurred in September 2010, registering 7.1 on the Richter scale, it was the magnitude 6.3 event on 22 February 2011 which was associated with the greatest injury burden and loss of life. Staff working in the only emergency department in the city were faced with an external emergency while also being directly affected as part of the disaster. Sources of evidence: This paper developed following interviews with nurses who worked during this period, and draws on literature related to healthcare responses to earthquakes and natural disasters. The establishment of an injury database allowed for an accurate picture to emerge of the injury burden, and each of the authors was present and worked in a clinical capacity during the earthquake. Discussion: Nurses played a significant role in the response to the earthquakes and its aftermath. However, little is known regarding the impact of this, either in personal or professional terms. This paper presents an overview of the earthquakes and experiences of nurses working during this time, identifying a range of issues that will benefit from further exploration and research. It seeks to provide a sense of the experiences and the potential meanings that were derived from being part of this 'moment in time'. Conclusion: Examples of innovations in practice emerged during the earthquake response and a number of recommendations for nursing practice are identified.

Journal Article: Sheehan D., Thwaites J., York B., & Lee J. (2013). Lessons from the February 2011 Christchurch Earthquake for the training and preparation of Post Graduate Year 1 (PGY1) doctors. *The New Zealand Medical Journal*, 126(1373), 93-94.
<https://www.proquest.com/docview/1337500714?pq-origsite=gscholar&fromopenview=true>

On 22 February 2011, a 6.3 magnitude earthquake struck Christchurch, New Zealand injuring 6659 people with the equivalent of a month's worth of major trauma (150 cases) admitted through the Christchurch Hospital doors in just a few hours. There was considerable distress and damage throughout the three hospitals. This letter shares lessons learnt for informing prevocational (PGY1) training in New Zealand drawing on data from a larger study undertaken to document Prevocational House Officers (PGY1HO) experience of the earthquakes. This retrospective study used a mixed methods design and is part of the Researching the Health Implications of Seismic Event group (RHISE). There were 36 PGY1HOs employed at the Christchurch District Health Board (CDHB) at the time of the earthquake on 22 February 2011. There was a 72% response to the survey.

Journal Article: Tovarantonite, P., & Cawood, T. J. (2013). Impact of the Christchurch earthquakes on hospital staff. *Prehospital and Disaster Medicine*, 28(3), 245-250.
<https://www.proquest.com/docview/1353375607?pq-origsite=gscholar&fromopenview=true>

Introduction: On September 4, 2010 a major earthquake caused widespread damage, but no loss of life, to Christchurch city and surrounding areas. There were numerous aftershocks, including on February 22, 2011 which, in contrast, caused substantial loss of life and major damage to the city. The research aim was to assess how these two earthquakes affected the staff in the General Medicine Department at Christchurch Hospital. *Problem:* To date there have been no published data assessing the impact of this type of natural disaster on hospital staff in Australasia. *Methods:* A questionnaire that examined seven domains (demographics, personal impact, psychological impact, emotional impact, impact on care for patients, work impact, and coping strategies) was handed out to General Medicine staff and students nine days after the September 2010 earthquake and 14 days after the February 2011 earthquake. *Results:* Response rates were > or = 99%. Sixty percent of responders were <30 years of age, and approximately 60% were female. Families of eight percent and 35% had to move to another place due to the September and February earthquakes, respectively. A fifth to a third of people had to find an alternative route of transport to get to work but only eight percent to 18% took time off work. Financial impact was more severe following the February earthquake, with 46% reporting damage of >NZ \$1,000, compared with 15% following the September earthquake ($P < .001$). Significantly more people felt upset about the situation following the February earthquake than the September earthquake (42% vs 69%, $P < .001$). Almost a quarter thought that quality of patient care was affected in some way following the September earthquake but this rose to 53% after the February earthquake (12/53 vs 45/85, $P < .001$). Half believed that discharges were delayed following the September earthquake but this dropped significantly to 15% following the February earthquake (27/53 vs 13/62, $P < .001$). *Conclusion:* This survey provides a measure of the result of two major but contrasting Christchurch earthquakes upon General Medicine hospital staff. The effect was widespread with minor financial impact during the first but much more during the second earthquake. Moderate psychological impact was experienced in both earthquakes. This data may be useful to help prepare plans for future natural disasters.

Journal Article: Carter, F.A., Bell, C.J., Ali, A.N., McKenzie, J. and Wilkinson, T.J. (2014). The impact of major earthquakes on the psychological functioning of medical students: a Christchurch, New Zealand study. *New Zealand Medical Journal*, 127(1398), 54-66.
<https://journal.nzma.org.nz/journal-articles/the-impact-of-major-earthquakes-on-the-psychological-functioning-of-medical-students-a-christchurch-new-zealand-study>

Background: No previous studies have systematically assessed the psychological functioning of medical students following a major disaster. *Aim:* To describe the psychological functioning of medical students following the earthquakes in Canterbury, New Zealand, and identify predictors of adverse psychological functioning. *Method:* 7 months following the most severe earthquake, medical students completed the Depression, Anxiety and Stress Scale (DASS), the Post-Traumatic Stress Disorder Checklist, the Eysenck Personality Questionnaire, the Connor Davidson Resilience Scale, the Work and Adjustment Scale, and Likert scales assessing psychological functioning at worst and currently. *Results:* A substantial minority of medical students reported moderate-extreme difficulties on the DASS subscales 7 months following the most severe earthquake (Depression =12%; Anxiety =9%; Stress =10%). Multiple linear modelling produced a model that predicted 27% of the variance in total scores on the DASS. Variables contributing significantly to the model were: year of medical course, presence of mental health problems prior to the earthquakes, not being New Zealand European, and being higher on retrospectively rated neuroticism prior to the earthquakes. *Conclusion:* Around 10% of medical students experienced moderate-extreme psychological difficulties 7 months following the most severe earthquake on 22 February 2011. Specific groups at high risk for ongoing psychological symptomatology were able to be identified.

Journal Article: Johal, S., Mounsey, Z., Tuohy, R., & Johnston, D. (2014). Coping with disaster: General practitioners' perspectives on the impact of the Canterbury earthquakes. *PLOS Current Disasters*. <https://pubmed.ncbi.nlm.nih.gov/24707446/>

Aim – To explore the challenges for general practitioners (GPs) following the 2010/2011 Canterbury earthquakes and describe how these were met. Methods–Qualitative study using semi-structured interviews with eight GPs from the Christchurch area exploring their experiences. Results – The interviews revealed that the GPs faced a range of challenges both in the immediate aftermath of the earthquakes and in the following months. These included dealing with an increased and changed workload, and managing personal concerns. The GPs reflected on their coping behaviour and how their professional practice had changed as a result. Conclusions – All GPs reported significant increases in workload raising questions about the need for coordination of locum support. GPs often found themselves working outside their area of accustomed expertise especially in relation to patients needing financial aid. GPs identified a number of coping behaviours though some only in hindsight. Greater awareness of self-care strategies would benefit GPs responding to disasters.

Journal Article: Sheehan, D., Thwaites, J., York, B., & Lee, J. (2014). The Emotional Impact of the February 2011 Christchurch Earthquake on the Junior Doctor workforce. *Australasian Journal of Disaster & Trauma Studies*, 18(2), 57-63. <https://www.proquest.com/docview/1679393246/fulltextPDF/CB52CEA139FC438CPQ/1?accountid=8424>

On the 22nd of February 2011, a 6.3 magnitude earthquake struck Christchurch, New Zealand. The events of February 2011, the preceding and the thousands of aftershocks have had a devastating effect on those living in the region including the junior doctor workforce. The purpose of this study was to document and describe new graduate doctors personal and professional experience of the Christchurch earthquakes. As phenomenological research, this paper seeks to describe the lived experience of the junior doctor workforce who experienced the event. This article focuses on the analysis of qualitative data generated as part of a larger mixed method study designed to capture the experience of this defined cohort of front line junior staff. A phenomenological approach was used to analyse qualitative data from survey and in-depth interviews to allow the experiences of participants to be described. Qualitative data from the survey and thematic analysis of the narratives suggest that few were emotionally prepared for the events of February. Seven themes were identified and from these we have prepared a composite narrative to demonstrate themes in the language of those interviewed. The individual experience of the earthquakes had a significant impact on individuals, their emotional well-being, living circumstances, work, and learning and for some, their career direction. This study provides an insight into the experiences and reminds us of the personal impact of disaster on a workforce. We hope it can contribute to and maybe generate interest within the health research community, in further exploring these kinds of experiences.

Journal Article: Johal, S., & Mounsey, Z. (2015). Finding positives after disaster: Insights from nurses following the 2010-2011 Canterbury, NZ earthquake sequence. *Australasian Emergency Nursing Journal*, 18, 174-181. <https://www.sciencedirect.com/science/article/abs/pii/S1574626715000841>

Background: This paper identifies positive aspects of nurse experiences during the Canterbury 2010–2011 earthquake sequence and subsequent recovery process. Methods: Qualitative semi-structured interviews were undertaken with 11 nurses from the Christchurch area to explore the challenges faced by the nurses during and following the earthquakes. The interviews took place three years after the start of the earthquake experience to enable exploration of the longer term recovery process. The

interview transcripts were analysed and coded using a grounded theory approach. Results: The data analysis identified that despite the many challenges faced by the nurses during and following the earthquakes they were able to identify positives from their experience. A number of themes were identified that are related to posttraumatic growth, including; improvement in relationships with others, change in perspective/values, changed views of self and acknowledgement of the value of the experience. Conclusions: The research indicates that nurses were able to identify positive aspects of their experiences of the earthquakes and recovery process, suggesting that both positive and negative impacts on wellbeing can co-exist. These insights have value for employers designing support processes following disasters as focusing on positive elements could enhance nurse wellbeing during stressful times.

Journal Article: Johal, S., Mounsey, Z., Brannelly, P., & Johnston, D. (2016). Nurse perspectives on the practical, emotional and professional impacts of living and working in post-earthquake Canterbury, New Zealand. *Prehospital and Disaster Medicine*, 31, 2-7.
<https://www.proquest.com/docview/1762527011?fromopenview=true&pq-origsite=gscholar>

Introduction: This report explores nurses' perspectives following the Canterbury (New Zealand) 2010-2011 earthquake sequence and the subsequent recovery process. Problem: Little is known about the experiences of health care professionals during a disaster recovery process, and this research generates insights about the challenges faced. Methods: Qualitative semi-structured interviews were undertaken with 11 nurses from the Christchurch (New Zealand) area to explore the challenges faced by the nurses during and following the earthquakes. The interviews took place three years after the start of the earthquake experience to enable exploration of longer term aspects of the recovery process. The interview transcripts were analyzed and coded using a grounded theory approach. Results: The data analysis identified that the nurses had faced a number of challenges and these were characterized as practical, emotional, and professional. While some of the challenges were short-lived in the aftermath of the earthquakes, some were long-lasting due to the extended nature of the recovery process. Dealing with house damage, insurance negotiations, and working in damaged environments had a negative impact on the nurses. The nurses experienced a range of emotions, both negative and positive, after the disaster, though many had needed time to elapse before feeling able to reflect on their experiences. Discussion: The findings suggest that secondary stressors have a negative impact on the psychosocial recovery process. The nurses recognized that they received support from others and were also required to focus on others. Keeping busy appeared to be the most common coping strategy. This lack of reflection on their experiences may have resulted in delayed emotional responses. Some of the nurses changed their work role, hours, and responsibilities suggesting that working in this environment was having a detrimental impact. Conclusion: The research indicates the challenges faced by nurses in the initial impact of the earthquakes and during the longer term recovery process. There is a need to consider the psychosocial impact of working and living in a post-disaster context and to develop support packages to ensure the health and well-being of nurses in this environment.

Social workers

Journal Article: Corin, C. (2011). The Christchurch Hospital social work service response in the first hours after the Christchurch earthquake of 22nd February 2011. *Aotearoa New Zealand Social Work*, 23(3), 58-62.
<https://anzswjournal.nz/anzsw/article/view/161>

"I was sitting in a coffee shop in High Street, in the CBD when the earthquake hit. My friend, Emma, and I got under the table. The power went out, cups and plates shattered and ceiling tiles fell. People were screaming. As soon as the shaking stopped we ran outside and saw huge clouds of dust from collapsed buildings further down the street. Emma's son was at the Discovery School, on the next block. We held hands and ran over the cracked and buckled pavement. After reuniting Emma with her son I left the school and ran down Colombo Street, passing people emerging from collapsed shop fronts. I saw the ruined buildings as I ran but felt detached from the enormity of the situation. I could see other people around and rationalised that they could stay and help. All I knew was that I needed to get back to work."

Journal Article: Maher, P., & Maidment, J. (2013). Social work disaster emergency response within a hospital setting. *New Zealand Social Work*, 25(2), 69-76.
<https://anzswjournal.nz/anzsw/article/view/82>

This article outlines the social work contribution to a series of post-disaster emergency response interventions occurring in the Canterbury region between 2007 and 2012. While the earthquakes of September 4th 2010 and February 22nd 2011 provide the major focus for discussing the tasks and processes involved in emergency response interventions, an earlier critical incident involving a large number of youth prompted the development of the emergency response protocols. These protocols are discussed in light of the social work response to the Canterbury earthquakes. The challenges encountered through working in a rapidly changing physical and professional context are outlined including a discussion about the application of diverse forms of debriefing. New learning for social work practice derived out of engagement with emergency response work is summarised.

Journal Article: Hay, K., & Pascoe, K-M. (2018). Where is social work in emergency management? Exploring visibility in New Zealand online media. *Australasian Journal of Disaster and Trauma Studies*, 22(1), 3-10.
https://trauma.massey.ac.nz/issues/2018-1/AJDTs_22_1_Hay.pdf

Registered social workers in New Zealand have transferable skills and capabilities that enable them to work with diverse populations at levels including the individual, family and community. Working across government and non-government organisations, they are well-situated to effectively contribute to emergency management. Despite this, their current engagement in emergency management is largely invisible even though, anecdotally, it is known that many social workers have been active in this field. In the main, public understanding of social workers is limited and they are frequently portrayed by the media in negative terms, with an emphasis on critical incidents such as child deaths. This limited reporting of the breadth and depth of the knowledge and skills of social workers may affect credibility, perception and uptake. Consequently, media portrayals may limit other professionals' engagement with them in the planning and mitigation phases of emergency management, in particular. Further, the public may be reluctant to seek or accept social workers' professional support during and after an emergency. This article presents the results of a content analysis of New Zealand online media depictions of social work and emergencies over the past ten years. The findings illustrate the minimal visibility of social work and emergencies in New Zealand media. Social work representations are largely focused on the profession having a role in addressing ongoing psychosocial needs in the mid- and longer-term recovery phases. Recommendations include increasing positive media profiling of social workers and illuminating the broad scope of their practice. Enhancing

current relationships between the social work profession and the emergency management sector will also lead to more positive well-being outcomes for individuals, families, and communities in New Zealand.

Journal Hay, K., & Pascoe, K. M. (2021). Social workers and disaster management: an Aotearoa New Zealand perspective. *The British Journal of Social Work*, 51(5), 1531-1550.
Article: <https://doi.org/10.1093/bjsw/bcab127>

In many parts of the world, social workers have long supported disaster responses although in Aotearoa New Zealand, social work is not generally considered an essential component of disaster management. Promoting the development of safer, less vulnerable communities, is however a key activity for both social work and disaster management. The recent shift from a traditional focus on hazards to vulnerability and resilience consolidates the alignment and importance of social work within this field. This article reports the results of the first known survey of registered social workers in Aotearoa New Zealand and their involvement in disaster events. Additionally, the article highlights the perspectives of six disaster management professionals on the role of social workers in disaster management. The findings offer examples of social workers' engagement in disaster work, the variable understanding of social work by disaster management personnel, and the importance of social work maintaining a positive public profile. Implications for future social work practice and education internationally as well as disaster management policy and practice are outlined.

Journal Hay, K., Pascoe, K. M., & McCafferty, L. (2021). Qualitative research:
Article: Social worker experiences in disaster management: Case studies from Aotearoa New Zealand. *Aotearoa New Zealand Social Work*, 33(1), 17-28.
<https://search.informit.org/doi/10.3316/informit.827490271737453>

Introduction: Despite minimal public attention, many social workers in Aotearoa New Zealand have been active contributors to disaster management practice. Disaster management comprises four stages: risk reduction; readiness; response; and recovery. Social workers, as professionals in multiple fields of practice, may be engaged in one or more of these stages. Methods: This article draws from a four-stage project that explored the involvement of registered social workers from Aotearoa New Zealand in disaster management. In the final project stage, 11 social workers were interviewed for the purpose of developing case studies for research and teaching purposes. This article presents the practice observations of two of these social workers in a case study format. Findings: The experiences of the two social workers emphasises the importance of understanding communities, debriefing and supervision, and having a suite of tools for postdisaster situations. The case studies highlight the complex and vital work undertaken by the social workers following the Canterbury 2011 earthquakes. Conclusion: It is important that social workers understand disaster management and how their skills and knowledge can be transferred into this space. Regular professional supervision, and adequate resources are essential components in the long-term recovery phase of disaster management. Social work as a profession can provide leadership in disaster management through celebrating previous social work practice in this field.

Journal Article: Hay, K., & Pascoe, K. M. (2022). Engaging social workers in disaster management: Case studies from New Zealand. *International Journal of Disaster Risk Reduction* 74, 102941. <https://www.sciencedirect.com/science/article/abs/pii/S2212420922001601>

Social workers in New Zealand are well-positioned to work in disaster management and respond to the complexities that arise from human-made and natural disasters. Their professional roles within communities, often working with the most vulnerable members of society, mean they can effectively connect with people affected by disaster as well as those organisations engaged in disaster management. Disaster management professionals' understanding of the extent of a social worker's role is, however, limited. Using a case study approach, this article showcases the experiences of two registered social workers following the Kaikōura earthquake in New Zealand in 2016. The intention of the case studies is to highlight different aspects of social work practice post-disaster and draw attention to the importance of including social workers in all four phases of disaster management. Strengthening the relationship, both locally and nationally, between the social work professional association and key disaster management organisations such as civil defence is recommended.

Teachers & University Staff

Journal Article: Kuntz, J., Näswall, K., & Bockett, A. (2013). Keep calm and carry on? An investigation of teacher burnout in a post-disaster context. *New Zealand Journal of Psychology*, 42(2), 57–67. https://ndhadeliver.natlib.govt.nz/delivery/DeliveryManagerServlet?dps_pid=IE17503488

This study sought to investigate teachers' burnout perceptions and workplace attitudes in the aftermath of the major Christchurch earthquakes. A Burnout Model was proposed whereby emotional exhaustion and cynicism were hypothesised to mediate the relationships between disaster-related and role-related variables (quality of school support for staff and students, role conflict and role overload), and turnover intentions. A sample of 125 Christchurch teachers completed an online survey. Results revealed that schools' ineffective disaster responsiveness, impact of the disaster on school facilities and teaching, and perceptions of role overload were associated with increased levels of burnout, and that the relationship between role overload and turnover intentions was mediated by perceptions of emotional exhaustion. Implications for disaster research and recovery in school settings are discussed

Journal Article: Mutch, C. (2015). Quiet heroes: Teachers and the Canterbury, New Zealand, earthquakes. *Australasian Journal of Disaster And Trauma Studies*, 19(2), 77-85. https://trauma.massey.ac.nz/issues/2015-2/AJDTs_19_2_full.pdf#page=27

This article argues that teachers deserve more recognition for their roles as first responders in the immediate aftermath of a disaster and for the significant role they play in supporting students and their families through post-disaster recovery. The data are drawn from a larger study, 'Christchurch Schools Tell Their Earthquake Stories' funded by the United Nations Educational, Scientific and Cultural Organisation and the University of Auckland, in which schools were invited to record their earthquake stories for themselves and for historical archives. Data were gathered from five primary schools between 2012 and 2014. Methods concerned mainly semi-structured individual or group interviews and which were analysed thematically. The approach was sensitive, flexible and participatory with each school being able to choose its focus, participants and outcome. Participants from each school generally included the principal and a selection of teachers, students and parents. In this study, the data relating to the roles of teachers were separated out for closer analysis. The findings are presented as four themes: immediate response; returning to (new) normal; care and support; and long term effects.

Journal Article: Bell, C., Carter, F., Boden, J., Wilkinson, T., McKenzie, J. and Ali, A. (2016). Psychological impact of the Canterbury earthquakes on university staff. *New Zealand Medical Journal*, 129 (1430), 18-28.
<https://pubmed.ncbi.nlm.nih.gov/26914419/>

Aim: To assess the impact of the Canterbury earthquakes on the psychological functioning of university staff, to identify predictors of adverse psychological functioning and to survey how different aspects of work roles (academic, teaching, clinical, administrative) were affected. Methods: Eighteen months following the most severe earthquake, 119 staff from the University of Otago based in Christchurch completed a retrospective survey. This included demographic information, a measure of earthquake exposure, standardised and self-rated measures to identify psychological distress and measures of how people perceived different aspects of their work roles were impacted. Results: A substantial minority of staff reported moderate-extreme difficulties on the Depression, Anxiety and Stress Scale (DASS) subscales 18 months following the most severe earthquake (Depression=9%; Anxiety=3%; Stress =13%). Predictors of distress were higher levels of exposure to earthquake-related stressors, neuroticism and prior mental health disorders. There was an association between impact and work roles that was hierarchical; academic and administrative roles were most affected, followed by teaching with the least impact on clinical roles. Conclusions: This study shows that psychological symptoms following a disaster are common, but in a retrospective survey most people report that these improve with time. A minority however, continue to report difficulties which persist even 18 months post disaster. It also gives insights into how different work roles were impacted and from this makes suggestions for how organisations can support staff over difficult times.

Journal Article: O'Toole, V. M., & Friesen, M. D. (2016). Teachers as first responders in tragedy: The role of emotion in teacher adjustment eighteen months post-earthquake. *Teaching and Teacher Education*, 5957-5967.
<https://www.sciencedirect.com/science/article/abs/pii/S0742051X16300920>

The present study examined how teachers functioned as first responders in a natural disaster and their perceptions of their emotional management both in the immediate aftermath of a large earthquake and their personal and professional functioning 18 months after the disaster. Employing a mixed-methods design, the results showed mixed effects for earthquake related factors and emotional management in associations with personal and professional functioning. The findings point to the importance of teacher training in emotional management and the role that school management can play in training teachers for their role as first responders and sensitively managing their post-disaster work environment.

Journal Article: O'Toole, V. M. (2017). "I thought I was going to die": teachers' reflections on their emotions and cognitive appraisals in response to the February 2011 Christchurch earthquake. *New Zealand Journal of Psychology*, 46(2), 71-86.
<https://www.proquest.com/scholarly-journals/i-thought-was-going-die-teachers-reflections-on/docview/1931249465/se-2>

This article reports a subset of findings from a mixed-methods study reporting the emotional impacts of the February 2011 earthquake on a small sample of twenty Christchurch teachers, who functioned as first responders when this struck while they were on duty at school. This article reports a qualitative analysis of their retrospectively reported emotions experienced at the impact of the disaster and early aftermath, through the lens of Lazarus's (1991) cognitive-motivational-relational emotion theory. Focusing on the emotions and appraisals as discussed in a narrative context, the qualitative findings provide support for Lazarus's core relational themes for fright/fear, anxiety and relief. The teachers' retrospective appraisals and core relational themes supported previous emotion appraisal research. The emotion findings also resonate with other Christchurch earthquake research findings.

Journal Article: O’Toole, V. M. (2017). “Fear would well up and it was just a luxury that you just didn’t have time for”: Teachers’ emotion regulation strategies at school during the February 2011 Christchurch Earthquake. *Social Psychology of Education*, 20(3), 513-542. <https://link.springer.com/article/10.1007/s11218-017-9383-0>

This study reports a subset of findings from a larger study that examined the emotional impacts of the 22 February 2011 Christchurch earthquake on 20 teachers, who functioned as first responders when the earthquake struck in the middle of a normal school day. This qualitative study investigated the emotion regulation strategies employed by these teachers in the early moments of the earthquake in order to manage their own fears and ensure the safety of the students in their care. The study drew on the methods of Sutton (Soc Psychol Educ 7(4):379–398, 2004. doi:10.1007/s11218-004-4229-y) where teachers retrospectively reported the emotion regulation goals and strategies used in real-life school scenarios. The Christchurch teachers’ emotion regulation goals and strategies for their peritraumatic fear in the first moments of the earthquake were in alignment with previous research. Strategies that teachers normally use to ensure they present a calm and professional image in the presence of strong negative emotion underpinned the regulation of these teachers’ fears elicited at the moment of the earthquake. Exposure to multiple episodes of trauma also appears to have elicited emotion regulatory choices similar to those of professional first responders dealing with extreme trauma on a regular basis. The teachers’ attributions and ways of reporting their experiences resonated with emotional labor and emotion work perspectives, and demonstrated their commitment to caring for their students as their priority goal.

Journal Article: O’Toole, V. M. (2018). “Running on fumes”: Emotional exhaustion and burnout of teachers following a natural disaster. *Social Psychology of Education*, 21, 1081-1112. <https://www.proquest.com/docview/2063532265?pq-origsite=gscholar&fromopenview=true>

This study reports on the emotional exhaustion and burnout of five teachers who acted as first responders when a large earthquake struck their city during school hours. Eighteen months after the earthquake, these teachers recounted, then discussed their earthquake experiences. Teachers used a mood meter (Brackett and Kremenitzer, Creating emotionally literate classrooms: an introduction to the RULER approach to social and emotional learning, Dude Publishing, New York, 2011) to indicate their core affect for three situations; in the early aftermath of the earthquake (recollected); at the time of the interview, and in their present teaching. They also completed a series of questionnaires, including the Positive and Negative Affect Scale (Watson et al. in J Pers Soc Psychol 54(6):1063–1070, 1988), and the Copenhagen Burnout Inventory, Adapted for Teachers (Milfont et al. in Soc Indic Res 89(1):169–177, 2008. <https://doi.org/10.1007/s11205-007-9229-9>). The mood meter was a valuable tool for tracking the core affect of a group of teachers as a whole, over time and in different contexts. Generally, teachers showed improved core affect over time. However, the mood meter also revealed individual variations and differences in core affect over time and in different contexts. The findings revealed the individual nature of teachers’ current emotional exhaustion and burnout in response to the unique antecedents that each teacher experienced during this period. With a new and innovative use of the mood meter as part of the interview process, it has revealed insightful qualitative data for understanding and making sense of the teachers’ emotional responses and ways to interpret these. Overall, this study confirms the importance and value of within-teacher experiential research examining the experiences, emotional exhaustion and burnout of individual teachers.

Journal Article: Bateman, A., & Robinson, P. (2020). The Christchurch earthquake: lessons from the real-life experiences of early childhood teachers: Special Issue: 'Preparing Early Childhood Teachers to Assist Children Who Are Caught in Disasters'. *Journal of Early Childhood Teacher Education*, 41(4), 325-337. <https://www.tandfonline.com/doi/abs/10.1080/10901027.2019.1654049>

Even though natural disasters are becoming increasingly prevalent, research investigating and offering practical advice to teachers around caring for children during and after an earthquake event is limited. This article aims to provide unique insight from early childhood teachers into a real-life experience of caring for children at their early childhood center during and after the earthquake in Christchurch New Zealand in February 2011. Details of the setting on the day of the earthquake prior to the event are discussed, followed by what happened during the earthquake, the situation immediately following the earthquake when parents arrived to collect their children, and the subsequent days and weeks following the earthquake. The article concludes with advice and guidance from the teachers around tips and strategies for supporting children's social and emotional wellbeing in such a situation for fellow teachers who may find themselves in similar circumstances in the future. Through providing this discussion, future early childhood teachers can be guided, not by hypothetical best practice, but by real-life events from early childhood teachers who have first-hand experience of supporting children prior to, during and after an earthquake event. This therefore provides essential opportunities for learning from practice and preparing for the future.

Students

Journal Article: Kemp, S., Helton, W. S., Richardson, J. J., Blampied, N. M., & Grimshaw, M. (2011). Sleeplessness, stress, cognitive disruption and academic performance following the September 4, 2010, Christchurch earthquake. *Australasian Journal of Disaster and Trauma Studies*, 2011(2), 11-18. https://www.massey.ac.nz/~trauma/issues/2011-2/AJDTs_2011-2_full.pdf#page=11

Two studies investigated psychological effects of the September 4, 2010 Christchurch earthquake. Study 1 found self-reported sleeplessness, cognitive dysfunction, and heightened stress, depression and anxiety in members of the general public who had experienced the earthquake and aftershocks, but many also reported positive experiences. The self-reported effects were much stronger for women than men. Those scoring higher on neuroticism were worse affected, but otherwise effects varied little with personality. Study 2 examined academic performance by over 9000 University of Canterbury undergraduate students in the second semester (July-October) of 2010 and found no performance decrement for either men or women.

Journal Article: Beaven, S., Johnston, L., Wilson, T., Brogt, E., Blythe, J., Reugg, C., Letham, M., Gomez, C., Seville, E., Ogier, J., Hawker, C., & Lyttle, J. (2014). Risk and resilience factors reported by a New Zealand tertiary student population after the 4th September 2010 Darfield Earthquake. *International Journal of Mass Emergencies & Disasters*, 32(2), 375-404. <https://doi.org/10.1177/028072701403200206>

An online survey of 3,571 University of Canterbury tertiary students was undertaken four to six weeks after the Mw 7.1 Darfield (Canterbury) earthquake impacted Christchurch, New Zealand. The aim was to identify factors indicating increased psychological risk after the event, and so gauge the well-being of the student population, while gathering feedback on the University's post-earthquake communication strategy. The majority of students reported diminished stress during aftershocks since the event, and 93% reported 'feeling OK again' at the time of survey completion. More than 95% reported being satisfied

or very satisfied with the University's communication strategy, and would recommend the University to other students. Students also reported concern about the potential impact of the earthquake on their academic performance. Heightened risk was associated largely with aspects of impact exposure. Established risk factors, such as damage to residences, were confirmed in these findings. Short absences from the city after the event were also associated with increased risk. Identifying significant risk factors, and indicating the importance of rapid and regular post-disaster communication, these findings are particularly relevant for those involved in tertiary institutional planning for future disaster events.

Business owners

Journal Article: Prayag, G., Ozanne, L. K., & de Vries, H. (2020). Psychological capital, coping mechanisms and organizational resilience: Insights from the 2016 Kaikoura earthquake, New Zealand. *Tourism Management Perspectives*, 34, 100637. <https://www.sciencedirect.com/science/article/abs/pii/S2211973620300040>

Psychological capital (PsyCap) of tourism business owners and managers in the face of adversity has received scant attention. This study explores how the four components (self-efficacy, hope, optimism and psychological resilience) of PsyCap affect organizational resilience in a post-quake environment. Using a case-study approach and in-depth interviews with small tourism business owners and managers in Kaikoura, New Zealand, we found that problem-focused and emotion-focused coping mechanisms enabled participants to activate PsyCap components to build organizational resilience. Realistic optimism of owners and managers, for example, fuelled problem-focused coping strategies that led to greater situation awareness of changes in both the internal and external business environment. The findings have implications for small tourism businesses as they navigate the recovery process following major disasters.

Sex workers

Journal Article: Blake, D., Fraser, C., & Groot, S. (2022). Sex workers' experiences following the Canterbury earthquakes: Recovery and rebuild. *International Journal of Disaster Risk Reduction*, 77, 103038. <https://www.sciencedirect.com/science/article/abs/pii/S2212420922002576>

The social and occupational stigma that impacts on sex workers' resilience following a significant disaster has received little to no attention. To remedy this gap, this paper explores how experiences of stigma have impacted sex workers lives following the 2010-2011 Canterbury earthquakes in Aotearoa New Zealand. We set out to understand how stigma enabled and constrained sex workers' ability to respond to and recover from the earthquakes. We coalesce knowledge from across the domains of sex work, social stigma and disaster management. Semi-structured, in person interviews were held with sex workers who worked during or after the time of the Canterbury earthquakes in Ōtautahi (Christchurch). Additional interviews were conducted with stakeholders who worked with or continued to support sex workers in Christchurch. From across these interviews, narrative tropes were identified, including the risks of divulging sex work in the aftermath of a disaster; navigating intersectional stigma and accessing help; addressing sex workers' unique needs following the earthquakes; and media as a site of stigma. This research aims to combat the negative effects of stigma by encouraging disaster management officials and associated services to attend to the needs of precariat communities during adverse events.

Interpreters

Book Bouterey, S. (2019). Interpreters at the Front Line: Some Reflections on the 2011 Christchurch Earthquake. In *Crisis and Disaster in Japan and New Zealand* (pp. 143-157). Palgrave Macmillan, Singapore.
Chapter: https://link.springer.com/chapter/10.1007/978-981-13-0244-2_9

What insights might a focus on interpreters give us on disasters, and our capacity to respond to disasters, in a 'global age'? In this chapter, Bouterey aims to shed some light on these and other such questions by examining the role of Japanese interpreters in the aftermath of the 2011 Christchurch Earthquake. Drawing on the author's own experiences and those of other fellow volunteer interpreters, this study considers the challenges faced by the Japanese interpreters as they assisted the New Zealand Police, Ministry of Foreign Affairs and other parties in working with the families of the Japanese victims. Bouterey concludes with some reflections on lessons to be learned and possible future directions.

This page deliberately left blank

**RESILIENCE
TO NATURE'S
CHALLENGES**

Kia manawaroa –
Ngā Ākina o
Te Ao Tūroa

March 2023

Resilience to Nature's Challenges | Kia manawaroa – Ngā Ākina o Te Ao Tūroa

Proudly hosted by GNS Science | Te Pū Ao

PO Box: 30368, Lower Hutt 5040, New Zealand