People in Disasters

Conference 2016:

Learning Report

Christchurch earthquake: mental health impacts and psychosocial recovery

Contents

Acronyms

CDHB	Canterbury District Health Board
CERA	Canterbury Earthquake Recovery Authority
MOH	Ministry of Health
MSD	Ministry of Social Development
NGO	Non-governmental Organisation
PinD	People in Disasters Conference
PTSD	Post-traumatic Stress Disorder

Author: Kerren Hedlund, MPH, regSW

Disclaimer: This report is a summary of a considerable volume of material. As such, it is not comprehensive and might not give due representation to some materials. It is based on interpretation of the presentations and the abstracts by the enumerators and the author. Effort has been made to represent the material accurately but it is conceded that the methodology could allow some misinterpretation. The author and the Governance Group apologise if this has occurred.

The information should be interpreted with discretion. The author, the Governance Group and the sponsors of the People in Disasters Conference cannot be held responsible for the consequences of the use of any information in this report.

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[1] Professor of Emergency Medicine, Otago University, Christchurch, Specialist in the Emergency Department of Christchurch Hospital, and Chair of Researching the Health Implications of Seismic Events (RHISE) Group

[2] Vice-chair of the UN International Strategy for Disaster Reduction (ISDR) Scientific and Technical Advisory Group and Chair of the Science & Technology Organising Committee for the UNISDR Science and Technology Conference on the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030 January 27-29 2016

[3] Lecturer & Program Coordinator, Emergency Services Administration MS Program at California State University, Long Beach.

[4] Associate Professor, Department of Psychological Medicine, Otago University, Christchurch.

[5] Senior Lecturer, Department of Nursing, Otago University, and Emergency Nurse Researcher in the Emergency Department of Christchurch Hospital, CDHB

[6] Professor of Disaster Management and Director of the Joint Centre for Disaster Research, School of Psychology, Massey University, Wellington.

[6] Research Fellow, University of Otago, Christchurch and Researcher and Medical Writer, Canterbury District Health Board.

[7] Associate Professor, Joint Centre for Disaster Research, Joint Centre for Disaster Research, School of Psychology, Massey University, Wellington.

Executive summary

The first International People in Disasters Conference was held in Christchurch, New Zealand, 24-26 February 2016. It coincided with the 5th anniversary of the Christchurch earthquake. It was attended by over 350 local, national, and international researchers, practitioners, and volunteers who discussed their research findings, practice updates, and disaster-related experiences. The Conference explored the health and wellbeing of people affected by disasters–predominately the two major Canterbury earthquakes but also other major world disasters – through disaster response, recovery and resilience-building.

Taking a "witness of fact" approach, the perspective of Conference participants on both the impact of disasters on psychosocial wellbeing and mental health, and the characteristics of successful psychosocial and mental health interventions is summarised. The aim is to serve as a record of the rich contribution made by Conference participants, but also a source of learning for improved disaster risk reduction, preparedness and response nationally and internationally.

Lessons learned about post-crisis mental health and psychosocial wellbeing

1. Most people affected by disasters are resilient and will self-heal

2. Psychosocial support and mental health care are essential short- and long-term components of disaster response and recovery

3. Psychosocial and mental health issues result not only from the experience of the event itself, but also from the secondary stressors associated with recovery

4. Monitoring multiple psychological and social indicators after a disaster helps to inform psychosocial recovery strategies

5. Populations with pre-existing vulnerabilities are likely to be more affected by disasters

6. Professional disaster personnel, including health and mental health professionals, may also suffer mental health challenges after disasters

7. Earthquake-related stress can have impacts on a wide range of health issues

8. Ethics criteria should be developed to allow psychosocial data to be collected immediately after a disaster to inform psychosocial recovery strategies

Lessons learned about post-crisis psychosocial and mental health interventions

9. Communities, NGOs, health and social sector agencies such as CDHB and MSD, have the complementary capacities necessary for effective psychosocial recovery

10. Community initiatives offer immediate succour and help build resilience. These initiatives are most effective when acknowledged and enabled by government agencies involved in emergency management

11. Different demographic groups require targeted care

12. While pre-existing vulnerabilities can worsen the impacts of disasters on specific communities, e.g. Māori, strengths-based and culturally-appropriate interventions not only create more resilient individuals and communities, but contribute to broader social recovery

13. Initiatives which provide wrap-around support–both practical and psychosocial–help households resolve the complex problems inherent to recovery

14. Collaborative efforts across a wide-range of social service providers are essential to address the complex impacts of disasters, including secondary consequences of earthquake-recovery stressors such as family violence

15. Community-wide psychosocial health campaigns contribute to psychosocial resilience

16. A wide range of specialist mental health services are used to support those finding it difficult to cope post-disaster

17. Collaboration in disaster preparedness between emergency management services, general practitioners and mental health professionals leads to improved service outcomes in recovery

18. Other important health and wellbeing interventions, such as preventing post-disaster outbreaks of communicable diseases, are supported by preparedness, public health messages, and strong health sector relationships

19. Through engagement with a wide range of social service providers, identifying and addressing secondary causes of stress facilitates psychosocial recovery.

20. Educational services and personnel have a key role to play in disasters and require professional development in disaster preparedness, including psychosocial care of children and adolescents

21. Interventions that allow people to get back to work, taking into account the impacts of the earthquake, help a return to normalcy

22. The lack of temporary housing solutions and housing shortage meant that inadequate shelter remains a large stressor for people affected by the earthquakes

23. Community-initiated artistic and recreational events in vacant spaces can contribute to psychosocial recovery and resilience

24. Storing and sharing earthquake narratives and commemoration through memorials can help psychosocial recovery

Lessons learned on how to work better together

25. The way organisations work together and work with their staff is a critical success factor for effective recovery

26. External human resources are vital but must be deployed in such a manner as to capitalise on local knowledge and initiative

Conclusion

The Conference gave us a better understanding of the psychosocial health of the affected public, care providers, and early responders, through the diverse voices heard. Through its unique methodology–the perspectives of mixed professional groups and community representatives–the rich and inspiring discussions contributed to a growing knowledge base that should inform future disaster preparedness and response. Key to that knowledge base is orienting psychosocial recovery work through "caring, sharing, and learning."

This learning paper concludes with a reiteration of the critical success factors for effective collective action to promote psychosocial recovery and resilience in disaster-affected populations, as perceived by Conference participants.

Introduction

The first International People in Disasters Conference was held in Christchurch, New Zealand, 24-26 February 2016. It coincided with the 5th anniversary of the 2011 Christchurch earthquake (22 February), which killed 185 people and injured approximately 7, 000. It was attended by over 350 local, national, and international researchers, practitioners, and volunteers who discussed their research findings, practice updates, and experiences directly related to people in disasters. The event was co-hosted by the Canterbury District Health Board and the Canterbury-based RHISE (Researching the Health Implications of Seismic Events) Group. A full set of Conference Proceedings was published in collaboration with Massey University and made available on the *Australasian Journal of Disaster and Trauma Studies* website.[8]

The Conference explored the health and wellbeing of people affected by disasters–predominately the two major Canterbury earthquakes but also other major world disasters–throughout disaster response, recovery and resilience-building. There were 18 invited presentations and 123 peer-reviewed presentations.

This report is a synthesis of Conference findings on the impact of disasters on the affected population's mental health and psychosocial wellbeing, and psychosocial and mental health interventions by local and national governmental, non-governmental agencies and communities themselves. These lessons learned are collated with the aim of helping central and local government prepare and respond to future disasters and contribute to the 2015-2030 Sendai Framework action priorities; i.e. understanding disaster risk, enhancing disaster preparedness for effective response, and building better in recovery, rehabilitation, and reconstruction. The Sendai Framework also highlights the imperative of providing psychosocial support and mental health services for all people in need during recovery.[262]

A People in Disasters Conference Statement was published post-Conference and is included in Appendix 1.

Background

On 4 September 2010 at 4:35am, the people of Canterbury experienced a magnitude 7.1 earthquake (known as the Darfield earthquake) with an epicentre 40 kilometres west of Christchurch City. Although properties were damaged it did not result in many serious injuries or loss of life. Almost six months later, after many aftershocks, a magnitude 6.3 earthquake struck Christchurch at 12:51pm on 22 February 2011 causing widespread damage, 185 deaths, and thousands of injuries.[221] Although smaller in magnitude than the earlier earthquake, the damage to life and property was more severe. This severity was due to the proximity of its epicentre to Christchurch Central Business District, the day of the week and time it struck, and the strength and direction of its forces.[221] Liquefaction was a major problem and 80% of the city's water and sewer systems were severely damaged.[269] Although many communities were impacted, the eastern suburbs of Christchurch were disproportionately affected.

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[8] http://www.massey.ac.nz/~trauma

The immediate government-led psychosocial and health response to the earthquakes was supported by Ministry of Social Development (MSD) and the Canterbury District Health Board (CDHB) under the auspices of the Ministry of Health (MoH).[263, 264]

MSD, CDHB, and later the Canterbury Earthquake Recovery Authority (CERA) led the development and implementation of the Strategic Framework for Psychosocial Recovery.[244] Lessons learned on Social Recovery can be found at the EQ Recovery Learning website.[9][271]

In addition to the government-led response, non-governmental organisations (NGOs), community groups, and individuals contributed to the overall response. This whole of community contribution has been recognised as integral to disaster response and is now formally integrated into the *National Civil Defence and Emergency Management Plan (2015)* and the *Community in Mind Greater Christchurch Psychosocial Recovery Strategy*.[240, 254]

More recently, the Ministry of Health published a new *Framework for Psychosocial Support in Emergencies,*[10] commissioned through the Joint Centre for Disaster Research at Massey University. The Framework, as well as the supporting literature review, provide a complementary and comprehensive review of learning on the psychosocial and mental health impacts of disasters, as well as effective interventions and treatments in an emergency. [272]

Methodology and limitations

The report draws on three information sources:

- Contributions from presenters and participants at the People In Disasters Conference who summarised their experiences, practice changes, or research or evaluation findings in 123 abstracts published in book of proceedings.
- Information recorded by enumerators who attended each presentation and noted key theme, problem statement, lessons learned from the presenters' perspective on process, content and efficacy, and critical factors for success
- Where relevant, published literature to provide context for Conference findings

Taking a "witness of fact" approach, (describing what was seen and heard without undue interpretation or validation), the perspectives of Conference participants are documented with reference to the specific presentation in brackets. Full titles are found in Appendix 2 References. Where possible, convergent findings are conceptualised as "lessons learned."

The wide range of Conference topics were broadly grouped by response, recovery, and resilience. These were further sub-grouped into affected people (general population, children, older people, indigenous people, disabled, pet owners, personnel), responders (community, non-governmental organisations and government, the latter with a specific focus on the health system) and response (measurement of wellbeing, interventions, and collaborative practice). Given the diversity of inputs, not all presentations fit clearly into one category. However, to the best of the author's ability, this paper attempts to recognise the unique contribution of each presenter.

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[9] www.eqrecoverylearning.org
[10] http://www.health.govt.nz/publication/framework-psychosocial-support-emergencies

Findings

Lessons learned about post-crisis mental health and psychosocial wellbeing

The earthquake response and recovery is more than "bricks and mortar". As Johal in his presentation stressed, humans seek security and predictability in their lives.[107] An earthquake "rocks" these elements, and causes pain, death, loss, grief, fear, and insecurity. Disasters are psychologically traumatic but they also provide opportunities for growth at the individual and community level.

The first part of this section examines the positive mental health outcomes of disasters, before describing post-event depression, stress, and anxiety in people most affected. It concludes with thoughts from presenters on other health consequences, and reiterates the importance of research on the psychosocial consequences of disasters to inform response and recovery strategies.

Mental health and psychosocial resilience and post-traumatic growth

1. Lesson learned: Most people affected by disasters are resilient and will self-heal

Generally, people find courage, remain positive, take care of themselves, their family, and their community. They recover better prepared for future disasters.[18, 26, 27, 28, 103]

Traumatic experiences can lead to post-traumatic growth, characterised as a sense of a person becoming stronger, with better relationships, and a greater sense of community. People affected by disasters may come to feel an increased appreciation of life and spirituality.[18, 27, 36]

In his overview on "Resilience in People", Davidson stated that most people affected by disaster do not develop mental illnesses such as post-traumatic stress disorder (PTSD).[103] This statement was supported by presentations on two longitudinal studies of Christchurch people by Kuijer and Horwood et al.[26, 88] Kuijer observed two-thirds of Christchurch people had normal pre- and post-earthquake mental health. About one-quarter of these had compromised mental health in the first few months after the September and February events, but fully recovered. Ten percent remained with chronic and latent mental health issues.[24] Horwood et al. noted the cohort with high levels of exposure to the earthquakes had rates of mental disorder that were 1.4 times higher than those of cohort members not exposed.[88]

Evidence was also presented on the positive effects of traumatic experiences. LeBlanc described themes of 'self as stronger', 'appreciate the present', 'better relationships', 'spiritual change', and 'greater sense of community'.[36] She described post-traumatic growth as achieving better mental health when compared to the pre-event situation. McIntosh described post-traumatic growth as "the experience of positive change that the individual experiences as a result of the struggle with a traumatic event".[27] Positive signs of growth included: positive coping such as self-help, proactive problem-solving, and achieving and sustaining a work/non-work balance. McIntosh found that *greater* post-traumatic growth was related to *greater* peri-traumatic distress (occurring around the time of the traumatic event). The relationship between post-traumatic growth and perceived severity of the event was substantiated by international studies of similar traumatic events.[91, 103]

2. Lesson learned: Psychosocial support and mental health care are essential short- and long-term components of disaster response and recovery

Psychosocial support is essential for disaster-affected communities and service providers who have experienced a disaster. Early care will help people who suffer close to the time of the disaster, but longitudinal studies have shown that the numbers of people with latent mental health issues increase significantly in subsequent years.[25, 41, 66, 70, 88, 91, 99, 103]

Based on experience as a global leader in treating post-traumatic stress disorder in humanitarian contexts, LeBlanc differentiated between normal and abnormal post-disaster mental health reactions.[36] Normal reactions include: sleep problems, fatigue, low immunity, distress, anxiety, grief, and stress. Abnormal problems include: abnormal grief, frequent episodes of anger, increased sensitisation, insomnia or regular nightmares, clinical depression, severely distressing intrusive thoughts, harm to oneself or others, suicidal thoughts, and worsening chronic illness such as chronic heart disease, diabetes, or gestational diabetes. According to McFarlane, Acute Stress Disorder generally leads to PTSD.[91] In his review of the literature, McFarlane noted that studies have demonstrated that individuals who have experienced multiple traumatic events are significantly more likely to have PTSD, depression, and other symptoms of poor coping such as heavy drinking.[91]

In the case of the Canterbury earthquake sequence, the Canterbury Earthquake Recovery Authority (CERA) Wellbeing Survey and other studies found increases in domestic violence, depression and anxiety among older people, and behaviour changes among adolescents and children.[2, 12, 18, 70]

Admissions to psychiatric care declined immediately after the Christchurch earthquake.[28] However, this was followed by significant growth in mental health problems in the population in subsequent years.[91, 260] Five years after the earthquake, the Canterbury District Health Board observed: [108, 260]

- A 43% increase in adult community mental health presentations
- A significant increase in psychiatric hospital admissions of women aged over 45
- A 104% increase in mental health-related presentations to the Christchurch Hospital Emergency Department
- A 69% increase in child and youth mental health service presentations
- A 65% increase in rural mental health presentations

Over half of the 1265 Christchurch Health and Development Study Birth Cohort children born in Christchurch in mid-1977 were exposed to the Christchurch earthquake.[88] There was a high prevalence of mental health disorders (such as major depression, anxiety and PTSD) in members of the cohort living in Christchurch compared with those living elsewhere (32-40% vs. 7-25%).[88] Those experiencing pre-event difficulties were more at risk, e.g. low socioeconomic status, child abuse, and mental illness. Estimates of the attributable risk suggested that earthquake exposure accounted for 13% of the overall rate of mental disorders in the cohort.

3. Psychosocial and mental health issues result not only from the experience of the event itself, but also from the secondary stressors associated with recovery

Many presenters stressed the event was not the only cause of post-event mental health issues.[26, 30, 104, 54] Howell spoke of how "secondary stressors" are undermining long-term health.[30] Examples of secondary stressors may include: damage to home and property, inadequate sanitation and sewerage disposal, transport disruptions, changes in employment, financial pressures as well as dealing with rebuild, repair or resettlement issues and insurance.[26, 30] Table 1 illustrates the linkages between secondary stressors and post-trauma psychosocial and mental health, in both the general and at-risk populations [60, 66, 77, 84, 85, 91, 95, 104, 107]. That recovery planning and budgeting should take into account a potential latent increase in demand for mental health services, particularly where secondary stressors are significant, was noted by Meates in his presentation [128, 274].

Measuring and monitoring post-trauma mental health and psychosocial wellbeing

4. Lesson learned: Monitoring multiple psychological and social indicators after a disaster helps to inform psychosocial recovery strategies

Conference presenters described a multitude of indicators and indices they used to measure mental health and wellbeing.[11][2, 26, 35, 36, 37, 70] Generally, composite and multi-faceted indices and surveys were best. For example, while psychiatric hospital admission rates and mental health drug prescription rates may be important indicators of the incidence of mental illness, they were less reliable in measuring general wellbeing.[28, 216, 261] Changes in other behaviour patterns, such as behavioural issues at school, domestic violence, and nicotine dependence, demonstrated more reliability as indicators of psychosocial wellbeing.[2, 53, 88, 243]

Multi-faceted scales of wellbeing, such as the Canterbury Wellbeing Index, were argued to be an appropriate and effective way of measuring how a community is coping with psychosocial recovery by Beavan et al. and Morgan.[2, 55] Both macro- and micro-level quantitative data and qualitative data were used to generate a comprehensive picture of psychosocial recovery. They described how a common evidence base was essential for a coherent inter-agency strategy to promote wellbeing in Canterbury.

At-risk groups

5. Lesson learned: Populations with pre-existing vulnerabilities are likely to be more affected by disasters

The following groups were found to be more susceptible to stress and distress after the Christchurch earthquake: children, youth, older people, disabled people, single parents with children, people with

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[11] Canterbury wellbeing index using a social outcomes framework[2]; CERA wellbeing survey: World Health Organisation Wellbeing Index (WHO-5)[2] ; Earthquake impact index, perceived life threat score[26] [11]; Earthquake hassles index[26] [11]; The Depression, Anxiety and Stress Scale is a 42 question (DASS42) questionnaire used internationally for one-off and longitudinal studies.; Impact of Events Scale-Revised (IES-R)[35]; TESS Distress Scale[35]; Post traumatic stress disorder check list (PCL-C); Personality questionnaire (Hans Eysneck); Work and social adjustment scale (WSAS); SP-12 Mental and Physical Health Component Score[70]; CASP-12 Quality of Life[70]; CES-D10 Depression Scale[70]; De Jong Giervald Loneliness Scale[70]; Resilience scale (CD-RISC Connor-David Resilience Scale); Post-traumatic growth inventory[36].[11]; Figley's Compassion Fatigue[37]; Maslach's Burnout Index[37]

pre-existing mental health issues, people with previous experience of traumatic events, and lower socioeconomic groups. Table 1 summarises the Conference presentations with regards to specific vulnerable groups.

Table 1. Mental health impacts of the earthquake on specific groups in Christchurch

Population / Pre-disposing factors	Outcomes
General Population; Who are permanently or temporarily displaced, more severely affected by the earthquake, and with low levels of social support after the event [2, 16, 24, 25, 26, 29, 36, 62]	High rate of Post-Traumatic Stress Disorder (PTSD)
Women; With prior mental health problems; not in a stable relationship; weak social networks; living with violence or abuse, strong social networks[24, 25, 26, 27, 53, 58, 88, 108]	Low perceived social support; high rate of post-traumatic stress; late onset PTSD; more post-traumatic growth than men
Couples; Both with post-traumatic stress[25]	Range of post-traumatic stress symptoms; relationship problems
Mentally Ill; With prior mental illness[24, 26, 61]	High rates of post-quake mental illness including PTSD
Children; With housing and schooling issues; Living with adult stress and violence or abuse[8, 9, 12, 13, 53, 68, 69, 91, 106, 108]	Insecurity and helplessness; significant learning and behaviour challenges; increased demand for behavioural services in schools; heightened levels of physiological arousal; increased startle reflex, and phobic responses
Older people; Who are displaced from their accommodation; living in earthquake damaged homes; having issues with insurance; uncertain about future living situation; lack of heating; decline in economic situation[18, 20, 60, 61, 70]	While less lonely in short-term; positive coping strategies initially, gradually a sense of loss of control over their lives; late onset mental health issues (anxiety/depression/PTSD); long-term loneliness; and reduced access to services
Disabled; Who lost accessibility; dependent on others; loss of independence[14, 15, 17, 202, 243]	Felt marginalised, isolated, abandoned, and fearful; experienced stress and relationship problems; long-term lower quality of life
Pet owners[7, 74, 75, 76]	High risk of injury, grief and distress if pets are not considered during evacuation and/or are lost/deceased

First-responders and emergency service providers

The Conference was unique in focusing on psychosocial impacts on first-responders and service providers, including health personnel, search and rescue, firemen, police officers, and volunteers.

6. *Lesson learned: Professional disaster personnel, including health and mental health professionals, may also suffer mental health challenges after disasters*

In their research on police as early responders to the Christchurch earthquakes, Surgenor et al. noted that most did not develop PTSD.[35] This resilience was attributed to the fact that police were experienced at dealing with traumatic events. Whereas other less experienced frontline responders, such as dispatchers, were more likely to develop PTSD. Similarly, in her research in the Christchurch Hospital Emergency Department, Richardson noted that many hospital-based first responders found working under earthquake conditions highly stressful [38]. This elevated stress was particularly true for those acting outside of their normal occupational role—e.g. a social worker dealing with medical injuries. Emergency preparedness exercises where participants take on expanded crisis roles was suggested to help people adapt to actual crisis and "automate" some responses. Positive coping strategies of frontline responders were also found to correlate with reduced PTSD.[35, 38]

Some health professionals experienced secondary trauma (empathising with the patient), job burnout, or both (known as compassion fatigue) as noted in Chung's research.[37] She recommended developing a consistent definition for burnout and compassion fatigue and intervention guidelines that reinforce positive coping mechanisms. Other presenters described research on health professionals and their personal experiences including guilt over conflicting personal and professional demands and secondary trauma.[37, 38, 40] Some relived their patients' experiences in the months and years that followed the earthquakes, noting the advantages and disadvantages of "shared trauma". Sampson observed that mental health professionals reported a greater capacity to empathise with the stress and grief people experienced.[34] The importance of self-monitoring by health professionals was stressed, as reliving the earthquake could trigger their own trauma.[34, 39, 107]

Other health-related consequences of disasters

7. Lesson learned: Earthquake-related stress can have impacts on a wide range of health issues

To understand the link between behaviour during the earthquake and injury, Dr. Johnston used innovative research methodologies including analysing available camera footage, noting that most injuries could be avoided through improved earthquake-proof construction. That said, a significant percentage of injuries (23%) resulted from inappropriate action immediately after the earthquakes. He suggested that further education to promote appropriate action during and after earthquakes would reduce future earthquake-related injuries.[89]

Excessive stress caused "broken heart syndrome" (stress-related heart disease) in some people after the Christchurch earthquake according to Zarifeh et al. . [41] This condition was not gender-specific or related to pre- or post-quake psychological illness.[41, 270]

The importance of micronutrients in managing stress was emphasized by Howell. She warned that while highly caloric, emergency rations were often micronutrient poor.[31]

Encouragement of breastfeeding during a disaster is enshrined in New Zealand's *National Civil Defence Emergency Management Plan*. In post-quake Christchurch, popular media was used to encourage women to continue breastfeeding and healthcare facilities offered support to mothers. However, Bartle found there were isolated cases of women who perceived their milk had "dried up" due to the stress of the emergency were "encouraged by health workers to use formula."[32] There is more work to be done to ensure consistent messaging.

Psychosocial recovery research in post-disaster situations

8. Lesson Learned: Ethics criteria should be developed to allow psychosocial data to be collected immediately after a disaster to inform psychosocial recovery strategies

According to several presenters, the six-month moratorium on social research after the Christchurch earthquake severely limited information that could be gathered in the response and early recovery period and subsequently "limited the science/policy interface for decision-making in this area".[24, 266] Researchers felt they had to "break the law", collect imprecise or *ad hoc* measurements to gather important data. It was recommended that future guidelines allow research of a humanitarian nature, reflecting recommendations in the Sendai Disaster Risk Reduction Framework 2015–2030.[262]

CERA's efforts to monitor social recovery did not begin until over a year after the Christchurch earthquake.[243] Beaven et al. noted that developing research ethics for monitoring the effectiveness of CERA's Social Recovery portfolio was demanding.[266] Specifically the unique research required a specialised ethics review process, which neither the New Zealand Ethics Panel nor University Review Panels could satisfy as they did not fully understand the risks. Subsequently CERA relied on a panel of experts in specialised fields subject to their own codes of conduct, under the umbrella of the Royal Society and the Sociological Association for professional researchers. Maintaining confidentiality of research findings in a Recovery Agency that prided itself on its workplace culture of openness and sharing (including open-plan offices, shared desks, and discussion forums) also proved a challenge.[55]

Dr. Murray, vice-chair of the Science and Technical Advisory Groups of the United Nations Office for Disaster Risk Reduction (UNISDR), reported on the UNISDR Science and Technology Conference held in January 2016. She stressed the imperative of sharing learning from disaster response, the role of local universities in acting as a clearinghouse, and facilitating local science-policy-practice partnerships and capacity building.

Lessons learned about post-crisis psychosocial and mental health interventions

This section describes the tiered approach used in psychosocial recovery promoted by the International Agency Standing Committee for Humanitarian Response and adapted by the Psychosocial Response subgroup in Christchurch. It describes how communities, social welfare and health sector agencies should guide the psychosocial response, and the important role of other agencies working in education, housing, business, culture, and environment. The paper concludes with a summary of lessons learned on guiding principles for collaborative action, and operational learning on collective undertakings.

In the Scientific Advisory Committee Brief to the Office of the Prime Minister after the Canterbury earthquakes, a comprehensive psychosocial recovery programme was recommended with the following rationale:

> *[...]to support the majority of the population who need some psychosocial support within the community (such as basic listening, information, and community-led interventions) to allow their innate psychological resilience and coping mechanisms to come to the fore[...]to address the most severely affected minority by efficient referral systems and sufficient specialised care[...]insufficient attention to the first group is likely to increase the number represented in the second group.-* Prime Minister's Chief Science Advisor, Professor Sir Peter Gluckman[237]

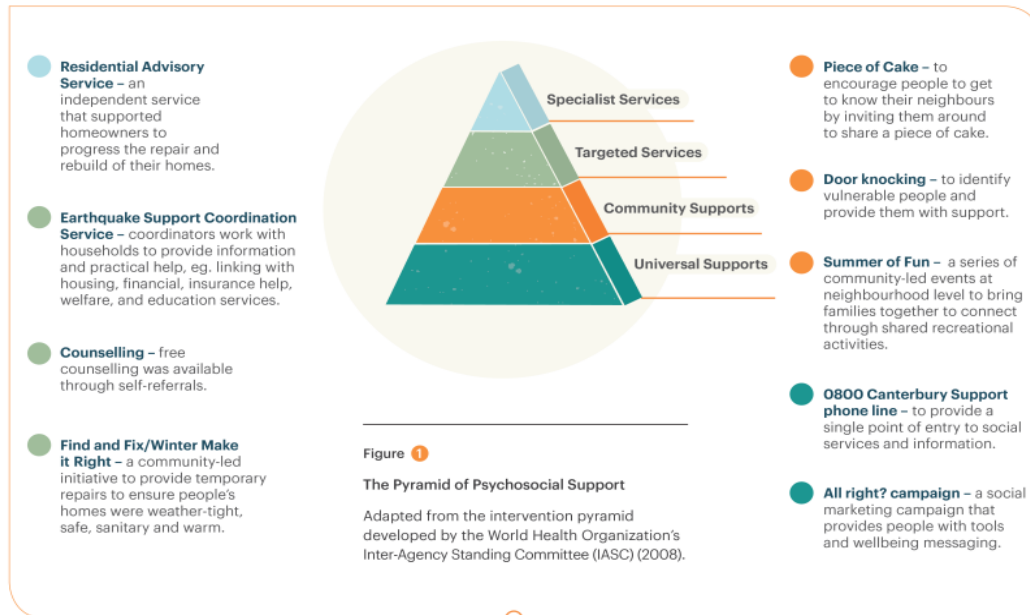9. ***Lesson learned: Communities, NGOs, health and social sector agencies such as CDHB and MSD, have the complementary capacities necessary for effective psychosocial recovery***

After the 2010–2011 Canterbury earthquakes, the Stronger Canterbury Strategic Planning Framework was developed with support from MSD in close collaboration with MOH, CDHB, and the Christchurch

City Council. Important components of the framework included individual recovery and wellbeing and the building of community resilience while supporting psychosocial wellbeing.[232]

The Framework included a tiered intervention pyramid depicting the relative sizes of the affected populations and appropriate types of interventions (Figure 1).

Figure 1. The Psychosocial Pyramid from CERA's Learning from Social Recovery[271]

Residential Advisory Service – an independent service that supported homeowners to progress the repair and rebuild of their homes.

Earthquake Support Coordination Service – coordinators work with households to provide information and practical help, eg. linking with housing, financial, insurance help, welfare, and education services.

Counselling – free counselling was available through self-referrals.

Find and Fix/Winter Make it Right – a community-led initiative to provide temporary repairs to ensure people's homes were weather-tight, safe, sanitary and warm.

Specialist Services
Targeted Services
Community Supports
Universal Supports

Figure 1

The Pyramid of Psychosocial Support

Adapted from the intervention pyramid developed by the World Health Organization's Inter-Agency Standing Committee (IASC) (2008).

Piece of Cake – to encourage people to get to know their neighbours by inviting them around to share a piece of cake.

Door knocking – to identify vulnerable people and provide them with support.

Summer of Fun – a series of community-led events at neighbourhood level to bring families together to connect through shared recreational activities.

0800 Canterbury Support phone line – to provide a single point of entry to social services and information.

All right? campaign – a social marketing campaign that provides people with tools and wellbeing messaging.

The following lessons describe learning from the contribution of communities, NGOs and public service agencies to psychosocial recovery.

Community-based and NGO response

> **10. Lesson learned: Community initiatives offer immediate succour and help build resilience. These initiatives are most effective when acknowledged and empowered by government agencies involved in emergency management**

Effective community action in the Christchurch earthquake response was discussed at the Conference. These included spontaneous initiatives of students (Student Army), neighbourhoods, Māori *iwi*, craft groups, artists, and the more formal efforts of NGOs.[42, 43, 44, 47, 48, 50, 51, 52, 62]

Community action leads to "bonding, bridging, and linking" through the spontaneous efforts of community members according to Bamwell and others.[1, 3, 24, 42, 47, 49, 52, 73, 106] Community volunteers dealt with immediate needs for shelter, food, water, and medical care as well as non-traditional needs—such as psychosocial care and recreational opportunities such as crafting and sport.

Creating opportunities for "social connectedness" met many psychosocial needs. Presenters noted this was done by focusing on "place" and creating "bumping or gathering" places in existing community structures: *maraes*, cafes/pubs, schools, parks, libraries, pools even small streets, lanes and cul-de-sacs. These places, including virtual meeting rooms such as Facebook, were important for storytelling, information sharing, problem solving, healing and ritual.[1, 3, 42, 48, 69, 84, 101, 114] Bamwell and

others stressed the importance of modern urban planning practices, such as cul de sacs and shared drives, to promote social connection and community resilience "by design".[42, 48]

Presenters explained how these community initiatives are not always recognised, appreciated, or supported by formal emergency response mechanisms.[43, 44, 49] Lockwood described the Student Army as a dynamic grassroots voluntary "army" that did not conform to formal or official protocols. Rather, the emergent group focused on inter-dependent actions, i.e. formal and informal response, working complementarily and simultaneously.[44, 114]

In Australia and Aotearoa/New Zealand, Tehan and Torstonson described how NGOs are frequently among the first responders to an emergency.[52] NGOs manage donated goods, organise clean water and sanitation, and provide outreach services to the vulnerable and disadvantaged. Financial and logistical support by government immediately after the earthquake allowed Christchurch NGOs to continue and even expand the provision of vital services.

NGOs were most effective where they had existing relationships of trust with communities.[1, 3, 50, 52] In response to the Christchurch earthquake, the Salvation Army of Christchurch expanded and adapted their extensive network of community services to provide for basic needs and psychosocial care with over 1000 staff and volunteers.[50] The Salvation Army also noted that it could benefit from training in disaster management.

Many presenters noted that community action is most effective when linked to and enabled by the official disaster response.[3, 6, 44, 46, 52, 73] The updated *National Civil Defence Emergency Management Plan* (2015) recognises the value of community involvement in disaster response and recovery, recognising volunteer and community groups as resources to facilitate emergency response and psychosocial care.

The Conference reinforced the summary recommendations from Thornley, et al.'s comprehensive study on community action in Canterbury[209]:

1) Community-led action (through health promotion, *iwi*/tribal development, and community development approaches) is key to creating social connectedness which in turn is key to building resilience[1, 3, 5, 6, 42, 43, 44, 45, 46, 47, 50, 51, 52, 114]
2) In a crisis, communities can be well placed to respond, but they must be resourced and empowered, and have adequate community infrastructure, e.g. community-based organisations, facilities, leaders, and networks[1, 3, 5, 6, 42, 43, 46, 48, 51, 52, 69, 84, 101, 106, 114]
3) Recognising that communities are complex and diverse, community participation requires new models of partnerships and shared decision-making between authorities and communities[1, 3, 5, 6, 44, 46, 57, 114]

11. Lesson learned: Different demographic groups require targeted care

Appropriate and targeted care post-crisis can significantly reduce the suffering of vulnerable groups.[8, 9, 11, 12, 14, 15, 17, 18, 60, 70, 91] Groups of different ages, gender, and ethnicities are well-positioned to provide information, empathy, and comfort to their members. Memon and Bourke noted how diverse groups would benefit from having their unique needs incorporated into plans and training exercises for responders, citing specifically the role of disabled persons.[14, 15] Table 2

summarises lessons learned in interventions targeting different demographic groups.

Table 2. Lessons learned from interventions with different demographic groups

Group	Lessons learned
Disabled[14, 15, 17, 202]	Disaster-related decision-making, response planning and training exercises benefit from disabled persons' direct participation including evacuation simulations, access to temporary accommodation and water and sanitation facilities
Children[9, 11, 12, 68, 91, 100, 106]	Response and recovery plans that involve children provide two-way benefits Parent involvement in child-specific wellbeing strategies is essential, e.g. Tiny Adventures helped stressed parents engage in quick and fun activities; Well-equipped teachers and schools are critical to helping children who have post-traumatic symptoms; Mental health professionals should remain up-to-date with innovative and effective treatments for traumatised children
Older people[17, 18, 19, 20, 21, 22, 54, 60, 70]	Preparedness in the broad range of facilities (hospitals to home-based care) that accommodate older persons require protocols for re-location, information management in the event of loss of power, contingencies for the likely increased need for physical care
Pet owners[7, 74, 75, 76]	Pets are a key intervention for psychosocial recovery, particularly for vulnerable groups; Pets, service and domestic animal needs should be incorporated into preparedness and emergency response plans

The Māori Response

> ### 12. Lesson learned: While pre-existing vulnerabilities can worsen the impacts of disasters on specific communities, e.g. Māori, strengths-based and culturally-appropriate interventions not only create more resilient individuals and communities, but contribute to broader social recovery

> *It is well known that disasters impact disproportionately on those already most disadvantaged in our community, potentially deepening the social and economic impacts of pre-existing inequality. In the case of greater Christchurch this trauma was exacerbated by the effects of earthquakes on the south-east of the city – home to many lower socio economic whānau and Māori. For those whānau the earthquakes compounded their already significant challenges and resulted in some extremely distressing experience.–Te Kōwatawata: The dawn of a new city.[113]*

The resilience of Māori people was highlighted in several post-quake studies according to Lambert and Regan.[24, 62, 64, 102] Lambert further alluded to this resilience when considering Māori *tamariki*'s response to the earthquake:

> *The kids were pretty good though because the week before, they were at Nōku Te Ao, then for that I think three or four weeks they had been learning about Rūaumoko so when it happened we were all freaking out like 'oh my god! I can't believe this is happening!' The kids are like 'oh that's Rūaumoko in Papatūānuku's puku, he's just having a kanikani...' So they were all good, they went straight into their turtle and knew what to do, so that was cool.*[62]

That said, Lambert's Social Network Analysis demonstrated that Māori were significantly more socially isolated when compared to the broader sample.[62] This isolation was particularly true for Māori *Tangata Whai Ora*, the Māori term for mentally ill, or the *Nga Mata Waka*, Māori who may not have access to the same social networks that local *iwi* have.

The eastern suburbs of Christchurch, home to large populations of Māori and Pasifika residents, were among the areas hardest hit by the earthquakes; and yet, the response and recovery of this low socioeconomic area was widely considered not in proportion to need.[24, 64] Against this backdrop, there was perceived to be a lack of information on the physical and psychological wellbeing of the populations living there, further compromised by the post-earthquake moratorium on research.[24]

To overcome this challenge, Universities worked collaboratively with operational agencies. Collaborative research between Victoria University and the Aranui Food Distribution Centre found that users of Aranui's services were experiencing severe psychological distress even 3 months after the earthquake. Overall 25% of the surveyed population were experiencing "severe" anxiety and depression.[24] At 3 months, earthquake-affected Māori men and women had higher levels of stress when compared to Haitian earthquake victims at 8 months post-quake, and comparable levels to those affected by Typhoon Haiyan at 1 month.[24] Begg, et al. further highlighted in the CERA Wellbeing Survey, Māori reported overall lower quality of life, expressed more uncertainty about the future, were more likely to be displaced and live in temporary or substandard housing.[2]

To address the specific cultural needs of Māori, Bennett noted in her keynote speech that *Ngāi Tahu* and *Nga Mata Waka* of Greater Canterbury and Māori nationwide contributed to developing a recovery strategy that reflected the *Kaupapa* of Māori pathways to wellbeing.[131] Rawson described how public health wellbeing strategies that did not take into consideration the cultural priorities of Māori were less effective.[61] Subsequent public messaging that used Māori cultural icons (*taonga*) combined with culturally significant messages (*tikanga*) contributed to the success of the *All Right? Te Waioratanga* campaign. See Table 3 for examples of how using culturally-appropriate and strengths-based interventions benefited response and recovery.

Table 3 Examples of using Māori Te Ao in psychosocial interventions in Christchurch

Values and Beliefs	How Te Ao Māori (worldview) contributed to response and recovery
Kaupapa: Māori knowledge[61, 62, 101]	Provided children an additional framework to interpret events, e.g. Rūaumoko, the god of earthquakes; Complemented western scientific advice when interpreting the disaster sequence and developing a holistic disaster risk mitigation strategy in Rapaki; Provided general and specialist psychosocial support for Māori and *Tangata Whai Ora (*Māori with mental illness)
Tikanga: Māori way of doing things[61, 62, 101, 102]	Māori *tikanga* promoted post-quake social gatherings and networking, e.g. the structure of meeting houses and communities around *marae,* traditional *hangi* and sharing *kai*
Manaakitanga: Care and hospitality[42, 64, 113, 209]	Accommodated and fed thousands of disaster-affected, particularly other migrant and refugee groups, through the use of *marae* as welfare centres
Rangatiratanga: Leadership and participation[45, 64, 113]	Contributed to the rebuild to leave "an enduring legacy" on the natural and built environments with the incorporation of cultural symbols and value in Otautahi/Christchurch

Ministry of Social Development

13. Lesson learned: Initiatives which provide wrap-around support–both practical and psychosocial–help households resolve the complex problems inherent to recovery

The Ministry of Social Development (MSD) supported population, community-based and targeted psychosocial interventions including a free phone hotline, counselling services, and the Earthquake Support Coordination Services. Lessons learned from these interventions are described in MSD's

Learning from the Ministry of Social Development's Contribution to Canterbury Earthquake Recovery Efforts.[263] At the Conference, Fonotia et al. shared lessons learned from the Earthquake Support Coordination Services (ESCS), a project co-developed and managed by MSD and NGOs supporting those finding it difficult to recover from the earthquakes, most often due to ongoing secondary stressors.[67]

Earthquake Support Coordinators appraised the needs of individuals or families, provided information, helped residents develop plans, connected residents with services, and facilitated meetings between residents and relevant experts. By the end of 2015, ESCS had assisted over 22, 000 households.[67]

The success of the ESCS was attributed to using a strengths-based, case-management approach, developing trust between organisations and agencies, ensuring up-to-date information and competent intervention. Staff were trained to identify mental health issues and refer clients to appropriate support. Recognising the potential for "shared trauma, " compassion fatigue and burnout, mental health support was also provided to ESCS staff.

14. Lesson learned: Collaborative efforts across a wide-range of social service providers are essential to address the complex impacts of disasters, including secondary consequences of earthquake-recovery stressors such as family violence

There were numerous presentations on collaborative efforts to address the myriad consequences of the Canterbury earthquakes. These included the Earthquake Support Coordination Services, *All Right?* campaign, Warmer Canterbury, Residential Advisory Services, and the Canterbury Family Violence Collaboration, to name a few.[53, 67, 77, 80, 108]

Following the earthquakes, family violence increased significantly in Canterbury. In response, MSD supported the Canterbury Family Violence Collaboration (CFVC), a network of 45 partner agencies, represented by 107 individuals on behalf of 1, 100 workers and 809 volunteers throughout the region. The Collaboration, made up of family and sexual violence stakeholders, focuses its activities on prevention, crisis response, up-skilling front-line workers and dealing with unsafe housing arrangements made worse by the earthquakes.[53] Community surveys demonstrated that 80% of respondents had seen messages from campaigns, reported a greater understanding about family violence; and knew where to go for help.

Canterbury District Health Board and the Ministry of Health

15. Lesson learned: Community-wide psychosocial health campaigns contribute to psychosocial resilience

To reduce psychosocial stress after the earthquakes, the Community and Public Health division of CDHB, in partnership with the Mental Health Foundation, delivered wellbeing messages and support to the community through their *All Right*? campaign.[108]

All Right? is a Healthy Christchurch initiative led by the Canterbury District Health Board and the Mental Health Foundation of New Zealand, funded by the Ministry of Health with support from the Ministry of Social Development and other organisations such as the Red Cross, the Christchurch City Council and the Waimakariri District Council. All Right? completes regular, in-depth research into how Cantabrians are doing, providing a wealth of up-to-date knowledge about how people are

feeling and the hurdles they are facing. This research informs everything All Right? does—from raising awareness among community groups, organisations and businesses, to creating tools that promote the things we can do to improve our wellbeing.[65]

The *All Right?* campaign was built on the Five Ways to Wellbeing which were also noted in Davidson's presentation on Resilience in People: give, keep learning, be active, take notice, and connect.[65, 103, 273] The *All Right?* multimedia campaign contributed to "people thinking about how they were feeling" (64% of respondents) and "gave people ideas on how to help themselves" (40%). Eighty-four percent (84%) "felt the campaign was helpful".[103] Presenters attributed this to a collaborative, evidence-based, action-oriented, and culturally-appropriate delivery to the public. [61,65] With regards to the latter, the All Right? *Te Waioratanga* campaign built on messages (*tikanga*) and cultural icons (*taonga*) with significant meaning to Māori.

16. Lesson learned: A wide range of specialist mental health services are used to support those finding it difficult to cope post-disaster

Mental health professionals at the Conference described a range of effective therapies for post-traumatic stress symptoms caused by the earthquake (Table 4). Presenters stressed a "one size fits all" approach was inappropriate.

Table 4. Mental health therapies for post-traumatic stress and anxiety and their effectiveness

Type of therapy	Findings
Facilitated Trauma Group Therapy[34]	Sampson recommended group therapy in the first 48 hours, and no later than 2 weeks, after the event. After this time period, she found group therapy could cause harm
Cognitive Behaviour Therapy(CBT)[12]	Using CBT, Benns and Doughty described how children created resources, e.g. pictures, which helped them process what they were feeling and were used by therapists to gage what children remembered. Keeping safe was a key theme
EMDT*/ EMDR*[12, 100, 106]	Doughty and Wadnerkar provide examples of using EMDT/EMDR with persons affected by trauma such as refugees and children. Doughty noted EMDR calmed certain areas of the brain, reducing negative effects of memories and stopping some triggers. Wadnerkar described the advantages of EMDT in situations where therapies need to be easy to use, require fewer sessions, have no language requirement or knowledge of client's background, adaptable and usable with children, and less invasive
Meta Cognitive Therapy (MCT)[105]	Jordan described how MCT increases capacity to control one's thoughts and thereby reduces emotions such as anxiety or worry that contributes to PTSD. She described how a client was able to describe in a coherent and uninterrupted way one of the incidences with the highest fatalities in the Christchurch earthquakes. This capability was previously impossible, and resulted in a substantial increase in self-rated mental health benefits
Medical Clowning[83]	According to Petschner, clowning is underappreciated and misunderstood. Medical clowning involves redirecting a patient's focus when facing a traumatic event. He highlighted the reinforcement of the 5 principles of resilience in clowning
Restorative Counselling[107]	Johal noted the benefits of restorative counselling for staff providing health and psychosocial support, including improved communication with family and patients, increased insight into difficult social issues, improved knowledge of needs related to diverse cultures, a greater sense of personal worth, a better sense of belonging to a team with a common goal, and an appreciation of different approaches to hard psychosocial issues

*Eye movement desensitisation therapy; **Eye movement desensitisation reprocessing

17. Lesson Learned: Collaboration in disaster preparedness between emergency management services, general practitioners and mental health professionals leads to improved service outcomes in recovery

Based on their experience of the Australian bushfires, presenters McFarlane and Burns stressed that general practitioners need to be part of emergency preparedness exercises, which will enable them to identify mental health issues post-event.[91, 92] Burns suggested that excluding general practitioners from emergency response plans also disrupts continuity of care.

Prior to the September 2010 earthquake, Gavin, et al noted in their presentation that mental health services were not included in local emergency preparedness exercises and there was no engagement with mental health services regarding the psychosocial consequences of disasters.[26, 66] They noted that post-quake budgetary and workforce capacity for psychosocial interventions and interagency initiatives increased out of necessity. With the revised *National Civil Defence and Emergency Management Plan* (2015), the Ministry of Health and District Health Boards are now responsible for coordinating psychosocial interventions which requires the maintenance of a core emergency response team, planning and preparedness exercises.

18. Lesson learned: Other important health and wellbeing interventions, such as preventing post-disaster outbreaks of communicable diseases, are supported by preparedness, public health messages, and strong health sector relationships

Various facets of CDHB's Community and Public Health's divisions health response were discussed at the Conference. These included: health-related communication, surveillance, prevention of infectious disease outbreaks, and psychosocial care.[94, 95]

After the Christchurch earthquake public health messages delivered by multiple agencies were important in avoiding outbreaks of gastroenteritis, as described by Humphrey.[95] Success could also be attributed to relationships built between Community and Public Health and health organisations pre-quake–particularly during pandemic preparedness exercises. Other success factors included: medical officers of health guiding the public on sanitation, decentralised decision-making, and acknowledging the public's own efforts.

Other government and interagency social services

19. Lesson learned: Through engagement with a wide range of social service providers, identifying and addressing secondary causes of stress facilitates psychosocial recovery.

Christchurch's psychosocial recovery was facilitated when professionals dealing with mental health and psychosocial issues networked with providers of essential services, e.g. housing, insurance, financial support, and care for children with psychosocial problems related to the earthquake.[66, 77, 84, 85, 91, 95, 104]

20. Lesson learned: Educational services and personnel have a key role to play in disasters and require professional development in disaster preparedness, including psychosocial care of children and adolescents

Changes to the school system during Christchurch's recovery from the earthquakes had a significant psychosocial impact on some pupils.[68, 69] The earthquakes damaged more than 200 schools in Canterbury Province from Hurunui District in the north to Timaru District in the south.[90] Primary and secondary schools experienced huge shifts and fluctuations in student populations—up to 50% in some schools.[90] Over 12, 000 students left their original school and enrolled elsewhere.[58, 90]

Children moved and teachers had to reapply for their jobs. According to several presenters the changes in the education environment was like a "second earthquake".[69]

In the "new normal", teaching and learning styles needed to be flexible.[8, 9, 11, 12, 58, 60, 68, 69] The impact of temporarily or permanently closed buildings at Christchurch Polytechnic Institute affected students from a psychosocial perspective.[58, 112] In Josland and Cohen's research, students remarked that the greatest stressors were loss of access to libraries, information technology such as computers, and a comfortable place to study.[58]

From primary school to professional colleges and universities, obstacles to effectively communicate with students were overcome by using a variety of communication channels, such as social media. Education professionals were flexible and supportive recognising that students were under multiple stressors. Newly introduced innovative and flexible learning options for students have remained in place in many schools and universities.[58, 112]

Medical and nursing students, who were younger, not living with their families, or not in a stable relationship, were prone to feelings of isolation, which affected their ability to concentrate on their studies.[58] However by being forced to adapt to new circumstances, e.g. relocated classrooms and carpooling they made new friends and strengthened social networks. Josland noted another key factor in recovery was closer relationships with providers on clinical placements.[58]

Despite efforts to promote psychosocial recovery, post-earthquake youth mental health issues are increasing.[94] In response, the government initiated "school-based mental health teams."[68] Cole and Mutch discussed how the initiative had the following positive elements: strong collaboration between health and education sectors, a familiar meeting place for children and whānau, direct support to teachers, and teacher training to recognise mental-health-related behaviour issues.[68, 69]

Professional development should enable education professionals to play a much needed role in disaster response. Mutch, Cole, Josland and Cohen suggested that schools and educators are part of disaster preparedness and management. As "first responders", educators should benefit from tertiary and professional development curricula on emergency management developed to empower staff to meet disaster-related demands.[58, 68, 69] Mental health students should do a rotation in schools to familiarise themselves with working in the school environment.[68] Programmes should be designed that address the "psychological absenteeism" of parents, as parents often have to deal with the aftermath of the earthquakes.[68] Organisations should provide support to principals and teachers as they often provide increased pastoral care to children in addition to their regular curricula thus creating increased stress for teaching staff.[68]

21. Lesson learned: Interventions that allow people to get back to work, taking into account the impacts of the earthquake, help a return to normalcy

For most injured people, resuming work was an essential factor in their return to normality.[88] However, there were multiple barriers to re-entering the workforce. Many earthquake victims felt they were not victims of a typical "accident".[89] Nunnerly and Webb noted distinction this posed many problems including feeling misunderstood and being treated unfairly by the Accident Compensation Corporation (ACC) and employers.[84, 104] Nunnerly suggested that as New Zealand is prone to natural disasters, its ACC legislation should differentiate between people who have been victims of an accident and those affected by a disaster.

22. Lesson learned: The lack of temporary housing solutions and housing shortage meant that inadequate shelter remains a large stressor for people affected by the earthquakes

The post-earthquake housing environment remains affected by a complex mixture of ongoing risks and unresolved damage to properties, property assessments, settlements, rebuilds, and financing.[77, 104] Health and social services have collaborated to advocate and, where possible, address the fact that an earthquake-related housing shortage is prolonging the recovery period. Addressing substandard shelter was the focus of many inter-agency initiatives in Christchurch, e.g. Find and Fix it, Earthquake Support Coordination Services, the Residential Advisory Services, and Warmer Canterbury.

Sometimes confusing, complex, and contradictory messages from insurers and government were a cause of significant stress, signalling the need for independent advice according to Griffith.[77] The Residential Advisory Services (RAS) was established in May 2013 as a "free, independent service that assisted property owners progress their rebuild, repair or resettlement issues with their insurance company or the Earthquake Commission".[53, 67] RAS' success was attributed to developing trust with clients, through ensuring that all advice, including technical and legal advice, was provided by parties independent of both insurers and the government.

Exploiting existing and developing new partnerships through strong networking, Warmer Canterbury sought to "winter proof" houses affected by the earthquake.[80] Based on an understanding of the relationship between housing and health, the initiative was supported by Healthy Christchurch.

23. Lesson learned: Community-initiated artistic and recreational events in vacant spaces can contribute to psychosocial recovery and resilience

Green spaces or the natural environment have been repeatedly mentioned as integral to people's perception of wellbeing, e.g. the Wellbeing Survey and Index.[45] The relative importance of green spaces is one reason why, according to Wesener and Montgomery, the CERA Blueprint for post-quake urban renovation, which foresaw only small green spaces received public criticism.[48]

After the Canterbury earthquakes, urban areas left vacant when damaged buildings were demolished were used by residents for a range of artistic and recreational activities. Community-initiated open spaces (CIOS) were popular because they provided opportunities for positive emotional experiences, initiative, experimentation and innovation, creating and strengthening social connectedness.[45, 46, 48]

Some spaces are only transitional and local populations need to understand this according to Wesener and Montgomery. However, due to the uncertain nature of reconstruction, some spaces will remain longer. Practical recommendations included planning for longer term management, keeping logbooks for volunteers and donors to acknowledge their initial contribution and mobilising future support for sustainable maintenance. They found longer-term sustainability of CIOS more likely if communities link CIOS with more formal initiatives such as Environment Canterbury's Natural Recovery Environment Programme.[45]

24. Lesson learned: Storing and sharing earthquake narratives and commemoration through memorials can help psychosocial recovery

The Canterbury Earthquake Digital Archive[12] (CEISMIC), an effort to collect and preserve cultural data from a disaster, was described by Millar. Many stories, images and media relating to the devastating Canterbury earthquakes have been archived and are available to the public for commemoration, teaching, and scholarship.[71] From a psychosocial perspective, Millar noted that CEISMIC was established "to preserve people's collective experience, create new knowledge out of the events, participate proactively in recovery, and document the rebuilding of communities, culture, and infrastructure."[71] CEISMIC activities that have contributed to psychosocial recovery included **Quakestories[13]** where people share their earthquake stories and images in order to create a "living memorial to share with future generations"; and **When My Home Shook[14]** dedicated to helping Canterbury School children cope with their experience of the earthquakes by providing a place where they can openly share their personal stories. Libraries, art galleries, and museums also archived earthquake stories.[78]

The Earthquake Memorial—a project in the Christchurch Central Recovery Plan—is another example of how culture can be used to "heal."[72, 79] Wilhelm and Quirke described how the process of developing a memorial can be therapeutic in itself, however the participatory process essential to success takes time. Objectives and beneficiary group also need to be clearly defined to manage expectations.

Lessons learned on how to work better together

25. Lesson learned: The way organisations work together and work with their staff is a critical success factor for effective recovery

Due to the holistic nature of post-disaster wellbeing and psychosocial recovery, there were a significant number of presentations and discussions on the collaborative nature of effective psychosocial interventions. These presentations offered lessons learned on the characteristics of effective inter- and intra- agency collaboration, including:

- Defining a clear, compelling, and shared purpose, goal and priorities, spreading a generally positive message[4, 33, 51, 53, 80]
- Working together linking complementary initiatives using a mix of system network and coordination models of operation[4, 33, 35, 51, 53, 54, 61, 65, 66, 80]
- Employing a strengths-based approach, highlighting the value of bringing together government and community sectors, including larger and smaller providers, to create a degree of flexibility, responsiveness and adaptability[4, 67, 101, 102, 113, 222]
- Including the diverse and expert knowledge required for such an abnormal event, not only health professionals but also other professionals who contributed their perspective and expertise from cultural, linguistic, and client perspectives[4, 53, 61, 65, 66]
- Developing trust between organisations and with clients to overcome organisational "cultural" barriers to work better together and transcend former boundaries, resulting in greater understanding between the agencies involved. Where possible ensuring organisations are non-biased and de-politicised[5, 67, 80, 97, 104, 110]

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[12] http://www.ceismic.org.nz/
[13] http://www.quakestories.govt.nz/
[14] http://whenmyhomeshook.co.nz/

- Ensuring consistent messaging and communication through social media, using diverse, inclusive and regular communication channels in multiple languages[5, 33, 51, 53, 66, 80, 110]
- Tailoring services, messages and methods based on information and evidence, thus ensuring services are relevant[53, 61, 65, 67 91]

The above studies also highlighted both the human resource management strategies and priorities and leadership styles necessary to ensure staff can effectively do their jobs:

- Putting people (staff) first including mental health support for staff[60, 66, 67, 85, 99, 103, 107, 110]
- Not making assumptions about the resilience and robustness of staff, especially frontline carers. In addition to normal reactions to disasters, there is the potential for secondary or vicarious trauma[36, 38, 60, 85, 87, 107]
- "Making it okay to ask for help" by encouraging staff to acknowledge personal limitations and seeking assistance from others when needed. Creating space for staff to take care of themselves[36, 38, 66, 107]
- Acknowledging the effect of staffs' competing roles. Individuals are part of family and social networks as well as holding occupational roles and will have personal needs that sometimes need to take precedence[34, 38, 39, 40, 66, 87, 103, 107, 110]
- Encouraging "sense-making" of the disaster experience by promoting learning. Initial responses to a disaster may involve confusion, being overwhelmed and lead to unexpected reactions. Individuals may experience role confusion. Education and awareness of potential disaster scenarios may assist with individual adaptation[4, 5, 36, 38, 66, 85, 87, 100, 111]
- Communicating clearly and openly. Creating certainty and managing expectations[5, 38, 97, 99, 103, 110, 111]
- Fostering independence, adaptability and innovation in the workplace. Ensuring staff have role clarity and are empowered through skills, resources and responsibilities to do their jobs.[4, 5, 38, 53, 67, 86, 97, 110, 111]
- Effectively managing valuable human resources. Leadership must be willing to adapt human resource policies, rules and regulations to reflect the best way to achieve the organisation's goals through maintaining staff welfare[5, 66, 85, 110, 111]
- Recognising the limitations of what providers can provide when dealing with some of the root causes of anxiety, stress and depression including secondary stressors. Linking social services professionals with information hubs for other services for clients/patients is key[60, 104, 107]

26. Lesson learned: External human resources are vital but must be deployed in such a manner as to capitalise on local knowledge and initiative

National and international support was readily available after the Christchurch earthquake. Presenters felt strongly that outside help should clearly support local and regional initiatives. They suggested that outsiders should consider how their support enables local responders and communities.[97, 98, 99]

Sir John Holmes noted in his keynote presentation that while supporting the local response is crucial, in practice it is sometimes complicated, not least as local and national governments may have a limited ability to respond.[127] Consequently, international teams arrive and take over various aspects of the rescue, health, and welfare response.

In their review of the Vulnerable Peoples' Emergency Response Team, Hickmott and Mills noted that decision-makers embedded in hierarchical government structures operate in a command-and-control environment that characterises most disaster management organisations.[35, 54] In this structure, decision-makers are positioned above multiple operational layers distancing them from accurate ground-level operational information. In Christchurch, this meant organisations responding at the "coal face" had difficulty communicating with government.[35, 54] Several Conference presenters suggested emergency management systems should reflect methods of network-centric organisation, allowing centralised systems to more effectively interact with and support community-led initiatives.[4, 33, 35, 43, 46, 51, 53, 54, 61, 65, 66, 80]

A critical success factor for better government-community collaboration is designating government liaison(s) in community- or networked-structures. Civil Defence, and later CERA, designated specific liaison persons to the CDHB, the Farmy Army, and Student Armies, dramatically improving communication, coordination, and relationships.[54, 213]

Conclusion

The People in Disasters Conference was hosted by the Canterbury District Health Board and the Researching the Health Implications of Seismic Events (RHISE) Group in Christchurch. The Conference was about the health - health in its broadest sense which extends to wellbeing –and the ill-health experienced by people in disasters, as well as the wider determinants of that ill-health.

The keynote speakers, presenters and participants, together explored post-disaster positive mental health outcomes, as well as the prevalence of post-event depression, stress, and anxiety in people most affected. To more effectively support the return and maintenance of psychosocial wellbeing and good mental health, participants shared their experience on a wide variety of approaches to psychosocial recovery after disasters. Notably, actors in psychosocial recovery included communities themselves, social welfare and health sector agencies, but also other agencies working in animal protection, education, employment, housing, culture, and environment. Given the inter-agency and collaborative nature of a comprehensive psychosocial recovery strategy, it is not surprising the Conference provided a wealth of reflection on collaborative undertakings. A common thread was one of networking and collaboration for "caring, sharing and learning".

A review of the lessons learned highlights specific principles that need to be incorporated into preparedness, mitigation, response, recovery, and resilience-building if disaster response is to address the complex impacts of humanitarian crises. This paper concludes with a reiteration of the key success factors for effective collective action derived through their repeated reference by presenters at the Conference:

- Understand the conducive factors for individual, community and organisational resilience and ensure they are reflected in both community development and emergency response strategies and plans
- Recognise the importance of social connectedness and trust to promote mental health and wellbeing after disasters
- Appreciate and create favourable conditions for emergent leadership and self-help in disasters

- Promote appropriate leaders (e.g. community, organisational, and governmental) with corresponding leadership styles that meet the different demands in the various phases of an emergency
- Evaluate how government organisations can more effectively collaborate with NGOs, community groups, and other groups during response to disasters and recovery
- Develop a wide range of appropriate methods of communication, for interagency and community engagement and participation
- Include more "actors" (rather than planners) in preparedness plans and exercises, including representatives of at-risk groups, and other institutions outside of Civil Defence and local government, e.g. education
- Ensure that the lessons learned are available and integrated into up-to-date emergency response plans, real-time information is available, and ongoing efforts to meet disaster-affected people's needs are evidence-based.

Concluding statement of the People In Disasters Conference, Christchurch, 2016

To coincide with the 5th anniversary of the major Christchurch earthquake of 2011, during which 185 people died and thousands were injured, the People in Disasters conference was held in Christchurch on 24-26th of February 2016. Christchurch remains a city strongly affected by disaster with ongoing stressors many of them related to the prolonged recovery process. But over the last 3 days, the spotlight has been on Christchurch as a focus and example of global disaster risk reduction knowledge sharing.

The People in Disasters Conference was hosted by the Canterbury District Health Board and the Researching the Health Implications of Seismic Events (RHISE) Group in Christchurch. The conference was about the health - health in its broadest sense which extends to wellbeing –and the ill-health experienced by people in disasters, as well as the wider determinants of that ill-health.

More than 350 people attended, from many backgrounds including emergency services, mental health, social sciences, psychology, engineering, education, human-animal studies, and government.

Local, national and international groups have all gathered and interacted at this conference in a collaborative and participatory way to make sure that the many voices have been heard. The content included the reporting of academic research and practical lessons from response and recovery work. The perspectives and the methodologies were varied, the sessions had mixed professional groups and community representatives and the discussions were rich and inspiring.

The conference themes were broadly divided into; response; recovery and; resilience. Subthemes included disaster risk management, public health, perspectives on health services including psychosocial and mental health services from the community and provider point of view, community-led response initiatives, social recovery, leadership and organisations and the experience of specific groups including children, the elderly and the disabled were discussed. A common thread was one of networking and collaboration for 'caring, sharing and learning'.

The key messages from the conference will be distilled and presented in academic fora and in a summary document, but some of the issues identified include:

- Real stories of response and recovery, including what went well and what didn't, provided valuable insights. Academic research, with rigorous attention to methodology, provides equally valuable but different insights. Both are needed and both should be valued and used
- There has been a failure to adequately learn from the lessons of past events to inform future practice. Consequently, both forms of research (real stories and formal research) should be promoted but in a context where the findings are interpreted and translated into action

- At the heart of any post disaster recovery are the people
- A disaster is not an event. It is the beginning of a journey to a different future. You recover to the past – you transform to the future
- It is critical to have a post disaster policy framework as well as an emergency response plan. An emergency response plan deals with the here and now. The post disaster policy framework deals with the future
- Using an all-hazard, multidimensional approach for emergency planning for disaster risk reduction, response, recovery, rehabilitation and reconstruction– as promoted in the Sendai Framework for Disaster Risk Reduction 2015-2030 - will strengthen our alignment with the global disaster risk reduction community
- Recognising the physical and physiological harm sustained by animals and humans as a result of human-animal bonds and human-animal interactions- disaster response frameworks include strategic planning and defined responsibilities, for the rescue, welfare, re-homing and reuniting of all animals (companion, service, farm, laboratory and wild)
- Planning in an integrated manner across sectors and disciplines - is important; and taking the capacities that all groups are able to offer in planning, response and recovery is key
- Inclusive, collaborative and trusting relationships to allow people to work more effectively are critical – we need to build the relationships before the event happens
- In particular, community level relationships are important before, during and after disasters
- Leadership at all levels is a key piece of the jigsaw for the effective integration of learning into plans
- Promoting partnership in decision making at all levels and providing services (with the resources to match) closer to home – flexibility in the system is key
- Mental health impacts from the disasters are both immediate and latent – so a longer term approach to mental health is needed and that's for everyone including those providing care and support
- Risk and response communication always needs to be simple, professional, timely and be people-centred so that those who need the information can use it
- The experience and contributions of the Maori communities has resulted in a more effective and holistic response and walking together on the recovery journey is sure to develop better approaches for the future
- Disaster preparedness through innovative methods including through formal curricula in schools will help the next generation

The importance of learning from the Christchurch experience across all disciplines is key to future understanding and inclusiveness for disaster risk reduction. Similarly, it is important Christchurch learns from experiences gained elsewhere.

In summary the conference was a call to action based on the critical success factors needed for future disaster risk reduction and risk management. Two next steps from the conference are a series of publications of the outcomes – the learning summary document and a series of peer reviewed publications. There is a need for another conference in 5 years' time to make sure the important work to recovery goes on and is properly documented for the Christchurch and the New Zealand communities but also for shared learning across the world.

He aha te mea nui? He Tangata, he tangata, he tangata.

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