POST-DISASTER INDIGENOUS MENTAL HEALTH SUPPORT

Tangata whaiora networks after the 2010–2012 Ōtautahi/Christchurch earthquakes

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Abstract

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.

Keywords

disasters, mental health, resilience, support networks, social network analysis

Introduction

Mental health in Aotearoa New Zealand (hereafter referred to as New Zealand) has been a difficult and controversial area in which societal challenges and family tragedies are regularly exposed, often with sensationalised headlines that frame tangata whaiora ("people seeking

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health", a Māori term for mental health clients) as presenting "dangerousness" and "criminality" to others (Coverdale, Nairn, & Claasen, 2002). Although mental disorders existed prior to European contact, the increase in Māori mental health issues seems to be a relatively recent phenomenon (Kingi, 2011). A major survey of national mental health in 2006 found that Māori generally have a higher prevalence of mental disorders than the remainder of the population and are significantly less likely to make a mental health visit (Kingi, 2011). Given these statistics, the relevance to Māori of modern mental health law and practice cannot be overstated.

The assertion by Māori of Māori philosophies and epistemologies has led to major advances in the modelling of health and wellbeing. One of the best-known models is Mason Durie's Whare Tapa Whā (Durie, 1998) in which good health is acknowledged as the balanced interactions of four components of an individual's life:

- Te taha hinengaro — Inseparability of mental health from the mind and body
- Te taha whānau — Extended family, wider social systems and support
- Te taha tinana — Physical wellbeing
- Te taha wairua — Spirituality

These dimensions are of course intertwined, representing the close relationship of each of the components. Many organisations use this model, including the kaupapa Māori and Pacific NGO Mental Health and Addictions Collective (2013), to which a key research partner in this research belongs. The de-institutionalisation of mental healthcare in New Zealand sits within a broader socio-political restructuring that began in the late 1980s and implemented massive changes to this country's society through ongoing reforms along neo-liberal interpretations of the allocation of resources (Jessop, 2000; Kelsey, 1995). The impacts of these reforms not only continue but are being extended, notably in housing where the current government has announced the privatisation of social housing ("Only time will tell on 'social' housing", 2015).

Impact of disasters on mental health

Research on disasters and mental health emerged from studies on the impacts of war (Raphael & Maguire, 2009). Researchers identified the "disaster syndrome", a period of time immediately following a disaster event when a proportion of an affected community are dazed and confused (Tyhurst, 1951). In the 1960s, social phenomena were increasingly examined for their role in post-disaster mental health. Some research reinforced the stigmatisation of victims, theorising victimhood identities and helplessness, while others presented overly positive interpretations such that any mental ill-health consequences caused by disasters "seemed to be denied" (Raphael & Maguire, 2009, p. 8). The 1970s and 1980s saw a greater focus on the impacts of disasters on mental health but, although sociologists identified the influences of societal factors on individual outcomes, these contributions were rarely incorporated into dominant mental health approaches. Cultural differences were also seldom addressed despite developing countries experiencing more frequent and more severe disasters and the exacerbation of underlying individual and community vulnerabilities by disasters (Raphael & Maguire, 2009).

The "geography of care" (Conradson, 2003) provides a useful conceptual framework by moving away from just analysing spatial characteristics of "therapeutic landscapes" (Gesler, 1992). Parr and Philo (2003) describe mental healthcare in the Scottish Highlands, identifying physically distant but socially proximate connections that enable better care for traditionally stoic individuals.

> This social proximity means that neighbours five miles apart might know intimately each

> other's personal histories and biographies, family relationships and so on. The genealogy of an individual and their family is something collectively known, placed, remembered and narrated by other community members, especially those who have links with the area and residents in question. This may have particular implications for people who have experienced emotional and psychological disruption. (p. 475)

Disasters are recognised as having spatio-temporal characteristics, revolving around an actual event in a particular location (although some events, such as droughts, can have long onset periods and many disasters have diffuse impacts) (Hewitt, 1997). The New Zealand Ministry of Civil Defence and Emergency Management (MCDEM, 2015) recognises four broad phases: reduction and readiness (which precede the event) and response and recovery following the event. I will revisit these "four R's" in the discussion. While Indigenous knowledge has important, perhaps fundamental, insights into hazard management and disaster risk reduction (Athayde, Baudoin, Lambert, Okerie, & Yin, 2015), historical and contemporary racism remain significant obstacles.

Disasters and Indigenous mental health

The insight that a landscape contains physical, social and cultural markers is useful and appropriate in interpreting Indigenous psycho-social support. Indigenous scholars have argued that colonisation, historical oppression and contemporary marginalisation are all "disasters" for Indigenous communities (see, for example, Dunbar-Ortiz, 2014). Kirmayer, Dandeneau, Marshall, Phillips and Williamson (2012) present four North American case studies of Indigenous mental health through disasters and by "a focus on resilience [shift] attention from vulnerability and pathology toward the analysis of resources, strengths and positive outcomes" (p. 399). The authors argue that "Indigenous concepts of resilience are grounded in cultural values that have persisted despite profound changes in the nature of community life" (p. 409)

Psycho-social support in Ōtautahi/Christchurch following the series of earthquakes that began in September 2010 and continued throughout 2011 and into 2012 was clearly going to be challenging. Data from the Kaupapa Maori and Pacific NGO Mental Health and Addictions Collective gives an indication of the demand for services. Specialist mental health services recorded 77,472 presentations in 2012 (about 6,500 per month), of which 8,090 (10.5 per cent) were Māori; between 630 and 700 individual Māori per month (Kaupapa Māori and Pacific NGO Collective, 2013, p. 1). The most demanded services were provided by the Community Methadone Programme, Youth Specialty, Watch House, Child and Family Speciality, Psychiatric Emergency Services and East Mental Health team. The Collective found a higher prevalence of disorder for Māori (29.5 per cent) and Pacific (24.4 per cent) people than others (19.3 per cent), "indicating that Māori and Pacific people have a greater burden due to mental health problems" (p. 2). They attribute much of this to the relative youthfulness and socio-economic disadvantage of these populations. However, Pasifika, and to a lesser extent Māori, are less likely to seek mental health services; for those with a disorder in the 12 months preceding the report, 25.4 per cent of Pasifika, 32.5 per cent of Māori and 41.1 per cent of others made a mental health visit (p. 2).

Overview of the Ōtautahi/Christchurch earthquakes

The seismic activity which came to frame the disaster in Ōtautahi/Christchurch, New Zealand, took the form of a series of earthquakes beginning early on the morning of September 4, 2010. The most destructive event took place on

February 22, 2011, with continuing aftershocks through 2012 (the timeframe of this study), some of them major events in their own right. The seismic activity was continuing at the time of writing this paper: a 5.7 magnitude event occurred on February 14, 2016. The February 2011 event claimed 185 lives, 115 in one collapsed building (the Canterbury Television [CTV] building; see Canterbury Earthquakes Royal Commission, 2012). Extensive damage was done to residential and commercial buildings as well as infrastructure, and many people experienced significant and extended disruption to their personal, working and social lives.

The Christchurch earthquakes were one of the most expensive insurance events in New Zealand history (Munich Re, 2012) and the physical recovery activities will take many years to complete. Rebuilding the psycho-social component of people's lives is also proving to be a long-term process (McCrone, 2015). The study reported in this paper aimed to illustrate the particular issues that tangata whaiora have to deal with in a post-disaster landscape.

An important finding from previous research describes Māori cultural practices that enabled an effusive transfer of people, food, water and contact which, as physical *and* cultural expressions (of manaakitanga and whakawhanaungatanga), are enabled through socio-cultural connections which *spontaneously* embrace non-Māori (Lambert, Wilkie, & Mark-Shadbolt, 2014; Phibbs, Kenney, & Solomon, 2015). These practices informed the observed support networks for tangata whaiora participants in this research.

Research problem and methods

Several publications have described how Māori individually and collectively experienced the Ōtautahi/Christchurch disaster (Lambert, 2014a, 2014b; Lambert & Mark-Shadbolt, 2012; Paton, Johnston, Mamula-Seadon, & Kenney, 2014; Potangaroa, Kipa, & Winstanley, 2014). The broader research problem this study examined was the nature, causes, and consequences of a specific kaupapa Māori health service and client base response and recovery to the disaster. Three research questions relevant to tangata whaiora emerged from this problem.

The first research question was descriptive: What were the effects of the earthquakes on clients accessing Māori mental health support in Ōtautahi/Christchurch? Through previous research we have a store of data and informants for an in-depth analysis of post-disaster Māori communities in the region. We prioritise the experiences of tangata whaiora here to understand how specific Māori-centric support networks respond to radical dislocation. The second research question therefore was: How did these tangata whaiora and their whānau respond to the disaster?

The third question concerned the application of findings: What aspects of the response and recovery of tangata whaiora in this context are applicable to other Māori and Indigenous communities? How this particular community has responded to this disaster can facilitate disaster planning and management for whānau, marae, iwi, and other Indigenous as well as non-Indigenous communities. "Community" in this sense applies to clients—Māori and non-Māori—and staff of a kaupapa Māori provider who experienced a significant urban disaster. Two methods were employed to meet the research objectives and are discussed briefly below, after a section introducing research collaborators.

Research partners and participants

Te Awa o te Ora (TATO) is an Ōtautahi/Christchurch kaupapa Māori provider established in 1999 to provide kaupapa Māori "wrap around" health services in the region. Tangata whaiora were themselves an integral part of the operation of TATO with a Whānau Forum that met monthly and which elected two representatives as board members (TATO, 2014).

On my first visit to TATO I was given a short PowerPoint presentation by the day manager explaining the philosophy and history of the provider. The kaupapa of TATO is encapsulated in their logo which incorporates "the elements of whānau and earth via the stylized waves and koru, which are proudly supported and carried on the back of the *manaia* figure which symbolically protects all that Te Awa o Te Ora Trust believes and stands for" (TATO, 2014). Broad characteristics of participants are listed in Table 1. Clearly, for participants who were tangata whaiora, TATO was a focal point for their lives. In the words of one elderly female participant:

> It was here, it was coming along to Te Awa and gathering here. This is my whānau, I don't have any other whānau here, they're all in Australia, this is my whānau. (NPM17, 61-year-old female)

Potential participants were identified in consultation with TATO and personally approached. Most of the 39 participants were tangata whaiora (27); four were staff, four were board members and four were managers. Male participants numbered 19; female 20. Most participants were Māori (28) but 10 were Pākehā and one had Māori and Samoan ancestry. Ages ranged from 18 to 66 with the ages of 46 and 55 most represented (see Lambert, 2015). The research was also supported by the Mental Health Education and Resource Centre (MHERC), which provides "a coordinating service that encourages community participation and promotes autonomy of individuals and groups" (MHERC, n.d.).

One challenge to ethics approval by the Human Ethics Committee (HEC) of my university was the koha, which I had originally decided was to be a $100 grocery voucher. A key HEC principle in the provision of gifts to participants is that the gift not be of a value to "entice" participation. Through the administrative process I reduced the amount to $50. Subsequently, the research was discussed in a TATO Whānau Forum meeting and the koha of $50 obviously mentioned (several attendees had already been interviewed by this stage). When I visited following this meeting, I was inundated by volunteers, with several explicitly mentioning the "fifty dollars". The majority of participants were beneficiaries with weekly incomes of $270–$300, with very little discretionary income. Given this level of poverty, what koha amount would not entice people to be interviewed?

I was comfortable with this turn of events from a kaupapa Māori perspective for two reasons. First, the koha was reciprocity for the fundamental knowledge which became research data, amounting to a small fraction of the total research cost. Second, to be able to contribute to the living costs of participants was something I chose not to have any ethical angst over.

Interviews

A total of 39 semi-structured interviews were undertaken in April 2013 and April 2014 with all but two recorded and transcribed. The interview questions (reproduced in Appendix 1) introduced the themes of response to the earthquakes, impacts from the disaster, recovery, and support networks accessed post-disaster. Quotes used from this research are labelled "NPM", which stands for Ngā Pae o te Maramatanga, New Zealand's Māori Centre of Research Excellence, the funder of the research. Interviews from earlier research (undertaken between August 2011 and April 2012) were reanalysed and some excerpts (labelled "EQ") used in this study (Lambert, 2014a, 2014b).

Most interviews were undertaken in TATO's premises in a quiet corner, although there was often some background noise. A whānau representative was always present. Interviews of tangata whaiora ranged from four minutes to over half an hour; interviews with staff managers and board members were often over

one hour. Transcriptions and other data were downloaded in NVivo at the start of the project, with all files being transferred to Dedoose cloud-based software for final analyses.

Social network analysis (SNA)

SNA incorporates a number of methods to analyse how individuals and organisations are connected by one or more types of interdependency such as kinship, geographic proximity, economic interdependence, beliefs, knowledge or culture (Knoke & Yang, 2008). Participant comments on these themes were used to identify and code nodes and networks of Māori mental health support for SNA. Themes were identified and the software enabled some initial analyses, including on social networks.

SNA was operationalised by inputting named support networks (organisations such as hospitals, residential care, other kaupapa Māori organisations, whānau, named support staff and so on) from coded transcripts. This database was revised several times as interviews and preliminary analyses proceeded. Finally, data was transferred to NodeXL software. Various analyses could be performed by the software including useful schematics of network relationships either explicitly named (by the participant) or observed (by the researcher), noted by another participant, or collated from desktop research and feedback. (For more details and fuller explanations of themes and methodology, see Lambert, 2015.)

Results

Results will be presented in three parts. First, a series of selected quotes, mainly from tangata whaiora but also staff (several of whom are tangata whaiora themselves), board members and managers, gives an overview of individual and collective experiences. Second, data on initial movements (after the February 22 event), accommodation and support accessed describe how participants responded to the initial disaster, along with comments drawn from the interviews. Selected quotes appear in this section to help illustrate particular themes. The third section integrates qualitative interview data and quantitative movement data into an SNA of the support networks that operated during the recovery of participating tangata whaiora.

Participant experiences

This section presents selected quotes from Māori participants to illustrate the themes of response, impacts, recovery, and networks of support for mental health. The first thing to be noted was the intense and frightening violence of the biggest shocks. The shock and confusion associated with "disaster syndrome" (Tyhurst, 1951) was recorded by an elderly male tangata whaiora participant:

> I thought someone had hit me from behind, I actually thought I was getting robbed! I'd never felt an earthquake before . . . I didn't know they do that to you! And I thought "What the?" The only thing that is close to me that I've felt anything like that is when I've been bashed. I thought "Someone is in the house . . ." (NPM14, 60-year-old male)

A concern often articulated in the aftermath of any disaster is the fear of looting and mass panic. While the New Zealand press did carry some sensationalised stories along these lines, the unlikelihood of mass panic post-event was first noted by Quarantelli (1954) and many participants (including the individual quoted above) spoke of the sense of community that was quickly established.

> The only thing that saved everybody, bro do you know what it was? Just about every second house down, everybody was out sizzles . . . sausages and buns and bread and all sorts and giving it out to people bro, and big

> hot plates of soup and it was amazing mate. (NPM14, 60-year-old male)

Some tangata whaiora saw horrific scenes. For example:

> . . . we saw this woman, Asian lady, had been killed and we went over just to try and help her but she was already gone so there was nothing we could . . . So from then on I became more isolated, and I isolated myself. (NPM23, 35-year-old male)

After the February 22, 2011, event, the city shook with regular aftershocks (often coming in clusters). Many people were preoccupied with food and water, toileting, reassuring children and each other. Many had to secure new accommodation.

> I shifted about six times during the earthquakes. I'd sold my property, had everything in storage [which] wasn't insured so liquefaction basically took, with seepage, the bottom boxes . . . here's me thinking I'm actually paying to have a secure lock-up and we're not covered! . . . I just got displaced after that, had gear stored in about three different places at one point. (NPM32, 40-year-old male)

A common comment from staff and managers was that many tangata whaiora handled the disaster comparatively well. For example:

> I found that [tangata] whaiora were extremely resourceful because their lives [are] kind of up and down and all over the place anyway, that this was quite normal for them. It didn't even feel out of sorts particularly for them mentally, like they were just carrying on as usual and yeeha! they were able to do a few extra things that they liked doing whereas we, who were . . . supposedly a bit more in control of what was going on in our lives and helping them, we were more out of sorts. (NPM10, 50-year-old female)

Re-establishing links of support was a necessary task for many whānau but this support was often subject to disruption. Medication was very important for the health of some tangata whaiora. One woman commented:

> Well I pick up my meds on Tuesdays [the February 22 earthquake was on a Tuesday] and I was on weekly blister packs so I had no meds and on Wednesday my son took me through to the hospital and the army was there and they said "Well what are you here for?", and they're busy. And then my son just said "Look my mum needs psych meds!" and they let me in. But they wrote out a script and we had to go to one of those 24-hour ones. It cost $119 for my meds and I never got that back . . . they didn't take down any of my numbers or anything, so it cost $119 for that week's meds. It was an out of it price! (NPM25, 55-year-old female)

TATO quickly re-established itself under strong leadership from a key manager and tangata whaiora who were clients or became clients after the February event were able to quickly connect with relevant support services. As one male client stated:

> You didn't know where [service providers] were . . . there wasn't a lot of chance to communicate with outside people because so many different services were down . . . and you didn't know what, where to go for that support. It was Te Awa that . . . came, I [was talking to M.] in Atawhai, our forensics unit, and he said "Oh yes, yes there's a place that might help you reconnect with the support you need." (NPM03, 47-year-old male)

Many Māori lived in the eastern suburbs of the city, an area that (along with the central business district and coastal cliff-top suburbs) saw significant damage to buildings and infrastructure (see Lambert, 2013; Potangaroa, Wilkinson, Zare, & Steinfort, 2011). One senior Māori

leader noted the disparities in response efforts for his community:

> One of the biggest criticism[s] has come from I think it was the east side of town, around this area, is the lack of communication and of course people didn't have any power, they wouldn't have had access to TV, internet and probably radio, certainly not printed media. (EQ26, 60-year-old male)

Participants in earlier research experienced mental stress and many sought counselling for the first time. For example:

> I put my name down . . . I'd talk to those guys because I wasn't sleeping and stuff like that so. But they were bloody good, I said "I'm doing this, this, this and this, is that normal?" and she said "Yeah that's completely normal, if you weren't doing any of those things." I've got a fucken helmet next to my desk! It definitely made me a bit flightier after that second one. (EQ03, 45-year-old male)

Many people struggled with the "new normal", of living in a post-disaster landscape. As one male client commented:

> I really saw things from a different perspective, I saw things from the perspective maybe, more when you feel like you've got nothing, you feel like everything is shit, your house is gone . . . your relationship with each other is disintegrated, there's gambling. I worried about alcohol, I wouldn't have it in my fridge. I just was terrified, absolutely terrified. (NPM13, 42-year-old male)

Residents with lower incomes tend to be the more affected, with some living in severely damaged homes for considerable periods of time (Lindell & Prater, 2003). TATO staff discussed those tangata whaiora who were homeless. For example:

> The funny thing about it though is the homeless people, they don't seem to care you know, they're still the same, they . . . I don't mean to say they don't care but it's like nothing has really changed for them because they're living out there and they've known that . . . They've just got less places to go now. (NPM07, 40-year-old female)

For home-owning participants with severely damaged houses, the struggle to get repairs and insurance payouts often dominated their lives in the months and even years after the initial damage: the resulting stress was a serious issue. Many participants were reliant on social housing, a sector that had been hard hit (Goodyear, 2014), and accommodation remained a significant concern even three years after the February 2011 event (Te Puawaitanga ki Ōtautahi Trust, 2014).

> [The] piles needed doing, it had cracks down the walls, it had the ceilings all curved in or curved out or whatever it was . . . water came in and we had buckets, we had to get the fire people to try and put a tarp on it . . . So yeah, the house wasn't good and it took a while for that to really kick in. (NPM13, 41-year-old female)

> I really don't know where I'm going to go. I could have said my dad's but then Dad has been put into a home this year with dementia so I can't even go there because my brothers are selling the place and they're in charge of it. So I really don't know what's going to happen when that happens. [I] could possibly even be in hospital because when I can't find an answer then I get really unwell. (NPM25, 55-year-old female)

Many relationships ended in the months after the disaster. People were having to deal with "earthquakes, stress, damage to their homes, insurance, finances, and when people are put in those situations they do tend to take it out on

their partners" (Stylianou, 2012). One woman commented:

> Me and partner have broken up. I think part of it is stress because you know how everything just calms down and then the realisation of what happened just hits you. I started smoking, I hadn't smoked since 23 years. And I started drinking too. (NPM08, 52-year-old female)

Whānau were not necessarily the automatic choice of refuge for participants. For example:

> Q: So what keeps you in Christchurch then?
>
> A: It's as far away from my family as I can get . . . (NPM11, 54-year-old female)

Some participants spoke of other "disasters" that they had experienced individually or as a whānau, essentially describing "overlapping disasters" whereby they are simultaneously responding to and recovering from to multiple events. Wider historical marginalisation was noted by participants familiar with the eastern suburbs, such as this tangata whaiora:

> To a lot of people around, they're just basically resigned to the fact: "Oh this is how it is for us here, how it's always been." And in terms of pecking order or priority to receive any assistance, it will come when it comes if it comes. A lot of people are angry at a host of different things and some of those things are beyond sort of manageable control. (EQ26, 60-year-old male)

Movements

Many tangata whaiora had to leave their accommodation and seek shelter either elsewhere in the city or further afield. TATO quake assessment data show considerable movement by tangata whaiora, both within the city and to other towns and cities around the country (Table 1). These data show of the 110 TATO clients, 34 left Ōtautahi/Christchurch following the February 22 event—just over 30 per cent. We reiterate that many tangata whaiora are vulnerable to isolation and a significant minority specifically exclude whānau from their support networks, emphasising the role of staff and friends. That only one could not be immediately accounted for is remarkable in the circumstances and a testimony to both the strength of the support networks that existed pre-disaster and the dedication of staff and the

TABLE 1 Client movement (N=109) (TATO, n.d.)

Response		Peer (n=31)	Day care (n=28)	LMLM (n=4)	CSW/CIS (n=47)
Stayed in own home		6	8	1	16
Residential care		7	2	1	5
Moved within Ōtautahi/ Christchurch	In emergency shelter	1	1	–	2
	Moved in with whānau	2	3	–	4
	Moved in with friends	3	–	–	–
	Other	3	4	1	5
Moved outside of Ōtautahi/Christchurch (and stayed with whānau)		9 (4)	10 (3)	1 (1)	14 (5)
Missing		–	–	–	1

Note. LMLM = Like Minds Like Mine, a national publicly funded programme aimed at reducing the stigma and discrimination associated with mental illness see; CSW/CIS = Community Social Worker/Clinical Information Systems.

rapidity and efficiency of their response in the aftermath.

An important factor behind the rapid response by TATO staff was the comparative security of their housing, infrastructure and whānau. Eleven TATO staff were available for disaster response (two were on leave), and staff members paired up in the days after the major event of February 22, 2014, and visited clients to check on their wellbeing and provide emergency supplies and pastoral support. The homes of two staff members were uninhabitable, and four others did not have water supply, but the whānau of all staff members were relatively safe.

Although all tangata whaiora who participated in this research survived the earthquakes, and most displayed remarkable strength and stoicism, many were seriously affected and the impacts of this disaster were compounded by previous or ongoing personal or whānau "disasters". This overlapping of disasters has implications for how disaster management and risk reduction strategies should be framed in the future.

SNA results

Analysis of the main themes (impact, response, recovery and support networks) led to the identification of particular nodes of support which could be ranked according to how many participants named them (Table 2). Basic analyses were undertaken to describe the connectivity of identified subgroups of participants.

In the above table TATO is first by default: most participants, and all tangata whaiora, were sourced through the provider. That whānau features in second place is also to be expected: whānau remain the fundamental network of support for Māori and non-Māori. However it should be noted that for 6 of our 27 tangata whaiora participants, whānau was named as a negative in their lives. These individuals *explicitly excluded* whānau from their support networks because of prior experiences (drugs, alcohol and violence being the main reasons offered).

TABLE 2 Most named supports, in rank order

1	TATO
2	Whānau
3	Kaupapa Māori providers
4	Voluntary organisations
5	Tamariki
6	Community
7	Personal networks
=	Neighbours
8	Māori institutions
9	NPM02 (Day Manager)

One SNA tool for analysing networks is graph density, a measure of the "general level of linkage" (Scott, 2000, p. 69). For this research, the linkages of participants through support networks in a post-disaster landscape could be measured. Table 3 lists graph density calculated using NodeXL's group matrix function, which yields a ratio that compares the number of linkages in the graph with the maximum number of possible linkages if all nodes were connected to each other. The analysis showed that managers had the most densely connected networks (0.190), and staff were also very well connected (0.150). This last point is interesting as many staff were also tangata whaiora themselves, who as a group were found to have the least dense linkages in the post-disaster landscape of Ōtautahi/Christchurch (0.065). Do staff collect connections through their positions? Certainly there are opportunities for networking in their roles. Follow-up interviews on this point highlighted how those tangata whaiora with connections, and a proactive response to opportunities for great connectivity (for example, training and education opportunities), were selected for staff and leadership roles (Board member, personal communication, November 1, 2013).

TABLE 3 Graph densities for different groups of participants

Category	Graph density
Managers	0.190
Staff	0.150
Pākehā	0.113
Tane	0.084
Wāhine	0.081
Māori	0.066
Tangata whaiora	0.065

Table 4 shows this density data by age groups. There are no significant differences between the younger categories but the older group of 56–66 year olds is less connected.

TABLE 4 NodeXL graph densities by age group

Age group	Graph density
18–25	0.127
26–35	
36–45	0.112
45–56	0.113
56–65[1]	0.081
66+	

Note. The 18–25 and 26–35 age groups and the 56–65 and 66+ age groups were combined due to the small numbers in each.

Discussion

Connectivity is a cultural norm for Māori and other Indigenous peoples (Rose, 1999) as well as an important requirement for the post-disaster health and wellbeing of tangata whaiora. These two factors came together in TATO's response to the Ōtautahi/Christchurch earthquakes. Due to committed leadership, dedicated staff, and ongoing efforts in very demanding circumstances, almost all tangata whaiora who were a part of TATO's network were tracked and supported. This response was enabled by strong leadership, a relatively stable cohort of staff, cultural practices of manaakitanga and whakawhanaungatanga, and expressions of community through the disaster.

Strong connections across organisations and communities is a necessary pre-condition for an effective disaster response. This was embodied in the personal and professional networks of managers and staff. However, support for many individuals came from just a handful of sources—recall collective connectivity was less than for managers and staff—and support remained vulnerable to forces beyond the control of the individual. Although tangata whaiora drew on whānau and friends to get through the disaster, we have seen that a significant number *did not or could not* rely on whānau as a result of negative past experiences. While programmes exist to address this isolation, connection with immediate and extended family remains tenuous for many of the most vulnerable participants.

An extension of this important if unfortunate circumstance is the observation that Māori support is comprised of immediate, physically embodied engagement and physically distant but socio-culturally proximate institutions that may not feature in the networks of tangata whaiora (though this can be remedied) but which operate at a higher level as a fitful but pregnant resource. In promoting Māori institutions such as marae and whānau as disaster response nodes, it is vital to note that some of the more vulnerable members of our communities cannot or will not access these fundamental cultural institutions. They require some form of brokerage to re-entwine them into the rich resources of cultural support. The reliance of tangata whaiora will often be on a limited number of friends or contacts, notably kaupapa Māori organisations for Māori mental health clients and perhaps an increasing non-Māori clientele, and the networks these organisations have with each other and mainstream organisations.

Overlapping disasters

As noted earlier, the MCDEM (2015) interprets disasters as a four-phase "event" comprising reduction, readiness, response and recovery, in that order. Many Indigenous researchers have implicitly or explicitly argued that their peoples have experienced a series of *overlapping* disasters which are exacerbated by colonisation, a disaster event in itself (see, for example, Howitt, Havnen, & Veland, 2012; Olver-Smith, 1994; Rae, 2013). Given the considerable challenges to individuals, whānau and communities post-disaster, the residual effects of previous traumas and disasters remain and can be summarised as ongoing response and recovery phases which, in this research, overlapped with the response/recovery contexts of the Ōtautahi/Christchurch earthquakes. By extension, the existence of overlapping reduction and readiness phases to other ongoing emergencies and "disasters" (for example, the drug and alcohol issues, family violence, unemployment and relocation) massively complicate the necessary response and recovery to the immediate disaster of the earthquakes. This overlapping of disasters is depicted in Figure 1 below.

It was noted at the beginning of this paper that the wider challenges to Indigenous communities, stemming from colonisation, historical oppression and contemporary marginalisation, will constrain and limit Indigenous participation in state, regional and local networks responsible for disaster and emergency management. This was the observation of Māori in the eastern suburbs (Potangaroa et al., 2011) and is supported by the ongoing poor wellbeing scores from the Canterbury Earthquake Recovery Authority (CERA) Wellbeing Survey (see, for example, CERA, 2014) and research

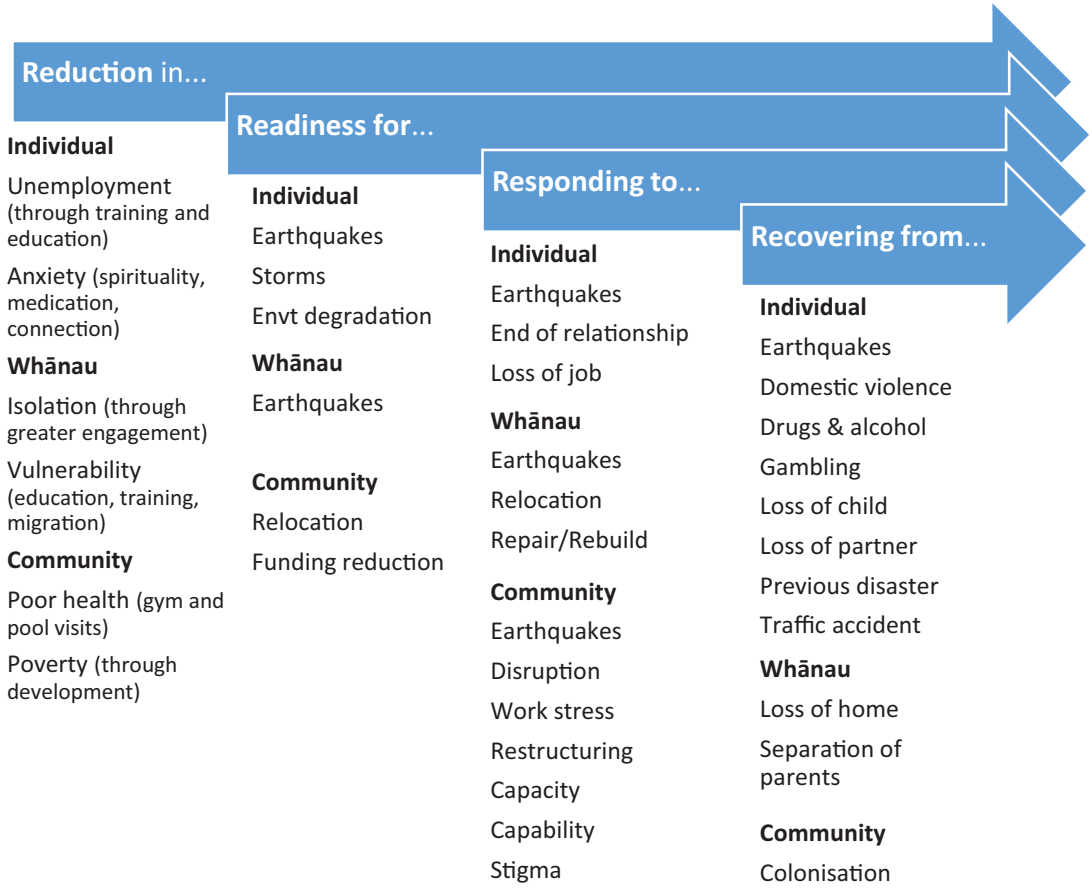

FIGURE 1 Overlapping hazards and disasters experienced by tangata whaiora in Ōtautahi/Christchurch

on post-disaster development (Rae, 2013). The marginalisation of Indigenous communities in disaster and emergency management strategies is echoed in international case studies (Athayde & Briggs-Cloud, 2015; Lambert, Athayde, Yin, Baudoin, & Okorie, 2014). This paper has highlighted that within vulnerable communities such as mental health clients, inconstant connectivity is a feature of the recovery phase, and Māori and the elderly remain among the most vulnerable despite explicit kaupapa Māori provision of support.

The major risk identified in this research is that the individual and collective isolation of tangata whaiora is an obstacle to their readiness for *future* disasters, compounding whatever vulnerability they may already experience due to their economic marginalisation, ethnicity and poor mental health. Simply put, tangata whaiora struggle to determine their own disaster risk reduction approaches but must instead rely on wider societal acknowledgement of their particular needs.

Relevance to other communities

Tangata whaiora identified strategies and tactics for their immediate concerns: the provisioning of emergency kits, knowing neighbours, asking for and offering assistance. At the strategic level they knew that contacts with support people (professionals and peers) were more likely to enable support when needed. Tactically, tangata whaiora knew that asking for and offering assistance all contributed to their wellbeing and the wellbeing of others, a reciprocal arrangement that increased their sense of worth and pride in participation. These actions are regularly and rhythmically attested to and verbalised in waiata, karakia, conversation and art.

Finally, tangata whaiora have particular insights into life that instruct us all on how to live in a disrupted world. In particular much of their advice de-emphasises material possessions and elevates personal relationships. These contacts were often initiated by friends, whānau and staff who cared and expressed that care in physical visits, social contacts (including phone calls and texts) and advocacy within the various bureaucracies participants had to negotiate for medicine, housing and counselling.

The final words come from a participant—"look after your hardy soul" (NPM13)—an acknowledgement of how tough we are, or can be, spiritually, emotionally, psychologically and mentally. Everyone will be tested in their lives, though hopefully not by events of this magnitude. But when we are, we might hope to approach it with the strength and insight of these tangata whaiora.

Conclusions

The disastrous earthquakes that struck Ōtautahi/Christchurch challenged the support networks for tangata whaiora, a community in which isolation contributes to ill-health. While participants struggled to thrive in a difficult post-disaster landscape, kaupapa Māori provision continued and spontaneously expanded around them, ensuring the great majority of participants received what they needed for their physical and mental wellbeing. The shock and disruption to individual and whānau lives for tangata whaiora emphasises the need for rapid re-establishment of support networks for specific needs such as medication and accommodation, and general needs such as a gathering space and recreational activities.

SNA results highlight that Māori and tangata whaiora are comparatively more isolated post-disaster, and that whānau and other traditional support institutions are not necessarily accessed by tangata whaiora. This challenges simplistic culturally framed disaster response and recovery strategies that default to "family" and marae. Further research is required to identify how urban Māori communities would be able to reduce their exposure to future disasters and be better integrated into disaster recovery strategies.

Glossary

hinengaro	mind, consciousness, psychological
karakia	prayer, blessing
kaupapa	theme, topic, policy
kaupapa Māori	Māori-centric approach
koha	gift, contribution
manaia	stylised figure in carving
manaakitanga	hospitality, kindness, generosity, support
Pākehā	New Zealander of European descent
taha	side, part
tamariki	children
tane	man
tangata whaiora	mental health clients; literally, "person/people seeking health"
tinana	body
wahine	woman
waiata	sing
wairua	spirit, soul
whakawhanaungatanga	connecting like a family
whānau	family

Appendix 1: Interview schedule

1. How did you become involved with Te Awa?
2. Tell us how the earthquakes affected you?
3. What support did you need then?
4. How did your support networks change because of the earthquakes?
5. Who helped you through the earthquakes?
6. What problems do you have to deal with now?
7. How have your lives changed because of the earthquakes?
8. What would have made it easier to get through the disaster?
9. What would you say to tangata whaiora to help them prepare for a similar disaster in the future?
10. Is there anything else you'd like to say?

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