The role of the organisation following disaster: Insights from nurse experiences after the Canterbury earthquakes

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Abstract

This research aimed to explore nurse perceptions of impacts and organisational support following the Canterbury NZ earthquake sequence. Semi-structured interviews were undertaken with 11 nurses in the Canterbury area to explore the challenges faced during and following the 2010/11 earthquake sequence. The interviews took place three years after the start of the earthquake sequence to enable exploration of longer term aspects of the recovery process. The interview transcripts were analysed using thematic analysis. A number of themes were identified that related to organisations, including initial impact, emotional impact, work impact and organisational support. Changes to workloads and roles were both organisationally driven and personally motivated. There is a need to consider the psychosocial impact of working and living in a post disaster context. There is also a need to develop support packages to ensure the health and wellbeing of health care professionals. This research highlights a number of ways in which organisations can support employees following disasters.

Keywords: *disaster, recovery, mental health, burnout, organisations, nursing*

Organisations have a significant role to play in disaster recovery. Much of this role is divided between meeting the personal needs of workers who may have reduced capacity and motivation to work, and meeting demands to deliver services as usual (Nilakant, Walker & Rochford, 2013). Large-scale disasters can have a profound effect on group and individual functioning, with significant effects on organisations and their employees (Byron & Peterson, 2002). People may find it challenging to focus on their jobs when they are overwhelmed by problems such as loss of home, home damage, loss of personal and community facilities, and dealing with insurance companies. These challenges occur at the very time that organisations most need their employees – especially for those organisations that are crucial to economic and social recovery from disaster (Hall, Malinen, Vosslamber & Wordsworth, 2016).

It is expected that nurses, like other health professionals, will play a significant role following a disaster. Indeed, nurses have been active participants in response and recovery efforts during and following disasters (Kako, Ranse, Yamamoto & Arbon, 2014; Robertson, Dwyer & Leclercq, 2005; Palmer et al., 2003). However, in the wake of disasters, human service workers and their managers often turn their attention to the needs of service users, rather than considering impacts on the functioning of their own staff (van Heugten, 2012). Ranse and Lenson (2012) found that in addition to providing clinical care, nurse roles involved providing psychosocial support, coordinating care and resources, and practical problem solving. However there is a lack of research identifying the support needs of nurses in a post disaster environment. The current paper focuses on nurse perceptions of work issues relating to these kinds of roles following a series of earthquakes affecting employees and organisations in Christchurch, New Zealand in 2010 and 2011. It also focuses on their perceptions of organisational support within the same disaster-affected context.

Health and safety legislation in New Zealand places an obligation on employers to monitor the work environment and take all practicable steps to ensure that hazards do not cause harm (Health and Safety at Work Act
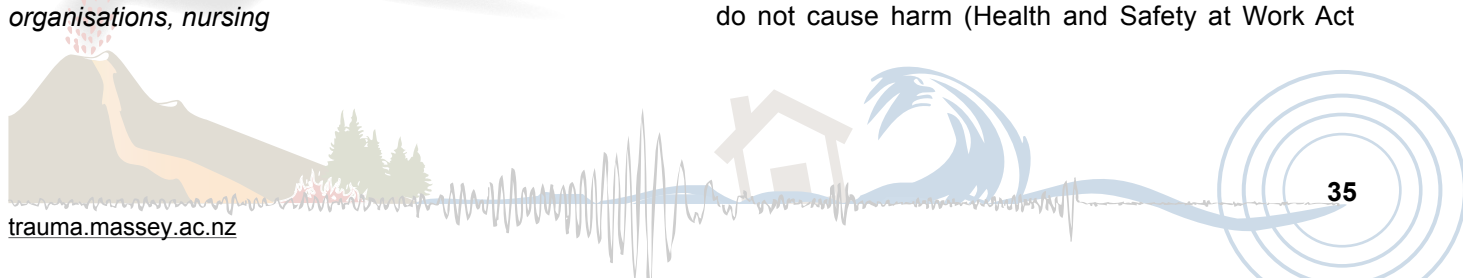
2015). Other countries have their own regulatory regimes and practices requiring employers to manage exposure to hazards and to ensure minimisation and/or mitigation of any identified risks. Hazards relating to stress are particularly relevant after a disaster, where a changed workload and/or duties can produce extra pressure on employees. Other factors such as workplace displacement, restricted work spaces, increased exposure to distressed clients/customers or potentially hazardous environments can also contribute to additional stress. Factors external of the organisation, such as longer or more complicated commutes or worry over family recovery issues, may have additional impacts.

Several studies have explored organisational implications of disaster and post-disaster management of employees (Nilakant, Walker, Rochford & van Heugten, 2016; Goodman & Mann, 2008; DeSalvo et al., 2007). Within an organisational context, signs of worker distress can include absenteeism, reduced efficiency and effectiveness, and an increase in conflicts (Garside, Naswall, Johal, & Johnston, 2013; Elfering, Semmer & Grebner, 2006). A post-disaster context may also be marked by *presenteeism* (Garside et al., 2013), which occurs when employees to continue working despite their own ill health (Dew, Keefe & Small, 2005). Surrounding research indicates a role for employers to monitor stress and offer support (DeSalvo et al., 2007; Leon, Hyre, Ompad, DeSalvo & Muntner, 2007; Norris, Friedman & Watson, 2002). Tangible types of assistance such as housing, meals and emergency supplies may reduce employee stress, absenteeism and foster positive work related attitudes (Byron & Peterson, 2002; Sanchez, Korbin & Viscarra, 1995).

The Post-Disaster Canterbury Context

In 2010 and 2011, the Canterbury region of New Zealand was hit by a number of significant earthquakes. The first earthquake, on September 4, 2010, was of Magnitude (Mw) 7.1 and resulted in numerous injuries and significant infrastructure, land and building impact (Potter et al., 2015). There was no loss of life but many people were displaced from their homes and a local State of Emergency was declared. A second major earthquake, on February 22, 2011 was of a lower magnitude of Mw 6.3 but resulted in significant loss of life: one hundred and eighty five people died as a direct

result of the earthquake and thousands were injured (Potter et al., 2015). This was the second deadliest natural disaster in New Zealand history. A national State of Emergency was declared and remained in effect until April 30, 2011 (Potter, Becker, Johnston & Rossiter, 2015). By March 2016, greater Christchurch had experienced almost 18,000 aftershocks; over 35 of these were of magnitude 5 Mw or greater (CERA, 2016). The continuing aftershocks resulted in recurring activation of acute stress responses, in addition to substantial chronic stress caused by the on-going challenges of dealing with damage to homes, businesses and infrastructure (Gluckman, 2011). The loss of lives and impact on communities and livelihoods had severe implications for the health and wellbeing of individuals in the affected areas, and required collaborative action to support psychosocial recovery (Potter et al., 2015).

The earthquakes also resulted in significant impact on organisations. Research by Stephenson (2011) indicated that smaller organisations were vulnerable to negative revenue impacts following the disasters, whereas larger organisations were more likely to hire staff following the disasters. Retail, wholesale trade, accommodation and food services organisations experienced particular downturns in revenue (Stephenson, 2011). A survey of over 300 businesses following the September 4 earthquake found the impact on organisations, business owners and their employees, was substantial, and that managing wellbeing in the period following the earthquakes was the biggest challenge reported by organisations (Kachali et al., 2012).

Organisations that employ people involved in the recovery process, such as human service workers, may have had even more demanding responsibilities, leading to distinct psychological consequences for employees. Research has shown that disaster responders and recovery workers are at higher risk for vicarious trauma, secondary stress, compassion fatigue and burnout (Usher, Woods & West, 2014; Linley & Joseph, 2006; Palm, Polusny & Follette, 2004). A study by Mark and Smith (2012), exploring occupational stress in mental health nurses, found that job demands such as high workload and time pressures were related to higher levels of anxiety. These findings are relevant to a post disaster recovery environment, especially in the human service sector where it may not be possible to reduce increased job demands. Given that it may not be possible to reduce work demands through structural

changes, a primary focus on individual and social support factors may be particularly relevant for human service occupations in a post disaster context.

Organisational disaster literature has tended to focus on pre-disaster issues, such as minimising risks and developing business continuity plans, with less attention paid to the longer term recovery phase (Nilakant et al. 2016; Lettieri, Masella & Radaelli, 2009). Following the Canterbury earthquakes, Nilakant et al. (2013) conducted qualitative research to identify how organisations can help support employees in the post-disaster context. This research identified outlined how employee needs varied between individuals and changed over time. The research concluded that organisations that were sensitive to these changing needs and which displayed emotional awareness were better able to mitigate harmful effects of the disaster. Another study focusing on teachers following the Canterbury earthquakes suggested that burnout develops over time, and that it is significantly related to the perceived quality of organisational disaster responsiveness, the effect of the disaster on personal and work domains, and reported absenteeism and turnover intentions (Kuntz, 2014). The current research investigated nurses' work experiences and the support provided by their employing organisation in the months following the Canterbury earthquakes. The data was collected as part of a broader study by Johal, Mounsey, Brannelly, and Johnston (2016), exploring nurses' experiences during and following the earthquakes.

Methods

The current study used a qualitative approach to incorporate the experiences of the individual nurses and the meanings they attached to their experiences. Semi-structured interviews were used to ensure that the perspective of each nurse could be heard and explored in detail. The interview questions were based upon a previous format used in a study of the role of primary care physicians in disaster response and recovery, by Johal, Mounsey, Tuohy and Johnston (2014). This study design was applied to the current research subject to the Massey University Human Ethics Committee Low Risk process and all participants were informed accordingly.

Eleven nurses from across Christchurch were invited to be interviewed. The inclusion criteria were that they were Registered Nurses who had been working in Christchurch between September 2010 and February 2011, i.e. during the period emcompassing the first two large earthquakes. Convenience sampling was used to recruit these nurses with support from: the Canterbury District Health Board, who circulated details of the research; and through key informants, who invited nurses to participate. Respondents were asked to describe:

a) Their experiences during and subsequent to the September 2010 and February 2011 earthquakes.

b) Their experiences of providing care and support during the ongoing recovery phase.

c) Their support and wellbeing needs during the 3 years since the earthquake sequence began.

In accordance with principals of informed consent, each participant was provided with an outline of the research purpose, research process and their own rights as a participants, prior to interviews being scheduled. Participants then signed a formal permission document consenting to participate in the research. Although all research participants were advised that their participation was voluntary and they had the right to withdraw at any time, no participant withdrew at any stage of the research.

The interviews took place in October and November 2013, approximately three years after the beginning of the earthquake sequence. This allowed the interviews to cover both the initial aftermath of the earthquakes and the on-going recovery process. The interviews were conducted in a private setting convenient for each nurse and were audio-taped with permission. The length of interviews ranged from 39 to 70 minutes. As the data were being collected, the research team held weekly meetings to check project progress and to identify any major themes emerging. Data collection was stopped once 11 participant interviews had been reviewed. No further participants were invited at this stage because the research team judged that no new information was being collected, reflecting an approach outlined by Bowen (2008).

The majority of the interviewed nurses were female (91%) which is representative of their profession in New Zealand: 92 percent female (Nursing Council of New Zealand, 2014). Their ages ranged from 49 to 64 years, with a mean age of 55 (SD 6.06). At the time of the earthquakes, five of the nurses were working in a public hospital setting, four were community based and two worked in residential care for older adults.

The process of thematic analysis outlined by Braun and Clarke (2006) was used to analyse the data resulting from interviews. Transcribed interview data was read and re-read several times and the recordings were listened to several times to ensure the accuracy of the transcription. This process of repeated reading while listening to the original audio results in data immersion and increases the researcher's closeness with the data (Braun & Clarke, 2006). The transcripts were then coded building on the notes generated through the data collection and transcription phases. These codes identified features of the data that the researcher considered pertinent to the research question. The third stage of this thematic analysis involved identifying themes through combining different codes that were similar or that considered the same issue in the data.

The following provides an example of the thematic analysis process. The statement, "People don't have the resources, we're probably doing a lot more problem solving with them. We're tapping into a lot more social agencies for people that we wouldn't normally have tapped into" was initially marked with the following codes:

– Patients lacking resources

– Problem solving

– Making connections

– Social agencies

– Supporting patients

These codes were then combined to form the sub theme 'patient driven changes in role' which sits under the higher order theme of 'work impacts'. This theme, along with all other themes, was checked for coherence through discussions within the research team.

Results and Discussion

Thematic analysis identified four key themes developed through our interpretation of the participant data. These themes have been labelled as initial impact, emotional impact, work impact and organisational support.

Initial Impact

The nurses shared their experiences of the September and February earthquakes. Those on duty cared for patients in whatever way they could and this included working in the hospital emergency department, evacuating wards, assessing conditions in residential homes and working in the community. These nurses reported how the earthquakes resulted in significant impacts on organisational infrastructure and available resources due to damage and power shortages, for example Nurse F stated that:

We had chemotherapy patients with drips and no hair and masks and hats and blankets and took them all outside and we had most of them outside and there was another big aftershock and we were standing outside and the concrete was just rippling on the building, every level.

For staff in residential facilities there was a focus on ensuring that there were sufficient resources and maintaining hygiene. This was illustrated by Nurse I, who stated that:

It was very much making sure that people were clean, that they had food, that they were - that there was a hygienic situation. We had to think about disposal of waste. We were really concerned about the water situation. We had a huge storage of water, but when you end up with extra patients and nothing comes with them, you don't kind of allow for that in that immediate two or three days.

The interviews indicate that the nurses put their own fears and concerns to one side to focus on the situation at hand. For many, this act of keeping busy and focusing on others appears to have helped them get through the experience. For example, Nurse A stated that:

because I was so busy working and concentrating and supporting staff and patients… I didn't actually realise half of the things that actually occurred in the earthquake.

When reflecting on their experiences during the earthquakes, the participants reported that the need to make rapid contact with family members was one of the key organisational issues. It appears that a number of organisations changed their policies after the September earthquake, in response to this need. Employees could now keep their cell phones with them, as outlined by Nurse I: "…the policy states that the staff weren't to carry cell phones in their pockets, well that went out of the water, they were allowed to carry cell phones in their pockets so long as they were not on loud."

Organisational issues were a further key area of concern. There appears to have been a lack of clarity around whether nurses should remain at work or leave following a significant earthquake or aftershock. Different organisations and even different departments within an

organisation appear to have had differing expectations, depending on the nature of employees' roles. For example, Nurse K stated that, "They've pretty much said that we can all go home, you know? Unless there was something imminent or something we were actually doing at the time." Nurse G stated that:

> apparently it's earthquake safe and you don't go home if there's an earthquake, you stay at work. And I've heard that there isn't a lot of sympathy about you know, you don't stay at home, you're expected to come to work.

Emotional Impact

The nurses noted the emotional impact of working in a post disaster environment, especially when they had experienced the same disaster as their patients. The nature of their work included listening to others' narratives while managing personal consequences of the earthquakes such as home damage. It appears that this combination of vicarious and personal emotional demands contributed to emotional impact on the nurses interviewed. For example, Nurse K stated that, "I seemed to burn out and I took a week off work, which helped a lot. That was more just the on-going stress of the insurance quagmire, and not getting anywhere." Nurse E stated that:

> You can only go through so many other people's lived experience of what the quake was and what it meant to them and what it meant to their family, and, before you, because you've been through that experience yourself, I would listen and then I got to the point where I just thought, "I can't, I don't want to hear about it anymore."

The nurses reflected on the broad range of emotions they had experienced during and since the earthquakes. These emotions appeared to include fear, guilt, pride, apathy, gratitude, relief, empathy, frustration, sadness, happiness and anxiety. Many of the participants talked about longer term impacts, particularly in terms of exhaustion, in terms of patients, colleagues and the wider population. These longer term impacts were also discussed by van Heugten (2012), who stated that while many Christchurch workers had coped well following the earthquakes, they appeared to be coming to the end of their reserves by late 2011. As stated by Nurse K, "fatigue is a big one that you just get worn down by it all." Nurse I provided a clear example of how they had reached a state of exhaustion: "I'm tired now and I think that's, if you talk to a lot of people now they'll tell you

the same thing. People are absolutely shattered. The adrenalin's gone. We're all just exhausted."

There was also sense that the nurses had focused on coping in the immediate aftermath. For some, this meant that they did not reflect on their own experiences until later. Nurse B stated that, "I think because I was so busy, so intense at work, I didn't have time to, to think about that till much later."

Work Impacts

There were a number of impacts on workloads and work patterns, particularly in the immediate few weeks following the February earthquake. Reasons for these impacts included damaged infrastructure and lack of resources. In addition, the changing needs of patients resulted in nurses having more of a social worker role, connecting their patients to social support agencies. For example, Nurse F stated that, "the consultant and I would go and do house calls and determine what was required." Nurse I stated that, "I had to come in at seven in the morning because we had no registered nurses to do the medications." Nurse K provided another example: "we've got to point people in the right direction, you know, and get some sort of advocacy for them in terms of insurance."

The interviews were conducted approximately three years after the start of the earthquake sequence. Six of the 11 nurses interviewed stated that their roles or working hours had changed at this stage since the earthquakes. For some of the participants, this had been driven by organisational changes. For others, the changes were due to personal choice. For example, Nurse J stated that, "I don't work as long as I did and I have a more measured approach to my working life." Nurse B stated that, "I knew I needed to, a break, and do something less, with less responsibility."

For some nurses, work stress had had such a significant emotional impact that it reduced their physical capacity or emotional capacity to provide support to others. For example, Nurse E stated that, "the other role I have stepped away from is supporting other nurses... emotionally, I don't think I've got too much more to give in terms of supporting." Changes in role appeared to be more common among nurses that felt unsupported by their organisation following the earthquakes. For example, Nurse I stated that, "I had had enough, I needed to get out. I was becoming incredibly stressed and I needed to move out of that environment and into an environment where I was going to be supported."

Organisational Support

Following the immediate aftermath of the earthquakes, organisations offered a number of support services for their employees including:

– Employment Assistance Programmes (EAP)

– Onsite counsellors

– Work place support

– Financial advice

– Earthquake Commission (EQC)[1] and other insurance advice sessions

– Time off for relocation/family purposes

– Regular information updates

The interviews suggested that this range of support was not universally available because different employers had very different approaches. The majority of those nurses who worked for the regional health board felt well supported, for example Nurse A stated that, "we also now have not just EAP at our workplace, but workplace support as well. So people on the ground coming and talking." Nurse F stated that:

They had psychologists available, anybody who wanted help in that respect, they had financial experts the people who needed help with their claims and insurance and they were holding seminars on how to deal with this.

Previous research by Byron & Peterson (2002) and Nilakant et al. (2013) has found that lack of communication, support and compassion towards employees during disaster recovery relates to lowered commitment and engagement, as well as increased staff turnover. This was reflected in the current research. Nurses who perceived that there had been a lack of support from their organisation were among those who had changed roles following the earthquakes.

The nurses appeared to feel particularly unsupported when managers and leaders did not have what they described as an authentic understanding of what it was like to live and work in the changed environment following the earthquakes. Those working in leadership roles in residential homes commented on the lack of support they received. This was particularly true when senior managers of multiple location residential home organisations or franchise owners were not based in

Christchurch and were not experiencing the wider impact of the earthquake on home lives and on their ability to travel. According to the nurses, this meant the practical consequences and implications of the earthquakes for staff members were less understood. Nurse I stated that, "the lack of support from head office. I felt that they didn't understand what we were actually experiencing and the stress that it had on us."

Colleagues appeared to be one of the most significant sources of support for the nurses interviewed. Organisations appeared to enable this support by providing time for people to get together. Previous research by van Heugten (2012) identified that many of the social workers felt strongly supported by their colleagues in a post-disaster working environment. They enjoyed having fun together and appreciated organisations that endeavoured to facilitate this. This also appeared to be the case for nurses interviewed in the current study. For example, Nurse K stated that, "we had a barbeque at work and just [spent] time together where we weren't stressed by work and just chilled out a bit." Nurse E stated that, "the hugging and the warmth and being able to demonstrate your support for each other is really important, because sometimes the words just aren't there." Nurse C stated that, "there was a lot of camaraderie. So I think, yeah that's what got me through really."

Professional support was available through access to workplace counselling both from internal staff members and external sources. Some of the respondents identified a reluctance to seek help and support, particularly counselling. This appeared associated with not wanting to admit that they were not coping or were in some way weak. There was also a sense that organisations needed to be more proactive in supporting staff members. The way that nurses did not want to appear weak while not not wanting to actively seek support suggests that employers may need to consider how support services are offered. This combination, of not wanting to appear weak while wanting a more proactive approach, was outlined by Nurse E:

If somebody had made the approach to me, rather than me feeling, cause when you make the approach personally it's kind of, I felt like it was admitting a weakness. That I needed something and I wanted to be seen as being able to cope.

1   The Earthquake Commission (EQC) provides primary natural disaster insurance to the owners of residential properties in New Zealand.

A number of the nurses felt that being at work was helpful as it provided an escape or distraction from personal or home demands. For example, Nurse G stated that:

I suppose going to work took my mind off the house at home. Yeah. Yeah. And then I was, and being with friends, being around my work mates made the days go faster and getting back into doing a role which is good for the brain.

The timing of interview data concerning needs for support approximately three years after the start of the earthquake sequence shows how support was not only needed in the immediate aftermath of the earthquakes but also in the following years. The participating nurses talked about the on-going practical and emotional impacts on both themselves and their patients. This appears due in part to the on-going aftershocks experienced and the impact of secondary stressors such as dealing with damaged homes and infrastructure. In the meantime, practical support such as time off for moving into temporary accommodation or family reasons enabled many people to continue working effectively.

Prior research has shown that certain job characteristics, such as job strain, burnout and low engagement, can have profoundly negative impacts on work-related well-being. For example, a number of studies indicate that job demands such as a high work pressure, emotional demands, and role ambiguity may lead to sleeping problems, exhaustion, and impaired health (Doi, 2005; Halbesleben & Buckley, 2004). Other research has demonstrated that the combination of high job demands and low job control is an important predictor of psychological strain and illness (Karasek, 1979; Schnall, Landsberger & Baker, 1994).

However, the relationship between job demands and negative impacts is not entirely simple. Bakker and Demerouti's (2007) Job Demands Resources (JD-R) model outlines how each occupation may have its own specific risk factors associated with job stress. The JD-R model also outlines how risks posed by job demands are moderated by *job resources*, which are physical, psychological, social, or organisational aspects of a job that support goal attainment, reduce job demands or stimulate personal growth, and which have a significant influence on employee well-being. Hochwarter, Laird and Broue (2008) considered the impact of this kind of balance between demands and resources in the aftermath of hurricane disasters in the Gulf of Mexico, including Hurricanes Katrina and Rita.

They found that after disasters, workers may experience job satisfaction in the face of increased demands if they are well resourced. If they are badly resourced, demands will lead to dissatisfaction. In the present study, the imbalance between high demands and reduced control was evident among nurses during recovery from the Canterbury earthquake sequence. Working conditions had changed quickly and nurses had had few choices about how their work environment was organised.

Conclusion

The results of the current research were generated from interviewing a convenience sample of 11 nurses who experienced a series of earthquakes in New Zealand. The goal was to understand impacts of the disaster on these nurses and the ways in which their organisations were supportive. The thematic analysis findings may have been different had the study included other countries, or different health care professionals and we therefore caution against generalisation from the current results. Furthermore, the current thematic analysis assumed an interpretivist epistemology. In brief, the analysis represented researchers' subjective interpretations of participants' own interpretations. This approach to analysis depended heavily on both researchers' and participants' viewpoints. A different set of researchers would therefore not be expected to arrive at the same analytical findings.

The study nonetheless constitutes an important contribution to the literature on nurses' experiences and the important impacts organisations can have on their own employees during disaster recovery. The results outlined above reinforce the broader notion that organisations have a responsibility to support employees following a disaster and to ensure that hazards, including mental health hazards, do not cause harm. Organisations should consider how they can best support employees to deal with increased demands or the need to work differently, and promote positive coping strategies. Following disasters, there is a heightened risk of employee burnout and compassion fatigue and relevant impacts on human service organisations need to be well considered (Garside et al., 2013).

The present study helps to illustrate how a number of participating nurses reduced their hours or changed roles. While we cannot state that these changes were all due to the earthquakes, there is a suggestion that increased job demands contributed to these decisions. Some nurses felt they had experienced compassion

fatigue and burnout which could have had a negative impact on their ability to carry out their work and in turn on their organisations. Staff shortages, changes to work patterns and workloads may have also had an impact on the nurses' productivity and well-being.

This study provides insights into the experiences of nurses in both the initial aftermath of the earthquakes and over time, how the earthquakes impacted on workloads, work patterns and the sources of support that nurses valued. Interview data illustrated how there were different support needs depending on personal circumstances and timing. The need for organisations to offer a broad range of support services and to recognise diverse needs has been outlined by the NZ Ministry of Health (2007) and Mooney et al. (2011). The current interview data highlights the particular importance of peer support and how organisations can facilitate this support by providing opportunities and time for colleagues to talk to each other. These insights suggest that organisations need to understand the needs of their employees over time. Organisations need to provide resources to help employees deal with the increased and changing demands if employees are to effectively contribute to recovery. This is particularly true for human service organisations as their services will be in high demand and employees have limited opportunity to control workload or the working environment after a disaster.

Future research can build on the findings of the present study and investigate the role of organisations in supporting other occupational groups in a range of disaster affected contexts. Further research is also needed to further clarify how post-disaster changes to job demands and resources impact on the well-being of human service employees.

Acknowledgements

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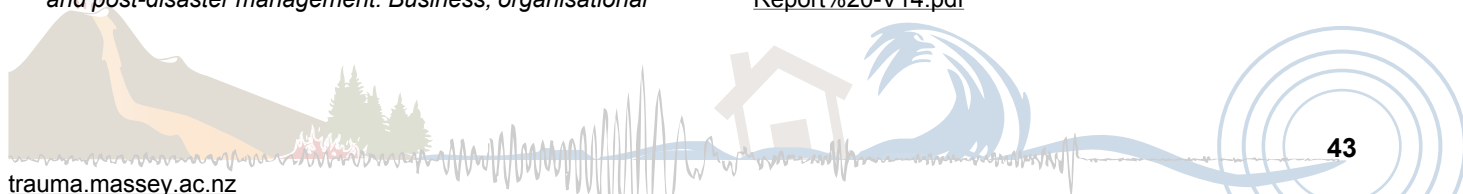
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