

Christchurch earthquakes: how did former refugees cope?

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Abstract

Aim This study investigated how former refugees now living in Christchurch (Canterbury Province, New Zealand) communities coped after the 4 September 2010 and subsequent earthquakes.

Method A systematic sample of one in three former refugees from five ethnic groupings (Afghanistan, Kurdistan, Ethiopia, Somalia and Bhutan) was selected from a list of 317 refugees provided by the Canterbury Refugee Council and invited to participate in the study. Seventy-two out of 105 potential participants completed a 26 item questionnaire regarding the impact of the quakes, their concerns and anxieties, coping strategies and social supports. The methodology was complicated by ongoing aftershocks, particularly that of 22 February 2011.

Results Three-quarters of participants reported that they had coped well, spirituality and religious practice being an important support for many, despite less than 20% receiving support from mainstream agencies. Most participants (72%) had not experienced a traumatic event or natural disaster before. Older participants and married couples with children were more likely to worry about the earthquakes and their impact than single individuals. There was a significant difference in the level of anxiety between males and females. Those who completed the questionnaire after the 22 February 2011 quake were more worried overall than those interviewed before this.

Conclusion Overall, the former refugees reported they had coped well despite most of them not experiencing an earthquake before and few receiving support from statutory relief agencies. More engagement from local services is needed in order to build trust and cooperation between the refugee and local communities.

On 4 September 2010, at 4:35am local New Zealand time, the city of Christchurch experienced an earthquake of magnitude 7.1 on the Richter scale. The epicentre of the quake was 40 km west of Christchurch at a depth of 11 km.¹ Many residents suffered serious damage to their property, with thousands of homes temporarily or permanently uninhabitable, but miraculously no fatalities were reported. After the September 4 earthquake, there were regular ongoing aftershocks which ranged between magnitudes 2 and 5 on the Richter scale.

On 22 February at 12:51pm the city was devastated by a second major quake, measured at 6.3 on the Richter scale; the epicentre was 10 km south-east of Christchurch at a depth of just 5 km.¹ This resulted in widespread further destruction to property, including the destruction of much of the central business district, and a final death-toll of 181, making it the second-deadliest natural disaster recorded in New Zealand.²

Earthquakes may cause profound emotional and psychological trauma to thousands of people.³ Livanou et al⁴ investigated the level of post-traumatic stress disorder (PTSD) in 157 Greek survivors of the 1999 Parnitha earthquake in a 4-year follow-up study. They concluded that there is an association between exposure to a traumatic event such as an earthquake and the development of PTSD.

Maldonado et al⁵ conducted a longitudinal survey in Guadalajara, Mexico, to examine the factors associated with acute stress reaction. Their results showed that exposure to traumatic events such as an earthquake increases the risk of developing anxiety-spectrum disorder.⁵

Refugee communities are part of the spectrum of Christchurch residents affected by the quakes. The definition of “refugee” according to the United Nations Refugee Convention, 1951 is:

*“any person who, owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country; or who, not having a nationality and being outside the country of his former habitual residence as a result of such events, is unable or, owing to such fear, is unwilling to return to it.”*⁶

New Zealand has had a long-established custom of welcoming refugees from around the world. Refugees can come to New Zealand as asylum-seekers, through the United Nations High Commissioner for Refugees (UNHCR) mandated quota programme, humanitarian migrant intake or the family reunification programme.⁷ There is an existing body of research which has consistently documented that refugees are more likely to experience PTSD due to past traumatic events or political violence.⁸ There is also evidence of the resilience of former refugees.⁹

The 4 September 2010 and 22 February 2011 Christchurch earthquakes and subsequent continuing aftershocks have had a significant impact on the Christchurch population as a whole, but, arguably, particularly on refugee communities whose location, circumstances or past history have made them more vulnerable.

In this study we investigated how the refugee communities responded to and coped with the 4 September and subsequent earthquakes.

Method

A total of 105 former refugees aged over 18 years, who were living in Christchurch at the time of the 4 September 2010 earthquake, were systematically selected every 1 in 3 from a list of 317 refugees provided by the Canterbury Refugee Council. The participants were drawn from five ethnic and geographic groups of former refugees, representing major and different communities; Afghanistan, Kurdistan, Ethiopia, Somalia and Bhutan. It may be noted that earthquakes are very rare in the Horn of Africa, though not infrequent in Afghanistan, Kurdistan and Bhutan.

Former refugees belonging to any of these groups were eligible for inclusion in the study provided they were resident in Christchurch at the time of and following the 4 September 2010 quake. Potential participants who had been selected for the study were contacted individually and invited to take part by completing a questionnaire regarding their experience of the September 4 earthquake and aftershocks, and how they had coped. All those contacted agreed to participate and so, after obtaining verbal consent, information sheets and consent forms were posted. Each interview lasted not more than one hour. All interviews were conducted by the first author, who was himself from the Somali refugee community, and, for the subjects comfort, conducted in their home.

Interviews were structured, with a 26-item questionnaire which included questions on the participant's experience of and response to the quakes, their coping processes and level of support, past experience, and demographic information. The questionnaire used a 5-point Likert scale (1='not at all' and 5='extremely').

After the 22 February 2011 quake, and part way through the study, just under one-third (N=33) of the sample evacuated the city and were lost to the study before being interviewed.

All statistical analyses were done using statistical (SPSS) software; significance being determined from use of the Chi-squared (χ^2) and Mann Whitney U tests at a 5% significance level.

Ethical approval for the project was given by the University of Canterbury Human Ethics Committee.

Results

After the devastating 22 February 2011 earthquake, and part way through the study, just under one-third (N=33) of the sample evacuated the city and were lost to the study. Participants lost to the study were mostly from Kurdistan (N=16) and Afghanistan (N=13); most were male and employed, and all were in the age range 25–39 years.

This loss of participants may have biased our results in that it is plausible that those leaving Christchurch may have been more severely affected than those remaining. However it was reported in the media that about a third of the residents of the city departed at this time. Most have since returned. As the circumstances in which the participants fled could not be controlled the best option we had was to continue interviewing those who wished to stay and take part in the study.

Seventy-two participants (69%) out of 105 completed interviews; 40% from Somalia, 19% from Bhutan, 14% from Ethiopia and Kurdistan, and 13% from Afghanistan. Table 1 shows some demographic characteristics of the participants broken down by their country of origin.

Table 1. Demographic characteristics of 72 Canterbury former refugees exposed to the 4 September 2010 and 22 February 2011 earthquakes

| Variables | Afghanistan (%) | Kurdistan (%) | Ethiopia (%) | Somalia (%) | Bhutan (%) | Total (%) |
|--------------------|-----------------|---------------|--------------|-------------|------------|-----------|
| Overall | 13 (n=9) | 14 (n=10) | 14 (n=10) | 40 (n=29) | 19 (n=14) | |
| Gender | | | | | | |
| Male | 89 | 80 | 50 | 41 | 43 | 55 |
| Female | 11 | 20 | 50 | 59 | 57 | 45 |
| Status | | | | | | |
| Married | 33 | 50 | 40 | 90 | 64 | 67 |
| Single | 67 | 50 | 60 | 10 | 36 | 33 |
| Occupation | | | | | | |
| Non-employed | 0 | 10 | 40 | 45 | 7 | 26 |
| Employed | 33 | 50 | 10 | 31 | 0 | 25 |
| *Student | 67 | 40 | 50 | 24 | 93 | 44 |
| Age (years) | | | | | | |
| 18–24 | 67 | 40 | 10 | 14 | 29 | 26 |
| 25–39 | 0 | 20 | 80 | 38 | 21 | 33 |
| 40+ | 33 | 40 | 10 | 48 | 50 | 40 |

* Students are classified as being those in schools, tertiary education or language centres.

Table 2 compares how the former refugees responded to questions on to their level of worry, fear, coping, damage experienced, access to information and help received following the Canterbury earthquakes. More than 85% of Kurdish, Bhutanese, Ethiopian and Somali refugees were very worried after experiencing constant aftershocks, whereas Afghans were less worried (33%).

Across the ethnic groups, the only significant differences related to worry ($\chi^2=16.734$, $df=4$, $p=0.02$), feelings of helplessness ($\chi^2=28.859$, $df=4$, $p=0.025$), and disturbing thoughts or images about the earthquakes ($\chi^2=32.973$, $df=4$, $p=0.007$). Afghan participants, predominantly young single males, were less worried and had fewer feelings of helplessness than other ethnic groups. Participants from Bhutan, Ethiopia and Somalia had more disturbing thoughts than those from Afghanistan and Kurdistan.

Analyses by marital status and gender, using a cut-off score of 3, indicated that married participants with children were more likely to suffer from high levels of worry and anxiety than participants who were single ($U=392.5$, $p=0.012$), and more women were highly anxious than men (73% and 39% respectively, $U=396$, $p=0.002$).

Worry levels varied with age as the younger participants aged 18-24 were relatively less worried compared to older participants 40+ (58% vs 96%, $\chi^2=20.9$, $p=0.007$). Additionally, in term of occupation and experiencing fear, students reported having a higher level of fear compared to employed and unemployed participants (88% vs 56% and 54% respectively) though the differences were not statistically significant ($\chi^2=9.2$, $p=0.34$).

When we assessed the impact of the earthquakes on the remembering of past traumatic experiences, also how well participants were prepared, we found that 72% of participants had never been exposed to traumatic events or natural disasters before, nor had they any emergency supplies for natural disasters. In addition, the majority of Somali (83%) and Afghani (67%) participants used spirituality and religious practices as a form of coping mechanism post earthquake experience, these coping mechanisms also being important, tho' to a lesser degree, for Ethiopian (47%), Kurdish (43%) and Bhutanese (21%) participants.

Twenty-nine participants were interviewed after the second major earthquake on 22 February 2011 and so we were able to compare their responses with those of the 43 participants interviewed prior to that earthquake (Table 3). Differences between the two groups were not statistically significant, except on the fear question. When participants were asked what has been their biggest fear 83% feared death and had concerns for their family safety after experiencing the 4 September 2010 earthquake, 100% after the 22 February earthquake ($U=414$, $p=0.016$).

Despite the worry about aftershocks, when participants were asked to score their level of coping from 1–5 (1=not at all and 5=extremely), over three-quarters of all participants scored 3 or more. Over 80% of all participants did not receive help or support from the City Council or Earthquake Commission, and over two-thirds reported difficulty in accessing help and information.

Table 2. Responses of 72 former refugees exposed to the Canterbury earthquakes

| Variables | Afghanistan (%) | Kurdistan (%) | Ethiopia (%) | Somalia (%) | Bhutan (%) | Total (%) |
|--|----------------------------|--------------------------|-------------------------|------------------------|-----------------------|----------------------|
| Continually worry about aftershocks | 33 | 90 | 90 | 86 | 93 | 82 |
| Support from external agencies | 11 | 20 | 10 | 21 | 14 | 17 |
| Fear for family safety or death | 75 | 80 | 90 | 93 | 93 | 90 |
| How well family coped | 100 | 60 | 80 | 76 | 71 | 80 |
| *Damage to house/ properties | 22 | 30 | 30 | 55 | 79 | 49 |
| Feeling hyper-vigilant | 89 | 80 | 80 | 79 | 93 | 84 |
| Feeling helpless | 67 | 80 | 80 | 90 | 100 | 86 |
| *Avoid people/places | 11 | 0 | 10 | 28 | 43 | 22 |
| *Disturbing images about earthquakes and aftershocks | 56 | 30 | 70 | 75 | 71 | 72 |
| Difficulty accessing help/information | 100 | 60 | 70 | 76 | 57 | 72 |

Note: All percentages are for responses scored 3 or more on the 1-5 scale, except those marked by an asterisk which indicates yes/no questions.

Table 3. Percentage of responses comparing former refugees interviewed before and after the 22 February earthquake

| Variables | Interviewed before 22 February (n=43) | Interviewed after 22 February (n=29) |
|--|--|---|
| Continually worry about aftershocks | 79 | 86 |
| Support from external agencies | 16 | 17 |
| Fear for family safety or death | 83 | 100 |
| How well family coped | 77 | 76 |
| *Damage to house/properties | 49 | 48 |
| Feeling hyper-vigilant | 79 | 90 |
| Feeling helpless | 84 | 90 |
| *Avoid people/places | 23 | 21 |
| *Disturbing images about earthquakes and aftershocks | 74 | 66 |
| Difficulty accessing help/information | 68 | 79 |

Note: All percentages are for responses scored 3 or more on the 1–5 scale, except those marked by an asterisk which indicates yes/no questions.

Discussion

The 4 September 2010 and 22 February 2011 earthquakes and subsequent aftershocks have had a significant impact on the Christchurch population as a whole, including on refugee communities whose location, circumstances and past history has arguably made them more vulnerable.

The dead and injured in the 22 February earthquake included members of the close-knit refugee communities, adding to the overwhelming feeling of the earthquakes and aftershocks as a devastating and ongoing experience generating high levels of worry and anxiety, challenging personal resilience and coping resources.

The survey was designed for five former refugee groups in Christchurch, chosen because they represented the majority of the refugee population in the region. The aim initially was to investigate how they coped after the 4 September earthquake, assessing the level of anxiety across the groups, whether their experience of the earthquake and subsequent aftershocks reminded them of past traumatic experience and how supportive the local services were.

The Somali, Afghani, Bhutanese, Kurdish and Ethiopian participants were systematically selected from the refugee contact list provided by the Canterbury Refugee Council to reduce the effect of selection bias. Following the 22 February 2011 earthquake 30% of the participants excluded themselves from the study as they left Christchurch and could not be traced. However the initial sample size of 105 was adequate, though the impact on the results of the loss of 33 potential participants is unknown.

The circumstances in which the participants fled the city could not be controlled and the best option we had was to continue interviewing those who wished to stay and take part in the study.

Distressing and ongoing worry and anxiety, hyper-vigilance in expectation of further aftershocks, feelings of helplessness, disturbing earthquake-related thoughts and images, and fear of further earthquake trauma were the norm across all ethnic groups in the study.

The Afghani participants were the least anxious compared to the other ethnic groups, perhaps because over two-thirds were young and single and our results have shown that younger participants without family responsibilities were less worried than older married participants. Also, earthquakes occur occasionally in Afghanistan, and thus this population has prior earthquake knowledge and experience.

Married participants with children were more anxious than single participants, and females were significantly more anxious than males. Other studies indicate that females are more likely to experience anxiety following earthquakes than males^{8,10} and a May 2011 Christchurch media report also indicated males to be less worried than females, 55% compared to 71%¹¹. Other research reports parents as being more psychologically affected by earthquakes¹².

In terms of occupation and experiencing fear, while our study suggested that students were more likely to experience fear compared to employed and unemployed participants, these differences were not statistically significant. Whether or not students participating in our study were personally affected by the deaths of a group of students in the 22 February earthquake is unknown.

The possibility that the Christchurch earthquakes might remind participants of past trauma or distressing experiences was considered in the development of our survey. It is noteworthy that 72% of participants in our study reported having no prior experience of a traumatic event or natural disaster, and responses to open ended questions in our study indicated that the Christchurch earthquakes did not reactivate memories of earlier experiences.

Three quarters of participants reported coping either satisfactorily or well after both the 4 September 2010 and 22 February earthquakes, this being attributed by many of the participants to their strong cultural beliefs and spiritual practices. Religious and spiritual beliefs have been identified as an active form of coping which decreases the level of stress and improves the acceptance of challenging situations¹³. Whatever the mechanisms of psychological and social support, the high level of coping reported is a tribute to the resilience of the refugee communities.

A limitation of this study was the lack of a control group which could compare support of refugee and non refugee communities. Nevertheless, access to appropriate support was a major issue for participants. The majority of the participants (80%) did not receive support from local government or the Earthquake Commission, and it took some time for them to access help, two-thirds having difficulty doing so.

The low support from mainstream agencies could be an added factor influencing the level of anxiety among the refugee communities. The language barrier could also be

an issue, as some refugees are not confident enough to call for help, relying on family and friends for support when difficulties or crises arise.

The issue of barriers to access to care has been raised in previous New Zealand research,^{14,15} and the resourcing of health sector responsiveness to the needs of refugees resettled in New Zealand has been highlighted in a recent policy review.¹⁶ The apparent difficulty in accessing information and help which the participants in our study experienced is cause for concern.

In New Zealand's increasingly diverse society, and particularly in circumstances such as the recent Christchurch earthquakes, more engagement by both national and local services is needed to build trust and cooperation between the communities of former refugees, also other ethnic minority groups, which are an increasingly significant part of our wider community.

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