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**TEENAGERS' PERSPECTIVES ON THE
CANTERBURY EARTHQUAKES:
AN INSIGHT INTO THEIR NEEDS AND EXPERIENCES**

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of the requirements of the degree of
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ABSTRACT

Natural disasters inflict physical, psychosocial, and economic impacts on individuals and their communities. Although a substantial number of disaster survivors are teenagers (13-19 years), this population group has not been widely investigated, especially regarding their views on their post-disaster needs and received supports. Such information would be important when planning post-disaster supports for current and future disaster-exposed teenagers. The aim of this research therefore, was to explore teenagers' experiences and retrospective views of their needs, supports, and recovery following the Canterbury, New Zealand earthquakes.

The first study surveyed 398 Christchurch secondary school students (aged 16-18 years [male = 169; female = 229]) who had experienced at least one of the major Canterbury earthquakes between September 2010 and June 2011. The survey's purpose was to obtain an overview of teenagers' experiences (including their needs and supports received), using both qualitative and quantitative data. Content analysis of this data revealed nine overall themes, including: physical basics, secondary stressors, social support, psychological impact, coping, school, support figures, gender, and recovery. Decile 2 school participants reported a need for physical basics significantly more than deciles 3, 9 and 10, and decile 10 reported a need for social support significantly more than decile 2. With gender, females reported a need for social support significantly more than males, and males reported a need for physical basics significantly more than females. Also, participants reported that their parents/caregivers understood their needs better than their siblings and friends, and their teachers were of greater help to them following the earthquakes compared to other students in their class.

The second study extended the enquiry and involved six focus groups, each containing three to six students aged 16-18 years (male = 13; female = 18). Findings from the first study informed these focus group discussions, the aims of which were to gain deeper insights into disaster-exposed teenagers' experiences, needs, and supports. The discussions were transcribed and analysed via thematic analysis. This analysis revealed seven major areas of importance, including participants' advice for future planning and six others: individual, family, school, community, national and international. The latter six areas were incorporated into an ecological model combined with a timeline spanning

from 2010 till 2013. The model demonstrated a number of notable points - for instance, immediately after the earthquakes many of the participants' most important needs was to be in the presence of family, to know that family members were safe, and to receive comfort from them; however, three years later, participants' concern had shifted to the rebuild of their city and their need for not only the pace to quicken, but also for youth-focused areas to be built (e.g., for recreational and leisure activities).

The main recommendations from the research include: addressing acute post-disaster psychological responses early on and arranging preventative interventions; incorporating parental mental health support into youth-focused interventions; individually tailoring supports that address differences in gender, living conditions, and damage; encouraging youth to talk but not forcing them; having schools resume structured routines as soon as possible; providing psychoeducation to teachers, parents and guardians regarding typical disaster reactions and coping strategies for youth; and providing teenagers with accurate information. It is also recommended that communities provide or facilitate entertainment for youth post-disaster; that they organise youth-focused volunteer groups; involve youth in rebuild consultations; commence the rebuild of a disaster-struck city as soon as possible, and maintain gains in progress; distribute important information in multiple languages; and try to ensure that media coverage maintains a balance between both positive and negative content.

Possible areas for future research include a deeper investigation into the experiences of disaster-exposed international students, the impact of the duration and permanency of relocation, and longitudinal studies into the recovery and adaptation of youth.

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CHAPTER ONE: INTRODUCTION

This chapter provides an introduction and context to the Canterbury earthquakes, including additional information intended to aid the comprehension of the findings of the present study. It also provides a brief overview of the literature on natural disasters and their psychosocial impact, and concludes with an outline of the thesis organisation.

The Canterbury Earthquakes

During the early hours of the morning on 4th September 2010, a 7.1 magnitude earthquake struck the Canterbury region, New Zealand (Quigley et al., 2010). This earthquake's epicentre was 10km deep and 40km west of Christchurch's city centre. As a result, there was severe property damage and general disruption (Quigley et al., 2010) but fortunately, no deaths, and few serious injuries were reported (New Zealand History, 2014).

Nearly 6 months later at 12.51pm on 22nd February 2011, Christchurch was hit by a 6.3 magnitude aftershock. Unlike the September earthquake, this quake's epicentre was only 5km deep and 10km south-east of Christchurch's city centre. Due to the location, timing and depth of this aftershock, as well as the fact that the city and its lifelines were in the early stages of recovery following the 2010 earthquake, the resultant devastation was much greater. A large number of injuries were reported (Giovinazzi et al., 2011), as well as 185 deaths (New Zealand Police, 2012). The built environment suffered extensive damage, including significant disruption to lifelines such as gas, electricity, road networks, and water and wastewater systems (Giovinazzi et al., 2011). Much of this damage to lifelines, as well as to residential buildings in the Christchurch urban area, was due to extensive and severe liquefaction (Giovinazzi et al., 2011), the clean-up of which was estimated to cost \$9.5 million (McDonald, Harris, & Rutherford, as cited in Giovinazzi et al., 2011). There was rockfall and rockslope failure caused by extremely high ground shaking, as well as cliff collapses that resulted in hundreds of houses being severely damaged, with many houses being abandoned and unlikely to be reoccupied (Giovinazzi et al., 2011). Overall, thousands of homes were damaged across the Christchurch region and were rendered uninhabitable with as many as 15 000-18 000 households being relocated (New Zealand Police, 2010). Within three days,

electricity was restored to 75% of the city; however, it took several years for some badly affected areas to have their water supplies and sewerage systems restored (McSaveney, 2013).

Nearly four months following the February earthquake, on Monday 13 June 2011, Christchurch city was again hit by two large earthquakes centred south-east of the city. The first was of magnitude 5.5, 11km deep and struck at 1pm, while the second was of magnitude 6.3, 9km deep and hit at 2.20pm. At least 40 people were injured, with liquefaction resulting in further land and building damage and major rock falls, and electricity being lost to initially 56 000 homes and businesses (Stuff, 2011).

In addition to the devastating impacts of these three major events (i.e., September 2010, February 2011, June 2011), there have been more than 13 300 aftershocks in the years following the initial September earthquake (as at December 2014) (Nicholls, 2014). It is aftershocks like these that differentiate earthquakes from other natural disasters and that can increase psychological distress (Lazarus, Jimerson, & Brock, 2003).

Additional contextual information. In order to provide greater context to and comprehension of the findings of the present study, the following provides additional information concerning these earthquakes.

Firstly, in the six weeks following the February 2011 earthquake, about 8 600 households involving 25 000 people moved, with 1 in 5 households moving outside of the Canterbury region (Mora, Thomas, & Rive, 2011). For those with damaged residential properties, the Earthquake Commission (EQC) was responsible for providing natural disaster insurance (EQC, 2014). All of greater Christchurch land was mapped into land zones (i.e., red, green, orange, or white zones). Areas in the red zone had area-wide land and infrastructure damage, with rebuild being uneconomic, uncertain, and prolonged (Canterbury Earthquake Recovery Authority [CERA], n.d.a). It was *generally* found that the east side of Christchurch suffered the most damage (Tonkin & Taylor, 2012), with a majority of the red zone including eastern suburbs of Christchurch (CERA, n.d.b); however, there was not a clear divide between the east and west in terms of damage – that is, there were still some badly damaged areas in western suburbs, and little or no damage in some eastern areas. Areas in the green zone were suitable for

residential construction, meaning the rebuild process could begin. Lastly, in the orange zone, further assessment was required and in the white zone, land decisions were still being made due to geotechnical issues concerning landslip and rock roll (CERA, n.d.a).

Christchurch residents not only had to deal with the stress of this destruction and damage to homes, but also with the stress of loss of income and financial security due to the destruction or inaccessibility of businesses (Gawith & Atkinson, 2011). In fact, Christchurch's central business district was cordoned off for more than two years following the earthquakes (McSaveney, 2013).

Economically, the post-disaster cost of reconstruction was initially estimated at \$NZ15-16 billion, making it New Zealand's most expensive natural disaster and the world's third costliest seismic disaster (Potangaroa, Wilkinson, Zare, & Steinfort, 2011). Following the earthquakes, groups of volunteers from around New Zealand came to help those affected by the earthquakes. For example, the Student Volunteer Army, made up of 10 000 university students and others, helped clean up liquefaction; the Farmy Army included 800 farmers who brought farm machines and helped clean up the city; the Christchurch Baking Army had 350 locals baking food for rescue workers and other locals in need; and finally, the Rangiora Earthquake Express was a group of 1000 volunteers that delivered 45 tonnes of food and other supplies to the badly affected eastern suburbs (Christchurch City Libraries, n.d.). In addition, more than 1000 personnel from the New Zealand Defence Force, as well as 100 Singaporean armed forces coordinated rescue and recovery efforts, with other countries including Australia, Japan, Singapore, the United Kingdom and the United States sending hundreds of search-and-rescue workers (Murray & Rafferty, 2014).

Following the February earthquake, up to 30 schools were badly damaged, compared to two following the September quake (Harré, 2011). Until extensive repairs and rebuilding had been completed or decisions made about the viability of land and thus, the likelihood of redevelopment, a number of schools were unable to re-open on their pre-earthquake sites. Therefore, it was decided that affected schools would co-locate on other schools' sites. There were two co-location arrangements: the first was 'site-sharing' whereby two (in one case three) schools shared the same site at the same time; the second was 'shift-sharing schools' where one school operated in the morning and

the second in the afternoon. For these schools, the duration of their normal school day was shortened by up to two hours, with the morning school beginning up to an hour earlier, and the afternoon school finishing up to two hours later (Ham, Cathro, Winter, & Winter, 2012).

In addition, following the February 2011 quake, 12 069 students left their original schools in Christchurch and re-enrolled in other schools around New Zealand; however, by September 13th 2011, 6 630 of these students had returned to their original school. Of those students who had not returned, a higher percentage was re-enrolled outside of greater Christchurch compared to those re-enrolled within it (Statistics New Zealand, 2011). Furthermore, in 2013 and as part of Christchurch's rebuild, the Education Minister confirmed that seven Christchurch schools would be closed and six would be merged in the year starting 2014 (beehive.govt.nz, 2013). For many people and communities, the announcement of these changes was upsetting and caused much distress (The New Zealand Herald, 2013).

According to the Canterbury District and Christchurch Central Intelligence Groups (New Zealand Police, 2010), the September 2010 earthquake had a significant psychological impact on residents, and a key risk relating to the September earthquake was the extent to which individuals, families and communities could cope with not only the stress of the earthquake, but also the subsequent economic stress and damage to infrastructure, lifeline systems, land and property. One study found that following the September earthquake, people in the general public who had experienced the quake and its aftershocks, reported sleeplessness, cognitive dysfunction, and heightened stress, as well as symptoms of depression and anxiety (Kemp, Helton, Richardson, Blampied, & Grimshaw, 2011). In addition, a second study found that following the 2011 earthquakes, adult residents living in the worst-affected areas of Christchurch displayed increased alcohol consumption, as well as significantly higher levels of acute stress, anxiety and depression, compared to those in less-affected areas (Rowlands, 2012).

In 2012, a wellbeing survey was conducted by the Canterbury Earthquake Recovery Authority (CERA, 2012). This survey revealed a range of findings relative to those older than 18 years old who had experienced the Canterbury earthquakes. Firstly, the survey showed that over half of the respondents believed their quality of life had

decreased significantly or to some extent and that these respondents were more likely to be living in temporary housing. With regards to social connectedness, half of the respondents agreed that with respect to others in their neighbourhood, they felt a sense of community. The survey also revealed that in the past 12 months (August 2011 - 2012), 97% of residents reported experiencing stress that had had a negative impact on them. Lastly, respondents were questioned about the negative and positive impacts of the earthquakes. The findings showed that the most prevalent negative impacts included the loss of leisure facilities, anxiety or distress due to continuing aftershocks, and dealing with insurance issues. With regards to the positives, the most common outcomes experienced by residents were pride in their ability to cope under difficult circumstances, increased family resilience and a renewed appreciation of life (CERA, 2012).

In addition to this wellbeing survey on adults, CERA conducted a further survey called the Canterbury Youth Wellbeing Survey between September and December 2013 on Christchurch residents aged between 12 and 24 years (CERA, 2014). The findings showed that around three years following the initial September 2010 earthquake, there were three main issues that continued to have a moderate or major negative impact on respondents' everyday lives. These included a) the loss of places they used to visit (25%); b) being in a damaged environment (18%); and c) the loss of sports and recreation facilities (18%). Respondents identified four main *negative* issues or outcomes that they had experienced due to the earthquakes, including the loss of places they used to go (73%); anxiety and distress from ongoing aftershocks (67%); transport problems (67%); and living amongst construction work and/or being in a damaged environment (66%). In contrast, respondents also identified three main *positive* issues or outcomes they experienced, including helping friends, family and the community (75%); seeing rebuild progress (75%); and having an improved ability to cope through earthquakes (73%).

Natural Disasters

Natural disasters, like the Canterbury earthquakes, are hazardous events that can have devastating impacts on human society. Globally, the risk of natural disasters is on the rise with recorded rates increasing fourfold over the past three decades. In 1975, there were fewer than 100 natural disasters, whereas in 2005, there were more than 400 (UN-

HABITAT, 2007). From 1994-2003, disasters have annually cost approximately US\$67 billion, affected more than 255 million people and claimed on average 58 000 lives each year (Guha-Sapir, Hargitt, & Hoyois, 2004). The Center for Research on the Epidemiology of Disasters (CRED) (Guha-Sapir, Vos, Below, & Ponserre, 2012) provides a definition of disaster, stating it as:

A situation or event which overwhelms local capacity, necessitating a request to a national or international level for external assistance; an unforeseen and often sudden event that causes great damage, destruction and human suffering (p. 7).

Another definition of disaster is:

A potentially traumatic event that is collectively experienced, has an acute onset, and is time delimited (McFarlane & Norris, 2006, p. 4).

Both of these definitions appropriately define the Canterbury earthquakes. Other examples of natural disasters include volcanic eruptions, fires, storms, floods, mass movements, and droughts. What these disasters have in common is a shared potential to cause widespread devastation, physical damage, death, injury, economic loss, displacement, and extensive emotional suffering (Peek, 2008).

In addition to these physical consequences of a natural disaster, there are also various direct and indirect psychosocial impacts. These are factors that influence individuals' psychological development in and interaction with their social environment (Shaw, Espinel, & Shultz, 2007) and are discussed below. Due to these psychosocial impacts, it is important to be vigilant for people needing professional psychological assistance and to provide early psychosocial support to facilitate recovery (Shaw et al., 2007).

Psychosocial impact. Natural disasters have wide-ranging impacts on society. They can result in devastating fatalities, cause physical damage to land and/or manmade structures, inflict high financial costs and result in both physical and mental harm (Hyndman & Hyndman, 2010). Focusing on the latter, it has been well established that exposure to traumatic events can have serious, wide-ranging and perhaps long-lasting psychological consequences (including for instance, post-traumatic stress, grief,

symptoms of depression and anxiety, and substance abuse) (Norris, Friedman, & Watson, 2002b).

For an event to be traumatic, it needs to occur outside of everyday experience and be distressing to almost anyone (Vogel & Vernberg, 1993). According to these criteria, it could be stated that most natural disasters have the potential to be traumatic events. Natural disasters are typically unexpected, terrifying and potentially very destructive. People can have fears of themselves and/or family members being injured or killed, they may see collapsed buildings, or the destruction of their homes, or experience the dread of seeing severely injured or possibly dead bodies. In the aftermath of the disaster, people may be continually reminded of the event (even years later) through sights, smells, sounds, and feelings that act as traumatic reminders. For example, following an earthquake, such traumatic reminders may include aftershocks, destroyed buildings, cracks in the walls, anniversaries of the date, and media coverage, all of which may trigger memories of the traumatic event and consequently cue negative emotional responses (e.g., anxiety, fear) (The National Child Traumatic Stress Network [NCTSN], n.d.).

There are several reasons why it is important to understand the link between natural disasters and psychological distress. These include: a) disasters are common occurrences affecting large numbers of people, b) disaster exposure has been associated with a wide range of psychosocial problems, and c) adjustment problems can persist for months or years following disaster experiences (Freedy, Shaw, Jarrell, & Masters, 1992).

Psychosocial impacts are further discussed in the following chapter, with a particular focus on disaster-exposed children and teenagers.

Organisation of the Thesis

The second chapter of this dissertation provides a detailed investigation into the research literature on natural disasters, with a particular focus on disaster-exposed children and teenagers. This investigation details the psychological impact of natural disasters on survivors, key risk factors, post-disaster supports aimed to mitigate a disaster's effects, and lastly, emerging gaps in the literature. Chapter Three then details

the present study, including the aims and research questions that guided the investigation. Rationale for the study approach is provided, followed by potential implications of the study's findings.

The following three chapters pertain to Study 1 (survey). Specifically, Chapter Four outlines Study 1's research method, including the design, recruitment, participants, questionnaire, procedures, ethical considerations, and the types of analyses used. Chapter Five presents the results of Study 1 (a combination of qualitative and quantitative findings), while Chapter Six provides a discussion of the findings, including implications. Chapters Seven and Eight are organised in a similar manner but pertaining to Study 2 (i.e., methodology, and results and discussion respectively).

Finally, Chapter Nine brings together findings from both Study 1 and 2, providing a summary and overall conclusion in the context of the research aims and questions. Specifically, the implications of these findings and final recommendations are discussed, as well as contributions to existing literature, benefits to the researcher's clinical practice and development as a researcher, limitations of the study, and areas for future research.

CHAPTER TWO: REVIEW OF THE LITERATURE ON DISASTER-EXPOSED CHILDREN AND TEENAGERS

Psychosocial Impact on Children and Teenagers

A majority of people exposed to a natural disaster will, to at least some extent, experience the psychological impact of that event; however, the current literature review is particularly concerned with disaster-exposed children (6-12 years) and teenagers (aged 13-19 years). When referring to teenagers, the literature typically uses a range of terms including teenagers, youth and adolescents. The review below uses these terms as they appear in the literature cited.

Children and teenagers constitute a significant proportion of those experiencing the distressing consequences of disasters (Peek, 2008). It is estimated that at the end of the twentieth century, 66.5 million children were affected by disasters each year (International Federation of Red Cross and Red Crescent Societies [IFRC], 2001); however, it is expected that due to climate change, this number will triple over the second decade of the twenty-first century, reaching up to 175 million children (Save the Children UK, 2007).

Following a natural disaster, a child's response is typically influenced by the type of stressor, their understanding of disaster causation and their ability to regulate mood and control impulses through coping mechanisms (Shaw et al., 2007). Research has also suggested that children's responses vary depending on their family's closeness, their demographic characteristics, and the characteristics of the disaster (Vogel & Vernberg, 1993).

Specifically, it is the natural dependency of children and adolescents that puts them at particular risk of being psychologically impacted (Belfer, 2006). That is, their reactions not only relate to the initial terror of the event, but also to the disruption of normal daily lives, school and peer associations, to the distress of parents, teachers and other adults, and to the destruction of homes and familiar physical and social community structures (Margolin, Ramos, & Guran, 2010). Wachtendorf, Brown, and Nickle (2008) also highlight children's typical reliance on adults for both financial and material resources,

age-dependent physical limitations, and children's restricted ability to influence particular life-impacting decisions; however, despite this awareness of children's vulnerabilities, very little is known about how such vulnerabilities impact on children's lives in a disasters aftermath.

Subsequently, these noted experiences can negatively influence youths' short- and long-term intellectual and emotional wellbeing (Peek, 2008), as well as their psychosocial development (i.e., stages of development influenced by social and cultural factors [Shaffer, 2009]). This, in combination with normal tasks of development (e.g., emotional separation from parents, peer identification, development of personal identity and social autonomy [McIntosh, Helms, & Smyth, 2003]), highlights the need to pay particular attention to child mental health when considering appropriate and necessary post-disaster responses (Belfer, 2006). It is also important to recognise that before we can better protect and help children and adolescents, we must identify their different forms of emotional and physical vulnerability (Peek, 2008). From a social scientific perspective, this is important in terms of developing stronger theories and models that capture the full range of human experiences in disasters (Anderson, 2005).

Additional reasons for considering the experiences of children and teenagers include the following: Firstly, by failing to maintain focus on children and teenagers, their unique needs may be ignored. According to Peek (2008), it cannot be assumed that by meeting parents' needs, their children's needs are also met. In fact, depending on the child's stage of development, the physical, social, emotional, and mental support needed may differ from that required by the adults in their lives. In addition, when parents, teachers and other significant adults are distressed and preoccupied, they may not be capable of providing children with the care and support necessary to re-establish their sense of security and safety (Peek, 2008). Moreover, difficulties with articulating distress and thus seeking help may further disadvantage children (Silverman & La Greca, 2002). Another point worth noting is the capacity of children and youth to participate in disaster preparedness activities at school, home and within their community, which in turn, may help minimize risk and increase resilience (Peek, 2008). Specifically, because of children's and teenager's social location within schools, they can potentially act as effective communicators of disaster mitigation, preparedness, response, and recovery information, both to members of their household and among peers (Wachtendorf et al.,

2008). Children may also be able to offer practical and creative ideas for assisting their families and communities in the recovery process (Peek, 2008).

Historical overview of children's disaster responses. Before going into greater detail regarding the psychological impacts of disasters on youth and common disaster responses, a brief historical overview of such responses will be discussed. According to Vogel and Vernberg (1993), conclusions concerning child disaster responses have changed over time. Prior to the 1950s, there was very little investigation into children's disaster responses; however, studies began to be conducted in the 1950s, with the earliest study in the United States being published in 1956 and focusing on elementary school children's reactions to a tornado (Perry, Silber, & Bloch, 1956). The main conclusion derived from these earlier studies was that children's responses to disasters were relatively mild and transient; however, by the 1970s and 1980s, studies (e.g., Lacey, 1972; Terr, 1979; Garmezy & Rutter, 1985; Gleser, Green, & Winget, 1981) were showing that the effects of disaster exposure for some children were more severe and longer lasting than previously thought. This conclusion became increasingly prominent with the introduction of Posttraumatic Stress Disorder (PTSD) as a diagnostic category in 1980 (American Psychiatric Association, 1980). This increased people's awareness of a cluster of symptoms that was not systematically studied in prior research (these symptoms are later discussed under the heading 'Psychopathology').

Furthermore, in earlier studies, parental reports were the main mode of data collection, rather than gathering data from the children themselves; however, with a shift to direct examination of children beginning in the 1980s, the idea that children's disaster responses could be severe and ongoing was further reinforced. That is, children appeared to report more severe disaster reactions than those reported by parents and teachers (Vogel & Vernberg, 1993). More specifically, it has been found that parent-child and teacher-child agreement is generally greater for externalizing symptoms (e.g., aggression and delinquency) than for internalizing symptoms (i.e. internal states of which others may be greatly unaware, e.g., anxiety and depression). This may be because children are trying to protect their parents by concealing their post-disaster distress. For instance, one study found that when child survivors of a ferry disaster were interviewed privately compared to with their parents, they were more forthcoming about their symptoms (Yule & Williams, 1990).

Acute stress responses. It is common for individuals exposed to a life-threatening event (such as a natural disaster) to experience acute stress symptoms (Shaw et al., 2007). People's physical wellbeing is at risk due to disaster hazards, while psychological distress is likely due to such things as the terror of the event and seeing others harmed (Shaw et al., 2007). A normal psychological response by both children and adults includes acute distress symptoms such as behaviour problems, anxiety, fear, grief associated with loss, mood symptoms in response to separation from family and friends, feelings of helplessness and somatic symptoms. Acute stress responses by children and adolescents have been observed in a number of human functioning domains including physiology, mood, thinking, behaviour and interpersonal relationships (see Table 1) (Shaw et al., 2007).

Table 1

Common acute stress responses

Functioning domain	Acute stress response
Physiology	<ul style="list-style-type: none"> • Somatic complaints e.g., stomach aches, headaches, tightness in chest, rapid heart beat • Sleep and appetite disturbances
Behaviour	<ul style="list-style-type: none"> • Clinging-dependent behaviours • Regressive behaviours • Avoidant and phobic symptoms • Disruptive, agitated, hyperactive behaviours • Conflicts with authority, pleasure-seeking activities, sense of foreshortened future
Mood	<ul style="list-style-type: none"> • Anger, irritability • Feelings of unfairness, insecurity, anger, depression, anxiety • Fear of disaster recurrence • Safety concerns
Thinking	<ul style="list-style-type: none"> • Reduced trust in the world's safety and security • Reduced trust in the ability of adults to protect children
Interpersonal and social relationships	<ul style="list-style-type: none"> • Lowered motivation • Poor school performance • Social withdrawal

Source: Shaw et al., 2007, p. 67

One study (Shaw et al., 1995) found that following Hurricane Andrew (1992, United States), 87% of school-age children exhibited moderate to severe symptoms of

posttraumatic stress, with the most common being anxiety, nightmares, sleep disturbances, and fears when thinking about the hurricane and of recurrence. Another study (Neuner, Schauer, Catani, Ruf, & Elbert, 2006) found that following the 2004 Indian Ocean tsunami, 14%-38% of children aged between 8 and 14 years, also experienced symptoms of posttraumatic stress.

Chronic stress responses. In the aftermath of a disaster, psychological distress can continue to linger (Shaw et al., 2007). The resulting experiences of loss and change may manifest as symptoms of depression and grief. These symptoms may include changes in appetite and sleep patterns, changes in mood (e.g., irritability, sadness, hopelessness), loss of pleasure and interest in activities, changes in behaviour (e.g., lowered school performance), changes in social and interpersonal relationships (e.g., social withdrawal, social avoidance, interpersonal conflicts), changes in thinking (e.g., decreased concentration, low self-esteem), thoughts about death and suicide, and negative future-oriented expectations (Shaw et al., 2007).

It is expected that everyone who experiences a disaster will to varying degrees, have worries and concerns about such things as their futures, the safety of loved ones, access to basic needs, and the re-occurrence of the disaster. This persistent worry commonly results in somatic symptoms (such as difficulty breathing, palpitations or gastrointestinal upset), and may eventually cascade into anxiety (Shaw et al., 2007).

In addition, chronic stress responses may manifest as behavioural symptoms and include such behaviours as agitation, belligerence, hyperactivity, school truancy, and lowered academic performance. Children or adolescents may also initiate or increase engagement in unhealthy behaviours, perhaps as a way of coping. For instance, alcohol or drug use, overuse of prescription medications, or cigarette smoking (Shaw et al., 2007).

Time course of post-disaster effects. According to Soloman and Green's (1992) review of child and adult literature, post-disaster effects can persist for up to three years; however, a majority of symptoms will subside within 16 months. In addition, despite a restricted number of studies having systematically investigated the time course of children's disaster reactions, it is typical following a disaster for symptoms to decrease

over time. These findings are supported by a later literature review of 160 disaster studies conducted by Norris et al. (2002a). Norris et al. (2002b) concluded that disaster effects could be fairly enduring with peak symptoms and effects occurring within the first year post-disaster but improving over time. In fact, one study (Johannesson, Lundin, Fröjd, Hultman, & Michel, 2011) found that following a tsunami, Swedish tourists showed a significant decrease in posttraumatic stress symptoms from 14 months to 3 years. Norris et al.'s (2002b) review also revealed that it is rare for post-disaster symptoms to have a delayed onset (i.e., onset of symptoms at least 6 months following the traumatic event) (DSM-IV-TR; American Psychiatric Association [APA], 2000).

With children specifically, parental reports (see Swenson, Powell, Foster, & Saylor, 1991) and child responses (see Nader, Pynoos, Fairbanks, & Frederick, 1990) have suggested that post-disaster symptoms tend to decrease considerably by 9 to 14 months. One major exception to this gradual steady decrease in symptoms occurs when one or both of the following factors are present: a) the disaster inflicted high levels of threat to life (Yule, 1992; Yule & Udwin, 1991), and/or b) the disaster resulted in extensive devastation and bereavement and presented as a major ongoing impact on family functioning (McFarlane, Policansky, & Irwin, 1987). With respect to the latter, studies (McFarlane et al., 1987; McFarlane, 1987) showed that after a bushfire, children's disaster-related behaviour problems and PTSD symptoms did not decrease from 8 to 26 months. Studies on adults also support this finding in that marked exposure, life threat or experiences of loss have been associated with increased posttraumatic stress symptoms and a slower rate of recovery (Johannesson et al., 2011; Kraemer, Wittmann, Jenewein, & Schnyder, 2009; Kristensen, Weisæth, & Heir, 2009). Lastly, for those children who exhibit the most severe initial post-disaster responses, stronger persisting symptoms have been found 5 to 12 months after the disaster (Yule, 1992; Yule & Udwin, 1991).

Overall, despite the limited evidence available, it appears that children in the long term generally recover following disasters. In fact, one study showed that 17 years after the Buffalo Creek Flood in the USA (1972), individuals (who were previously studied as children) showed little difference in psychological symptoms compared to their neighbours (who had not experienced the flood) (Green et al., 1991).

Developmental effects on responses. Findings suggest that a child's manifestation of symptoms varies according to their stage of development (Gurwitch et al., 2004; Murray, 2006; Vogel & Vernberg, 1993). It is important to have a developmental perspective and to recognise that children and adolescents have unique needs, especially when considering appropriate interventions (Belfer, 2006). As mentioned previously, current research has demonstrated the potentially severe and long lasting emotional impact of disasters on children. Consequently, there has been a calling for more developmentally specific interventions (Goenjian et al., 1997; Green et al., 1991; Prinstein, La Greca, Vernberg, Silverman, 1996; Pynoos et al., 1993). It is important to remember that children's responses to stressful events differ according to their developmental level (Anthony, 1991). These developmental levels can be divided into age categories, namely preschool children (3 to 5 years old), middle childhood (6 to 12 years old) and teenagers (13-19 years old). Discussed below is a description of how children's post-disaster responses differ according to these particular age divisions.

Preschool children (ages 3-5 years). When comparing preschool children to older children, posttraumatic stress symptoms are less common (Green et al., 1991). Instead of global changes in mood or level of functioning, preschool children more frequently respond to disasters with specific behavioural symptoms that appear isolated (Green et al., 1991). Symptoms may include aggressive behaviours, sleep and appetite disturbances, fear of the dark, nightmares, regressive behaviours, separation anxiety, clinging/dependent behaviour, and hyper vigilance (Shaw et al., 2007). In addition, due to preschool children's limited ability to verbalize their fears and reactions, they may use play and drawings to re-enact the disaster and process their experience (Deering, 2000).

When determining their degree of risk or safety, younger children rely heavily on their parents and their parents' reactions to the event. The child's ability to cope and accurately process the event is also influenced by their parents' or family's reaction. Lastly, a child's level of cognitive development has a significant effect on their psychological response to and interpretation of a traumatic event. According to Piaget's (1967) preoperational phase (ages 2-6), preschool children exercise egocentric thinking. This causes them to believe that events are triggered by their own actions. That is, a child may interpret a natural disaster as punishment for some self-perceived

misbehaviour. For instance, following a flood, a child who was evacuated from his hometown believed that he had caused the flood by repeatedly flushing a toilet at home (Shaw et al., 2007).

Middle childhood (ages 6-12 years). On the other hand, children during middle childhood are more cognitively mature and better understand the nature of the disaster. According to Piaget (1967), these children have entered into the period of concrete operations. This means that they have developed an increased ability to understand events using logic. Consequently, they are better able to grasp the seriousness of a disaster, its potential impact on their family and remember it more intensely (Conway, Bernardo, & Tontala, 1990). It is due to this increased understanding, that children in middle childhood are more likely to have greater reactions of fear and grief that seem more obviously related to the specific event and consequent losses (Newman, 1976).

Specific psychological responses of these children may include sleep difficulties, changes in appetite, disruptive and/or disorganised behaviours, depression, anxiety disorders, somatic concerns, arousal symptoms and PTSD symptoms (Shaw et al., 2007). Cognitive problems have also been reported, including poor concentration and reading and comprehension problems (Brown, 2005; Gurwitch et al., 2004). These in addition to the common refusal to attend school, results in school problems including lowered academic performance. In addition, disrupted academic progress and diminished long-term educational outcomes may result following the destruction of school buildings, displacement of students and teachers, loss of important records, multiple school changes, delayed enrolment, family instability, and unsupportive school environments (Peek, 2008). During the post-disaster period, children may also become irritable, rude and emotionally sensitive which can result in inconsistent behaviours. In turn, as a result of inappropriate and aggressive behaviours, peer relations may suffer and social support networks may be lost (Dogan-Ates, 2010).

Teenagers (ages 13-19 years). As children mature into teenagers their psychological responses become more consistent with those of an adult (Shaw et al., 2007). This is because teenagers have a more sophisticated cognitive appraisal of disasters and its consequences and therefore, possess a greater understanding of the meaning of trauma (Eth & Pynoos, 1985).

According to Piaget (1967), adolescents have reached the stage of formal operations. This means they have acquired an increasing ability to use abstract thinking when examining the complexities of events. In saying this, adolescents also tend to perceive things in polarities and engage in moral idealism (Deering & Scahill, 1998). For instance, things are either good or bad; people are with them or against them. Consequently, adolescents tend to process disasters according to these extremes (e.g., hope versus catastrophe, heroes versus villains).

Throughout childhood, defensive structures form, and they begin to solidify during adolescence (Erickson, Feldman, & Steiner, 1997). Following a disaster, adolescents tend to rely on their more intact defence systems in order to cope and regulate their feelings of anxiety, anger, sadness and confusion (Conway et al., 1990). For example, they are typically found to intellectualize and debate issues (Kagan, 1984); however, following disasters, this intellectualization tends to mask the adolescents true emotional reactions (i.e. anger, helplessness, sadness) to personal losses. Another common defence mechanism employed by adolescents is projection. That is, during adolescence it is common for adolescent's to question authority and to attempt to break away from their parents. It is due to these characteristics that adolescents may blame adults in their immediate environment for not sufficiently planning for or dealing with the disaster (Deering, 2000).

Following a disaster in which there was perceived threat to one's life and safety, an adolescent may develop fear of a foreshortened future. That is, the disaster may stress one's sense of biological fragility and emphasise life's briefness. Other disaster-related symptoms may include anxiety, depression, and feelings of guilt, anger, fear and/or disillusionment (Shaw, 2000). One study (Gleser et al., 1981) showed that two years following a flood, there was an increase in depressive symptoms across the ages from preschool to adolescence; however, compared to the other age groups, anxiety was greatest for adolescents.

Teenagers may also avoid previously enjoyed activities out of fear or alternatively, engage in pleasure-seeking activities due to the realization of life's transience. This may lead to risk-taking behaviour and the abuse of alcohol and/or other substances (Shaw et al., 2007). Further, studies have shown that PTSD symptoms are an important

post-disaster response in adolescents (Dogan-Ates, 2010). For instance, one study found that two months following the 2004 Tsunami in India, 72% of young adolescents (ages 12-14) and 79% of older adolescents (ages 15-18) reported symptoms of PTSD (John, Russell, & Russell, 2007).

Lastly, teenagers may display a lack of affection and/or confrontational or aggressive acts. They may also exhibit antisocial behaviours such as truancy, premature sexual activity and as mentioned above, alcohol/drug use (Gaffney, 2006). These behaviours can have negative impacts on the adolescents' education, social life and interpersonal relationships. In an adolescent's life, peer relations serve as an important source of social support; however, following a disaster, such social support is likely to be negatively affected due to such things as school disruption, withdrawal or negative changes in mood and behaviour. It is this potential disruption of peer relations or peer rejection that acts as an important risk factor for an adolescent's adjustment (Pynoos, Steinberg, & Wraith, 1995). Disrupted peer relations can also be associated with increased posttraumatic stress symptoms, such as staying home or a reduced interest in daily activities (Pynoos & Nader, 1990). Furthermore, an adolescent's post-disaster responses can be compounded in the event of temporary or permanent relocation, potentially due to the resulting disruption of peer relations (Dogan-Ates, 2010).

In sum, compared to younger children, adolescents may appear to be more self-sufficient and less vulnerable to further post-disaster trauma due to their superior physical and psychological ability; however, due to the loss of home, friends, community, possessions, and/or relocation from home or region, adolescents may experience additional emotional disturbances, which can interfere with normal developmental tasks (Sugar, 1999). For instance, if an adolescent experiences post-disaster symptoms of depression such as social withdrawal, lowered concentration, and behavioural problems related to irritability, their normal environmental interactions (i.e. interpersonal relationships, academic tasks) can be negatively affected. This is important as many developmental tasks are accomplished through normal environmental interactions (Klaus & Fristad, 2008).

Adolescence is a stressful developmental stage in which adolescents must simultaneously cope with a multitude of physical and psychosocial changes. Further,

unlike adults, adolescents do not generally have many (if any) previous life experiences that can be used to help protect them against the most stressful effects of a disaster. Therefore, from this perspective, one could hypothesize that during the post-disaster period, adolescents would react with increased distress compared to adults (Hardin, Weinrich, Weinrich, Hardin, & Garrison, 1994).

Psychopathology. In some instances, individuals who have experienced a disaster may present with psychological responses that are sufficient to meet the diagnostic criteria for certain psychological disorders, such as PTSD, Acute Stress Disorder (ASD), other anxiety disorders, depression, substance use disorders and psychosis (Shaw et al., 2007). For young people (ranging from 8-16 years old), these psychological effects are particularly strong (Giannopoulou, Dikaiakou & Yule, 2006; Goenjian et al., 1995; Şahin, Batigün, & Yilmaz, 2007). One of the most thorough reviews (as noted previously) was by Norris et al. (2002a) who analysed 160 disaster studies including over 60 000 participants (both adult and school-aged youth). These participants were assessed at any time from immediately after the event to seven years post-disaster, although 60% of the sample was assessed within six months. The authors rated the level of pathology using a four-point scale and found that 10% of the studies reported minimal impairment; approximately 50% moderate impairment, and 40% severe or very severe impairment. Severe impairment corresponded to participant rates of psychopathology of between 25% and 50% (Norris et al., 2002b).

Despite the fact that not every disaster victim will exhibit symptoms of diagnostic significance, it is still a possibility that they will go on to develop a diagnosable disorder. It is hypothesized that stress plays a large role in this development; however, before discussing this further, an outline of the commonly reported post-disaster psychopathologies is provided below. It is important to note that the psychopathologies and cited studies below are based on the *fourth edition*, text revision, of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; APA, 2000), rather than the *fifth edition* released in May 2013.

Posttraumatic Stress Disorder. PTSD is a classic psychological impact of exposure to a traumatic event. According to the Diagnostic and Statistical Manual of Mental Disorders, Fourth edition, text revision (DSM-IV-TR; American Psychiatric

Association [APA], 2000), the individual must experience “intense fear, helplessness or horror” (p. 467) during the traumatic event and display symptoms of re-experiencing, avoidance and increased arousal for more than one month (DSM-IV-TR; American Psychiatric Association [APA], 2000). These symptoms must also cause significant distress or impaired functioning.

According to Udwin (1993), there is growing evidence suggesting that children are negatively affected by exposure to disasters, with 30% to 50% of them likely to develop symptoms of PTSD. In 2008, Neria, Nandi, and Galea conducted a systematic review of disaster studies from 1980 to 2007 based on the DSM-IV criteria for PTSD. They found 116 studies from 40 natural disasters and concluded that within one to two years post-disaster, PTSD prevalence rates ranged from 3.7% (Canino, Bravo, Rubio-Stipec, & Woodbury, 1990) to 60% (Madakasira & O’Brien, 1987). One possible explanation for this wide range of prevalence rates is that disaster studies commonly include mixed population groups. For instance, participants may be direct or indirect victims (Thompson, Norris, & Hanacek, 1993; Shannon, Lonigan, Finch, & Taylor, 1994; Carr et al., 1995), they may be clinical samples (e.g., Livanou, Basoglu, Salcioglu, & Kalendar, 2002), or they may live in greatly affected areas (e.g., Finnsdottir & Elklit, 2002). One particular child-based study (Goenjian et al. 1995), found that one and a half years after the 1988 Armenian earthquake, 95% of children from the severely exposed city displayed severe levels of PTSD symptoms. This is in comparison to the 26% of children from the mildly exposed city. Norris et al.’s (2002a) review of youth and adult studies also highlighted the prevalence of PTSD, stating that 68% of disaster survivors were assessed for and found to have PTSD. More recently, Alisic et al.’s (2014) meta-analysis of 72 published studies on PTSD in trauma-exposed children and adolescents found the prevalence of PTSD to be 16%.

Research findings also suggest that rather than PTSD alone, a spectrum of disaster-induced psychological responses exists and such psychological difficulties are usually comorbid with PTSD (Bremner, 2002; Ross, 2000). With children in particular, anxiety, depression and conduct disorders are commonly comorbid with symptoms of post-traumatic stress (Giannopoulou et al., 2006; Goenjian et al., 1995; Şahin et al., 2007).

Acute Stress Disorder. Acute Stress Disorder (ASD) may also occur post-disaster. It is similar to PTSD in that both disorders include symptoms of re-experiencing, avoidance and increased arousal; however, a diagnosis of ASD also includes symptoms of dissociation such as emotional numbing, de-realisation or de-personalisation. Further, to be diagnosed with ASD, these symptoms must occur within one month of the traumatic event (as opposed to more than one month for PTSD) (APA, 2000). In 1994, ASD was introduced into the DSM-IV as a diagnosable psychological disorder in order to identify the potentially significant levels of distress immediately following a trauma, and to recognise individuals at risk of developing PTSD (Bryant & Harvey, 2000; Cardeña & Carlson, 2011). According to Bryant and Harvey (2000), the incidence rate of ASD following trauma is 6% to 33%, highlighting the fact that a substantial proportion of individuals experience initial distress. Research also shows that 57% to 83% of those with ASD will go on to develop PTSD, suggesting that ASD is a strong predictor of PTSD (Birmes et al., 2003; Brewin, Andrews, Rose, & Kirk, 1999; Bryant, Moulds, & Guthrie, 2000; Yasan, Güzel, Tamam, & Ozkan, 2009).

Other anxiety disorders. Increased rates of anxiety disorders other than PTSD and ASD have also been reported following exposure to trauma. One study showed that exposure to more severe traumas was associated with higher levels of anxiety compared to exposure to mild traumas (Goenjian, Steinberg, Najarian, & Fairbanks, 2000). In another study, post-disaster anxiety levels were elevated after controlling for pre-disaster levels (Bonanno, Brewin, Kaniasty, & La Greca, 2010). In fact, one study showed that three years after the 7.4 magnitude Marmara earthquake in Turkey in which 15 226 individuals died, rates of generalized anxiety disorder (GAD), panic disorder, obsessive-compulsive disorder (OCD), social phobia, and specific phobias were twice the pre-earthquake national prevalence rates (Önder, Tural, Aker, Kılıç, & Erdoğan, 2006). In addition, Norris et al.'s (2002a) review of disaster studies found various forms of post-disaster anxiety in 20% of the research sample. Further, research has suggested a linear relationship between disaster exposure and anxiety with greater exposure being associated with increased anxiety difficulties (Bonanno et al., 2010). Therefore, although PTSD is the most common post-trauma psychological disorder, there is also sufficient evidence supporting an increased risk of other post-trauma anxiety disorders (Bonanno et al., 2010; Norris et al., 2002a).

Depression. Depression is the second most common post-disaster disorder and the most frequent comorbid disorder with PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). In fact, 44% of trauma survivors with PTSD are also diagnosed with depression (Bleich, Koslowsky, Dolev, & Lerer, 1997). Approximately two years following the 2010 Haitian earthquake, Cénat and Derivois (2015) found that 46% and 37% of participants aged 7-17 years reported clinically significant symptoms of depression and PTSD respectively. In terms of ASD, a moderate correlation ($r = 0.61$) has been found between depression and ASD in children (Ellis, Nixon, & Williamson, 2009), therefore, highlighting a moderate association between common trauma symptoms and depressive symptoms following trauma. In addition, Norris et al. (2002a) found that post-disaster depression was evident in 36% of its research sample. Lastly, one review suggested that if people have outside stressors, a family or personal history of depression, high disaster exposure and a lack of social support, they are at greater risk of developing a major depressive episode following a disaster (Katz, Pellegrino, Pandya, Ng, & DeLisi, 2002). Greater discussion will be given to these and other risk factors under the heading ‘Factors Influencing Psychosocial Impact’.

Despite the disaster-related psychopathologies outlined above, post-disaster measures of depression and anxiety are not always clinically significant and the incidence of symptoms of posttraumatic stress is much greater than that of diagnosable disorders like PTSD, depression and anxiety (Vogel & Vernberg, 1993). In addition, regardless of whether an individual’s symptoms meet certain diagnostic criteria, their quality of life can still be adversely affected by a disaster. For instance, one study (Wang et al., 2000a) showed that at three months post-disaster, individuals’ quality of life was adversely affected in not only the psychological domain, but also in physical and environmental ones. At nine months, impairments continued in the psychological and environmental domains. Therefore, this study showed that exposure to a natural disaster can cause multidimensional impairments in quality of life regardless of the presence of a psychological disorder. Further, irrespective of symptoms indicative of diagnosable disorders, the more relevant issue may be whether or not a child’s post-disaster symptoms reflect functional impairments that disrupt the child’s normal course of development. For instance, concentration problems (a common post-disaster symptom) can result in secondary problems, such as school dropout, friend loss and academic failure. This can then lead to feelings of loneliness, anxiety and self-blame. In fact, one

study (Şahin et al., 2007) showed that negative school performance was the greatest predictor of severe symptoms and compounding problems following an earthquake.

Causes of post-disaster psychopathology. It can be safely concluded that disasters have a psychological impact on a significant number of post-disaster victims and that these impacts are multifaceted, frequent, and often enduring. Therefore, the next important issue to consider is why these disasters inflict such consequences on mental health.

Stress. A majority of psychologists claim that stress is the leading cause of post-disaster psychopathology (e.g., depression and anxiety). Compared to other types of major stress, disaster stress differs in that it relates to threats to survival, destruction of property, and other fundamental life changes (Solomon, 1989; Weinrich, Hardin, & Johnson, 1990). Theories as to exactly how this stress affects post-disaster victims are varied. Some stress theories are concerned with the physiological overload of stress (e.g., Selye, 1976), some look at the unpredictability and uncontrollability of stress (e.g., Kelly, 1955), and others focus on the avoidance of reminders resulting from conditioning between a fearful stressor and other life aspects (Mowrer, 1960). Below is an outline of three important factors related to disaster stress including loss, cognitions, and the idea of control.

Loss. Losses in a disaster are almost unavoidable and include losses of people, material goods, health, and security (Nolen-Hoeksema, 1990). Social and community resources also deteriorate at a time when they are needed most (Kaniasty & Norris, 1993). Studies have shown that these objective experiences of loss (i.e. bereavement, personal injury and property loss) have been linked to increased levels of psychological distress (Maida, Gordon, Steinberg, & Gordon, 1989; Shore, Tatum, & Vollmer, 1986).

One model pertaining to resource loss is the Conservation of Resources (COR) model (Hobfoll, 1989). This has been empirically tested and its application to natural disasters supported (Freedy et al., 1992). It is concerned with the degree to which disaster victims can maintain social (e.g., family and work roles) and personal (e.g., possessions) characteristics that are usually employed in order to achieve goals or desirable states. According to this model, individuals accumulate resources which can be applied to

withstand, accommodate or overcome threats. These resources may include object resources (i.e. possessions of functional or status value), condition resources (i.e. social roles and relationships), personal characteristic resources (i.e. self and world views) or energy resources (i.e. time, money, information). In the event of loss or threatened loss of these resources, individuals will experience reduced coping capacity and psychological distress. In particular, traumatic or stressful events can deplete these resources, thereby increasing an individual's sensitivity to later stressors. Freedy et al. (1992) demonstrated that two months following a hurricane, resource loss was positively associated with psychological distress and was actually a stronger predictor of psychological distress than both demographic and coping variables.

Cognitions. Following such traumatic events as disasters, people are forced to recognise, objectify and assess their basic cognitions about the world (Janoff-Bulman, 1985). The individual is tempted to ask questions such as "Why me?" which may lead to a shift in their sense of worth, sense of invulnerability and the world's predictability (Janoff-Bulman & Frieze, 1983). Such a change in cognitions can be overwhelming and devastating to the individual and consequently, can impact negatively on their psychological wellbeing.

Another factor concerning cognitions involves information processing and the individual's need to process the traumatic event until it can be understood. If the event is not processed, this leads to the avoidance and intrusive thoughts and images characteristic of post-traumatic stress (Horowitz, 1976). More specifically, according to Horowitz (2011), information in the brain that is tagged as important gets stored in active memory storage. This information is then appraised through conscious processing, which repeats until such processing is complete. That is, important information (e.g., a difficult, disaster-related thought) will only be terminated once repeated processing has resulted in a balance between external reality and internal expectations, cognitive maps, intentions and schemas of self-in-the-world; however, this appraisal of information is not straightforward in the sense that strong emotional responses are commonly activated. These responses then activate controls that interfere with the completion process and modify the topic of attention. Although this reduces processing and thus anxiety, it also reduces control over active memory and its tendency towards repeated representation. Consequently, cognitive processing is reinitiated and

intrusive, and distressing thoughts and images of the trauma return. Only when the information is adequately processed is it cleared from active memory storage, which consequently leads to a reduction in the individual's symptoms (Horowitz, 2011).

Control. An individual's belief of being in control is associated with a reduction in stress; however, when the individual finds himself or herself in an out-of control situation, in which their life is impacted by variables outside of their personal control, stress levels are increased (Lazarus & Folkman, 1984). Further, if the individual continuously experiences adverse circumstances, they may come to understand that despite one's own efforts, life is not subject to control (Lefcourt, 1976). In such situations, a person may adopt a repressive coping style in order to deal with the situation (Paardekooper, 1999). This coping style is based on repressive defence mechanisms and is observed in individuals who believe they are not upset, despite contrary objective evidence. That is, the individual is intentionally repressing threatening feelings and concerns (Nezu, Nezu, & Geller, 2003). Such a coping style may be effective for the individual in the short term, but if it is continued into the long term and the situation is not properly dealt with, emotional problems can result (Paardekooper, 1999). A perceived lack of control can also lead to feelings of helplessness and loss of hope, which in turn can reduce an individual's influence over change (Lefcourt, 1976; Sengendo and Nambi, 1997).

Factors Influencing Psychosocial Impact

According to Norris et al. (2002b), the link between disasters and serious psychopathology does not need further investigation – it has been well established. Rather, the focus should now be shifted to understanding what disaster features are most distressing and what characteristics of individuals increase vulnerability (Gibbs & Montagnino, 2007).

A review of the literature has implied that there are three levels of risk factors that influence the psychological impact of disasters. These include event-, individual- and family-/community-levels; however, before covering these particular three risk factors in greater detail, coping strategies will be discussed as mechanisms that can influence the psychological impact of disasters.

Coping strategies. Despite the vulnerabilities of youth, Fothergill and Peek (2006) maintain that children have the capacity to cope with disasters and their impacts. According to Lazarus and Folkman (1984), coping can be defined as “constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person” (p. 141). A majority of studies investigating coping have focused on adults in different stressful situations and most of the theories have been derived from adults’ understandings of coping (Jensen, Ellestad, & Dyb, 2012). This is consistent with a two-factor model developed by Lazarus and Folkman (1984), which includes the concepts of problem-focused coping (i.e. coping by doing something active and dealing with the distressing problem) and emotion-focused coping (i.e. using thoughts and feelings to regulate emotional responses and reduce stress).

Consequently, there is a limited understanding of children’s and adolescents’ coping and the specific strategies they use; however, attempts have been made to develop models specifically tailored to this age group (e.g., Compas, 1998; Eisenberg, Fabes, & Guthrie, 1997). For instance, Ayers, Sandler, West, and Roosa (1996) developed a four-factor model including active coping, distraction, avoidance, and support-seeking strategies. Specifically, active coping refers to cognitive decision-making, restructuring, seeking understanding, and direct problem solving. Distraction involves distracting actions and the release of emotions through physical actions. Avoidance consists of thought avoidance and avoidant actions, and support-seeking strategies refer to either problem-focused support or emotion-focused support. According to Lauten and Lietz (2008), most children who experience adversity can cope with one or two major risk factors without suffering detrimental consequences; however, as the number of risk factors accumulates, children become more susceptible to developmental impairments and negative life outcomes.

With regards to coping strategies, it appears that only one study (Jensen et al., 2012) has investigated the personal views of children who have experienced disasters. This study examined the coping strategies of Norwegian children aged between 6- and 18-years old ($M = 12.6$) who were on holiday in Southeast Asia when the December 2004 tsunami hit. The older youth reported the use of rational thinking and helping others as methods of coping. Further, irrespective of age, thoughts about parental competencies and

protection were also described as coping mechanisms, as was attachment-seeking behaviour (e.g., keeping close to parents). In addition, parents were often used as reference points with respect to assessing situations. That is, youth sought comfort in seeing their parents appear in control, rather than scared or anxious.

In terms of the two-part model proposed by Lazarus and Folkman (1984), youth in Jensen et al.'s (2012) study reported coping responses that could have been categorized as emotion-focused coping (e.g., distancing, positive thoughts, comfort seeking); however, with regards to problem-focused coping, and with the exception of information seeking, youth reported very few strategies such as problem solving or confrontation. This finding differed from previous ideas regarding the usefulness of problem-focused coping following trauma. One possible explanation for this is that the selection of coping strategies may depend on the degree of one's perceived control. That is, problem-focused coping is best suited for controllable situations, while emotion-focused coping is more adaptive for uncontrollable situations (like most natural disasters) (Compas, Banez, Malcarne, & Worsham, 1991; Pincus & Friedman, 2004).

Lastly, in comparison to Ayers et al.'s (1996) four-factor model (i.e. active coping, distraction, avoidance, and support-seeking), youth in Jensen et al.'s (2012) study reported distraction, avoidance and support-seeking responses but failed to report the use of active coping. With respect to avoidance actions, it is possible that in the long-term, denial and distraction are not helpful coping strategies with respect to mental health outcomes (Punamäki, Muhammed, & Abdulrahman, 2004). According to Brewin, Andrews, and Valentine (2000) and La Greca, Vernberg, Silverman, Vogel, and Prinstein (1995), both emotion-focused coping and task-focused coping (e.g., creating an action plan) are more effective than avoidant actions; however, in the short-term, these avoidant coping responses may be adaptive and protective, particularly if the situation is outside personal control (as is the case in most natural disasters) (Punamäki et al., 2004).

Gender differences in coping strategies. According to the literature, men and women commonly employ different coping strategies when dealing with stressful situations. A number of studies on adults suggest that compared to women, men are more likely to use direct, problem-confronting coping styles or alternatively to deny or avoid the

problem (Pearlin & Schooler, 1978; Stone & Neale, 1984; Veroff, Kulka, & Douvan, 1981). Women on the other hand, use more emotion-focused strategies and are more likely to seek social support (Billings & Moos, 1981; Folkman & Lazarus, 1980; Hamilton & Fagot, 1988; Pearlin & Schooler, 1978; Stone & Neale, 1984). A more recent meta-analysis of studies investigating gender differences in coping, found that women were more likely to deal with a situation by ruminating about their problems, using verbal expressions to the self or others, using positive self-talk and/or seeking emotional support (Tamres, Janicki & Helgeson, 2002). These gender differences in coping have been well documented within the adult literature (e.g., Tamres et al., 2002).

For adolescents, studies have shown mixed results (Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001). Compared to adults, adolescents may cope differently due to developmental factors (e.g., social, emotional, cognitive), environmental aspects (e.g., dependence on adults), lack of experience, and gender socialization (Compas et al., 2001; Fields & Prinz, 1997). Adolescent literature has consistently shown that females seek social support more than their male counterparts (e.g., Hampel & Petermann, 2005; Roecker, Dubow, & Donaldson, 1996; Seiffge-Krenke & Shulman, 1990; Stark, Spirito, Williams, & Guevremont, 1989); however, less consistently, females have been found to use more active coping strategies (e.g., Griffith, Dubow, & Ippolito, 2000; Herman-Stahl, Stemmler, & Petersen, 1995), while males have employed more avoidant coping styles (e.g., Hampel & Petermann, 2005). With emotion regulation, female adolescents have shown more aggression but less distraction or recreation compared to male adolescents (Hampel & Petermann, 2005). Finally, a study conducted by Compas, Malcarne, and Fondacaro (1988) found that females used more emotion-focused strategies in response to academic stressors; however, most of these studies have only looked at ordinary life events, rather than devastating situations like those following a natural disaster.

Risk factors.

Event-level risk factors. It has been established that the more stressful the disaster experience, the greater the negative consequences; however, it is sometimes difficult to determine which of the many characteristics of a disaster make it more stressful. The following disaster characteristics have been identified as important: duration of the disaster (Baum & Davidson, 1985; Bolin, 1985), mass violence (Norris et al., 2002b),

the amount of unpredictability and lack of control (Baum & Davidson, 1985; Thoits, 1983), and the experience of terror and horror (Bolin, 1985). Research has also suggested that the nature of the disaster and the degree of trauma inflicted are greater predictors of the extent of post-disaster psychopathology than are individual characteristics of the victims (Sundin & Horowitz, 2003).

Individual-level risk factors. It is well recognised that despite experiencing the same event, people are heterogeneous in their psychological outcomes (Norris et al., 2002b). It is also acknowledged that not all youth are equally vulnerable to disaster effects (Peek, 2008). There are a number of possible individual risk factors that have been found to influence the association between trauma and psychological impact, including age, gender, culture, ethnicity, socio-economic status (SES), prior experience, pre-disaster psychiatric history, family structure, personality, psychosocial resources, exposure severity, secondary stressors, and problems of children, parents or spouses (Norris et al., 2002b). These factors do not operate in isolation; rather they work together to increase the risk of developing serious long-lasting psychological problems (Norris et al., 2002b).

Exposure. For those individuals whose lives are threatened or who are exposed to grotesque scenes or destruction, the likelihood of severe post-disaster responses is increased (Gleser et al., 1981; McFarlane, 1987; Pynoos et al., 1987). In fact, according to Peek (2008), the extent and intensity of exposure to a traumatic event is one of the most critical predictors of post-disaster distress for children. The risk for PTSD, anxiety, or depression is heightened if a child directly or indirectly (i.e. through media) experiences life threat, separation from family members, loss of a loved one, witnesses disaster destruction or suffers widespread damage to their home and community (Lengua, Long, Smith, & Meltzoff, 2005; McFarlane, 1987; Pfefferbaum et al., 1999; Saylor, Cowart, Lipovsky, Jackson, & Finch, 2003; Shannon et al., 1994). One study looked at children aged between nine and nineteen following a hurricane and also found that a high level of exposure to damage, as well as displacement, was associated with greater psychiatric symptomatology (Shannon et al., 1994).

The subjective experience of life threat is considered to be at least as important as physical proximity (Vogel & Vernberg, 1993). That is, subjective factors (i.e. an

individual's perceptions of the trauma) have been associated with psychological distress (Green, 1990). These perceptions may include a perceived threat to life or perceptions of low control and predictability (Foa, Steketee, & Olasov-Rothbaum, 1989; Jones & Barlow, 1990).

Bereavement and separation. In terms of bereavement, when a disaster results in the injury or death of a family member, severe reactions are more likely (Vogel & Vernberg, 1993). In comparison, the loss of a friend or extended family member slightly increases the severity of disaster responses (Vogel & Vernberg, 1993). With regards to the death of a peer, post-disaster reactions may depend on the relationships closeness, with closer relationships resulting in more severe and persistent symptoms (Nader et al., 1990). Parent-child separation is another potential consequence of disasters that can increase post-disaster responses and their persistence. This is the case for young children, as well as older children and their parents. One study showed that twenty-six months after a bushfire, in which children were sent to relatives for a few days, the separated children and parents experienced more persisting symptoms (McFarlane, 1987). Lastly, being removed from their homes and community is an additional risk factor that can increase youths' vulnerability (Belfer, 2006).

Damage to the environment and relocation. Although briefly mentioned previously (under the heading 'Causes of Psychopathology'), physical losses and disruption of the environment has been linked to short-term post-disaster reactions. For instance, following the Loma Prieta earthquake (1989, San Francisco), the extent of behavioural symptoms by preschoolers was significantly related to home damage (Junn, Guerin, & Rushbrook, 1990). This was also the case three months after Hurricane Hugo (1989, Caribbean Islands and south eastern coast of United States) and the severity of PTSD symptoms in 9- to 19-year olds (Finch & Belter, 1991). This is supported by a more recent study following Hurricane Katrina (2005, New Orleans), which showed that mental health outcomes were significantly influenced by the extent of disruption to infrastructure and normal life, as well as the magnitude of the geographical area affected (Weems & Overstreet, 2008). In addition to damaging individual homes, other structures like schools, churches, medical centres, shops, and sporting facilities are also likely to be damaged. According to Weems and Overstreet (2008), this damage results in disrupted normal routines, breakdowns in social structure and social support systems,

loss of services, and feelings of confusion, disorientation and peculiarity. For parents, the ensuing stressors and chaos makes it difficult to convey to their children a sense of security and stability.

A recent study conducted by Usami et al. (2012) investigated the relationship between traumatic symptoms and environmental damage in children after the Japan earthquake and tsunami (2011). They found that children whose houses had been damaged or who had been separated from family members reported significantly higher stress symptoms than children who had not experienced environmental damage. Children who had been evacuated also indicated significantly higher stress symptoms.

The distress associated with damage to personal property and infrastructure may be compounded by the necessity to relocate to an unfamiliar neighbourhood, and the resultant separation from social supports, including those with similar experiences who could relate or offer appropriate support. For children in particular, this relocation means attending a new school, the loss of regular activities and the loss of contact with friends (Mohay & Forbes, 2009). It is suggested that such a breakdown in social systems significantly contributes to post-disaster stress in both children and adults (Weems & Overstreet, 2008). For example, seven to ten months following Cyclone Tracy (Australia, 1974), children of families who evacuated exhibited the most symptoms while those who did not evacuate, displayed the least (Milne, 1977). Therefore, relocation or displacement does not occur in isolation but is rather accompanied by a range of losses, such as job loss, loss of possessions, income loss, and reduced access to health care (Mortensen, Wilson, & Ho, 2009). At this point it is unclear as to whether relocation itself is associated with PTSD, distress or depression, or whether it is more a combination of relocation and the resultant losses. Although limited studies have separated out the effects of displacement from the effects of general disaster exposure, some studies have found that displacement in isolation is not associated with negative consequences. For instance, one study found no differences in PTSD or depression symptoms between those children affected and displaced by the Southeast Asia Tsunami (2004) and those children affected and not displaced (Thienkrua et al., 2006).

Despite the disadvantages associated with relocation, there are also arguments suggesting that it is advantageous for people to leave disaster-affected areas. That is, by leaving the affected location, people may feel safer and gain greater access to resources (Bonanno et al., 2010); however, relocation also has the potential to disrupt family cohesion and deny people of pre-disaster support networks, thereby interfering with psychological adaptation (Erikson, 1976; Galante & Foa, 1986). Studies have provided supporting evidence for both views. For instance, following Hurricane Katrina, many refugees left New Orleans and their poor living conditions and moved into more prosperous areas. One third of the refugees who moved to Houston, Texas, believed they had gained better housing and schools; however, a majority of these refugees also indicated that following relocation their social networks had become smaller and their family relations weaker (Wilson & Stein, 2006).

Age. According to a review of disaster studies, it appears that middle-aged adults are the most affected by disasters (Norris et al., 2002a). This may be because this particular age group has more burdens and stresses (Thompson et al., 1993) compared to other age groups (i.e. younger and older adults). For example, they carry the responsibility of caring and providing support for their families, which in the aftermath of a disaster may be amplified (Gibbs & Montagnino, 2007); however, in terms of children, Norris et al. (2002a) found that school-aged youth compared to adults were at greater risk for post-disaster mental health problems. They found that of the 17 school-age samples, 48% displayed moderate post-disaster impairment, while 52% displayed severe or very severe impairment. This was believed to be because, on average, youth were less equipped (cognitively and emotionally) to deal with disasters (Norris et al., 2002b). More specifically, the effects of disasters result from the effects of acute helplessness, instinctual arousal, incomprehension of the world, loss of perceived social support and safety and loss of important attachments (Norris et al., 2002b). Based on this view, it makes sense that compared to adults, youth would be less well prepared to cope with disasters (Norris et al., 2002b).

Resilience. An individual's vulnerability to post-disaster psychopathology can be influenced by their level of resiliency (Shaw et al., 2007). Resiliency refers to "the capacity to deal with, overcome, be strengthened by, and even transformed by experiences of adversity" (Henderson, 2001, p.76). In other words, it is an individual's

ability to rapidly re-establish their pre-disaster levels of functioning and achieve psychological equilibrium (Shaw et al., 2007). In general, children with poor coping skills, lack of self-mastery, difficult temperament and a history of a poor adult-child relationship, are less resilient to disaster impacts and thus, more vulnerable to later psychopathology (Rutter, 1987). According to Masten (2001), there are a number of other factors that contribute to a child's resiliency. These include such things as effective parenting, social competence, adaptability to new situations, communication skills, self-regulation and cognitive flexibility. Masten (2001) also suggests that emotional security provided by early attachments and healthy caregiver relationships are important contributors to a child's resiliency. Such relationships aid prosocial behaviours, frustration tolerance, stress management, effective information processing and adaptability. A child's accumulated competencies including academic, social, interpersonal and mastery domains, are also essential contributors to resiliency (Masten, 2001). More recently, Masten (2014) identified a list of factors that have been consistently associated with resilience in young people, some of which include: intelligence and problem-solving skills; motivation to succeed; self-efficacy; effective schools and neighbourhoods; self-control; close friends; close relationships with adults; and effective caregiving and parenting quality.

Socio-Economic Status (SES). A review of disaster studies conducted by Norris et al. (2002a) discovered that of the fourteen samples investigating SES and disaster outcome, thirteen found an association between lower SES and increased post-disaster distress. These samples consisted of a range of disasters including, floods (Ginexi, Weihs, Simmens, & Hoyt, 2000) and earthquakes (Lewin, Carr, & Webster, 1998). A possible explanation for this association between low SES and increased distress is that people living in poverty are more likely to have fewer resources available to lessen the effects of disasters (Gibbs & Montagnino, 2007). For example, following Hurricane Andrew (1992, Florida), people living in low-income areas reported that despite being aware of emergency storm warnings, they could not afford emergency supplies or did not have the resources to evacuate (Morrow & Enarson, 1996). Further, following the Kobe earthquake in Japan (1995), analyses of the economic impact showed that because poorer households had less collateralisable resources, they were less able to obtain loans and therefore, had greater difficulties rebuilding and withstanding the earthquake's economic impact (Sawada & Shimizutani, 2008).

Ethnic minorities. Perilla, Norris, and Lavizzo's (2002) study also highlighted the view that minority groups are at an increased risk of developing post-disaster psychopathology. Specifically, six months following Hurricane Andrew, Caucasians showed the lowest rates of PTSD (15%), Latinos showed the highest (38%) and African Americans showed rates between these extremes (23%). This finding has been supported by Norris et al.'s review (2002a), which suggested that minority ethnicity was one of the most robust vulnerability factors. There are two possible explanations for such ethnic differences, namely differential exposure and differential vulnerability (Perilla et al., 2002). Differential exposure refers to the idea that between ethnic groups there is disparity in the extent of exposure to the more traumatic aspects of a disaster. That is, ethnic minorities are more likely to be living in at-risk disadvantageous environments and residing in more vulnerable homes (Quarantelli, 1994). On the other hand, differential vulnerability suggests that regardless of differences in exposure, ethnic minorities are more affected by stressors. This explanation takes into account the context within which the disaster occurs. For ethnic minorities in particular, this context involves limited access to economic and social resources, which typically help with resilience and buffer a disaster's negative impacts (Kaniasty & Norris, 1995).

Another vulnerability factor may concern culture-specific attitudes and beliefs, which influence the ethnic group's ability to cope with stress and trauma (Allen, 1996; Anderson, 1991). Cultural differences in the interpretation and expression of distress may also account for vulnerabilities. For instance, due to experiences of oppression, African Americans may be particularly hypervigilant to perceived threats, which could manifest as symptoms of post-trauma (Allen, 1996); however, determining the exact nature of the influence of race-ethnicity on disaster outcome has proven to be elusive. This is partly because within disaster samples, there is limited empirical data on racial-ethnic differences (Norris et al., 2002a). It is also because confounds, such as SES and other risk and resilience factors, complicate the impact of race-ethnicity (Norris et al., 2002a).

Gender. In Norris et al.'s (2002a) review, 94% of 49 studies investigating gender differences showed that compared to boys and men, girls and women were more seriously psychologically affected by disasters. There are a number of possible explanations that may explain these differences. Firstly, it is more likely that women,

compared to men, will acknowledge and report psychological symptoms (Nolen-Hoeksema, 1990). Due to society's expectations that men should be strong and capable, they may feel the need to suppress post-disaster symptoms of psychological distress (Wolfe & Kimerling, 1997). In fact, rather than reporting symptoms like depression and anxiety, men are more likely to display psychological distress through substance abuse and other acting out behaviours (e.g., interpersonal violence) (Myers et al., 1984). Compared to men, women also have higher rates of pre-disaster anxiety and depression (Myers et al., 1984), which puts them at greater risk of disaster-related distress.

Another possible explanation is that women are traditionally appointed the role of caregiver, which could lead to increased post-disaster stress levels. For instance, the additional stress of caring for children and the home may unduly fall on women who are the primary caretakers (Gibbs & Montagnino, 2007). According to Norris et al. (2002a), parents (especially mothers) show higher disaster-related distress. More recently, Kimerling, Mack, and Alvarez (2009) suggested that women might have greater prior trauma, more post-disaster stressors, or greater objective exposure; however, in studies with adults that controlled for confounds such as these, female gender was still found to significantly predict greater post-disaster psychopathology (e.g., Ahern et al., 2004; Hoven et al., 2005; Weems et al., 2010) and reduced resilience (e.g., Bonanno, Galea, Bucciarelli, & Vlahov, 2007). One possible explanation for this gender effect is the tendency for females to 'subjectively experience greater initial disaster threat' (Garrison, Weinrich, Hardin, Weinrich, & Wang, 1993; Norris et al., 2002a). One study conducted within 24 hours of the Loma Prieta earthquake, showed that compared to men, women were less accurate in estimating the earthquakes duration. In another study, adolescent girls indicated significantly greater subjective exposure (e.g., "scared you would die") and after controlling for both objective and subjective exposure, the gender difference in post-disaster stress was fully explained by the differing experiences of subjective threat (Anderson & Manuel, 1994).

Another possible explanation for why females are more negatively affected by disasters may concern coping strategies. That is, one study (Fan, Zhang, Yang, Mo, & Liu, 2011) found that following an earthquake in Wenchuan, China (2008), female students used more emotion-focused coping strategies, experienced more psychological problems, and reported less objective social support. Fan et al. (2011) also found that emotion-focused

coping significantly predicted psychological problems, and therefore, suggested that such a coping style may explain the poorer post-disaster psychological condition of the female students.

Secondary stressors. Secondary stressors, such as post-disaster hardships and adversities, may also continue to impact individuals (Shaw et al., 2007). Disaster survivors may be confronted with post-disaster problems such as disruptions to living conditions, electricity, water systems, transportation, school, work, and/or daily routines (The National Child Traumatic Stress Network [NCTSN], n.d.). People's efforts to contend with these stressors may reduce coping and emotional resources, which in turn can lower resiliency. Consequently, this can increase the risk for psychological disorders (Shaw et al., 2007) and/or disrupt an individual's ability to recover (NCTSN, n.d.). In addition, findings suggest that the cumulative effects of stress can increase the risk for substance abuse, depression, suicidal thoughts, lowered social functioning and delinquent and aggressive behaviours (Shaw et al., 2007). Family stress and conflict has also been associated with continued post-disaster issues (Jones, 2008).

Family-level risk factors. A child's level of post-disaster adjustment is influenced significantly by their parents' adjustment, as well as their family's overall adaptability (Endo, Shioiri, Someya, Akazawa, & Toyabe, 2007). One study showed that children's distress levels were greater if their parents also exhibited distress (Proctor et al., 2007). That is, parents' fear towards a natural disaster can bias their children's level of fear (Finnis, Standring, Johnston, & Ronan, 2004). It has been shown that children of mothers who expressed their fears often, sometimes and not at all, exhibited high, moderate and low fear levels respectively (Muris, Steerneman, Merckelbach, & Meesters, 1996). Based on such findings, it is expected that after a disaster, children will turn to their parents and their reactions in order to gauge its seriousness. If they see that a parent is distressed by the situation, it is likely that they too will become fearful (Deering, 2000). One study suggested that the duration of a child's post-disaster distress was associated with that of parental distress (Swenson et al., 1991), while other studies have shown strong positive associations between PTSD symptoms in both parents and children (Chemtob et al., 2010; Wickrama & Kaspar, 2008). One explanation for this association between parental reactions and distress and children's responses and adaptation, is the potential effect of a disaster on the availability and emotional

responsiveness of parents, as well as the evaluation and interpretation of events by their children (e.g., Gil-Rivas, Holman, & Silver, 2004; Masten & Coatsworth, 1998; Salmon & Bryant, 2002). For children and youth, parents are also their primary sources of social support (Cauce, Reid, Landesman, & Gonzalez, 1990) and coping assistance during a disaster's aftermath (Prinstein et al., 1996).

On the other hand, there are also studies that highlight the buffering effect of parental support and positive family functioning on children's post-disaster reactions (e.g., Gil-Rivas et al., 2004; Kronenberg et al., 2010). That is, if parents display positive emotionality during a disaster's aftermath, their children are more likely to experience greater positive affect (Gil-Rivas et al., 2004). This is consistent with the notion that a disaster's effect on parents and their quality of parenting, is a possible mediating factor in the relationship between a disaster and its potential harm to children (Masten & Osofsky, 2010). Namely, parents can function as a protector for their children, increasing their chances of positive coping and adaptation, while reducing that of maladjustment (e.g., Luthar, Cicchetti, & Becker, 2000; Masten & Coatsworth, 1998).

Finally, there is also evidence to suggest that the post-disaster reactions and adjustment of children and youth are influenced by the quality of their family environment. Family environments faced with long-lasting hardships, such as property damage and income loss, may eventually become irritable and distressing. This in turn, is related to more persistent symptoms in children (McFarlane, 1987). In addition, studies have shown an association between family communication patterns and children's post-disaster responses. For instance, one study showed that the relationship between children's immediate post-disaster distress and their problem behaviours and self-esteem two and a half years later, was strongly mediated by supportive family communication. That is, a mother and child's distress was only associated with later low self-esteem and behaviour problems if there was an absence of supportive communication (Bromet, Connell, & Hough, 1984). A more recent study also found that unhealthy family functioning, including poor affective involvement (i.e., lack of interest in and value of activities and interests of family members) and poor communication, was positively associated with greater child anxiety scores (Kiliç, Özgüven, & Sayil, 2003). Finally, a family's unwillingness to share disaster-related reactions and feelings can interfere with children's post-disaster adjustment. For example, due to fears of upsetting the other

person, parents and children may avoid talking about their experiences. One study found that symptoms of posttraumatic stress were greater in children who perceived their parents/caregivers as reluctant or too upset to talk (Gil-Rivas, Kilmer, Hypes, & Roof, 2010).

Community-level risk factors (including social support). In terms of community support, there is evidence to suggest that such support acts as a protective factor against the harmful effects of disaster stress (Gleser, Green, & Winget, 1981; Murphy, 1988). According to Norris, Baker, Murphy, and Kaniasty (2005), social support can be defined as the “social interactions that provide individuals with actual assistance and embed them into a web of social relationships perceived to be loving, caring and readily available in times of need” (p.16). According to social support literature, there are different types of social support, including emotional reassurance (i.e., expressions of love, care, and concern), tangible support (i.e., help in terms of money, actual assistance, or time), and informational support (i.e., receiving or providing information on what to do and how to do something) (Knoll, Kienle, Bauer, Pfüller, & Luszczynska, 2007; Scholz, Knoll, Roigas, & Gralla, 2008). This social support can either be positive in that people are confident that support will be forthcoming, or negative in that people are perceivably reluctant or unable to listen to one’s worries and concerns (Lepore, Silver, Wortman, & Wayment, 1996).

The idea of social interactions is important due to its strong association with child development. Children are continuously influenced by their interactions with teachers, parents, community members, peers and mass media and it is through this social interaction that they acquire values, beliefs and culturally appropriate norms. This includes acceptable social behaviour and emotional expression. In sum, children and their development are greatly influenced by the functioning of the families and communities that surround them (Shaw et al., 2007).

Following natural disasters, an abundant outpouring of mutual helping is commonly seen whereby victims, witnesses, and professional supporters rally together to rescue and help one another (e.g., Kaniasty & Norris, 1995, 2000; Tyler, 2006). This mutual and collective helping typically results in such things as a sense of unity and altruism, heightened senses of internal solidarity, reduced community conflicts, and heroism

(Bonanno et al., 2010). This communal concern and sacrifice for one another may help alleviate negative post-disaster psychological consequences (Bonanno et al., 2010). Although it is typical for government and relief agencies to offer formalized aid, disaster survivors typically rely more on their indigenous support networks (Barton, 1969). Despite some exceptions (see Kaniasty & Norris, 2009), it is well recognised that disaster-exposed individuals primarily depend on and are supported by their friends, families, and neighbours (Bonanno et al., 2010).

Following disasters, it has been documented that the presence of available and strong social support can reduce the short- and long-term mental health effects of a disaster in both children and adults (Kaniasty, 2005; Pine & Cohen, 2002). This implies that an individual's vulnerability is influenced by social network characteristics (Gibbs & Montagnino, 2007). Specifically, social support can be referred to as either social embeddedness, received social support, or perceived social support. Social embeddedness refers to the size, activeness, and closeness of the social network and several studies have demonstrated its ability to protect individuals from post-disaster distress (e.g., Udwin, Boyle & Yule, 2000; Norris, Perilla, Riad, Kaniasty, & Lavizzo, 1999; Jenkins, 1997). Likewise, studies with adults have shown that received support (i.e. support actually received) is associated with reduced distress (e.g., Kwon, Maruyama, & Morimoto, 2001; Udwin et al., 2000; Elklit, 1997), as is perceived support (i.e. an individual's sense of belongingness and belief in the availability of support) (e.g., Norris & Kaniasty, 1996; Dougall, Hyman & Hayward, 2001; Ullman & Newcomb, 1999). One study has also found that perceived support can act as a mediator between received support and reduced distress (Norris & Kaniasty, 1996). In addition, received support has consistently been found to be positively associated with better post-disaster adjustment in both adults and children (Bonanno, Rennie, & Dekel, 2005; Ruggiero et al., 2009; Norris & Kaniasty, 1996). Ultimately, based on these studies, it is fair to say that social support functions as a promoter of post-disaster psychological wellbeing.

For children and youth in particular, perceived support is especially important for managing disaster-related distress (e.g., Boksaczanin, 2008; Lee, Ha, Kim, & Kwon, 2004). In fact, seven studies investigating PTSD symptoms in hurricane-exposed youth found a negative association between social support and PTSD symptoms (i.e., higher

levels of social support are associated with fewer PTSD symptoms) (Moore & Varela, 2010; Jaycox et al., 2010; Self-Brown, Lai, Thompson, McGill, & Kelley, 2013; Vernberg, La Greca, Silverman, & Prinstein, 1996; La Greca, Silverman, Vernberg, & Prinstein, 1996; Pina et al., 2008; La Greca et al., 2010). Banks & Weems (2014) also found that both concurrently (36-65 months post Hurricane Katrina) and longitudinally (over a six month period), higher peer and family social support was associated with lower psychological distress in hurricane-exposed youth (median age = 14 years). Both sources of social support were also associated with lower levels of depression in both genders.

However, a child's support system is complex and can be disrupted by disasters, particularly because their parents, teachers, friends, and other significant supports may also be negatively affected by the disaster (e.g., Galea, & Resnick, 2005). For instance, one study found that following Hurricane Charley (2004, Florida), both disaster-related stressors and subsequent life stressors (e.g., parental divorce or separation) negatively impacted the children's social support levels (La Greca, Silverman, Lai, & Jaccard, 2010). It has also been found that for children and youth, having a sense of social connectedness (i.e., a sense of belonging, including perceived social support and friendship [Lee & Robbins, 1998]) with their school is an important factor. This is because it promotes academic achievement, supports positive mental health (Shochet, Dadds, Ham, & Montague, 2006), and helps protect against risky behaviours like drinking and smoking (McNeely & Falci, 2004). In addition, received social support has been found to influence teenagers' self-concept (i.e., views and evaluations of self), with adequate social support promoting positive self-concept and inadequate support cultivating negative self-concept (Wu, Jiang, Ho, Duan, & Zhang, 2014). This is important, as self-concept has been found to affect mental health, with positive self-concept (e.g., good self-image, objective self-evaluation, positive self-pleasing) being a significant indicator of psychological health (e.g., Barnett & Hunter, 2012), particularly for adolescents.

It is well documented that following a disaster, perceptions of social support from various sources tend to deteriorate (e.g., Tyler, 2006; Norris & Kaniasty, 1996; Warheit, Zimmerman, Khoury, Vega, & Gill, 1996) and over time, appraisals of social support tend to return to baseline levels (Norris et al., 2005). There are a number of possible

reasons for this. Firstly, disasters tend to remove significant people from one's support network either through death, injury or relocation. For those who remain or return to rebuild, the structure of their community may have been permanently altered due to friends and neighbours moving away (Hutchins & Norris, 1989). It is also possible that post-disaster expectations for support may not coincide with reality. There is a high likelihood that potential supporters are also affected by the disaster and need their own support, meaning that the need may surpass its availability. It is commonly found that even with a substantial influx of external support, a community's need is still not satisfied during the immediate aftermath. Subsequently, people may be left feeling profoundly disappointed because of the delay in provisions of external support from friends, family and other sources (Kaniasty, Norms, & Murrell, 1990; Kasapoğlu, Ecevit, & Ecevit, 2004).

It is also possible that community members may be left feeling frustrated about the way in which post-disaster help was provided and received, particularly due to concerns about such things as diminishing resources, inadequacies in the distribution of aid, and the resultant social climate of competition (Bonanno et al., 2010). One adult study found that within 12 months after a flood, dissatisfaction with the aid, and the presence of interpersonal and community disagreements and animosities, predicted low levels of community cohesion, perceived social support, efficacy of mutual helping behaviour, and beliefs about the compassion of others (Kaniasty, 2012).

Youth are not only recipients of social support, but are also capable of providing such support during a disasters aftermath. That is, they are not only involved in preparedness activities prior to the disaster, but are also instrumental in the consequent recovery and clean-up efforts. Such youth involvement was demonstrated after the 1997 Millennium Flood in Poland, during which the media frequently covered the rescue actions and other post-disaster activities of the young volunteers (Bokszczanin, 2012). Wenger and James (1994) also reported the involvement of youth in terms of providing food to victims and engaging in other emergency activities; however, youth involvement in the preparedness, response, and recovery phases of a disaster has received little attention in past disaster literature (Bokszczanin, 2012). Minimal investigation has been conducted into what youth have contributed in the past (Anderson, 2005; Peek, 2008), and into what motivates them to volunteer (Peek, 2008). This is also the case with investigations

into the role of post-disaster social support provided by youth; however, it is expected that by helping others during and after a disaster, young people would be protected from feelings of inadequacy and helplessness. It could also help them regain some sense of control and self-efficacy, while trying to cope with their own problems and losses (e.g., Jacobs, Vernberg, & Lee, 2008; Margolin et al., 2010).

Media exposure. The most popular news source today is televised media (Morales, 2008), and during a disaster, it is these national news networks that the majority of people turn to for information (Bonanno et al., 2010). Therefore, media reports are valuable ways of increasing people's awareness and knowledge about the effects of a disaster (Mohay & Forbes, 2009); however, it is also common for these news sources to include intensely graphic visual images. Interestingly, the influence of such explicit news images on disaster responses has received little research attention, despite threatening and intrusive images being central to posttraumatic stress (e.g., Holmes, Creswell, & O'Connor, 2007). The limited research that has been done has found that because the media often sensationalises situations, it has adverse effects on its viewers and can increase distress levels (Groome & Soureti, 2004; Hobfoll et al., 2007). As children are particularly susceptible to perceiving personal and societal threat through watching television (Comer, Furr, Beidas, Babyar, & Kendall, 2008), it is recommended that their exposure to disaster-related media reports should be limited (La Greca, Sevin, & Sevin, 2005) and/or parents should be given strategies to help address news coverage with their children (Comer, Furr, Beidas, Weiner, & Kendall, 2008). Such precautions may also help prevent the reactivation of children's fears (Shaw et al., 1995).

Post-Disaster Youth-Focused Supports

The association between disasters and negative psychological outcomes has been well established, as has the identification of particular risk factors for psychological distress. The next concern is how to support teenagers who are exposed to a natural disaster, have one or more risk factors like those mentioned above, and are dealing with the consequent post-disaster psychological impacts (e.g., fear, stress, paranoia, grief, shock). Specific youth-based supports include educating people within the natural social contexts of young people, focusing on the family system of young people or intervening through the school system.

Educating people within the natural social contexts of young people. With regards to educating the natural social contexts of young people, approaches are derived from resilience models and intend to strengthen natural support systems (Harper & Çetin, 2008; McNally, Bryant, & Ehlers, 2003) and community models (Jones, 2008; Omigbodon, 2008). In other words, parents, teachers, religious leaders, doctors, and other care providers receive psychoeducation in that they are identified and trained in strategies aimed to address the post-disaster needs of youth. This imparting of information to families and communities is important for several reasons: a) these individuals are first-responders to a child's physical and psychological needs and therefore, need strategies to reassure the child and to deal with their fear and grief; b) following a widespread disaster, mental health resources may be limited or unavailable and over time the need for such resources will continue to exceed availability (Madrid et al., 2008); c) although immediate or short-term care may be available, continued resources may not be in place (McNally et al., 2003); and d) the stigma associated with mental health services may cause people to rely on family and community support rather than seeking professional help (Madrid et al., 2008; Rahardjo, Wiroatmodjo, & Koeshartono, 2008).

Through psychoeducation individuals are informed about the typical effects of trauma exposure, coping strategies, problem-solving skills, protective and risk factors, bereavement and stress management techniques (Shaw et al., 2007). According to Gard and Ruzek (2006), most disaster victims find psychoeducation beneficial. Psychoeducation also carries little stigma and is flexible in that it can be formally or informally delivered. The goal of psychoeducation is to not only normalize disaster responses and increase individuals' sense of control but to also help families identify social supports and situations requiring further intervention and to promote adaptive coping (Gard & Ruzek, 2006; Young, 2006). In terms of child-based supports, it is important to educate significant adults (e.g., parents, teachers) because of the impact of their reactions on children's disaster responses (Ritchie, Watson, & Friedman, 2006). Such education may include encouragement to keep negative reactions, talk or feelings away from children, reminders that children turn to adults for safety and support, advice about the importance of maintaining at least some of their own routine, and the importance of talking and spending time with others (Ministry of Education [MOE], 2010).

Family system. Providing support through family systems is another valuable approach. Family support is essential for the successful recovery from childhood trauma (Vernberg & Vogel, 1993), with parents being the cornerstone of intervention efforts (Margolin et al., 2010). These family based interventions are based on the assumption that the ability to recover comes from the restorative nature of interpersonal relationships (Wieling & Mittal, 2008). For instance, an individual's resilience is strengthened by the received care and encouragement from others (Margolin et al., 2010). A family's disaster reaction is influenced by both the nature of the stressors and the disaster responses of family members (Shaw et al., 2007). In terms of the latter, there is a potential cycle in which a disaster's effect on a family can impact a child's post-disaster psychological response, while at the same time a child's response can influence the family's post-disaster adaptation. A child's risk of presenting with post-traumatic stress symptoms can be lessened through family and parental support. In fact, research has suggested that the extent of parental support, family conflict and parental overprotectiveness can predict the rates of PTSD in adolescents following a natural disaster (Boksaczanin, 2008).

It is equally true that poor family functioning or parents suffering psychological disorders can predict the presence of higher levels of psychological disorders in children (American Academy of Child and Adolescent Psychiatry (AACAP), 1998). For instance, one study showed that the relationship between a child's exposure to a hurricane and their internal and external post-disaster symptoms (as reported by mothers) was mediated by maternal psychological distress and maternal posttraumatic stress disorder (Spell et al., 2008). In fact, in terms of pre-disaster risk factors, it has been shown that parental psychopathology is the most significant predictor of child psychopathology (Joshi & Lewin, 2004). Therefore, for these reasons, it is important to intervene and support disaster affected children through the family system, especially in terms of improving parental attention and coping abilities (Joshi & Lewin, 2004).

Other reasons for using family-based post-disaster supports include the following: a) generally post-disaster families are stressed, with possibly multiple members showing trauma symptoms; b) there is an association between increased parental conflict and increased post-disaster symptoms in children; c) parents may need help to recognise and understand their child's disaster responses; d) parents are in the best position to

administer and monitor interventions due to their close contact with the child; e) parents are responsible for establishing a child's daily routine; and f) parents may be over-protective of their children due to separation fears, which can impede the child's ability to re-establish normal routines (Margolin et al., 2010).

There are empirically informed manuals or fact sheets available for parents, which provide activities and specific information about how to support and help their children (e.g., Brymer et al., 2006; La Greca et al., 2005). In New Zealand specifically, there are many online support resources that offer these manuals or fact sheets, for instance the Ministry of Health and the Ministry of Education websites. In New Zealand, there is also a wide range of support organisations that offer support resources, such as Skylight, Jigsaw, and Strategies for Kids Information for Parents (S.K.I.P). Parents may require information about their children's emotional reactions to disasters or about the importance of listening and talking to their children about such reactions (Vickerman & Margolin, 2007). Parents may also be taught how to develop strategies with their children to reduce anxiety and distress, develop their children's emotional vocabulary (La Greca et al., 2005), or recreate normal routines and activities (Vernberg & Vogel, 1993).

School system. In addition to family systems, schools provide ideal settings for post-disaster supports. This is because: a) schools are sources of social support; b) large numbers of children can be reached and scheduling and compliance issues can be avoided when interventions are integrated into the curriculum and applied in the classrooms (Whitman, Aldinger, Zhang, & Magner, 2008); c) by employing school-wide interventions, the stigma associated with seeking mental health care is removed; d) relationships between teachers, school personnel and children are already established; e) schools attempt to re-establish normalcy (Dean et al., 2008; La Greca et al., 1995; Wolmer, Laor, & Yazgan, 2003); and f) the familiarity of a school routine is important as it shows students that they can resume their student roles and that normal patterns of life will return (Prinstein et al., 1996; Vernberg & Vogel, 1993).

Literature suggests that establishing a consistent and predictable routine, and returning students to a stable educational setting is key to their recovery (Fothergill & Peek, 2006; Heft, 1993; Maida, Gordon, & Strauss, 1993). Attending school is the norm for children

and it is therefore, not surprising that re-establishing school routines helps to restore their sense of safety, security and predictability; however, it is important that teachers are wary that the disaster-exposed students are likely to be more anxious, irritable and aggressive, hypervigilant of stimuli that trigger disaster-related memories, less able to concentrate on their work and more easily distracted by thoughts (Evans & Oehler-Stinnett, 2006).

Once students return, schools can either resume normal routines as soon as possible or make short- or long-term adjustments for the disaster-exposed youth. For example, some schools following the Gothenburg discothèque fire (Sweden, 1998) made long-term adjustments to their curriculum and attendance rules so to assist the many students who were struggling to cope with the regular demands of school; however, other schools argued that normalising the school setting was an effective way of structuring the grieving youth and therefore, valued the idea of returning to normal routines as soon as possible (Bäck-Wiklund, Johansson, & Sernhede, as cited in Dyregrov, 2004; Rönmark, as cited in Dyregrov, 2004). Ultimately, a balance must be found between returning to regular school routines and incorporating long-term special support and adjustments to account for students who continue to be psychologically affected and find normal school routines too demanding (Dyregrov, 2004).

In the school setting, before addressing the needs of disaster-exposed children, it is essential that the emotional needs of teachers, counsellors and school administrators be addressed. This is because these individuals not only engage in daily interactions with students and their families, but they are commonly affected themselves by the same disaster (Shaw et al., 2007). According to Barrett, Ausbrooks, and Martinez-Cosio (2008), teachers played a critical role in helping students cope with the devastating loss caused by Hurricane Katrina. They also found that children and youth, who viewed their new school environment as supportive, displayed fewer negative emotional symptoms compared to their peers, as well as more positive protective factors. In New Zealand following the Canterbury earthquakes, the Ministry of Education provided numerous online support resources for teachers, including such information as to how to support students. The Ministry of Education also offered post-earthquake workshops that were available to all school personnel, as well as raised their awareness of a service called the

Employee Assistance Programme (EAP). This was a service provided by professional counsellors to support school staff and trustees (Ministry of Education [MOE], 2011).

School-based supports may be integrated into the classroom curriculum and involve teacher training into the delivery of preventive strategies (La Greca et al., 1995; Wolmer et al., 2003). Schools can also provide content-based information through grade-appropriate science curricula. For instance, incorporating geology and social sciences can inform students about what is physically happening scientifically but also the social impacts of a natural disaster. Ronan et al. (2008) conducted a review of studies that showed that children who participated in school-based hazard education programmes, tended to display increased knowledge of hazards, reduced levels of fear, more home adjustments for disaster preparedness, and more realistic perceptions of risk compared to their peers. In New Zealand in particular, one study (Taylor & Moeed, 2013) found that overall, following the 2010 Canterbury earthquake, many schools across New Zealand incorporated the earthquake into their curriculum in some way.

In addition, teachers can use the classroom setting to initiate and mediate supportive group discussions. It can be used to create opportunities for experiences of success, which help the children with recovery and the development of resiliency (Shaw et al., 2007). The classroom can also be used to assist disaster-related emotional coping through drawing and play for younger children or poetry and journal writing for adolescents (Vernberg & Vogel, 1993). According to Mutch (2014a), schools can contribute towards long-term recovery through the emotional processing of experiences, and through activities that acknowledge youths' voices (e.g., illustrating a book of earthquake experiences, directing a documentary interviewing other students about their experiences). Lastly, schools have an important role in disaster preparedness in order to give youth some sense of control and planning (Margolin et al., 2010).

All three youth-based supports mentioned above (i.e. informing social contexts, family- and school-based supports) are empirically informed (Margolin et al., 2010) and based on sufficient theory; however, this does not guarantee that the application of such supports to disaster-exposed teenagers will be successful in reducing psychological distress. That is, the supports have rarely been informed by the teenagers themselves,

while their usefulness has rarely been commented on by the teenagers they are intended to help.

Gaps in the Literature

Despite the high numbers of children and teenagers being affected by disasters each year, their experiences and needs have been historically ‘overlooked’ by researchers and practitioners (Peek, 2008). This inattention to youth is evident in a review of disaster studies, published between 1981 and 2004, which examined the psychosocial consequences of disasters, as well as the magnitude and duration of these effects and particular risk factors. This review stated that 84% of the studies reviewed investigated adult survivors and rescue and recovery workers, while only 16% investigated school-aged youths (a majority [37.2%] of which were sampled via purposive sampling through schools) (Norris & Elrod, 2006). Additionally, the studies reviewed only investigated the psychosocial consequences of disasters (e.g., symptoms meeting the diagnostic criteria for PTSD, depression, anxiety, substance-abuse, physical health and/or somatic concerns). That is, although participants were sampled from general populations (as well as clinical populations), the studies reviewed did not investigate participants’ general psychological wellbeing and/or needs – they only focused on the development of psychopathology and factors that influenced such development.

Disaster-exposed youth are inclusive of both national and international individuals; therefore, in order to fully understand the phenomenon of disaster-exposed youth, it is important to gain insight into the experiences and views of both national and international students; however, although more research is needed into youth in general, there appears to be particularly limited research into the experiences of *international students* enrolled in schools in foreign countries, and how their disaster experiences may differ from domestic students - due to such things as not being in their home country, coming from different cultures, or having family members overseas.

The lack of investigation into disaster-exposed youth may be partly due to prior assumptions that children are not seriously affected by disasters and that their responses are transient (La Greca, Silverman, Vernberg, & Roberts, 2002; La Greca, Silverman, & Wasserstein, 1998). It is also recognised that within disaster preparedness planning and response activities, the needs of children are often overlooked (Peek, 2008). According

to Anderson (2005), this is largely because of their lack of power to voice their concerns, as well as the fact that many disaster professionals lack specific knowledge about child health and/or development. Anderson (2005) also suggests that the lack of research attention is connected to the societal status of children. Specifically, youth do not plan or conduct research, nor do they hold policy positions where they may advocate for the need of such research. Likewise, because youth are given limited opportunities to speak for themselves within policy and research domains, the emphasis is turned to youths' feelings and psychological coping rather than the activities they engage in. That is, a great proportion of the research available on youth and disasters has investigated children in a mental health context (Peek, 2008). In particular, PTSD or related symptoms has received the most research attention (La Greca et al., 2002; Norris et al., 2002a; Evans, & Oehler-Stinnett, 2006; Goenjan et al., 2005).

Although progress has been made in understanding youths' post-disaster psychological, behavioural, and emotional responses (Fothergill & Peek, 2006), more research is needed into their disaster experiences, including their unique vulnerabilities and capacities (Peek, 2008). As suggested by Anderson (2005), the exploration of the specific needs of youth remains largely incomplete. Additional investigation is needed into how youths' vulnerabilities impact on their lives following a disaster event (Wachtendorf et al., 2008), as well the impact of disasters on teenagers' social worlds, including school, individual lives, and family and peer relationships (Fothergill & Peek, 2006). For instance, by asking teenagers' about the needs of family members (e.g., siblings), insight could be gained into how they were coping post-disaster, as well as the impact of disasters on families and/or individual family members.

There is also limited longitudinal research into children's post-disaster experiences and long-term recovery. This is important to consider as disaster effects can persist for long periods of time and inflict ongoing hardships, which can subsequently create prolonged psychological impairment and developmental issues for children, as well as delayed academic progress (Peek, 2008).

Researchers are beginning to identify young people's potential to be active agents during the preparedness (e.g., disaster drills, evacuation planning, risk communication), response (e.g., physical protection, warning others, search and rescue) and recovery

(e.g., peer counselling, aid distribution, caring for other children) phases of a disaster (Peek, 2008); however, more research is needed to investigate young people's capacities and thereby, increase knowledge about their roles in reducing personal and community vulnerability and to inform programmes to more effectively encourage involvement. It would also be worthwhile to explore teenager's perceptions of recovery and what it means to them, an area of disaster research that remains largely unexplored (Anderson, 2005). According to Peek (2008), by incorporating children's voices into decision-making processes, a more holistic community-based recovery plan would be established.

As mentioned previously (under the heading 'Post-Disaster Youth-Focused Supports'), there has been limited research investigating the extent to which teenagers believe post-disaster youth-focused supports have been helpful. By focusing on clinical symptoms, psychiatric categories, and psychological trauma interventions, as has been the case in a majority of past disaster research, it could be assumed that society-at-large and their particular needs, as well as general psychosocial supports, have been neglected (Belfer, 2006; Williams, Alexander, Bolsover, & Bakke, 2008; Jones, 2008). That is, for the research that is available, the focus has primarily been on clinical interventions (e.g., Trauma-Focused Cognitive Behavioural Therapy) rather than psychosocial support.

Youths' voice. Consistent with this gap in the literature, is a lack of investigation into the personal opinions of disaster-exposed youth. It appears that adults primarily make decisions about the help made available to disaster-exposed teenagers in the weeks, months and years following a disaster. That is, there is limited evidence that the supports provided are informed by the teenager's they are intended to help. In fact, within disaster research and compared to adult literature, teenagers themselves have been seldom been asked about their own disaster experiences from their point of view. This lack of input from youth is noteworthy given the findings from a study conducted by Ager, Stark, Akesson, and Boothby (2010). Ager et al. concluded that among thirty specialists in humanitarian work supporting children in crisis settings, 93% agreed that active participation of children and youth in the design, implementation and evaluation of programmes is best practice.

This lack of youth involvement can be seen in a study conducted by Fothergill and Peek (2006), which investigated children's experiences following Hurricane Katrina. This study was beneficial in that it contributed to the limited disaster literature on children's disaster experiences; however, rather than asking the children themselves for their views and opinions, the researchers spoke to important adults in the children's lives (e.g., parents, grandparents, teachers, religious leaders, mental health service providers). In saying this, some research is beginning to emerge where youth have been given the opportunity to voice their post-disaster experiences and concerns through questionnaires and/or interviews. For instance, recent but limited research has been conducted into resilience (e.g., Uttervall, Hultman, Ekerwald, Lindam, & Lundin, 2014), coping strategies (e.g., Jensen et al., 2012), and the impacts of disasters on adolescents (e.g., Dean & Stain, 2007; Babugura, 2008).

Overall, substantial progress has been made in understanding the ways that young people are emotionally vulnerable during and after disasters (e.g., the development of symptoms of depression, anxiety, post-traumatic stress); however, it is still recognised that children and teenagers represent an understudied and underserved group (Anderson, 2005; Jabry, 2002). Thus, more research is needed to improve our understanding of their vulnerability and to consequently inform practices and policies that are intended to support youth (Peek, 2008). Specifically, further research is needed into what teenager's themselves believe they need post-disaster and also, to investigate their opinions about recovery and the supports they did or did not receive. Such information would help ensure that future disaster-exposed youth are more effectively supported and that their unique post-disaster needs are better met. It is this particular gap in the literature that leads to the present study.

CHAPTER THREE: THE PRESENT STUDY

The Canterbury earthquakes (September 2010, February 2011, June 2011) were major traumatic events, whose aftershocks were continuous sources of stress for many people. Consequently, based on the literature, it is likely that a proportion of earthquake-exposed teenagers would have experienced psychological difficulties, such as anxiety, fear, depressive symptoms, sleep difficulties and acute stress symptoms. They would have also experienced particular needs and received some form of support or youth-based intervention (e.g., school-based programmes, parent psychoeducation, classroom activities, earthquake drills), all of which would have likely impacted on their psychological wellbeing.

As demonstrated in Chapter Two, the terms ‘youth’, ‘teenagers’, and ‘adolescents’ are commonly used interchangeably in the literature when referring to individuals aged between 13-19 years old; however, for the purposes of the present study, only the terms ‘teenagers’, ‘young people’ and ‘youth’ will be used when referring to individuals within this particular age group. This is because according to the literature, ‘adolescents’ refers to individuals going through a period of development for which there is no standard age range (American Psychiatric Association, 2002).

Aims

The present study had three main aims: 1) To investigate earthquake-exposed teenagers’ needs from their own perspectives; 2) To investigate the supports received (then and three years later) from a range of support people (e.g., parents, friends, teachers, community members); and 3) To investigate earthquake-exposed teenagers’ views on recovery up until the time of the study (i.e., 2013).

The main objective of this study was to gain deeper insight into teenagers’ experiences of the Canterbury earthquakes, so to uncover information that could be used to inform more effective youth-focused supports following natural disasters, like earthquakes. Using a mixed methods approach, two studies (i.e., Study 1 and Study 2) were conducted to meet the aims of the present study. Study 1 included the administration of a survey (including both open and closed questions) in which the needs of and help received by earthquake-exposed teenagers (aged 16-18 years) were investigated. The

closed data was analysed using descriptive and inferential statistics, while the open data was analysed using content analysis, which indicated the distribution of different themes (Silverman, 2011). While Study 1 provided an overview of teenagers' earthquake experiences and needs, Study 2 included the use of focus groups to extend the enquiry, the questions of which were formulated using the data obtained from Study 1. The focus group data was transcribed and analysed using thematic analysis, which identified relevant themes from participants' comments (Silverman, 2011).

Rationale for Study Approach

The present study sought to gather information from the perspective of earthquake-exposed teenagers, rather than from parent or teacher reports. This is because, as stated by Peek (2008), the only way to fully understand the nature and scope of the vulnerability of disaster-exposed children, is to learn more about disaster experiences from the children themselves. Much of the current disaster research on children involves parent and teacher reports and the administration of pre-coded research instruments to both children and adults. For instance, although Fothergill and Peek (2006) aimed to examine children's experiences following Hurricane Katrina and the strategies they used to help themselves, they did not gather data from the children themselves, but rather only from such people as parents, teachers, religious leaders, and mental health service providers. Although these reports from significant adults are useful in understanding children's experiences, research has suggested that adults consistently underreport emotional problems and distress levels in children (Peek, 2008; Mercuri & Angelique, 2004). Therefore, if the intention was to gain a more valid insight into what disaster-exposed teenagers were actually experiencing, it seemed that asking them directly was essential. Further, although the use of collateral informants is useful and sometimes necessary, these informants should not be used as the sole sources of information (Vogel & Vernberg, 1993).

There were several reasons for selecting this age group (i.e., older teenagers – specifically 16-18 years) as opposed to younger groups. Firstly, compared to younger children, research suggests that older children remember a lot more detail about events or experiences (Ornstein, Gordon, & Larus, 1992; Poole & Lindsay, 1995). This improved memory may be due to developmental changes in the strategies used or increases in processing efficiency (Schneider & Pressley, 2013). Additionally, children

younger than nine or ten years old, are much more susceptible to false memories than are older children, teenagers, and adults (Bruck & Ceci, 1999; Lindberg, Keiffer, & Thomas, 2000). One study conducted by Bahrick, Parker, Fivush, and Levitt (1998), found that following Hurricane Andrew in 1992, older children (4 years old) recalled and elaborated more than younger children (3 years old). They also found that six years later, the older children's memories of the hurricane remained high.

Secondly, teenagers are generally capable of verbally describing and explaining their own views, opinions, motivations, and beliefs (Feinstein, 2010), which was particularly important for the purposes of this research. As the participants would have been around 13-15 years old at the time of the initial 2010 earthquake, the present study was able to investigate the earthquake experiences of the then-younger teenagers, as well as the perhaps continued impact on and recovery of the now-older teenagers. Lastly, compared to children under 13-years old, teenagers have a greater capacity to be pro-active and involved in the recovery process, influencing such individuals as peers, siblings, neighbours and parents (Peek, 2008). Therefore, by targeting earthquake-exposed teenagers, we gained insight into their post-disaster experiences and capacities, as well as explored their ideas about being active participants in a disaster's response and recovery.

Gathering this information from a teenager's perspective may have provided greater insight into important areas of need that adults (e.g., teachers, parents, etc.) had not yet considered. In part, it was for this reason that the present study did not rely solely on a closed-ended questionnaire. The main purpose of this study was to give teenagers a voice; however, by simply relying on a closed-ended questionnaire and according to Boyden (2003), concepts and situations that were important to participants may not have been captured, while circumstances deemed important by the researcher may not have been of real concern to participants. Therefore, a participatory child-centred research method (e.g., focus groups) was required to allow teenagers to voice their opinions, thoughts and interpretations of events. According to Eder and Fingerson (2002), this would then highlight which topics were salient in participants' lives and therefore, which areas the researcher should study. Moreover, this put the researcher in a better position to fully comprehend the scope of teenagers' needs and vulnerabilities following the Canterbury earthquakes.

As mentioned previously, content and thematic analyses were used as the methods of qualitative analysis in Study 1 and 2 respectively. This was because the present study was conducted within an essentialist framework, which is based on the assumption that individuals have their own ideas, understandings and opinions, and it is the researcher's role to elicit or access these (Wilkinson, 2004a). In other words, the essentialist framework reports the respondent's meanings, experiences and reality (Braun & Clarke, 2006), which is consistent with the purposes of this research. Further, thematic analysis is flexible and not tied to any pre-existing theoretical framework, so can be used within an essentialist or realist method (Braun & Clarke, 2006). Lastly, during analysis, this epistemology guides the researcher on how to theorise meaning. For instance, within an essentialist/realist approach, motivations, experience, and meaning can be theorised in a straightforward way. This is because the relationship between meaning and experience and language is assumed to be largely unidirectional (i.e., meaning and experience can be articulated through language) (Potter & Wetherell, 1987; Widdicombe & Wooffitt, 1995).

Research Questions

Study 1 aimed to investigate the following research questions:

Needs

1. Teenagers' personal needs
 - a) What were the needs of earthquake-exposed teenagers in the first two weeks following the earthquake they perceived as being the worst?
 - b) To what extent were the needs of earthquake-exposed teenagers met in the first two weeks?
2. What did teenagers think their siblings needed post-earthquakes?
3. Needs and school deciles
 - a) What was the nature and extent of differences in needs according to school decile?
 - b) To what extent were participants' needs met according to school decile?
4. What was the nature and extent of differences in needs according to gender?

Support

5. What did earthquake-exposed youth receive that was helpful to them and from whom?
 - a) In the first two weeks following their worst earthquake?
 - b) At the time of survey administration (i.e., approximately 34 months following the initial September 2010 earthquake)?
 - c) What was most helpful overall?
6. What did teenagers do to help themselves at the time of survey administration (i.e., approximately 34 months following the initial September 2010 earthquake)
7. What did earthquake-exposed youth receive that was unhelpful for them and from whom?
 - a) In the first two weeks following their worst earthquake?
 - b) At the time of survey administration (i.e., approximately 34 months following the initial September 2010 earthquake)?
 - c) What was the worst thing overall?
8. In the school setting:
 - a) What sorts of help was provided by teachers?
 - b) What sorts of help was provided to participants by other students?
 - c) What sorts of help did participants give to other students?

Study 2 aimed to extend this enquiry and to provide deeper insight into the areas mentioned above, but to also address the following research questions:

1. What impacts did the earthquakes inflict on the teenager's social, school, and family life?
2. What were the teenagers' roles during the response phase?
3. What were the teenagers' views on relocation?
4. What were the teenager's views on the recovery process?
5. What were the teenagers' roles during the rebuild?
6. What were the teenagers' views on the rebuild?
7. How did international students experience the earthquakes and were these experiences different from domestic students?

Potential Implications of the Study

According to Wooding and Raphael (2004), only few post-disaster interventions have been specifically tailored to address the needs of children. It is important that interventions are developmentally appropriate in order to ensure that trauma-affected youth have a higher likelihood of becoming emotionally stable adults (Joshi & Lewin, 2004). Through the present study, it is expected that the information directly obtained from the earthquake-exposed teenagers' could be used to provide more supportive post-disaster environments that offer empirically informed psychosocial supports. That is, the findings could be used to inform youth-focused supports and thus, help them become more tailored to this age group. In addition, by investigating the support received and required by disaster-exposed teenagers following the Canterbury earthquakes, insight could be obtained into the short-term effects of this natural disaster on youth. That is, research has suggested that by looking at the assistance received by youth, better understanding is achieved into their disaster reactions (Prinstein et al., 1996).

According to Peek (2008), children have valuable insights concerning disaster preparedness and response activities; however, many disaster relief agencies, national government organisations, and local governments exclude children from participatory processes. Consequently, most disaster management and relief organisations do not sufficiently consult or represent children (Peek, 2008). Moreover, disasters can damage the physical spaces where children learn, live, and play (i.e. homes, neighbourhoods, schools, parks, and playgrounds); however, adults rarely seek children's opinions about how these spaces should be rebuilt, despite the fact that youth may have particularly creative and practical ideas to offer. Therefore, children's voices need not only to be heard but also listened to and included in decision-making processes, which would allow for more holistic community-based disaster recovery planning (Peek, 2008).

According to Peek (2008), by encouraging participation in disaster preparedness and response activities, providing equitable treatment and personal and community support, and improving access to resources, children's resiliency can be improved and in turn, their vulnerability reduced. This is not only important for the wellbeing of disaster-exposed children, but also for the families and communities who cannot begin the process of recovery if their children are suffering physically and emotionally (Fothergill

& Peek, 2006). Therefore, by developing the resilience of children, we are also increasing that of families and communities. With the frequency and intensity of disaster events increasing around the world, it is all the more relevant and important for disaster researchers to work with and learn from children in order to make their environments safer and their communities more resilient (Peek, 2008).

Ultimately, we do not yet have a complete understanding of youths' unique experiences of disasters, their specific post-disaster needs, nor their views on the help they do or do not receive; however, by directly asking youth and gaining insight into their personal disaster experiences, useful data will be obtained. This data will then be used to expand our understanding, and to improve our ability to support disaster-exposed teenagers and their psychological wellbeing in the weeks, months or even years following a disaster. That is, the knowledge obtained from the present study can potentially provide guidance to policies and programmes, which in turn can help alleviate suffering and hopefully reduce the number of teenagers developing clinically significant psychological disorders. This will not only have implications for clinical practice but also for a wide range of post-disaster support people and groups, such as social workers, schools, parents, disaster support groups and medical personnel.

CHAPTER FOUR: STUDY 1 METHODOLOGY

This chapter provides a detailed account of the methodology used to conduct Study 1 (survey) and to address the research questions outlined in Chapter Three. Specifically, it includes study design, recruitment, participants, the survey, procedure, ethical considerations, and data analysis.

Design

Study 1 employed a qualitative and quantitative cross-sectional survey method to investigate the post-disaster experiences of teenagers who were residents of Christchurch, and were exposed to at least one of the major Canterbury earthquakes between September 2010 and June 2011, as well as subsequent aftershocks up to the time of survey administration (June-September 2013). The survey included both open and closed questions and was administered at one point in time. The primary purpose of the survey was to obtain an overview of the experiences of these disaster-exposed teenagers, specifically regarding their views about their needs and the supports received.

For this reason, a research approach was required that would give earthquake-exposed teenagers an effective means of expressing their opinions and needs. According to the literature, surveys are appropriate for this purpose (Sapsford, 2007). Likewise, survey research is a suitable method for soliciting personal, self-reported information from individuals about themselves (Rea & Parker, 2005). Several advantages of using surveys were noted and included the following: (a) surveys take less participant-time to complete compared to an interview or focus group (Watkins, Meiers, & Visser, 2012), (b) to create, surveys are relatively inexpensive and time-efficient, and therefore save time, and human and financial resources (Kumar, 2010), (c) using an online survey means that there are no geographical boundaries and thus, a potentially large sample of participants can be approached, (d) the researcher exerts little control over the participants and therefore, there are few ethical issues concerning researcher influence (Mitchell & Jolley, 2012), and (e) surveys provide participants with anonymity, which may encourage disclosure of more accurate personal information (Kumar, 2010).

Recruitment

Sampling strategy. Participants were drawn from Christchurch schools that had been selected based on a non-probability purposive sampling strategy. Selection criteria included high schools in the Christchurch City region that went up to and included Year 13 students (i.e., the target population was students aged 16 years and over who would generally be in Years 11 to 13). In addition, to ensure potential coverage of all areas of Christchurch City, schools were selected based on their geographical location relative to the city centre. That is, schools were approached in each geographical quadrant (i.e. northeast, southeast, southwest, and northwest) using the city centre as the reference point (as shown in Figure 1). More than one school was approached in each quadrant in order to increase the likelihood of obtaining an appropriate representation of the particular geographical area. Schools representing a range of decile ratings were also selected in order to ensure the potential inclusion of students from a range of socio-economic statuses (i.e., the lower the decile of a school, the higher the proportion of students from low socio-economic communities). Specifically, as there were no decile 1 schools in the selected Christchurch City area, schools of decile ratings ranging from two to ten were invited to participate. Therefore, a range of schools from across different areas of the Christchurch City area were invited to participate. According to Kumar (2010), this purposive sampling strategy is particularly useful when wanting to



Figure 1. Geographical quadrants of Christchurch city, New Zealand, using the city centre as the reference point.

describe a phenomenon or investigate a topic about which little is known, both of which were relevant to the purposes of this study.

Recruiting schools. Once ethical approval was granted by the Massey University Human Ethics Committee (MUHECN 13/25), selected schools were either mailed or emailed a letter briefly outlining the research and requesting permission to access their students and conduct data collection. As well as this letter to principals, the schools were also sent a copy of the survey and a school consent form. Schools then completed and returned the consent forms to the researcher (either accepting or declining participation) via email or post.

In total, 24 Christchurch schools were invited to participate in Study 1. Initially 18 schools were invited via mail; however an additional six were contacted due to low response rates. With these additional six schools and due to time constraints, emails were used instead of postal mail-outs. Of the 24 schools, six consented and participated in the study. See Table 2 for a description of the consenting schools and Table 3 for a description of the non-consenting schools (including their general location, type, gender [i.e., single-sex or co-educational], authority [i.e., state, integrated, private], decile rating, and total roll for Years 11-13).

Two thirds of the schools invited to participate declined consent. The main reasons for decline, when stated, was because either they had already received research attention regarding the earthquakes and felt their students had done enough, or they felt it was in their students' best interest not to participate as they wanted to move on from the earthquakes. By these schools declining consent, the representativeness of the sample population may have been negatively influenced. This is discussed in more detail in Chapter Nine, under the heading 'Limitations'. Further, as shown in Table 3, two schools (Schools 1 and 3) provided initial consent to the study but were unsuccessful in obtaining survey responses. Specifically, School 1 was emailed the survey link and advertised it in their school newsletter. In contrast, School 3 received hard copies of the survey but did not complete them – it is unknown how these surveys were distributed to students, as this was at the schools discretion. More details about the study procedure are provided under the heading 'Procedure'.

Table 2

Description of Study 1 consenting schools

School	Location	Type of school ¹	Gender	Authority ²	Decile rating ³	Total roll (Years 11-13)
1	East	Secondary	Co-ed	State	2	463
2	East	Secondary with intermediate	Co-ed	Integrated	3	165
3	West	Secondary	Boys	Integrated	9	468
4	West	Secondary	Boys	State	9	749
5	West	Secondary with intermediate	Girls	Private	10	361
6	West	Composite	Girls	Private	10	326

¹ Secondary: Years 9-13; Secondary with intermediate: Years 7-13; Composite: Years 1-13.

² State: Fully state funded; Private: Privately owned and operated; Integrated: Funded partly privately and partly by the state.

³ The lower the decile of a school, the higher the proportion of students from low socio-economic communities.

Table 3

Description of Study 1 non-consenting schools

School	Location	Type of school ¹	Gender	Authority ²	Decile rating ³	Total roll (Years 11-13)
1 ⁴	East	Secondary	Co-ed	State	2	262
2	West	Secondary	Co-ed	State	3	252
3 ⁴	East	Secondary	Co-ed	State	4	193
4	West	Secondary	Co-ed	State	5	361
5	West	Secondary	Co-ed	State	5	1802
6	West	Secondary	Co-ed	State	6	834
7	East	Secondary	Girls	State	6	525
8	East	Secondary	Boys	State	6	675
9	West	Secondary	Co-ed	State	7	584
10	East	Secondary	Girls	Integrated	7	220
11	West	Secondary	Co-ed	State	8	1507
12	West	Secondary	Co-ed	State	8	997
13	West	Secondary with intermediate	Boys	Integrated	8	244
14	West	Composite	Co-ed	Integrated	9	561
15	West	Secondary	Girls	State	9	618
16	West	Secondary with intermediate	Girls	Integrated	9	376
17	West	Composite	Co-ed	Private	10	568
18	West	Secondary	Boys	Private	10	384

¹ Secondary: Years 9-13; Secondary with intermediate: Years 7-13; Composite: Years 1-13.

² State: Fully state funded; Private: Privately owned and operated but must meet Ministry of Education standards to be registered; Integrated: Funded partly privately and partly by the state.

³ The lower the decile of a school, the higher the proportion of students from low socio-economic communities.

⁴ Consent was initially given by these schools but no data were obtained.

Participants

Participants included in the study were English-speaking students, who attended a secondary with intermediate (Years 7-13), secondary (Years 9-13), or composite (Years 1-13) school in the Christchurch City area and had experienced at least one of the major Canterbury earthquakes (i.e., September 2010, February 2011, June 2011). All 398 participating students were between the ages of 16- and 18-years ($M = 16.5$, $SD = 0.61$), meaning that at the time of the initial earthquake in September 2010, they were already teenagers (i.e., 13-15 years). Of these participants, 229 were female and 169 male. The fact that more female students responded to the survey is consistent with previous research, which has found that regardless of the mode of survey administration, females tend to respond to surveys at much higher rates than males (Sax, Gilmartin, & Bryant, 2003; Underwood, Kim, & Matier, 2000). The majority of the participants identified themselves as New Zealand European (70%), and the remainder as Māori (8.9%), Pacific Islander (7.7%), Asian (7.0%), and other ethnicities (5.9%). The percentages add up to more than 100, as participants who identified with more than one ethnic group were included in each group. This ethnic distribution is similar to that of the general New Zealand population, which includes European (74%), Māori (14.9%), Pacific Islander (7.4%), Asian (11.8%), and other (2.9%) (Statistics New Zealand, 2014).

With respect to exclusion criteria, it was recognised that some students might have been experiencing continued post-earthquake problems, or other difficulties, and that at the schools' discretion any student(s) could be excluded from the invitation to participate; however, as it was not compulsory to complete the survey and due to some of the modes of survey distribution (e.g., school intranet - see 'Procedure'), it is unlikely that any one particular student was excluded from participating. However, it is unclear if any of the schools did in fact do this.

Sample size. There were 398 survey responses (211 online responses, 187 hard copies). The exact response rate could not be calculated as the size of the potential pool of participants was unknown, for instance some schools made the survey link available to all Year 11-13 students, while others offered it to single year groups or to particular classes. Therefore, although the total roll for Years 11-13 was known (see Table 1), the exact number of students given the opportunity to participate in the study was not. The sample size was sufficient for appropriate statistical analyses of the quantitative

responses to the survey (for more details, see ‘Quantitative data management and analysis’).

Survey

The survey (see Appendix A) was developed specifically for the study because at the time no measure was available that assessed teenagers’ needs and opinions about the help they received following a natural disaster. The survey was trialled with a group of fifteen Auckland high school students aged 16-17 years and adjustments to the wording of some questions were made according to their feedback. The survey was also read through and approved by a consultant-statistician, after which a few questions were re-worded for the purposes of improved clarity, or added in conjunction with the statistician’s advice (e.g., question 5 about school name, and question 9 regarding relocation were added).

Participants completed a survey including 40 questions, each falling into one of six main categories. The first category included demographic questions such as gender, age, ethnicity, and school name. The second included questions regarding relocation at any time between the September 2010 earthquake and survey administration (June-September 2013). The third referred to students’ personal needs following their worst earthquake, which included open questions as well as Likert scales. The open questions asked participants’ what their first and second most important needs were, while the scales required them to separately rate the extent to which their reported first and second most important needs were met (1 = not at all, 2 = to some extent, 3 = I got quite a bit, 4 = I totally got what I needed). Additional scales also required participants to rate the extent to which their parents, siblings, and friends understood their needs (1 = not at all, 2 = to some extent, 3 = quite a bit, 4 = very much). The fourth category included siblings’ needs, and asked participants to state the age of their siblings and what they thought their siblings (if applicable) needed most during the time since the earthquakes started. The last two categories referred to helpful and unhelpful factors then (i.e., first two weeks post-earthquake) and now (i.e., time of survey administration, June – September 2013) and included a mixture of open and closed questions. Specifically, participants were asked about what they thought was helpful and unhelpful in the two weeks following their worst earthquake, as well as their opinions about what helped them most, and what was the worst thing overall (i.e., since the earthquakes started

through till the time of survey administration). They were also asked about the help they provided to other students in their classes and the help they received at school from others such as teachers and students. The last three questions referred to the time of survey administration (i.e., June - September 2013), and asked participants what others were doing that was helpful and unhelpful for them, as well as what participants were doing for themselves that was helpful.

Two schools requested hard copies of the survey, which were mailed out to them; however, for the most part, the online survey software, SurveyMonkey (SurveyMonkey, 2013), was used to administer the survey and collect the data. As this was an online programme, participants were required to use computers with broadband access to complete the survey online. With the 187 hard copies of the survey, the data was also entered into SurveyMonkey by the researcher. Once completed, SurveyMonkey automatically generated and stored the data on the secured website, www.surveymonkey.com. This website required a username and password in order to gain access to the data and was only accessible to the researcher. Once data collection was completed and the online survey was closed, all data stored on www.surveymonkey.com was transferred to the researcher's computer and stored in password-protected files.

Procedure

Consenting schools were contacted and emailed the link to the online survey. They were also emailed a suggested written introduction from the researcher, which they had the option to send to potential participants along with the survey link. This was with the exception of the two consenting schools that requested hard copies of the survey, which were distributed to classrooms. As it was at the schools' discretion, it is unknown exactly how many classrooms were approached or how many students initially received hard copies.

For the remaining four schools that received the survey link via email, it was their decision as to how they wanted to distribute the link. Consequently, schools either distributed it to their senior students (i.e., Years 11-13) using their intranet networks or other emailing system, sent home the survey link, or had students complete the survey in class.

With the online version, once participating students had either clicked the survey link or entered the link into their web browser, they were taken directly to the information sheet (see Appendix A). Here anonymity and privacy were emphasised as well as the right to contact the researcher with any research-related questions and to withdraw from the research within two weeks of submitting their completed survey. It was also made clear to students that they were under no obligation to consent to the research.

This was followed by a page asking students to indicate if they were 16 years or older (see Appendix A). For ethical reasons concerning required parental consent, those students who selected the under 16 option could not proceed with the survey and were redirected to a separate page thanking them for their time and interest; however, those students who selected the over 16 option were permitted to proceed with the survey, with the understanding that participation implied consent. The survey took approximately 20-30 minutes to complete and once submitted (by clicking 'Done'), students' responses were automatically transferred and stored on the researcher's password protected account on the website, www.surveymonkey.com.

At the end of the survey, the school counsellor and a list of psychological support organisations available through websites and free 0800 phone numbers (including Address the Stress, The Lowdown, Skylight, Chur Chur Bro, and Youthline) were provided for students either experiencing difficulties prior to the survey and/or experiencing psychological discomfort arising from the survey questions. Students were also given the option to be contacted by the researcher if they had any research-related questions.

Once the obtained data had been analysed by the researcher (for more details see 'Analysis' below), a summary of the findings was emailed to participating schools (see Appendix C).

Prize draw. Near the end of the survey, participants were given the option to be entered into a draw to win a \$100 or a \$50 voucher that could be used at any retail store that accepted Visa credit cards. To go into the draw, participants were required to enter their full names and email addresses. Using a random numbers table (Rand Corporation, 1955) the two winners were randomly selected from the total pool of participants who

opted to be in the prize draw. In order to obtain anonymity, only the researcher viewed the names and email addresses of participants, and once the winners had been drawn, all identifying information was deleted.

Ethical Considerations

In Study 1 there were two main ethical concerns that were identified as important by both the researcher and the Massey University Human Ethics Committee. The first referred to the psychological vulnerability of participants due to their age and the idea that the survey could have triggered distressing thoughts or memories about the earthquakes. There were a number of measures that were put in place in order to help manage this concern. Firstly, participants were forewarned that some of the questions might make them feel uncomfortable (e.g., worried, angry); they were also informed that they were under no obligation to complete the survey and could withdraw from the study. In the event that the questions did raise difficulties for them, participants were also encouraged to talk to someone, and the names and contact details of psychological support organisations were provided at the end of the survey.

Secondly, participants were asked to give the name of their school in order to provide a geographical location for their answers; however, it was acknowledged that such information could have potentially threatened the confidentiality of participating schools. Therefore, measures as to how to handle this geographical data were put in place. Firstly, in the presentation of the findings, only general references were made to the geographical location of schools (e.g., east or west) – no other identifiable geographical information was provided. Secondly, rather than isolating schools and comparing say School 1 to School 3, schools were grouped into geographical regions (i.e., east vs. west); however, there were instances where schools of different decile ratings were compared. In these cases, there were more than two schools of each decile within each of the two geographical regions, therefore, making the identity of a particular school indeterminable. Lastly, consenting schools did not know the identity of other schools that participated in the study. Therefore, in the presentation of the findings, when a group reference was made to schools in the eastern region for example, participating schools in that region would not know exactly which schools were being referred to.

Analysis

The survey included both closed and open questions, the responses to which were analysed using quantitative and qualitative data analysis respectively. Details of these analyses are provided below.

Quantitative data management and analysis. The quantitative data from the closed questions were analysed using the Statistical Package for the Social Sciences (SPSS) for Mac (version 21). Each of the dependent variables was analysed using descriptive statistics, including frequencies, percentages, means, and standard deviations. These dependent variables included participants' ratings of the extent to which a) needs were met, b) parents/siblings/friends knew what participants' needed, c) teachers and other students helped participants, and d) participants helped and talked to other students.

A paired samples t-test was used to investigate any significant differences between the extent to which participants' teachers and students helped them. This question included repeated measures, as participants' were being compared with themselves (i.e., the same participant first rated the extent to which their teachers helped them and then the extent to which other students helped them).

For the paired samples t-test and its sample distributions, the normality assumption was violated ($p < 0.001$ Kolmogorov-Smirnov test). This assumption assumed that the difference scores between the two groups were approximately normally distributed. The violation of this assumption is not surprising given the four-category distribution of the sample (i.e., Not at all, To some extent, I got quite a bit, Very much). The frequency distributions of the scores also showed that the magnitudes of the departures from normality were not substantive. In addition, according to the literature, these t-tests are 'robust' to violations of normality, meaning that such violations would have little impact on the validity of the results (Hinton, 2014). Further, the large sample size of Study 1 meant that the sampling distribution would have been close to normal. Therefore, the violations of normality were not considered to be severe enough to warrant intervention.

Again due to the large sample size, statistical tests of skewness were not appropriate due to their excessive sensitivity - therefore, the magnitude of skewness was assessed

visually using graphs. Following such visual analysis, there were no grossly skewed sample distributions. There were also no substantive outliers in the group differences (paired samples t-test).

A one way analysis of variance (ANOVA) was used as an omnibus test to investigate any significant differences between a) the extent to which the top three most commonly reported needs were met, as averaged from participants' individually reported first and second most important needs, b) the extent to which needs were met according to school decile, and c) the extent to which parents, siblings, and friends knew what participants needed. Post-hoc Games-Howell pair-wise comparisons were then used to determine which specific variables were significantly different. Based on statistical assumptions (De Muth, 2006), Games-Howell tests were used to investigate questions a) and b) (stated directly above), as although there were equal variances ($p > 0.05$ Levene test), the sample sizes were unequal, and question c) as the homogeneity of variance assumption was not satisfied ($p < 0.05$).

Lastly, chi square tests of independence were used to determine if there were any significant differences in types of needs according to both school decile and gender. With school deciles (i.e., decile 2, 3, 9 and 10), multiple comparisons were made, therefore increasing the chance of making Type I errors (i.e. rejecting the null hypothesis when it is true) (Goldstein, 2011). It was for this reason that Bonferroni corrections were used to adjust the level of significance by dividing the assumed alpha value, that is the probability of a Type I error (0.05), by the number of comparisons made ($n = 6$) (Goldstein, 2011). Therefore, the 95% confidence interval level was reported using $p = 0.008$.

Power analysis. As mentioned above, a paired samples t-test and one-way analyses of variance (ANOVA) were computed. Therefore, a power analysis was required to determine the appropriate sample size necessary to detect any meaningful differences (Chow, Wang, & Shao, 2003). The required sample size for each statistical test was calculated using the programme G*Power and was based on both the minimum acceptable statistical power of 0.80 (Cohen, 1988) and the intention of finding moderate effect sizes (Cohen's $d = 0.40$ [paired t-tests]; Cohen's $f = 0.25$ [ANOVA]) (Cohen, 1988). A moderate effect size was selected for the following reasons: 1) the sample size

necessary for a small effect size was above 1000 participants, which was an unrealistic target based on the scope of the research, 2) when looking at the majority of groups being compared (e.g., the extent to which participants' believed teachers and parents understood their needs), it was reasonable to assume the size of the differences between the groups would be at least moderate based on theoretical background, and 3) by aiming for moderate effect sizes, large effects were also able to be detected. Based on the power analysis, the minimum sample size required (i.e., to satisfy all of the statistical tests) was 180 participants. The total sample for Study 1 was 398.

Internal consistency. The scaled-items in the survey were not designed to be consistent. Instead they were designed to gather unique pieces of information from participants about different things, for example, the extent to which their most and next most important needs were met, the extent to which their parents, siblings and/or friends understood their needs, the amount of help received from teachers and other students, and the extent to which participants helped and talked to other students. In other words, multiple constructs were measured, as this was consistent with the purpose of the study and the research questions. It is for this reason that tests of internal consistency (i.e., Cronbach's alpha) were not appropriate (Giles, 2013).

Qualitative data management and analysis. For the most part, the qualitative responses obtained from the open questions were brief and therefore, not suitable for thematic analysis (Braun & Clarke, 2006). Instead, qualitative responses were subject to content analysis to identify descriptive themes within the data, and their frequencies (Krippendorff, 2012). According to Krippendorff (2012), content analysis effectively converts qualitative data into a quantitative form via such methods as frequency counts, and outlines themes within the data, which can be validated by different individuals. Content analysis is also an effective means of evaluating people's perceptions of a phenomenon (e.g., Meehan, Vermeer, & Windsor, 2000) and is well suited for psychological inquiries (Krippendorff, 2004; Wilkinson, 2000).

Process. This analysis was inductive, creating categories that were specifically based on content and themes that repeated in the data; however, as the principal researcher had some background knowledge of existing categories for human needs and the types of help students typically receive following natural disasters, the analysis was also

deductive in that it reflected knowledge of these existing categories. In saying this, a conscious effort was made to ensure that themes were created based on the content of participants' reports, rather than any pre-existing framework or theory. In order to facilitate the development of categories, themes regarded as significant were identified and coded (as suggested by Meehan et al., 2000). Each participant's response was coded as a single unit; however, there were instances where responses could be allocated to more than one of the selected categories and were thus coded into all those that were applicable (as suggested by Krippendorff, 2012). The frequency and percentage of responses within each category was computed, with the most commonly occurring responses being viewed as highly relevant (Wilkinson, 2000).

Inter-coder reliability. Inter-coder reliability, i.e., the extent of agreement between two (or more) coders on how to code or categorise aspects of the data (Howitt, 2013), was calculated in order to increase the objectivity of the research, and to ensure robustness and consistency of interpretation. According to the literature, it is common to randomly select a sample of the body of content (i.e., a reliability subsample), as conducting the inter-coder reliability test on all content is impracticable and after a certain point, gives no added value (Mouter & Noordegraaf, 2012). Typically about 10-20% of the full sample is selected (Neuendorf, 2011). Therefore, based on this literature, 20% of the responses from each open survey question were randomly selected and given to two additional coders (i.e., masters- and doctorate-level researchers who were conversant with this technique). Further, the coders were given written definitions of the codes for each question, including examples. Before the coders began and based on guidelines by Riffe, Lacy, and Fico (2005), the researcher also specified the definitions and rules that operationalised and defined the codes.

Kappa statistics were used to measure the observed level of agreement between the three coders. This statistic was used as, unlike percentage agreement, it took into account any agreement that would have been expected by chance (Hallgren, 2012). Kappa was also an appropriate index of inter-rater reliability, as the marginal distributions of the codes did not indicate bias or prevalence problems (Di Eugenis & Glass, 2004). According to Light (1971), the inter-rater reliability for nominal data with three (or more) coders is calculated using the arithmetic mean of kappa. In other words, the kappa for all coder-pairs is calculated and then averaged to give a single index of

inter-rater reliability. Following such analysis, the resulting kappa indicated ‘substantial’ agreement, $\kappa = 0.79$ (Landis & Koch, 1977).

Following investigation, a majority of the disagreements between coders appeared to be due to oversights of more appropriate codes or failed applications of a rule, rather than due to true differences in coders’ perceptions. Therefore, a meeting was conducted with all three coders and these oversights or errors were discussed and appropriately corrected for, with all coders mutually agreeing on the final codes. Following this consultation, the arithmetic mean of kappa was recalculated and found to indicate perfect agreement between all three coders ($\kappa = 1.0$).

CHAPTER FIVE: STUDY 1 RESULTS

This chapter includes a description of the results obtained for Study 1, which answer the research questions as listed in Chapter Three. Descriptive information, detailing relocation and participants' worst earthquake and location when it hit, is first presented. This is followed by results that specifically address research questions regarding needs (i.e., research questions 1 to 4), and include participants' personal needs, participants' perception of their siblings' needs, and needs according to school deciles and gender. Results that address research questions concerning support (or lack of) (i.e., research questions 5 to 8) are then presented. Specifically, results for helpful factors during the first two weeks following the earthquakes are presented, followed by helpful factors from others and things participants' did to help themselves at the time of survey administration (June-September 2013), and finally, the most helpful factors overall. Unhelpful factors are then presented, including two weeks following the earthquakes and at the time of survey administration (June-September 2013), as well as worst things overall. The focus then shifts to support persons, specifically parents, siblings, friends, and others, as well as support in the school setting. The latter includes help received from teachers and other students and help provided to other students by participants. Lastly, gender differences in helping and talking to other students are addressed. For each of these areas and sub-areas mentioned above, the relevant research question is noted.

In order to answer these research questions, and where applicable, quantitative and qualitative data have been integrated under each heading. With regards to the qualitative data (i.e., written text), responses to survey questions were coded according to categories and frequencies, the results of which are presented in tabular form and include the coding scheme for each question and the frequency of response categories. It is important to note that in response to open questions, some participants provided responses that fitted into more than one category. Therefore, the frequencies and percentages refer to the total number of responses within each category, rather than the total number of respondents to each survey question. In addition, in most cases, only the main categories under each question are included in the tables (i.e., only those categories that obtained percentages in the double digits). This is consistent with content analysis and the idea that the most commonly occurring responses are the most relevant

(Wilkinson, 2000). For a full list of all the code categories, including frequencies, code descriptions and examples, please see Appendix B. Several graphs are also included to illustrate the distribution of needs and helpful factors according to different groups (i.e., school deciles, gender, support-people).

With regards to quantitative data, the results of the descriptive statistics, paired sample t-test, and one-way ANOVAs are also presented, and include the means, standard deviations, and p-values. The results of the chi square tests of independence are also included. All statistical tests carried out were two-tailed and the alpha level was set as 0.05, unless otherwise specified.

Before being questioned about their needs, participants responded to questions regarding relocation within or outside of Christchurch, as well as their opinions about which earthquake was worst for them and their location when it hit. These findings are outlined below.

Relocation

A majority of participants (63%) did not shift house following the earthquakes and, likewise, a majority of participants did not leave Christchurch (77%) (see Table 4); however, for those who did move outside of Christchurch, the average duration before returning was 4 months.

Table 4

Frequencies and percentages of participants who either moved within or outside of Christchurch at any time following the initial September 2010 earthquake until June-September 2013

	Moved within		Moved outside	
	Frequency	%	Frequency	%
Yes	143	37	87	23
No	241	63	295	77
Total	384	100	382	100

Worst Earthquake and Location When It Hit

The February 2011 earthquake was by far the worst for most participants, and in terms of location, participants were most likely on school grounds at the time it hit (see Appendix B for code categories, including frequencies and percentages, of participants' worst earthquake and location when it hit).

Needs

Personal needs: Research question 1a - What were the needs of earthquake-exposed teenagers in the first two weeks following the earthquake they perceived as being the worst? During the first two weeks the three most important needs for earthquake-exposed teenagers were physical basics, social support, and psychological needs. Table 5 shows the coding schemes (including descriptions and examples), and the frequencies and percentages of response categories for participants' most reported needs.

Table 5

Coding scheme and frequency of the most common response categories for participants' reported needs in the first two weeks following their worst earthquake

Code	Description	Example	Frequency	% of total sample
Physical basics	Food, water, warmth, sleep, shelter, electricity, plumbing.	"The thing I needed most was a warm blanket and a warm house to stay in."	391	42
Social support	Support from others, especially family and friends – talking, company, comfort, understanding, physical support (e.g., clean up), general support.	"Support from my family, for them to understand how hard it was coping."	187	20
Psychological needs	Sense of security and stability, mental health support, space and time to relax, peace of mind, receiving forms of general or specified reassurance (including the reassurance of the safety of loved ones).	"To relax and not be stressed out." "Stability and a plan of action." "Time by myself to process what I had seen."	106	12
Other codes (see Appendix B)			242	26
Total			926	100

Extent to which personal needs were met: Research question 1b - To what extent were the needs of earthquake-exposed teenagers met in the first two weeks?

A majority of responses indicated that participants' reported first and second most important needs were met 'to some extent' (35%) in the first two weeks, while the least number of responses indicated that these needs were not met at all (12%). Table 6 summarises the frequencies and percentages of scores obtained by participants on rating scales ranging from 1 (not at all) to 4 (I totally got what I needed).

Table 6

Frequencies and percentages of the extent to which participants' reported needs were met in the first two weeks

	Extent to which needs were met ¹	
	Frequency	%
Not at all	76	12
To some extent	225	35
I got quite a bit	176	27
I totally got what I needed	171	26
Total	648	100

¹Scale: 1 = Not at all, 2 = To some extent, 3 = I got quite a bit, 4 = I totally got what I needed

A one-way ANOVA was conducted to investigate whether there were any significant differences between the extent to which participants' three most important needs (i.e., physical basics, social support, psychological needs) were met. The results showed that, overall, there were significant differences ($F_{(2, 325)} = 14.49, p < 0.001$). The results of the Post Hoc Games-Howell tests indicated that participants' need for social support ($M = 3.22, SD = 0.94$) was met to a significantly greater extent than their need for physical basics ($M = 2.60, SD = 0.90, p < 0.001$) and psychological needs ($M = 2.67, SD = 1.10, p = 0.004$). There was no significant difference between the extent to which physical basics and psychological needs were met ($p > 0.05$) (see Table 7).

Table 7

Mean differences between participants' ratings of the extent to which the three most common needs (physical basics, psychological needs, social support) were met, including significance values

Needs		Mean difference	p-value
Physical Basics	Psychological Needs	-.07	.907
Social Support	Physical Basics	.62	.000**
Social Support	Psychological Needs	.56	.004*

* $p < 0.05$; ** $p < 0.001$

Siblings' needs: Research question 2 - What did teenagers think their siblings needed post-earthquakes? According to participants' reports, they perceived social support (40%) as being their siblings' most important need, followed by psychological needs (18%), and then physical basics (16%). The average age of participants' siblings was 15.7 years. The frequency and percentage of each response category for siblings' needs is shown in Appendix B, along with the coding schemes, code descriptions and examples.

Needs and school deciles: Research question 3a - What was the nature and extent of differences in needs according to school decile? Figure 2 shows the distribution of the top three most important needs according to school decile. Of the decile 2 responses, a majority of participants indicated physical basics as the most important need (77%), followed by social support (13%) and then psychological needs (10%). A similar pattern was found in decile 3 and 9 responses with physical basics being reported the most (51% and 53% respectively), followed by social support (36% and 23% respectively) and psychological needs (13% and 23% respectively); however, the distribution of decile 10 responses differed from the other deciles, with most responses reporting social support as their greatest need (51%), then psychological needs (30%), and finally physical basics (19%).

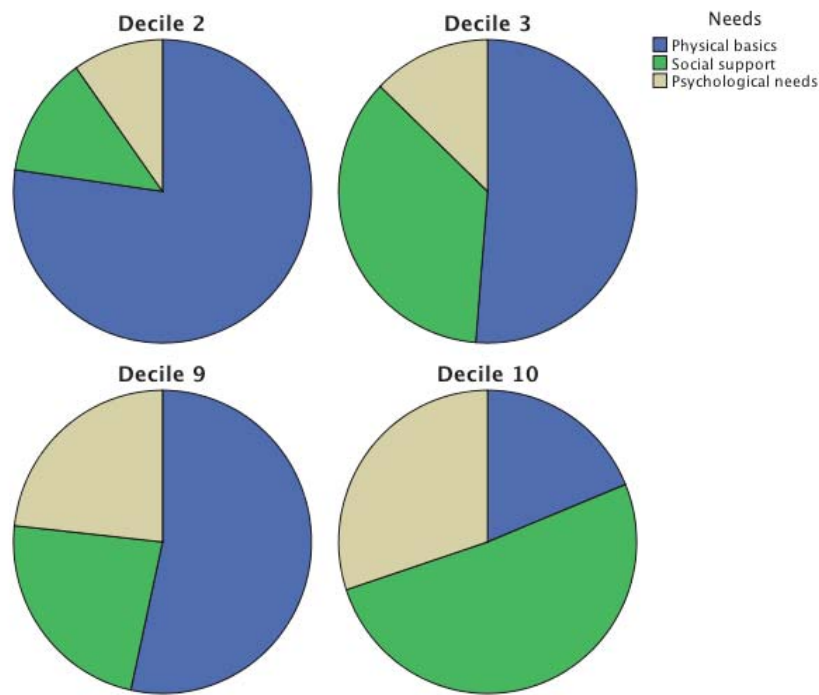


Figure 2. Distribution of most important needs according to school decile.

Chi square tests of independence were conducted to determine if these differences in needs according to decile were statistically significant. With physical basics, the results showed that there were significant differences in the frequency of reports between each of the school deciles ($X^2(3, N=562) = 302.83, p < 0.001$). Following further investigation, these significant differences were between decile 2 and all of the remaining school deciles ($p < 0.001$). With the frequency of reports concerning social support, there were again significant differences between each of the school deciles ($X^2(3, N=562) = 106.65, p < 0.001$); however, this is with the exception of decile 9 and deciles 2 and 3, where no significant differences were found ($p > 0.008$ Bonferroni correction applied). Lastly, with psychological needs, there were significant differences in the frequency of reports between each of the school deciles ($X^2(3, N=562) = 54.69, p < 0.001$), with the exception of decile 9 and deciles 2 and 3, where no significant differences were found ($p > 0.008$ Bonferroni correction applied).

School deciles and extent to which needs were met: Research question 3b – To what extent were participants' needs met according to school decile? Table 8 shows the

mean ratings and standard deviations for the extent to which participants' reported needs were met according to school decile. On average, the needs of all the school deciles were only met to 'some extent'.

Table 8

Frequency, mean ratings and standard deviations (SD) of the extent to which reported

School decile	Extent to which needs were met ¹		
	Frequency	Mean	SD
Decile 2	159	2.59	.84
Decile 3	23	2.85	.92
Decile 9	49	2.71	.84
Decile 10	111	2.79	.83
Total	342	2.68	.84

needs were met according to school decile.

¹Scale: 1 = Not at all, 2 = To some extent, 3 = I got quite a bit, 4 = I totally got what I needed

The frequency of responses by each school decile differed with deciles 2 and 10 obtaining higher frequencies compared to deciles 3 and 9. This is expected to be due to differences in survey administration (i.e., hard copies [decile 2] or completing the online survey in class [decile 10] compared to advertising it on the school's intranet [decile 3] or sending home the link [decile 9]), and the school's encouragement to complete the survey.

A one-way ANOVA was conducted to investigate whether there were any significant differences between school decile and the extent to which participants' needs were met. The results showed that, overall, there were no significant differences between school deciles ($F_{(3, 338)} = 1.521, p > 0.05$).

Gender differences in the three most important needs: Research question 4 - What was the nature and extent of differences in needs according to gender? For the three most important needs, Figure 3 shows the distribution of the three most commonly reported needs according to gender. As illustrated, a majority of male participants reported physical basics as their most important need (67%), followed by social support (24%), and then psychological needs (9%). Although the distribution of female responses was similar for the three most commonly reported needs (i.e. physical basics,

social support, psychological needs), Figure 3 clearly shows that more male participants reported a need for physical basics compared to female participants (67% versus 44%), while more female participants reported social support (42% versus 24%) and psychological needs (13% versus 9%).

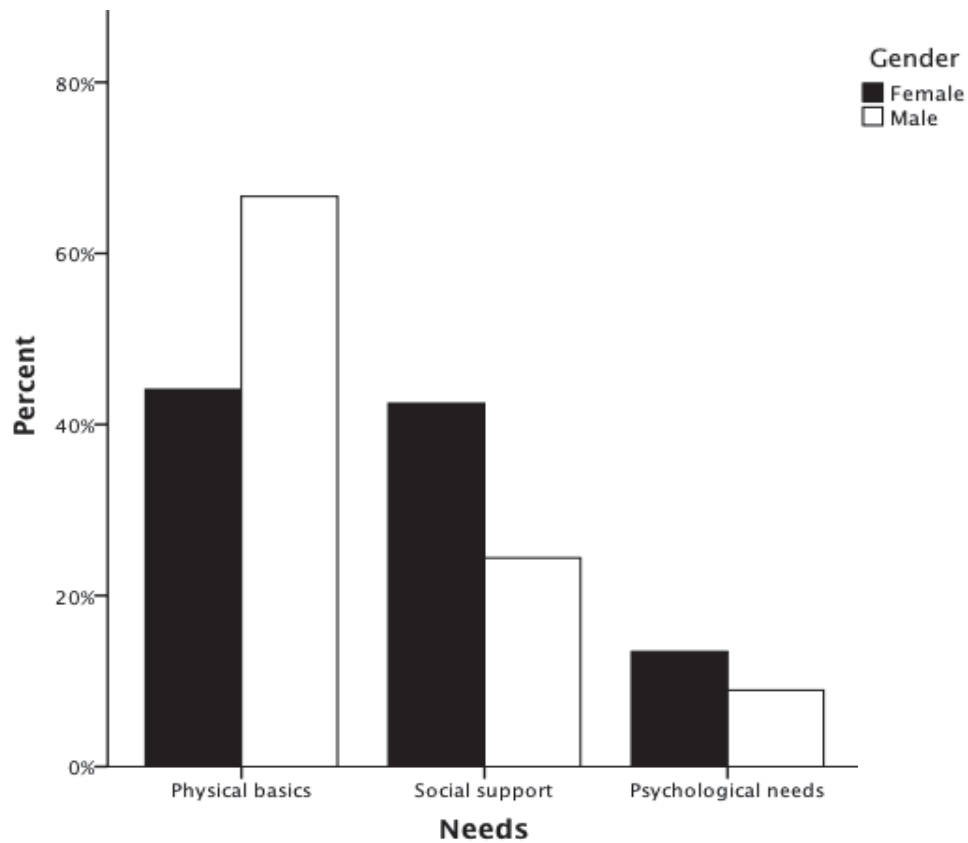


Figure 3. Distribution of most important needs according to gender.

Chi square tests of independence were conducted to determine if these gender differences were statistically significant. In cases where the expected frequency was less than 5 in any cell, Yates' correction was employed (Yates, 1934). The results showed that females reported needs for social support significantly more than males did ($X^2(1, N=342) = 6.33, p = 0.012$), while males reported a need for physical basics significantly more than females ($X^2(1, N=342) = 22.34, p < 0.001$). There were no significant gender differences in reports concerning psychological needs ($p > 0.05$).

Support

Immediate helpful factors: Research question 5a - What did teenagers receive that was helpful to them in the first two weeks following their worst earthquake? Social

support and physical basics were the most important types of help received in the first two weeks post-disaster. The frequency of response categories for immediate helpful factors (i.e., those in the first two weeks following participants' worst earthquake) can be found in Table 9, along with the coding schemes, code descriptions and examples.

Table 9

Coding scheme and frequencies for the most common helpful factors in the first two weeks following participants' worst earthquake

Code	Description	Example	Frequency	% of total sample
Social support	Support from friends, family, community (e.g., neighbours), physical support (i.e., clean up, place to stay), general support (e.g., understanding, being helpful, company).	"Mum talked to me a lot about the earthquakes and ensured I was okay." "Support from our neighbours, we all looked after each other."	139	34
Physical basics	Food, petrol, water, warmth, sleep, shelter, electricity, plumbing.	"The council brought over toilets and port-a-loos to our house."	114	27
Educational support	School support in general, acts of support from school, support with schoolwork, going back to school, having time off school.	"School community was fantastic! Everyone was understanding and helpful." "Time off school – was good as became mentally prepared to come back."	42	10
Other codes (see Appendix B)			120	29
Total			415	100

Helpful Factors from others at the time of survey administration (June-September 2013): Research question 5b - What did teenagers receive that was helpful to them approximately 34 months following the initial 2010 earthquake? Overall, participants reported the rebuild of Christchurch, support, and others getting on with life as the most important help they received at the time of survey administration (June-September 2013, i.e., approximately 34 months post-disaster). The code schemes and

frequencies of the main response categories for helpful factors at the time of survey administration are shown in Table 10.

Table 10

Coding scheme and frequencies of the most common helpful things received at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	% of total sample
Rebuild of Christchurch	Factors associated with the rebuild of Christchurch, including insurance.	“The gap fillers, knocking down buildings so that we can move on and start building new ones.”	41	22
Support	General support, understanding, community support, general support from school and help with schoolwork.	“People are always asking how I feel and how I am doing and if I still need any help.”	39	21
Getting on with life	Others moving on with their lives.	“Getting on with life and normality.”	34	18
Other codes (see Appendix B)			71	39
Total			185	100

Most helpful factors overall: Research question 5c - What was the most helpful thing for teenagers overall? With most helpful things overall (i.e., including and beyond the initial two weeks post-disaster through till June-September 2013), social support was by the far the most important help received. See Table 11 for the code description, examples and frequency of this response category.

Table 11

Coding scheme and frequency for the most helpful factor overall to date

Code	Description	Example	Frequency	%
Social support	Support from friends, family, community (e.g., neighbours), physical support (i.e., clean up, place to stay), general support (e.g., understanding, being helpful, company).	“People being understanding of circumstances.” “Just having company.”	173	52

Helpful factors for the self: Research question 6 - What did teenagers do to help themselves at approximately 34 months following the initial 2010 earthquake? In terms of helping themselves nearly three years following the initial earthquake, the idea of moving on and thinking positively were by far the most important for participants. The code schemes and frequencies of the main response categories are shown in Table 12.

Table 12

Coding scheme and frequencies of the most common helpful things participants were doing for themselves at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	% of total sample
Moving on	Moving on with their lives and returning to normality, positive/future oriented thinking.	“Making the most out of a bad situation.” “Getting on with life and my goals. Living as normally as I can and looking forward to my future.”	73	35
Thought avoidance	Not thinking about the earthquakes, trying to forget it happened.	“Just forgetting about it all.” “Not thinking too much about it.”	21	10
Education	Focusing on education	“Focusing more on school.”	21	10
Other codes (see Appendix B)			92	45
Total			207	100

Immediate unhelpful factors: Research question 7a - What did teenagers receive that was unhelpful for them during the first two weeks following their worst earthquake? In the first two weeks post-disaster, the lack of physical basics and certain comments and/or actions of other people (e.g., asking too many questions, lack of awareness/understanding, looting) were particularly unhelpful for participants. Table 13 shows the code schemes and frequency of response categories for these and other unhelpful factors.

Table 13

Coding scheme and frequencies for the most common unhelpful factors in the first two weeks following participants' worst earthquake

Code	Description	Example	Frequency	% of total sample
Lack of physical basics	Lack of food, water, sleep, shelter, electricity, plumbing.	"Intermittent power and not being able to use the toilet much."	34	15
Comments/ actions of others	Unhelpful actions and comments made by others, including questioning and over talking about the earthquakes, EQC and a lack of understanding.	"Lack of awareness from others about the extent of the quakes on some people."	34	15
Earthquake/ Aftershocks	The earthquakes themselves and/or the consequent aftershocks	"The aftershocks because you never knew if it was going to get bigger or not."	28	12
School factors	Receiving or missing schoolwork during closures, having to go to school or missing it, moving or sharing a school, school damages, impact on education.	"They expected us to do school work by email when we were at home. I was in no state of mind and needed help."	23	10
Other codes (see Appendix B)			108	48
Total			227	100

Unhelpful factors at the time of survey administration (June-September 2013):

Research question 7b - What did teenagers receive that was unhelpful for them at approximately 34 months following the initial 2010 earthquake? Unhelpful factors relating to the rebuild of Christchurch were the most frequently reported by participants, followed by the comments and/or actions of other people, and talking about the earthquakes. It is important to note that in this 'unhelpful' context, participants reported the unhelpfulness of the rebuild primarily in terms of its slow pace; however, in the previously outlined 'helpful' context, participants mainly referred to the helpfulness of the rebuild in terms of areas and buildings being repaired and rebuilt. The frequencies of the response categories for unhelpful factors nearly three years following the initial 2010 earthquake are shown in Table 14, along with the coding schemes, including code descriptions and examples.

Table 14

Coding scheme, frequencies and percentages of the most common unhelpful things at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	% of total sample
Rebuild factors	Unhelpful factors related to the rebuild of Christchurch, including the lack of youth involvement, factors referring to EQC and the government.	“Working very slowly to rebuild city.” “That the focus is on building a new city and that they’re not noticing the people in need...”	55	35
Other people	Unhelpful comments and actions made by other people, people over-reacting or not moving on, or stressed parents.	“Over-reacting to small earthquakes and getting everyone worked up.” “People trying to place the blame for events onto one person.”	40	25
Talking	Others continuing to talk about the earthquakes, or things related to them.	“Bringing it up, it’s a constant reminder.”	35	22
Other codes (see Appendix B)			29	18
Total			159	100

Worst things overall: Research question 7c - What was the worst thing for teenagers overall? The worst things overall for participants were the physical consequences of the earthquakes, followed by the psychological factors caused by them. Table 15 shows the code schemes and frequency of response categories for these two codes.

Table 15

Coding scheme and frequencies for the most common worst things overall to date

Code	Description	Example	Frequency	% of total sample
Physical consequences	Liquefaction, flooding, damages to the city, home, and school.	“The damage to the city feels lost and almost abandoned.”	77	19
Psychological factors	The uncertainty, lack of support, understanding, and stability/security, the mental impact of the earthquakes (e.g. being scared, paranoid, stressed, shocked).	“Feeling unsafe, that any minute another earthquake could happen and I’m not by my family.” “Not getting the medical or psychological help I needed post-quake...”	66	17
Other codes (see Appendix B)			249	64
Total			392	100

Support Figures

Participants were questioned about help from support figures following the earthquakes, including parents, siblings, friends, and others. They were also asked specifically about the school setting and the help they received from teachers and other students, as well as the help they provided other students in their class.

Teenager’s perceptions of others’ awareness of their needs: Research question 5 - What did earthquake-exposed youth receive that was helpful to them and from whom? Research question 7 - What did earthquake-exposed youth receive that was unhelpful for them and from whom?). Of the ratings for parents’ awareness of needs, a majority of responses fell into the ‘very much’ category (36%), while for siblings and friends, most responses fell into the ‘quite a bit’ category (30% and 32% respectively). These findings address research questions 5 and 7 as it is expected that high ratings (i.e., feelings of being understood) would qualify as helpful factors, while low ratings would signal unhelpful factors. Table 16 displays the frequencies and percentages of scores obtained by participants on scales rating the extent to which parents, siblings, and friends knew their needs. The fact that 8% of participants did not believe that their parents knew what they needed at all holds some clinical relevance, and is discussed in the following chapter under the heading ‘Parents’.

Table 16

Frequencies and percentages of participants' ratings of the extent to which parents, siblings, and friends knew what they needed

Rating ¹	Parents		Siblings		Friends	
	Frequency	%	Frequency	%	Frequency	%
Not at all	26	8	57	19	40	13
To some extent	87	25	84	28	97	31
Quite a bit	105	31	89	30	98	32
Very much	125	36	69	23	75	24
Total	343	100	299	100	310	100
N/A	-	-	40	11.80	29	8.60

¹Scale: 1 = Not at all, 2 = To some extent, 3 = Quite a bit, 4 = Very much

A one-way ANOVA was conducted to investigate whether these agreement ratings were significantly different. The results showed that, overall, there were significant differences ($F_{2, 1018} = 33.182, p < 0.001$), with the results of the Post Hoc Games-Howell tests (see Table 17) showing that the mean agreement rating for parents/caregivers ($M = 2.96, SD = 0.96$) was significantly higher than those for siblings ($M = 2.27, SD = 1.29, p < 0.001$) and friends ($M = 2.44, SD = 1.20, p < 0.001$). This suggests that participants believed that their parents/caregivers understood their needs to a greater extent than their siblings and friends. There were no significant differences between the mean agreement ratings for siblings and friends ($p > 0.05$).

Table 17

Mean differences between participant's ratings for the extent to which parents, siblings, and friends knew their needs, including significance values

Groups of people		Mean difference	p-value
Parents	Siblings	.69	.000**
Parents	Friends	.52	.000**
Siblings	Friends	-.18	.153

** $p < 0.001$

Other types of people and what they did to help: Research question 5 - What did teenagers receive that was helpful to them and from whom? Participants were asked if anyone else helped them through the worst times and if so, who they were and what they talked about or did. These responses were coded into categories and the

frequencies were calculated. Family members (58%) and friends (20%) were the most frequently reported support-people for teenagers, and the most common helpful acts were being supportive (31%), doing physical acts (18%) and talking/listening (12%). See Appendix B for a full list of codes for both questions (i.e., ‘Who else helped?’ and ‘What did they talk about or do?’), including code descriptions, examples, frequencies and percentages. It is important to note the relatively low frequency of responses to both these questions. This may have been due to the wording of the question (i.e., who *else* helped?), and the possibility that participants believed they had already identified everyone who had helped them.

Figure 4 shows the groups of people who reportedly helped participants (in order of frequency), and the types of help they provided. As shown, family members were not only the most frequently reported support persons, but also provided help with all of the 11 categories identified in the content analysis. Family members primarily provided support (44%) and/or carried out helpful physical actions (e.g., provided a place to stay, helped clean up) (24%). Friends were the next most frequently reported, primarily talking or listening (36%) and/or being supportive by, for example, being understanding and positive, and checking in (32%). Less commonly mentioned were counsellors who

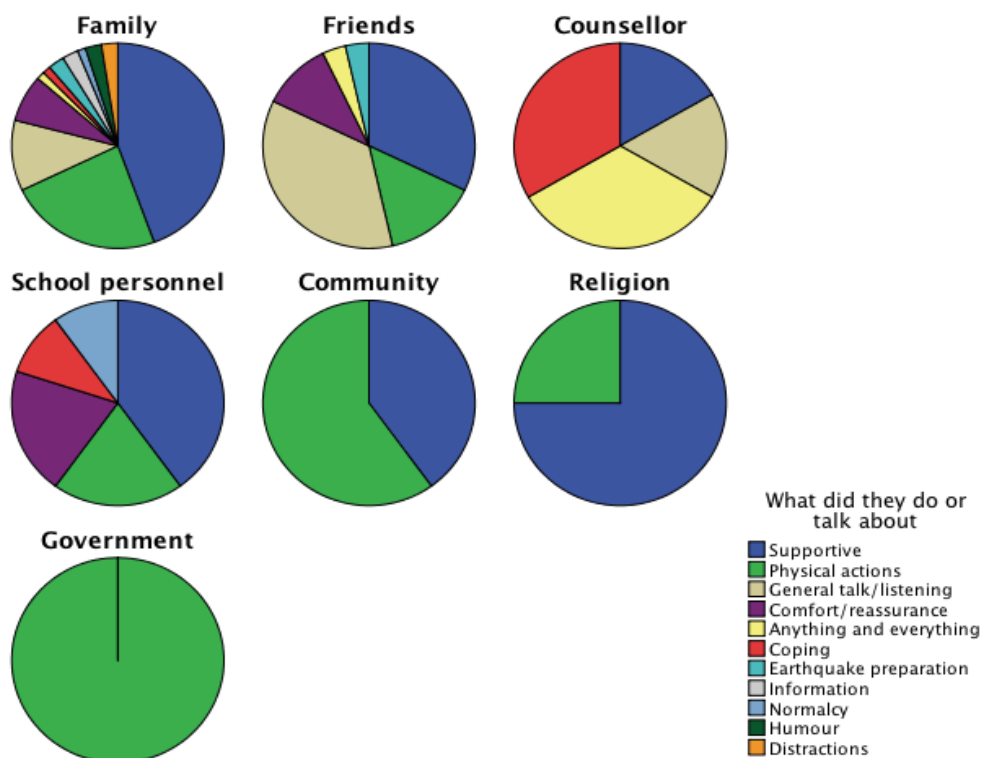


Figure 4. Distribution of helpful things done or talked about by different groups of support-people.

discussed coping with participants (33%), or as participants described, spoke about “anything and everything” (33%). School personnel and religious figures primarily provided support (e.g., were understanding, gave explanations) (40% and 75% respectively), and the community and government (including the army) mainly assisted with physical actions (e.g., offering basics like food and water) (60% and 100% respectively).

School setting. Several questions were specifically about support in the school setting, including both the giving and receiving of support.

Help from teachers and other students: Research question 8a - In the school setting, what sorts of help was provided by teachers? Research question 8b - What sorts of help was provided by other students? Concerning help from teachers, a majority of participant responses indicated that they received ‘quite a bit’ of help from their teachers (34%); however concerning help from other students, most participants reported that other students only helped them to ‘some extent’ (44%) (see Table 18).

Table 18

Frequencies and percentages of participants’ ratings of the extent to which they received help from teachers and other students

	Help from teachers ¹		Help from other students ¹	
	Frequency	%	Frequency	%
Not at all	70	21	88	27
To some extent	107	32	141	44
I got quite a bit	114	34	70	22
Very much	41	12	24	7
Total	332	100%	323	100%

¹Scale: 1 = Not at all, 2 = To some extent, 3 = Quite a bit, 4 = Very much

The mean rating for teachers ($M = 2.37$) was greater than that produced for other students ($M = 2.08$). A paired samples t-test was conducted to determine if these mean rating scores were significantly different. The results showed that the mean rating score for teachers ($M = 2.37$, $SD = 0.946$) was significantly higher than that for other students ($M = 2.08$, $SD = 0.871$), ($t_{(317)} = 5.166$, $p < 0.001$). This suggests that compared to other

students in their classes, participants thought that teachers were of greater help to them following the earthquakes.

Following each of these rating questions, participants were asked to elaborate on how teachers and/or other students helped them (if they did). The most frequently reported help received from teachers was support (e.g., understanding, checking in, providing reassurance) (58%), followed by discussions about earthquake-related factors (e.g., facts, personal stories) (16%), and preparing students for future earthquakes/aftershocks (11%). With other students, the most common help received by participants was talking and listening (32%), support (e.g., understanding) (29%), and physical acts (e.g., hanging out, offering a place to stay) (17%). The coding schemes, frequencies and percentages of the types of help from teachers and other students are shown in Appendix B.

Helping and talking to other students: Research question 8b - In the school setting, what sorts of help was provided to participants by other students? Research question 8c - What sorts of help did participants give to other students? Helping other students referred to whether participants helped others in their class (research question 8c), while talking referred to whether they talked to other students about how they were affected by the earthquakes. The latter addresses research question 8b as it is expected that being able to talk to other students about how they were affected by the earthquakes would have been helpful for participants. The mean ratings for both helping and talking to other students were very similar, with ‘to some extent’ being the most frequent response (39% and 43% respectively) and ‘very much’ being the least (7% and 12% respectively) (see Table 19).

Table 19

Frequencies, percentages, means and standard deviations (SD) for participant's ratings of the extent to which they helped and talked to other students

	Helping other students ¹		Talking to other students ¹	
	Frequency	%	Frequency	%
Not at all	79	24	81	25
To some extent	128	39	142	43
I got quite a bit	94	29	68	21
Very much	24	7	39	12
Total	325	100	330	100
	Mean	SD	Mean	SD
	2.19	0.89	2.20	0.94

¹Scale: 1 = Not at all, 2 = To some extent, 3 = Quite a bit, 4 = Very much

Lastly, if participants indicated that they helped others in their class, they were then asked to elaborate and explain how they helped them. The most common help provided was support (e.g., being understand, contacting them, just being there) (39%), followed by talking and listening (29%), and physical acts (e.g., spending time with them, helping with schoolwork) (17%). See Appendix B for all of the coding schemes, frequencies and percentages of responses.

Following the analysis of participants' quantitative and qualitative responses to all survey questions (as presented in this chapter), nine overall themes were identified based on the most commonly reported codes across the entire dataset. This was because, as according to Wilkinson (2000), the most commonly occurring responses are viewed as being highly relevant (see Appendix B for a full list of all the code schemes for each survey question). These nine themes include physical basics, secondary stressors, social support, psychological impact, coping, school, support figures, gender, and recovery, and are discussed in detail in the following chapter.

CHAPTER SIX: STUDY 1 DISCUSSION

This chapter includes a discussion of the findings from Study 1, as well as the implications of these findings. The aims of Study 1 were to provide an overview of teenagers' experiences of the Canterbury earthquakes, specifically regarding teenagers' post-earthquake needs from their own perspectives, and the supports they received (both in the weeks and months post-disaster, and up till the time of survey administration – approximately 34 months post-disaster) from such people as friends, parents, teachers, and other students.

It is important to highlight the relatively low frequency of responses to questions concerning helpful and unhelpful factors at the time of survey administration. There are a couple of possible reasons for this including: a) at the time of survey administration, some participants may have no longer felt affected by the earthquakes and thought the questions were not relevant to them; and b) the questions were in the final section of the survey, at which point participants may have lost some interest. In addition, the frequency of responses to the questions 'who else helped?' and 'what did they talk about or do?' was also relatively low. This may have been due to the wording of the question (i.e., who *else* helped?), and the possibility that participants believed they had already identified everyone who had helped them.

In order to avoid repetition of ideas and to facilitate comprehension of the findings, the following discussion is structured according to the top nine themes identified - including physical basics, secondary stressors, social support, psychological impact, coping, school, support figures, gender, and recovery. These themes are ordered in a way that enables the findings to be linked, and therefore discussed, in a coherent manner.

Physical Basics

Physical basics referred to participants' need for such basics as food, water, warmth, shelter, and sleep. It also included reports concerning lack of electricity and plumbing. These were participants' most important needs in the first two weeks following their worst earthquake. Following such devastating events as the Canterbury earthquakes, it was likely that teenagers' most important needs were initially going to be around

survival, especially due to the disruption to the city's lifelines and the extent of the damage. This is supported by Maslow's hierarchy of needs (1968, 1970), which states that physical needs, needed for survival, are at the foundation of the hierarchy and must be met before people can progress and meet higher level needs (e.g., safety, love/belonging, esteem).

In addition to survival, lacking basics (such as clean water, warmth, shelter) was a drastic change from what a majority of participants were accustomed to and what was 'normal' - therefore, making their absence particularly noticeable and distressing. This is supported by literature stating that youths' reactions to disasters relate to the disruption inflicted on normal daily lives (Margolin et al., 2010) and that this disruption can significantly influence mental health outcomes (Weems & Overstreet, 2008). While investigating mental health outcomes was beyond the scope of the present study, it is still important to consider how participants' reported needs (e.g., for physical basics) could potentially link to their post-disaster psychological wellbeing.

Interestingly, when asked about worst things overall and in contrast, things that helped participants the most overall (i.e., over the 34 months post-earthquake), the importance of physical basics dropped substantially. That is, it was no longer amongst the three most common responses. This indicates that despite participants reporting physical basics as something they needed the most in the first two weeks, receiving them was not the most helpful thing overall, and nor was lacking them the worst. This suggests that teenagers' need for physical basics was more relevant nearer the time the earthquakes hit (i.e., first two weeks), and was therefore, more of an immediate need rather than an enduring one.

The impact of continuing secondary stressors may explain why lacking physical basics was not the worst thing overall for teenagers. That is, the worst things reported (e.g., the physical consequences of the earthquakes, followed by the psychological impacts, and then the continuing aftershocks and impacts on inter-personal relationships), were all continuing post-disaster stressors; however, it could be assumed that for a majority of teenagers, their need for physical basics was eventually satisfied within the weeks, months or year following the earthquakes. Therefore, and especially as the survey was administered nearly three years after the initial September earthquake, it is not

surprising that the worst things identified by teenagers would be those that continued to have some negative impact on their lives. These “worst things” are discussed in more detail below.

Secondary Stressors

It was noted that responses consistent with secondary stressors were commonly reported when participants were asked about unhelpful factors during the first two weeks post-earthquakes and the worst things for them overall. According to Shaw et al. (2007), secondary stressors refer to post-disaster hardships and adversities. As mentioned above, such secondary stressors for Study 1 participants included the continuing aftershocks, the physical consequences of the earthquakes (e.g., damage to homes, schools, and the city), and the deaths and impacts on interpersonal relationships (e.g., stress on family).

All of these post-disaster problems or secondary stressors had the potential to reduce participants' coping and emotional resources, and thereby lower their resiliency, and increase their risk for psychological disorders (Shaw et al., 2007). Specifically, the continuing aftershocks could have inflicted further damage and/or triggered distressing memories about the initial earthquakes, as well as increase the teenagers' fear of another serious, high magnitude quake - therefore, negatively impacting on their psychological wellbeing and requiring coping and emotional resources, which over time may have become more depleted due to repeated strain and consequent fatigue. This view is supported by Lazarus et al. (2003), who stated that aftershocks could increase psychological distress.

The physical consequences of the earthquakes would have had continuing implications for individuals and families, as well as businesses and schools. It has been shown that physical losses and disruption of the environment are associated with short-term post-disaster reactions. For example, one study (Usami et al., 2012) found that children who had experienced environmental damage following the Japan earthquake (2011) reported higher stress symptoms than those who had not experienced damage. Such physical consequences result in disrupted routine and social structure, loss of services, and feelings of confusion and disorientation (Weems & Overstreet, 2008). Damage to homes and the personal possessions inside them also represents a loss of object

resources (i.e., possessions of functional value), which as outlined by Hobfoll (1989), can reduce one's coping capacity and lead to psychological distress. Further, damage to school grounds in the present study resulted in school closures and disrupted education. School is a central feature of a majority of young people's lives and damages or disruptions to it mean a loss of normality and routine, which can be stressful for a teenager. Such disruptive events, like the earthquakes, can inflict a sense of instability, insecurity and uncertainty in affected individuals (Shaw et al., 2007). Therefore, by providing familiar environments where youth typically know what to expect and when, can potentially give them a sense of consistency, comfort and security, and in turn, help alleviate other distressing sensations. Damage in general can also serve as an active reminder of the event, cueing negative emotional responses (NCTSN, n.d.), as well as causing the loss of familiarity within one's own environment, be it at home, school, or in the city (Weems & Overstreet, 2008).

Many families would have endured the secondary stress of repairing homes, obtaining insurance, maintaining an income, and worrying about the safety and wellbeing of family members, while at the same time all having to process the event themselves. According to Jones (2008), family stress and conflict has been linked with continued post-disaster problems. Such negative impact on families can then significantly influence a child's level of adjustment and increase their distress levels (Endo et al., 2007). This is supported by the fact that participants also reported that one of the worst things about the earthquakes was the negative impact on their families.

Further, participants explained that being away from family members or friends after the earthquakes, or friends moving outside of Christchurch were some of the worst things for them. This separation likely removed significant people from participants' social networks, thereby disrupting their support systems and for some, permanently changing the structure of their communities (Hutchins & Norris, 1989). Some participants also reported that the deaths caused by the earthquakes were the worst things for them. The impact of these deaths (e.g., the shock and grief) was likely to have continued influencing some teenagers long after the February 2011 earthquake hit - especially if the deaths were of family members or friends, which can increase the severity of disaster responses (Vogel & Vernberg, 1993). All of these pressures on or changes to interpersonal relationships could have led some individuals to feel as if their

condition resources (e.g., social relationships) were being lost, and with it, at least some of their ability to cope with other stressors (Hobfoll, 1989).

These secondary stressors emphasised particular areas that were continuing to negatively impact on teenagers' lives (e.g., damage, disrupted schooling, family conflict, change in social structures). Therefore, insight was gained into which factors could be addressed when considering more long-term post-disaster support strategies and supports, so to reduce this potential negative impact on teenagers. These factors are discussed in more detail in Chapter Nine (Summary and Implications).

Social Support

Social support was the second most important need experienced by participants, as well as the most helpful thing they received overall. This seeking of support is consistent with Ayers et al.'s (1996) four-factor model of coping, which identifies support-seeking strategies as one of the main approaches used by children and teenagers to cope in adversity. A more recent study by Jensen et al. (2012) also found support-seeking strategies to be popular amongst tsunami-exposed children and teenagers. Based on the literature, social support serves a number of functions. For instance, *perceived support* has been found to help manage disaster-related distress (e.g., Bokszczanin, 2008). One possible explanation for this is that by perceiving the availability of support, people feel more courageous and secure, as well as more confident in their self-worth (Ross & Mirowski, 2012). Social support has also been found to reduce a disaster's mental health effects (Kaniasty, 2005; Pine & Cohen, 2002; Banks & Weems, 2014). One explanation is that social support can act as a buffer between stress and mental health disorders (e.g., depression) (e.g., Sue, Sue, & Sue, 2008). Ultimately, based on these studies, and on the present study, social support appears to function as an important promoter of post-disaster psychological wellbeing, especially due to its ability to reduce distress. It has also been found to promote positive self-concept in adolescents (Wu et al., 2014), which is in turn beneficial for their mental health (e.g., Barnett & Hunter, 2012).

As previously indicated, the three most important needs in the first two weeks were physical basics, social support, and psychological needs; however, participants' need for social support was met to a significantly greater extent than that for physical basics and

psychological needs. One possible explanation for this may concern realistic obtainability. That is, given the disruptions to lifelines and damage to houses, buildings and roads, it is reasonable to assume that physical basics would have been more difficult to obtain, especially within the first week or so. Social support however, was perhaps under greater control and more easily obtained from a range of places (e.g., at home, or in the community) and from a range of different people. With psychological needs, some aspects would have been more obtainable than others. For instance, with needing a sense of security, stability and/or safety, obtainability may have been more difficult, especially in the first few weeks due to such things as the widespread destruction, the continued aftershocks, and the uncertainty; however, with other aspects of psychological needs (e.g., receiving reassurance from others), obtainability may have been easier due to greater controllability.

Despite the need for social support being met to a greater extent than physical basics and psychological needs, the need for social support was still only met ‘quite a bit’ in the first two weeks. This may have been because participants’ post-disaster expectations of support did not coincide with reality. That is, it is likely that their support providers (e.g., parents, friends, teachers) were also affected by the earthquakes and needed their own support, meaning that the need may have exceeded the availability. This is supported by literature and the idea that a child’s support system is complex and can be disrupted by disasters, particularly because of a disaster’s potential to negatively affect support people (e.g., Galea, & Resnick, 2005). Due to youths’ need and reliance on family members, in particular parents/caregivers, interventions should be put in place so to support youth through the family system, and to incorporate parental mental health support (e.g., Joshi & Lewin, 2004).

Nearly three years on from the initial September 2010 earthquake, teenagers continued to need support from the people around them, as well as continued opportunities to talk through their earthquake-related problems or experiences. This prolonged need for support is understandable given the potential duration of disaster effects. That is, a review by Solomon and Green (1992) indicated that child and adult post-disaster effects could persist for up to three years. This finding is also supported by the fact that participants frequently reported that the lack of support or understanding received from others was unhelpful. For example, they explained that others making earthquake-

related jokes, or expecting them to be ‘over’ the earthquakes was unhelpful. Participants may have viewed such acts as insensitive and as a demonstration that others did not understand the continuing negative impacts of the earthquakes, or their personal situation or experience. Typically, if individuals feel misunderstood by others, they are less likely to develop trust in a relationship, which can then negatively impact on recovery (Gosling, 2009). They are also less likely to self-disclose if they perceive themselves as being misunderstood (e.g., Martin, Anderson, & Mottet, 1997, 1999), which is unfortunate given the benefits of talking to others following a traumatic event (e.g., Cahill, Beadle, Mitch, Coffey, & Crofts, 2010; Mutch & Marlowe, 2013). It has also been found that clients with a high sense of understanding and of being understood, experience greater symptom improvement, as well as a higher sense of subjective wellbeing (Saunders, 2000).

These findings emphasise the importance of encouraging others (e.g., friends, family) to support youth, not only immediately after the disaster event but throughout the following months and possibly years as well. Friends could be encouraged by such significant others as parents and teachers to support one another – with talking, understanding and supportive acts being considered as particularly important to youth.

Psychological Impact

The results showed that psychological needs were the third most important need for participants in the first two weeks post-earthquake, after physical basics and social support. It can therefore be inferred that from the teenagers’ perspective, the earthquakes sufficiently impacted on their mental wellbeing (e.g., stress, shock) to the extent that it was one of the things they needed support with the most (e.g., time and space to relax, reassurance, stability).

Although references made to psychological factors were not the most frequent in terms of helpful and unhelpful things in the first *two weeks* post-disaster, they were amongst the top three most helpful and worst things *overall* (i.e., through till the time of survey administration approximately 34 months post-earthquake). This may have been because during the initial two weeks post-disaster, teenagers were more focused on receiving help consistent with survival and being around family (i.e., social support); however, as time passed beyond these first two weeks and the need for physical basics lessened, the

psychological impacts of the earthquakes (e.g., stress, uncertainty) continued to be a factor that youth needed assistance with. This emphasises the psychological impact of the earthquakes on the general teenage population within the Canterbury region, and the importance of delivering psychological support to them in the months post-disaster. This is further supported by the fact that some participants also reported the helpfulness of school and private counsellors, who reportedly provided support, coping assistance, and somebody to talk to (e.g., see Figure 4).

It is not unusual for individuals exposed to life-threatening events to experience acute stress symptoms like anxiety, fear, anger, and/or depression (Shaw et al. 2007). In fact, in Study 1, many participants commented on the negative emotional impact of the earthquakes (e.g., being scared, paranoid, and stressed). Therefore, it makes sense that many of the reported psychological factors appeared to function to reduce participants' distress levels (e.g., having space and time to relax, having a sense of safety and security, receiving mental health support for anxiety, and being reassured). In fact, a survey conducted on Christchurch residents aged between 12-24 years old between September and December 2013, reported that 94% of respondents had experienced stress that had negatively affected them in the past 12 months, while 27% reported experiencing stress either always or most of the time during this period (CERA, 2014). Another report indicated that during the two years prior to April 2014, the number of Canterbury children contacting the *0800 What's Up* children's helpline had increased substantially. Nearly 20% of calls came from the Canterbury region, and had increased by 34% between 2011 and 2012 (0800Whatsup, 2014).

When it came to helping themselves nearly three years after the initial 2010 earthquake, participants' reports gave some insight into the strategies teenagers used to cope with earthquakes two to three years on. Participants most frequently reported the helpfulness of moving on with their lives and returning to 'normal', which is discussed in more detail below under the heading 'Normality and routine'. The most common coping strategies were thought avoidance (i.e., not thinking about the earthquakes) and positive and future oriented thinking. This is consistent with children and teenagers following the Southeast Asia tsunami (2004), who also reported the use of these two coping strategies ten months post-tsunami (Jensen et al. 2012). Positive thinking is a type of emotion-focused strategy, which is thought to help individuals cope by regulating their

emotional responses and reducing their stress (Lazarus & Folkman, 1984). On the other hand, thought avoidance is a type of avoidant coping as described by Ayers et al. (1996). Avoidance typically functions to reduce or remove the potential for a negative outcome, and following a traumatic event, it is common for youth with PTSD to try to avoid thoughts (and feelings) that trigger memories of the distress they previously experienced (Cohen, Mychailyszyn, Settipani, Crawley, & Kendall, 2011). Both of these coping responses are reported to be particularly helpful in situations outside of personal control (Pincus & Friedman, 2004; Punamäki et al., 2004), which was particularly the case following the Canterbury earthquakes, and as reported in Study 1 of the present study.

Based on these findings, the present study highlights both the immediate and continuing psychological impacts of the Canterbury earthquakes on teenagers and the importance of delivering psychological support to them, both during the weeks, months (i.e., early interventions) and possibly years (i.e., long-term support) post-disaster. Shaw et al. (2007) also highlighted the importance of identifying youth in need of psychological assistance and providing early psychosocial support to facilitate recovery. One of the core actions of Psychological First Aid (i.e., evidence-based immediate support and practical help following a crisis event) includes safety and comfort, such as enhancing physical and emotional comfort, and improving ones sense of safety (National Center for Child Traumatic Stress [NCCTS] and National Center for PTSD [NCPTSD], 2006) – both of which were important immediate psychological needs identified by participants. Additionally, for those experiencing continued psychological impacts, long-term support is also important in ensuring the psychological wellbeing of youth (e.g., Wu et al., 2014). It is important that adults, such as parents, teachers, religious leaders and doctors, are aware of these initial and potentially lingering post-disaster effects and not only put strategies in place to address them, but are also educated on how to best respond to them (i.e., psychoeducation). In terms of the latter, psychoeducation is briefly discussed below under the heading ‘Teachers’ in terms of teacher training, as well as in Chapter Nine under the headings ‘Social support’ and ‘The school setting’.

Coping

In line with these coping strategies, there were a number of factors identified by participants that would have helped them cope during the aftermath of the earthquakes. These included talking, receiving information and communication, normality and routine, leaving Christchurch, and entertainment and distraction. Each of these factors is discussed below.

Talking. With regards to helpful factors, talking was a form of support reported by participants in which talking about their experiences or simply talking in general was helpful. This is consistent with Fothergill and Peek's (2006) study, which found that children impacted by Hurricane Katrina were able to talk with adults and other children about risk and that, compared to younger children, older children spoke more openly about their experiences. Likewise, Mutch (2014a) reported the importance of talking and listening for youth; however, in the present study, participants also indicated that on average, they only spoke to other students about how they were affected by the earthquakes to some extent. Based on the high frequency of reports emphasizing the usefulness of talking, this relatively low rating may simply suggest that teenagers spoke more frequently about other topics, not just about how the earthquakes affected them. This would then suggest that talking in general was helpful for youth and simply having someone to talk to was important, regardless of the topic of conversation. It is also possible that the term 'other students' influenced participants' responses. That is, answers may have been different if the term 'friends' had been used, as it could be assumed that teenagers would speak more openly about how they were affected with a friend as opposed to any 'other student'.

Overall, these results highlight the importance of talking and suggest that according to earthquake-exposed teenagers, it is helpful for themselves and others to either talk in general or to talk specifically about the earthquakes and their experiences and problems, as well as to listen to those of others. According to Cahill et al. (2010), sharing individual or collective stories about the event is an important activity for recovery. It helps individuals put the event into perspective, creates distance between the past and present, and allows individuals to begin processing the event so as to make sense of it (Mutch & Marlowe, 2013).

Although talking about the earthquakes and personal experiences was reported as being helpful for teenagers, the results also suggested that some participants found it helpful when teachers and/or other students did *not* talk about earthquake-related topics. With the help received from teachers in particular, not talking too much about the earthquakes was a commonly reported helpful factor. This suggests that although acknowledging and talking about the earthquakes can be helpful, there is a point where it can become unhelpful. Following a traumatic experience and during the processing stage, it is typical for people to stop wanting to discuss the event, stating that they do not have the energy (Saari, 2005). Continuously talking about the event or making references to it may also prevent teenagers from focusing on the future, or it may trigger distressing memories and/or either lower mood or increase stress, anxiety or worry. In addition, talking about non-earthquake related topics might also serve as a welcomed distraction for teenagers and help give them a sense of normality.

For the above reasons, it is suggested that teenagers be encouraged to talk to others following a disaster, be it a family member, friend, teacher or counsellor; however, caution and consideration should be taken in terms of whether youth are ready to talk about certain topics, or later on, have come to find talking about the earthquakes tiresome and unhelpful – as was the case for some participants nearly three years post-disaster.

Information and communication. The results indicated that receiving information and being in communication with others following the earthquakes were important factors for teenagers. According to Hobfoll (1989), information is an important energy resource that individuals use in order to overcome or withstand threats – therefore, in its absence, stress levels can be increased and coping capacity reduced. By wanting information about such things as the earthquakes, schools, houses and city, participants were likely trying to understand what was happening in important areas of their lives, as well as trying to assess their current situation. For teenagers, not knowing if or when they would return to their school, if their house was to be demolished, or if their city was still standing, appeared to have only increased their confusion, uncertainty, and stress. According to Ayers et al.'s (1996) model of coping, seeking understanding is a direct emotion-focused strategy that actively and directly focuses on the stressful event in an effort to manage the individual's emotional response. Specifically, seeking

understanding involves the individual cognitively trying to better understand the stressful situation or to find meaning in it. Therefore, one possible reason for earthquake-exposed teenagers wanting information was because by obtaining it, and thus, gaining a better understanding of their situation, they would have been better able to cope post-disaster. Having a greater understanding of what was going on in different aspects of their lives (i.e., knowledge), may have also given teenagers a greater sense of control. This is because with information comes knowledge, and thus, the ability to start constructing plans about what to do next. Such an understanding would have also helped reduce youths' confusion and uncertainty (e.g., about school, housing).

By being in communication with friends, family members and school personnel, teenagers would have been better able to acquire the needed information, as well as to impart information to others about their current situation and wellbeing. Being in contact with others would also mean that teenagers could provide and receive social support, as well as receive information about the safety and coping of others. All these factors would have again helped the teenagers cope with their situation by for example, reducing their uncertainty, worry, or fears, and by helping them manage their emotional responses.

Based on the above findings, it is suggested that adults be open with youth regarding information, although the delivery of this information should be developmentally appropriate and support should be provided to assist youth in processing and understanding it. Schools could also assist youth in this regard by communicating and distributing information (i.e., updates) during school closures, be it through emails, texting, or using their school website. Once schools re-open, discussing the earthquakes, including both factual information and personal stories, could also be helpful as alluded to by participants in the present study; however, schools and teachers should also consider the amount of time spent talking about earthquakes. This is because some participants expressed the unhelpfulness of teachers eventually talking too much about the earthquakes (as discussed previously under the heading 'Talking'), and students' preference for teachers to continue with 'normal' teaching.

Consistent with this idea of providing information to youth, it may also be useful for schools to educate their students about both the physical and psychological impacts of a natural disaster before and/or after it hits. That is, in conjunction with the current

nation-wide initiative of teaching students to ‘Drop, Cover, and Hold’ when an earthquake hits (Hamilton, 2012), they could also be educated about what they may feel or think in the weeks following and why, who they could talk to, or where they could go for help (e.g., helplines, counselling services). Such disaster preparedness by schools could help give youth some sense of control and planning (Margolin et al., 2010). This is discussed further in Chapter Nine under the heading ‘Psychological impact’.

Students could also be informed about what their school’s probable plan may be following a disaster (e.g., how they will be contacted, where they should go for information, what would happen with schoolwork). Therefore, by supplying such information before a disaster event, levels of post-disaster uncertainty and distress may be lowered. In fact, Ronan et al.’s (2008) review showed that children who had received school-based hazard education programmes, displayed such things as reduced levels of fear and more realistic perceptions of risk compared to their peers. Ronan et al. (2008) also explained that school programmes targeting young people are likely to have the most impact within communities, as children typically share the information with their families and community, thereby promoting positive change. Educating students about earthquakes and increasing their awareness of how to face a disaster, and in turn, increasing their self-efficacy, could contribute towards positive psychological health post-disaster. This is supported by a study conducted by Guerra, Cumsille, and Martinez (2014), which found a link between self-efficacy beliefs and post-traumatic stress symptoms in youth post-earthquake.

Normality and routine. Based on participants’ responses, normality and routine referred to the need for things to return to normal and the need to re-establish and maintain routines following the earthquakes. In the school setting, teachers helped participants by returning to a normal school routine, and continuing to teach. In addition, when asked about helpful things, participants indicated that returning to school and continuing with their learning was helpful as it gave them a sense of normality. This finding is consistent with evidence suggesting that the return of students to a steady educational setting and the re-establishment of a consistent, predictable routine is a central feature of recovery for young people (e.g., Fothergill & Peek, 2006; Heft, 1993; Maida et al., 1993). This is because by returning to their typical roles and routines, teenagers would be able to regain some familiarity in their lives and in turn, re-establish

feelings of stability and security (Boyce, 1981), which as previously mentioned under the heading 'Psychological needs', was a fundamental need for teenagers. This is consistent with Ager et al. (2010) who found that 97% of humanitarian specialists agreed that re-establishing schooling was an essential protective measure for children. This is also consistent with Maslow's hierarchy of needs, and the fact that having a sense of safety is the second most important need in his hierarchy (Maslow, 1968, 1970). Returning to the familiarity of a school routine would also allow students to resume their typical roles and encourage them that normal patterns of life would eventually return (Prinstein et al., 1996; Vernberg & Vogel, 1993). For these reasons, it seems beneficial to re-open schools as soon as possible following a disaster and to re-establish a structured routine, ideally in the same pre-earthquake location, but if not possible, then in another location; however, in saying this, closing schools for one or two weeks following a disaster may allow youth to begin processing the event, without adding the extra demands of school – as reported by a number of participants. Such time is likely to be beneficial for the mental wellbeing of youth, particularly if they receive the necessary support. Once students return to school, a balance needs to be reached between returning to a regular school routine and making adjustments for those who continue to be psychologically affected and who find the regular routines too demanding (Dyregrov, 2004).

Entertainment and distraction. A commonly reported need was for some form of entertainment or distraction during the weeks after participants' worst earthquake. This was further supported by the fact that restricted activity was amongst the worst things for participants overall. This referred to participants' not being able to help, or having nothing to do. Participants did not specify what activities they would have liked, just that they wanted something to do. It appears that the main reason for this need of entertainment/distraction was to help buffer any negative emotions and thoughts associated with the earthquakes (e.g., depression, paranoia, grief). According to Ayers et al.'s (1996) model of coping, distraction involves the use of distracting actions (e.g., entertainment, distracting activities) and the release of emotions through physical actions (e.g., physical exercise). Based on this model, it is assumed that having something to do during the weeks post-disaster would have helped teenagers cope by distracting them from thinking about or dealing with their problem situations. In addition, by being entertained or by having something to do, the likelihood of

experiencing mood enhancing or positive reinforcing experiences would be increased, as opposed to sitting at home, worrying, and potentially lowering mood; however, one particular barrier to obtaining this entertainment or distraction following the earthquakes was the consequent limited access to places, which was reported by participants as being unhelpful in the first two weeks post-disaster. The fact that participants continued to report distractions as helpful nearly three years following the initial earthquakes further emphasises the importance of this coping strategy.

Based on these findings, providing or facilitating entertainment for youth immediately after a disaster, as well as throughout the years following, is an area that should be further considered when aiming to support disaster-exposed youth. It is theorised that engaging in entertainment, such as leisure activities, and experiencing enjoyment (e.g., pleasure, fun) and satisfaction, contributes towards subjective wellbeing (e.g., positive moods, reduced emotional distress) (Coleman, 2004). Specifically, participating in physical leisure activities has been positively related to subjective wellbeing (Leung & Lee, 2005), while participating in social leisure activities (e.g., going out with friends) has also been found to contribute to subjective wellbeing (Lloyd & Auld, 2002). Therefore, it would be beneficial for youth if communities arranged events or provided facilities following a disaster where such activities could be engaged in, or if resources were made available to youth so they could organise their own activities. This is discussed in more detail in Chapter Nine under the heading ‘Need for entertainment and distraction’.

School

Support. Educational support referred to understanding, assistance and leniency with schoolwork (e.g., derived grades), information, having a break from school, and returning to school.

The results highlighted the importance for teenagers of receiving educational support, especially when it came to schoolwork. It is likely that such support would have reduced participants’ academic-related stress, therefore, contributing positively towards their mental wellbeing. This may have been particularly the case for participants who were at least 15-years old when the earthquakes hit, and who were beginning to complete qualifications such as NCEA (National Certificate of Educational

Achievement - New Zealand's national qualification system for students in Years 11-13). For these participants, the pressure to complete state exams and assignments likely added to their stress, possibly impacting on their resiliency and ability to cope with the continuing impacts of the earthquakes. For this reason, participants' appreciation of derived grades is understandable. Derived grades were offered by NZQA (New Zealand Qualifications Authority) to Canterbury students who were unable to attend external examinations, or whose preparation for or performance during examinations was impaired (NZQA, n.d.). Specifically, this meant that a student was rewarded the higher of either their school or NZQA exam grade, rather than just their exam grade.

The importance of information and its role in enhancing teenagers' understanding has been discussed previously under the heading 'Information and communication'; however, in the context of school support, this finding also highlighted the specific source and content of information that participants wanted (i.e., communication and information from schools and teachers about what was happening with such things as re-opening dates, the extent of school damage, and what was expected with schoolwork).

Participants who did not want to return to school immediately after the earthquakes mainly indicated that they were experiencing continued symptoms, such as anxiety, grief or fear, and still needed time to process the event and to receive the necessary support before returning to school and its typical demands. In addition, many participants were at school when their worst earthquake hit (February 2011), and therefore it is reasonable to assume that returning to this location may have been frightening for many students, especially as avoidance of reminders of the event is a common behavioural acute stress response (Shaw et al., 2007); however, other participants may have wanted to return to school as it offered them a distraction. It would have also helped them re-establish some sense of normality and routine, as discussed above under the heading 'Normality and routine'.

Unhelpful school factors. In contrast to educational support, there were factors related to school and education that were unhelpful for participants. These factors included school closures and the inability to return to school for a certain period of time (e.g., at least two weeks following the February 2011 earthquake), having to share school

grounds with other schools, and the damages to school buildings and grounds. Some participants also found that while their schools were closed, it was either helpful or unhelpful to receive schoolwork. These factors are discussed below.

It is likely that school closures were unhelpful as they prevented students from returning to this normal and familiar aspect of their lives, the importance of which was discussed previously under 'Normality and routine'. Likewise, having to share school grounds meant some participants were unable to return to their familiar pre-earthquake routine (e.g., 9am - 3pm timetables), or to the same school environment they were used to. Instead, returning to school meant further unfamiliarity and adjustments, which may have increased teenager's distress, sense of instability, and concern about schoolwork, and signified further disruption to their idea of 'normality' and their ability to cope.

With damage to school grounds, there are a number of reasons for why this may have been unhelpful, including a) it may have reminded students of the event (NCTSN, n.d.), b) students may have been inconvenienced with classes being held in different buildings or in temporary prefabs, and c) the reconstruction or demolition of school buildings may have disrupted classes and therefore, students' ability to concentrate and learn. The impacts of damage have been previously discussed under the heading 'Secondary Stressors'.

Lastly, the extent to which participants were affected by the earthquakes (e.g., mental and/or physical impact) may explain why they were concerned about receiving schoolwork during school closures. That is, they may not have been psychologically able to cope with the additional efforts and stress of completing schoolwork, or not had the physical means to do so (e.g., an appropriate place to work, a computer, stationary). In contrast, other participants may have wanted schoolwork because it was a distraction and something to focus on. Another reason for wanting schoolwork may have been because these particular participants were physically and mentally capable to complete schoolwork and were worried about falling behind.

School deciles. All school deciles represented in Study 1 (i.e., decile 2, 3, 9 and 10) suggested that physical basics, social support, and psychological needs were their most important needs in the first two weeks; however, there were noticeable differences in

their order of importance, particularly between deciles 2 and 10. That is, for the decile 2 school, physical basics was by far the most important need, while for the decile 10 schools, social support was clearly the most important. Further, the percentage of decile 2 participants reporting physical basics was much greater compared to the remaining school deciles.

One possible explanation for why students from the decile 2 school needed physical basics to a much greater extent than the remaining deciles, may be due to differences in the extent of damage to different geographical areas. That is, the decile 2 school was located within a particularly damaged area within the eastern region of Christchurch. Therefore, it could be reasonable to assume that people living in this particular area of Christchurch experienced a greater need for basics, such as clean water, food, shelter, and warmth. The decile 9 and 10 schools however, were both located within the western region of Christchurch, which did not suffer the same extent of damage as the eastern suburbs, therefore, putting less strain on resources (e.g., waste water systems, electricity, housing).

Another possible explanation for these differences in needs may concern Socio-Economic Status (SES). Specifically, participants from the decile 2 school were of lower SES compared to participants from the higher decile schools. Research suggests that poorer households are less likely to have the resources necessary to lessen the effects of disasters (Gibbs & Montagnino, 2007), for example, emergency supplies (food, water, blankets) or funds to fix their houses. This is consistent with the higher need for physical basics reported by decile 2 students.

Decile 10 schools reported social support significantly more than the decile 9 schools. This finding could be explained through gender differences. That is, the decile 10 schools consisted exclusively of female participants, while the decile 9 schools consisted of all male participants. As Figure 3 shows and as discussed later under the heading 'Gender', male participants reported a need for physical basics significantly more than female participants, while females reported social support significantly more than males. Therefore, these gender differences could potentially explain the differences in needs between these school deciles.

Support Figures

The results of Study 1 indicate that following the earthquakes there was a wide range of people who were involved with participants and helped them in some way. The main groups of people reported included parents and other family members, friends and other students, teachers, and the community.

Parents. As parents understood participants' needs 'very much' and to a significantly greater extent than siblings or friends, they were in a better position to support participants. That is, if teenagers believed their parents better understood their needs, it is more likely for them to have turned to their parents for support. Further, if they felt more understood, they may have been more willing to accept the support and advice offered by their parent(s). This perceived understanding may have been because during the weeks post-disaster and compared to friends, participants spent more time with their parents. For this reason, it is also likely that participants were able to obtain a wider range of help from them (as well as other family members), as evidenced by Figure 4. Other research similarly shows that parents are children's primary sources of social support (Cauce et al., 1990), as well as support for coping assistance during a disaster's aftermath (Prinstein et al., 1996). Parental support and positive family functioning have also been found to have a buffering effect on children's post-disaster reactions (Kronenberg et al., 2010). Overall, parents can function as a protector for their children, increasing their chances of positive coping and adaptation, while reducing that of maladjustment (e.g., Luthar et al., 2000). It is also important to note children's typical reliance on adults (i.e., parents/caregivers) for financial and material resources, and the vulnerable and dependent position this puts them in (Wachtendorf et al., 2008).

In contrast, a smaller number of participants indicated that their parents did not understand their post-disaster needs at all. If parents were busy and working a lot following the earthquakes, they may have been less available to give their children the support, understanding and/or comfort they needed. In addition, it is probable that parents were also experiencing post-disaster problems and consequent distress. Such parental distress can negatively impact on children's post-disaster adjustment and distress levels (e.g., Proctor et al., 2007; Gil-Rivas et al., 2004). This is because a child's level of post-disaster adjustment is significantly influenced by their parents' adjustment, as well as their family's overall adaptability (Endo et al., 2007). One study

showed that children's distress levels were greater if their parents also exhibited distress (Proctor et al., 2007), perhaps because of the potential effect of a disaster on the availability and emotional responsiveness of parents, as well as the effect on children's evaluation and interpretation of the event (e.g., Gil-Rivas et al., 2004; Salmon & Bryant, 2002; Masten & Coatsworth, 1998). Therefore, in the context of the Canterbury earthquakes, if parents were distressed and thus not completely physically or emotionally available to their children, it is not surprising that those children may have felt as if their needs were not fully understood, which in turn may have increased their own distress levels. As stated by Peek (2008), distressed and distracted parents may not be initially capable of re-establishing their child's sense of safety and security. Jensen et al. (2012) also suggested that youth used parents as reference points in order to assess situations, and found comfort in seeing them appear in control post-disaster, rather than anxious or scared. Therefore, this suggests that a parent's reaction to a disaster can influence a child's interpretation of it, which if negative, can cause the child to also become fearful (Deering, 2000).

Siblings. The results indicated that compared to parents and friends, participants believed that their siblings were the least aware of their needs. There are a number of possible reasons for this, for example, age differences (siblings may have been a lot younger or older than participants – if older, they may have been catering for others' needs rather than expressing their own, or living separately with less contact; if younger, siblings may have simply been too young to be aware of what participants needed), participants may not have had close relationships with their siblings or felt comfortable talking about personal topics, they may have been separated post-earthquake and did not talk to or see their siblings during the weeks following the earthquakes, or they may not have lived with their siblings.

Participants were asked about their siblings' needs in an attempt to gain insight into what teenagers' believed to be important to their siblings, as well as how teenagers' perceived their siblings to be coping following the earthquakes. Participants reported a number of post-disaster needs that they believed their siblings experienced. Despite the top three most important needs being the same as participants' own needs, their order of importance was different. That is, when talking about themselves, participants reported physical basics as being their most important need, followed by social support and then

psychological needs; however, when talking about their siblings, participants suggested that social support was by far their most important need, followed by psychological needs and then physical basics. This is interesting, as if participants mostly needed physical basics after the earthquakes, it could be reasonable to assume that this is also what they thought their siblings needed most, especially if they were living in the same household; however, this was not the case and although social support was still a very important need for participants and siblings, participants believed that social support was more important for their siblings when compared to physical basics and psychological needs.

There are several possible explanations for this finding. Firstly, one explanation may concern the wording of the questions. That is, when asking about personal needs, the question referred to the *first couple of weeks*; however, with siblings' needs, it referred to *any time* since the earthquakes started. Therefore, it could be assumed that for participants, physical basics was more of an immediate need in the weeks after the earthquakes; however, for siblings, participants may have been thinking more in the long term, knowing that their need for physical basics was eventually met, but that social support continued to be an important need both in the weeks and years post-disaster.

Secondly, it is possible that following the earthquakes, siblings expressed or showed more of a need for social support, compared to physical basics. Many people were without such things as electricity, plumbing, and clean water, and therefore stating this need was not necessarily required, especially if they were living in the same household. If this were the case and participants based their answers on what their siblings said or how they behaved, then social support may have been the most obvious answer to them.

Thirdly, participants' responses may have been based on what was within their personal capacity. Following the earthquakes, physical basics were for the most part outside of teenagers' control and largely the responsibility of their parents, the community and/or the government; however, social support in terms of being there and talking to their siblings was more within the teenagers' capacity and therefore, more likely to have occurred.

Lastly, the results show that participants themselves received social support to a significantly greater extent than physical basics, and participants also stated that social support was the most helpful thing they received. Therefore, based on their own experiences of what they received, participants may have believed that their siblings were more likely to obtain social support, and it was therefore, a more realistic need.

Overall, by gaining such insight into how participants' perceived their siblings' needs, the importance of physical basics, social support, and psychological factors were again emphasised. It also allowed for a greater understanding of the impact of the earthquakes on siblings (from the perspective of participants), and how children in families may cope. Unfortunately, it was beyond the scope of this study to explore this area in more depth; however, it is an area where further research could be conducted.

Friends and other students. The results showed that teenagers *received* help from other students (e.g., talking, support, physical acts) to some extent, and also *provided* help to other students to some extent. Likewise, participants' friends on average only understood their needs to some extent - perhaps because many were unable to see their friends while schools were closed. This is especially likely as the question specifically referred to the first two weeks post-earthquake, and therefore did not capture the time when participants had returned to school. Some participants also explained that their friends did not understand what they were going through - largely due to differing earthquake experiences (e.g., some friends were in less affected areas when the earthquakes hit), and that friends would make earthquake-related jokes.

At the same time, some found that friends did understand their needs, possibly because they had been through the same sort of experience and could therefore relate. According to Gist and Lubin (1999), this sharing of experiences not only helps individuals to validate their own assessments and judgments, but can also make their experiences less severe and threatening. Overall, interacting with friends and being supported by them was important for participants, which is understandable given the reportedly high need and usefulness of social support following disasters, as discussed above under the heading 'Social support'.

Teachers. Teachers helped participants to a significantly greater degree than other students in their class helped them. On average, teachers helped participants quite a bit, while other students only helped to some extent. This may have been because it was not only the teachers' role to help their students, but the structure, routine and familiarity they provided may have been particularly helpful following the disruption and uncertainty inflicted by the earthquakes. Overall, the survey findings highlighted the important role that teachers had in helping teenagers recover and cope post-disaster, and the wide range of ways in which they helped (e.g., being understanding, support with schoolwork, earthquake-related discussions, earthquake preparedness, normality). Following Hurricane Katrina, Barrett et al. (2008) also found that teachers played a critical role in helping evacuated students cope. In particular, students who talked to their teachers and who perceived them as helpful displayed higher self-esteem, lower emotional and physical discomfort, higher family involvement, and fewer risks to achievement. Other studies have also shown that the psychological wellbeing of children exposed to traumatic events is greater when supportive teacher-student relationships are present (Barenbaum, Ruchkin, & Schwab-Stone, 2004; Prinstein et al., 1996).

Following the earthquakes, teachers were in a good position to help students as they saw them on a daily basis once schools re-opened. Therefore, due to students' dependence on their teachers and the reported helpfulness of their support, it would be useful if teachers were to receive training about how to effectively support youth in the school setting. This is consistent with Mutch (2014b) and the suggestion that teachers and other school personnel should participate in professional development on strategies for school-based emergency response and recovery. Ritchie et al. (2006) also highlighted the importance of educating significant adults, including teachers, due to their influence on children's responses. It would also be beneficial to inform teachers about how youth typically react following disasters (i.e., psychoeducation), and for teachers to be open and understanding of this. This idea of teacher training is discussed in more detail in Chapter Nine under the heading 'The school setting'.

Community. Participants also received help from members of the community, such as neighbours and organisational and voluntary groups. With helpful things, community support was noticeably mentioned within the category of social support and mainly

referred to neighbours providing general support, as well as helping with the clean-up. Organizational and voluntary help was also helpful following the earthquakes and referred to participants receiving help from voluntary organisations such as the Salvation Army, Red Cross, Westpac, and religious groups. Participants may have valued such community help because of their reportedly high need for physical basics (e.g., food, water, warmth and shelter) and the capacity of community members (including organizational help) to assist with this particular need.

Another reason for the importance and helpfulness of community support may have concerned the social connectedness and sense of community that such support may have provided participants. This is supported by findings from the Canterbury Youth Wellbeing Survey conducted between September and December 2013 (CERA, 2014), which reported that 57% of respondents (i.e., Cantabrians aged between 12-24 years) felt a sense of community with individuals in their neighbourhood. In addition, 69% reported that having a stronger sense of community, positively impacted on their wellbeing. According to Bonanno et al. (2010), community cohesion and the presence of strong community ties can benefit the recovery from disasters. Immediately following disasters, the abundance of mutual helping is well documented (e.g., Kaniasty & Norris, 1995, 2000; Tyler, 2006), with communities coming together and most individuals displaying prosocial behaviour (Auf der Heide, 2004; Barsky, Trainor, & Torres, 2006). This post-disaster mobilization of community support can potentially heighten people's sense of unity, solidarity, and altruism, and reduce community conflicts. Such communal concern and support for each other can also help lower the adverse psychological impacts of a disaster (e.g., Quarantelli, 1985; Bonanno et al., 2010), or even bring a community to levels of functioning, productivity and integration greater than those pre-disaster (e.g., Bonanno et al., 2010; Kimhi & Shamai, 2004; Pooley, Cohen, & O'Connor, 2006).

Gender

As Figure 3 showed, there were gender differences between the three most important needs in the first two weeks following participants' worst earthquake (i.e., physical basics, social support, and psychological needs). That is, the need for physical basics was largely endorsed by male participants, while social support and psychological needs were more endorsed by female participants.

According to Norris et al.'s (2002a) review of disaster studies, females are more psychologically affected by disasters than males. Therefore, the fact that females required more social and psychological support is consistent with this finding. Another explanation may concern gender differences in coping strategies. That is, it appears that female participants experienced needs that were more consistent with emotion-focused coping, in that they were more likely to report needs concerning thoughts and feelings. Male participants on the other hand, appeared to be more problem-focused and reported more physical and active needs following the earthquakes. This is consistent with previous literature suggesting that females use more emotion-focused coping strategies and seek social support (Tamres et al., 2002), while males may use more direct, problem-confronting coping styles or alternatively, avoidance (e.g., Stone & Neale, 1984).

Another possible explanation concerns the fact that in response to stress, females have consistently been found to desire affiliation with others, and that this desire is substantially greater than that of their male counterparts. In fact this gender difference is not only the most robust, but also the primary gender difference in adult human behavioural stress responses (Belle, 1987; Luckow, Reifman, & McIntosh, 1998). Consistent with the findings of Study 1, Luckow et al. (1998) found that the largest gender difference in coping was the 'seeking and using of social support'. Additionally, research has found that in times of stress, females seek out more, receive more and are more satisfied with support compared to males (e.g., Belle, 1987 review). Likewise, studies have shown that female college students reportedly receive more support than males and have more available helpers (e.g., Ptacek, Smith, & Zanas, 1992; Belle, 1987).

It is possible that this gender difference can be explained through biological differences between men and women. Numerous studies have shown that during times of stress, interactions with a friend or other supportive person has reduced the sympathetic and neuroendocrine stress responses, as well as facilitated recovery from the physiological effects (e.g., Glynn, Christenfeld, & Gerin, 1999; Roy, Steptoe, & Kirschbaum, 1998; Fontana, Diegnan, Villeneuve, & Lepore, 1999). This response to social support occurs in both males and females, but females more substantially seek such support (e.g., Gerin, Milner, Chawla, & Pickering, 1995).

This tendency for females to seek support could be explained by a biobehavioural theory which proposes that, in response to stress, human females respond according to a pattern termed “tend and befriend” (Taylor et al., 2000). The tending pattern is characterised by females nurturing offspring, and behaviours that protect them from harm and reduce neuroendocrine responses that may negatively impact on offspring health. The befriending pattern is more relevant to the findings of Study 1, and states that, in response to stress and in order to reduce risk, females affiliate with social groups (especially other females) and create, maintain, and use these groups to cope with stressful conditions. These patterns are maintained by sex-linked neuroendocrine responses (e.g., the involvement of oxytocin in down-regulating the sympathetic and hypothalamic-pituitary-adrenal stress responses in females), as well as social and cultural roles (e.g., group protection, sharing of resources). That is, it is argued that aspects of both the maternal and affiliative stress responses build on attachment/caregiving processes that involve, among other neuroendocrine underpinnings, oxytocin, estrogen, and endogenous opioid mechanisms. It is also suggested that these patterns developed through processes of natural selection. It therefore makes sense that female participants in Study 1 reported the need for social support during an event that potentially threatened their survival.

These results suggest that when trying to effectively support earthquake-exposed male and female teenagers, emphasising different coping strategies or tailoring support to suit these gender differences may be particularly helpful. For example, females may find it more helpful to sit and talk with friends about how they are feeling and how the earthquakes have affected them, while males may prefer to go outside and play sport as a way of coping. This is consistent with a study that found that widows experiencing elevated levels of distress benefitted more from emotion-focused interventions, while widowers benefitted more from problem-focused interventions (Schut, Stroebe, Bout, & Keijser, 1997).

Recovery

This last section refers to participants’ views at the time of survey administration (i.e., June-September 2013), and is divided into external and personal factors.

External factors. Nearly three years following the initial September 2010 earthquake, participants reported a number of helpful and unhelpful factors from others, that in turn, were likely influencing their recovery either positively or negatively. Based on these responses, there were three main areas of interest, including the rebuild, support, and the comments or actions of other people.

Rebuild. Firstly, the results indicated that the rebuild was the most important factor for teenagers at the time of survey administration (i.e., June-September 2013). Specifically, they found that such things as their houses being fixed, the uprising of new buildings or leisure spaces, and/or the demolition and removal of damaged buildings was helpful to them. Generally, these responses suggest that participants found it helpful to see that things were actually happening and that their city was moving forwards. This is supported by findings from the Canterbury Youth Wellbeing Survey (CERA, 2014), which indicated that 75% of respondents (aged 12-24 years) reported that seeing rebuild progress was having a positive impact on their wellbeing. The repair of home environments is also important, as according to a study conducted by Liao, Chen, Chen, and Chien (2013), there is a significant association between longer duration of home restoration (i.e., two and four years post-earthquake) and increased internalising and externalising behaviours in high school students.

It is likely that seeing the rebuild gave teenagers hope that their city was changing for the better and/or returning to 'normal', as well excitement as to what their city or school would eventually become. The rebuild also meant that participants would have places to go where they could spend time with friends and family or engage in sports or other recreational activities. In fact, 71% of respondents in the 2014 Canterbury Youth Wellbeing Survey (CERA, 2014) reported that being able to go to new places for entertainment had a positive impact on their wellbeing. By rebuilding the environment, reminders of the earthquakes and the inconveniences caused by the damages were gradually being removed, therefore, helping participants move on. It is likely for these same reasons that participants reported aspects of the rebuild as being unhelpful, such as the slow pace, the inconveniences (e.g., road works), the perceived focus on some areas more than others (e.g., commercial ahead of residential areas), and the difficulties with insurance.

Support. Nearly three years on from the earthquakes, participants reported a number of factors relating to the support they were receiving and the helpfulness of this. This support included such things as understanding from others, community support, school support (e.g., disaster preparedness, school work), and talking to others about problems or earthquake experiences. This continued need for support has been previously mentioned under the heading ‘Social support’.

Interestingly, despite reports about the helpfulness of talking (as previously discussed under the heading ‘Talking’), participants also explained that others continually talking about the earthquakes or things related to them was unhelpful. This is possibly because they no longer needed to talk about the earthquakes, perhaps because they had sufficiently processed the event and made sense of it – one of the proposed functions of talking as asserted by Mutch and Marlow (2013). Participants may have also wanted to move forwards from the earthquakes and to focus on the future, rather than being frequently reminded of the event. It is also possible that they were simply bored of the topic and talking about it had begun to annoy them.

Comments or actions of other people. Participants reported a range of comments or actions made by other people that were helpful for them. Specifically, participants found it helpful when others were positive and did not over-react to the earthquakes or aftershocks. This may have been because if others remained calm and positive, teenagers would feel more reassured and therefore, less upset and/or stressed. This is consistent with Shaw et al. (2007) who stated that children are continuously influenced by interactions with community members and that it is through such interaction that they acquire certain beliefs, including acceptable social behaviour and emotional expression. The results suggested that participants were also influenced by the extent to which they perceived others as moving on with their lives. That is, they found it helpful to see other people getting on and trying to resume normality. This may have been because it gave participants hope and encouragement that life would return to normal and no longer be driven so significantly by the earthquakes.

Participants also reported a number of unhelpful comments or actions made by other people, such as over-reacting to aftershocks, vandalizing property, negativity, not moving on, and/or being stressed. Interestingly, the comments and actions made by

other people were also reported by participants as being not only unhelpful in the first couple of weeks post-disaster, but also amongst the worst things overall. This shows that the comments and/or actions of other people can negatively impact on teenagers both immediately after a disaster, as well as nearly three years on. Such interactions, be it in person or through the media, could have reduced teenagers' ability to remain positive and cope with the earthquakes and/or have negatively influenced their mood, making them angry, stressed, worried, or frustrated. This is consistent with literature which states that a person's mood, behaviour and actions impact on other people (Mullins & Constable, 2007). For instance, if a person is in a low or angry mood, those around him are more likely to view things in a more negative light, and in turn, be more pessimistic.

A number of participants suggested that others were not doing anything or did not need to do anything to help them at the time of survey administration (June-September 2013). Based on their responses, it appears that these participants did not have any outstanding earthquake-related needs and did not believe that they needed further assistance from others; however, in saying this, a significant proportion of participants did indicate some need for continuing assistance from others, as well as the use of coping strategies to help themselves nearly three years following the earthquakes (e.g., thought avoidance, positive thinking).

These findings give insight into which areas to address and what can be done in the years following a natural disaster that youth may find particularly helpful. For example, it appears to be beneficial for youths' psychological wellbeing to witness the reconstruction or uprising of new buildings, houses, recreational facilities and so on. This is likely because it gives them hope and tangible evidence that their city or community is progressing. In turn, this helps to explain why the slow pace of the rebuild was a particular source of frustration for youth, and the negative consequences it reportedly had on their ability to move forwards from the earthquakes. Based on this finding, it would be beneficial for teenagers' psychological wellbeing if governments and councils commenced the rebuild of a disaster struck city as soon as possible. Even the construction of small areas or signs of small improvements could be helpful for teenagers' psychological wellbeing.

Personal factors. When participants were asked about what they were doing that was helpful for themselves at the time of survey administration (i.e., approximately 34 months post-earthquakes), there were three main responses. Firstly, a majority of participants reported the idea of moving on as helpful. This included returning to normality, as well as thinking positively and about the future. The use of thought avoidance was also commonly reported. These findings provided insight into what helped teenagers cope in the years post-disaster, and were discussed previously under the headings ‘Psychological Impact’ and ‘Normality and routine’.

Education was another important response, whereby participants explained that focusing on their education and working hard was helpful for them. This may have been because schoolwork was more or less in the teenagers’ control, which after the uncontrollability and uncertainty of the earthquakes, may have been readily welcomed. Being able to focus their attention on schoolwork would have also offered students a distraction, which as mentioned under the heading ‘Entertainment and distraction’, is a well-known coping strategy. This idea of distraction is further supported by the fact that participants reported the helpfulness of physical and social activities, as well as the usefulness of keeping busy and being preoccupied. By engaging in physical and social activities, the teenagers were not only actively distracting themselves but also returning to normal teenage activities, which in itself would have been helpful in terms of eliciting feelings of normalcy, as well as enjoyment. This is consistent with participants’ reports about the helpfulness of the rebuild in terms of providing leisure spaces.

Conclusion

Overall, the findings of Study 1 highlighted a number of important areas that could be considered when trying to support both current and future earthquake-exposed teenagers. For instance, following a major earthquake, teenagers place a particularly high value on physical basics, social support, and psychological support. There are also various secondary stressors that youth typically have to endure during the weeks, months and years post-disaster (e.g., aftershocks, damage to homes and schools, family conflict). Teenagers also need some form of entertainment and distraction, information and communication, and/or sense of normality and routine following a natural disaster. In terms of support figures, teenagers find parents and teachers to be particularly important sources of support. This support is not only needed immediately following a

disaster, but throughout the following months and years as well. In fact, up to three years later, teenagers can continue to be impacted by a disaster event, be it through external factors like the rebuild of their city and homes, or personal factors like the development of coping strategies (e.g., returning to normal, thinking positively, focusing on the future).

By gaining insight into what is important and helpful to disaster-exposed youth, particularly from their perspective, it is likely that a more supportive post-disaster environment could be created that offered empirically informed youth-based psychosocial support. Ultimately, it is expected that such support could help alleviate post-disaster distress and reduce the number of teenagers developing clinically significant psychological disorders.

Study 1 served to provide an *overview* of the experiences and needs of earthquake-exposed teenagers; however, one limitation of survey research concerns its generally superficial and abstract measures, and limited ability to tap into deeper emotions, feelings, uncertainties, doubts, and beliefs (Klandermans & Smith, 2002). Therefore, a second study was necessary to extend this enquiry and to provide a more detailed and deeper understanding of teenagers' experiences. For this reason, Study 2 was conducted and involved the use of six focus groups, each including teenagers (16-18 years old) who had experienced the Canterbury earthquakes, and attended a school in the Christchurch City area. The guiding questions for these focus groups were primarily informed by the findings from Study 1 and intended to uncover a richer description of important areas investigated in Study 1 (e.g., psychological impacts, the influence of family and school on youths' wellbeing, teenagers' need for entertainment, and views about the community response, rebuild and personal recovery). Another limitation of Study 1 was its lack of data on participants' traumatic exposure (e.g., damage to their houses, personal experiences of when the earthquakes hit, whether they had a close friend or family member die). Such information would have assisted in the interpretation of the results – a realisation which helped to inform the type of data collected in Study 2. The methodology, results and discussion (including implications) of this second study are presented in the following two chapters.

CHAPTER SEVEN: STUDY 2 METHODOLOGY

This chapter outlines the methodology used to conduct Study 2 and to address the research questions listed in Chapter Three. Specifically, it includes study design, recruitment, participants, focus groups, procedure, ethical considerations, and data analysis.

Design

Like Study 1, Study 2 aimed to explore the needs and opinions of earthquake-exposed teenagers following the Canterbury earthquakes; however, Study 2 also aimed to extend and provide deeper insight and understanding into this research topic in a way that was not attainable through a survey study. Unlike the mixed quantitative and qualitative cross-sectional design of Study 1, Study 2 employed the use of focus groups and was thus, a cross-sectional qualitative study aimed to obtain a greater depth of understanding into the needs and experiences of earthquake-exposed teenagers.

The main purpose of this research was to give teenagers a voice. According to Boyden (2003), by simply relying on a survey (i.e., Study 1), concepts and situations that are important to a study population (i.e., earthquake-exposed teenagers) may not be captured, while circumstances deemed important by the researcher may not be of any real concern to the participants. Therefore, a participatory youth-focused research method (e.g., focus groups) was required to allow teenagers to voice their opinions, thoughts and interpretations of events. According to Eder and Fingerson (2002), this then allows topics that are salient in the participants' lives to be highlighted, which then helps to identify which areas the researcher should study. Moreover, it puts the researcher in a better position to fully comprehend the scope of the teenagers' needs and vulnerabilities following the Canterbury earthquakes.

Focus groups satisfy three key assumptions associated with the qualitative paradigm, as described by Vaughn, Schumm, and Sinagub (1996). The first assumption claims that the nature of reality is phenomenological and multiple views of reality exist. This idea is consistent with focus group discussions in that diverse opinions and perspectives within the group are not only desired but also fundamental to the focus group. The second assumption refers to the potential influence of the enquirer-respondent relationship.

Again this is consistent with focus groups, which recognise that the depth and dimension of the knowledge obtained can be potentially enhanced by both moderator-respondent and respondent-respondent interactions. The third assumption of the qualitative paradigm concerns the idea of truth and its nature. That is, truth is influenced by perspective and can be explained through the description of a particular set of issues or concepts in association to a particular context. With focus groups in particular, the goal is not to generalize the findings to larger populations but rather to conduct interactive discussions from multiple perspectives and to document the contexts from which respondents' understandings were derived (Vaughn et al., 1996).

Focus groups subsequent to the survey. The decision was made to conduct the focus groups subsequent to the survey for the following reasons. Firstly, comparisons with survey research reveal that focus groups provide further interpretation and enrichment of previously obtained results. That is, in the event that a survey did not or could not address particular issues, or that it provides findings that are surprising to the researcher, focus groups can be used to help further inform the survey results (Rea & Parker, 2005). This is particularly applicable to the purposes of Study 2 and the opportunity it provided to further explore themes and ideas that emerged from Study 1. For instance, the focus groups allowed further exploration of participants' views about relocation, their involvement in the community response, and their ideas about recovery.

There are also certain aspects of focus groups that allow for discussions to go deeper and for more detailed information to be obtained compared to surveys. Specifically, focus group research uses participant interactions in ways that survey research cannot. For instance, interactions can be used to reveal multiple and different perspectives on a specific topic, as well as to gain insight into group dynamics, such as the level of consensus and disagreement among participants (Litoselliti, 2003). In addition, participants not only share their own views and experiences but also listen to and reflect on other group members' responses. This may subsequently trigger material not otherwise considered or cause participants to consider their own viewpoints further. These interactions help the discussion progress and move it towards a deeper and more considered level (Finch & Lewis, 2003). According to Strother (1984), more accurate information about what participants actually think is obtained from focus groups compared to other research methods. This may be partly due to the idea that compared

to most surveys, group participants can clarify uncertainties, as well as extend and provide examples (Vaughn et al., 1996). Focus groups also provide rich amounts of data that, compared to surveys, give deeper levels of meaning to a given topic (Litoselliti, 2003) and allow participants to express their views in their own words and contexts and to qualify their own responses. As a result, focus groups offer certain ecological validity in a way that survey research does not (Stewart, Shamdasani, & Rook, 2007).

Focus group research maintains the assumption that with regard to themselves, people are valuable sources of information and that through direct extended conversations with these individuals, much can be learned (Lederman, 1990). Although this is also the case with one-on-one interviews, there were a number of reasons why focus groups were the preferred research method for this study. Firstly, it has been found that when children are part of a group, as opposed to being the target of an individual interview, they will more readily express themselves (Yin, 2010). This may be because within focus groups, the availability of peer support provides comfort and helps reduce social desirability bias or tendencies for the interviewee to try to impress the interviewer (Vaughn et al., 1996). Unlike individual interviews, members of the focus group do not have to respond to every question or comment (Hisrich & Peters, 1982). For this reason, it is suggested that focus group responses are more substantial and genuine (Schoenfeld, 1988). Additionally, focus groups provide the opportunity for a range of opinions to be heard due to its encouragement of open and spontaneous responses (Byers & Wilcox, 1991). Therefore, according to Lederman (1990), the data obtained from focus groups are often richer and fuller than that available from individual interviews.

Recruitment

Sampling strategy. As was the case in Study 1, schools were selected based on a non-probability purposive sampling strategy, and included high schools in the Christchurch City region that went up to and included Year 13 students. Initially, schools that consented to Study 1 were purposively selected. The reason for asking these particular schools was because they had already expressed an interest in the research by participating in Study 1, and a research relationship had already been established with them, therefore, making them more likely to consent to Study 2. Of the four participating schools in Study 2, three had already participated in Study 1; however, due to anonymity, it was unknown if the focus group participants themselves had also

completed the survey in Study 1. The remaining fourth school had initially declined consent to Study 1, but gave their consent for Study 2.

Recruiting schools. Once ethical approval was granted by the Massey University Human Ethics Committee (MUHECN 13/47), selected schools were contacted via email, informing them about Study 2 and requesting their assistance in identifying and contacting potential participants for the focus groups. Along with this email, the school was sent a consent form, which they returned either accepting or declining consent to participate.

In total, seven schools were invited to participate in Study 2. Of these schools, four agreed to be involved in the focus groups. See Table 20 for a description of these consenting schools and Table 21 for a description of the non-consenting schools (including their location relative to the city centre, type, gender, authority, decile rating, and total roll for Years 11-13). Consenting schools were contacted via email and dates and times were arranged for the conduction of the focus groups.

Table 20

Description of Study 2 consenting schools

School	Location	Type of school ¹	Gender	Authority ²	Decile rating ³	Total roll (Years 11-13)
1	East	Secondary	Co-ed	State	2	262
2	West	Secondary	Boys	State	9	749
3	West	Composite	Girls	Private	10	326
4	West	Secondary with intermediate	Girls	Private	10	361

¹ Secondary: Years 9-13; Secondary with intermediate: Years 7-13; Composite: Years 1-13.

² State: Fully state funded; Private: Privately owned and operated.

³ The lower the decile of a school, the higher the proportion of students from low socio-economic communities.

Table 21

Description of Study 2 non-consenting schools

School	Location	Type of school ¹	Gender	Authority ²	Decile rating ³	Total roll (Years 11-13)
5	East	Secondary	Co-ed	State	2	463
6	East	Secondary with intermediate	Co-ed	Integrated	3	165
7	East	Secondary	Co-ed	State	4	193

¹ Secondary: Years 9-13; Secondary with intermediate: Years 7-13.

² State: Fully state funded; Integrated: Funded partly privately and partly by the state.

³ The lower the decile of a school, the higher the proportion of students from low socio-economic communities.

It is interesting to note that all three of the non-consenting schools were from the east side of Christchurch and were of lower decile ratings. These schools may have thought it was in their students' best interest not to participate, either because they had already received research attention or did not want to risk upsetting their students, especially due to the extent of damage inflicted on the east and the continuing impacts of this on families and individuals. The focus groups were also conducted near the end of Term 3, which is a particularly stressful and busy time for schools and may have contributed to their decision not to participate. It is possible that by declining consent, the representativeness of the population sample was negatively influenced. This is discussed in more detail in Chapter Nine, under the heading 'Limitations'.

Participants

The participants who took part in the focus group discussions were English-speaking students, who attended a secondary with intermediate (Years 7-13), composite (Years 1-13), or secondary (Years 9-13) school in the Christchurch City area and experienced at least one of the major Canterbury earthquakes (i.e., September 2010, February 2011, June 2011). In total, 33 students were recruited to participate in the focus groups and were between the ages of 16 and 18 years. Of these students, 31 (male = 13; female = 18) attended their assigned focus groups – the exact reasons for the absence of the two initially recruited students are unknown. The majority of participants were European (77%), followed by Pacific Islander (13%), and Asian (10%). See Table 22 for a description of each focus group, including the number of participants, gender, ethnicity, year group(s) involved, and school decile.

Table 22

Description of focus groups

	Number of participants	Gender	Ethnicity	Year group(s) involved	School decile
Group 1 ¹	5	Girls	NZ European	Year 12	10
Group 2 ¹	6	Co-ed (4 girls, 2 boys)	NZ European, Pasifika	Years 12-13	2
Group 3 ¹	6	Girls	NZ European	Years 12-13	10
Group 4 ¹	6	Boys	NZ European, English	Years 11-13	9
Group 5 ¹	5	Boys	NZ European	Year 12	9
Group 6 ²	3	Girls	Korean, Chinese	Year 11-12	10
Total	31	-	-	-	-

¹Domestic students²International students

For one of the focus groups (Group 6 – see Table 22), an additional criterion for inclusion was that participants were international students. This sub-group was primarily included as the Dean of International Students of one of the participating schools requested it, thus, making the sample population more representative of earthquake-exposed teenagers in Canterbury. The international students were foreign nationals who had been residing in Canterbury primarily for educational purposes for at least three years (i.e., had experienced at least one of the earthquakes since and including September 2010). The group comprised of Korean and Chinese students, and intended to begin exploration into the perspectives of non-domestic students.

With exclusion criteria, it was recognised that some students may have been experiencing continued post-earthquake problems, or other difficulties, and that it was at the schools discretion to exclude any particular student(s) from partaking in the study based on these difficulties. It is unknown if any of the schools excluded any of their students from participating. Consenting schools were informed of these inclusion and exclusion criteria, and recruited participants on their own accord. Specifically, two schools approached specific classrooms, another approached known students at lunch time, while the last used their intranet network to advertise the study.

Group characteristics.

Homogeneity. Litoselliti (2003) suggests that participants are more likely to express personal views and disclose more if they participate in groups with people whom they perceive as similar to themselves. It is also recommended that where possible, group participants are homogenous in terms of background, demographic and sociocultural characteristics (Litoselliti, 2003). According to Fern (2001), such homogeneity means participants will likely identify more with other group members and contribute to a cohesive discussion. In Study 2, participants were homogenous in the sense that they all attended the same school, were within the same age range, and had all experienced the Canterbury earthquakes; however, in saying this, a balance between similarities and differences is also suggested so that groups are not too homogenous and therefore, restrictive of the diversity of opinions and experiences. It could be said that this balance was achieved, as despite their similarities, Study 2 participants also had differences in terms of such things as family structure and in some cases, culture and friend groups.

Friendship groups. Some researchers advocate for the inclusion of strangers in focus groups (Vaughn et al., 1996), the reason for this being that by including strangers, the ‘inhibiting’ and ‘polluting’ impact of existing participant relations can be avoided (Kitzinger, 2005). It is also suggested that friends can influence group cohesion, support each other’s views, engage in private conversations and prevent other participants from disclosure (Litoselliti, 2003). In terms of the latter, there is concern that participants may be hesitant to disclose or over-disclose private or confidential matters if the group includes pre-existing friends (Brannen & Pattman, 2005). In addition, according to Peek and Fothergill (2009), strangers are more likely to freely disclose, be truthful, and express different perspectives with unfamiliar people, as they are unlikely to see them again once the focus group has concluded.

In terms of Study 2 and the method of recruitment, focus group participants were all from the same school and close in age. Therefore, it was impractical for them to be complete strangers. Thus, this particular recommendation could not be fulfilled; however, allowing friends in the focus groups did increase the likelihood of participation and likely made participants feel more comfortable. Research has also suggested a number of additional advantages. For example, friends have shared experiences or stories, which can be used to prompt one another. They can also

challenge each other and bring out partly forgotten memories (Wilkinson, 2004b). In addition, one study found that “representative” groups required considerably more intervention and direction from the moderator than did friendship groups (Davis & Jones, 1996). According to Lewis (1992), the free expression of ideas is facilitated in friendship groups as they have already moved through the early stages of group behaviour. It is advantages like these that can counterbalance the potential difficulties of having friends in focus groups (Bloor, Frankland, Thomas, & Robson, 2001; Munday, 2006). Further, by including friends, researchers are able to observe parts of interactions that resemble natural occurrences (Liamputtong, 2011). There may also be situations where participants are reluctant to talk with strangers, making it impractical or not permissible to have strangers in the focus groups (Leask, Hawe, & Chapman, 2001). In these particular situations, it may be familiarity rather than anonymity that encourages dialogue to flow freely (Liamputtong, 2011). Overall, although there were potential risks associated with the inclusion of participants who knew one another (as mentioned previously), the researcher was conscious of these limitations while conducting the focus groups and made every effort to prevent their occurrence by for example, ensuring that everyone had the opportunity to answer a question and discouraging private conversations.

Gender make-up. There appears to be mixed recommendations concerning the gender make-up of focus groups. There is evidence to suggest that in mixed-gender groups, the likelihood of conformity is greater due to concerns about interpersonal relationships (Reitan & Shaw, 1964; Litoselliti, 2003), and that males have a tendency to dominate the discussion (Litoselliti, 2003), to be more “personally” oriented and to talk about themselves more often (Aries, 1976); however, in same-sex groups, males are more focused on competition and status, while females develop more ways of expressing interpersonal concern and affection (Aries, 1976). Further, Dyson, Godwin, and Hazelwood (1976) found that leadership traits emerge more frequently in mixed-sex groups. Based on this research, it is expected that the gender composition of a group can largely influence the nature of the interactions and the quality of the data gathered. Therefore, many researchers carry out both mixed-gender and same-sex focus groups (Stewart & Shamdasani, 2014). It was also for this reason that the present study aimed to conduct both mixed- and single-sexed groups; however, ultimately, a majority of the focus groups in Study 2 were single-sexed. One advantage of this is that according to

Davis and Jones (1996), single-sex groups with teenagers produce richer material than mixed groups. This may be because older children and teenagers of opposite sex have different interests and attitudes that result in conflicting viewpoints (Greenbaum, 1988), as well as different or conflicting agendas (Davis & Jones, 1996).

Sample size. In total, six focus groups were conducted, each consisting of three to six participants. By the fifth focus group (all including only domestic students), relatively redundant information was being obtained and according to Krueger and Casey (2000), it is at this point where sampling can be discontinued; however, the opportunity was taken to conduct a sixth focus group, which consisted of only international students and intended to explore the experiences and views of non-domestic youth.

According to the literature, smaller focus groups of four to six participants are becoming increasingly common as, compared to larger groups, they are easier to recruit and host. They are also more comfortable for participants (Krueger & Casey, 2000). One purpose of this research was to gain a deeper understanding of teenagers' earthquake experiences. Therefore, Study 2 was designed in a way that encouraged in-depth insights. Krueger and Casey (2000) state that smaller groups are best suited for this purpose. Additionally, smaller groups give participants more of an opportunity to share their experiences. Based on these factors, it was initially decided that each focus group would consist of four to six earthquake-exposed students. This was achieved with the exception of Group 6, where the fourth participant did not attend for reasons unknown.

Procedure

The focus groups each lasted 50-60 minutes and were all conducted on school grounds in September 2013. A student information sheet (see Appendix D) was provided to consenting schools to be made available to participating students. Each discussion began with the researcher introducing herself and explaining the purpose of the research. Privacy and confidentiality were emphasised and participants were informed about their rights to ask further questions and to withdraw from the focus group discussion at any stage. Participants were informed that the conversation was going to be video- and audio-recorded so that the researcher did not forget any of their comments, and were

then asked to sign a consent form and confidentiality agreement (see Appendix E and F respectively).

The discussions began with each student outlining what had happened for them when their worst earthquake hit and then continued on with the researcher asking specific guiding questions (see Appendix G for a copy of the guiding questions for domestic participants, and Appendix H for international participants). Specifically, these questions first referred to the time nearer the earthquakes (i.e., days, weeks, months post-earthquakes) and concerned such areas as participants' family, social life, school, and community (e.g., How did your family deal with the earthquakes? What are your thoughts about your community's response following the earthquakes?). The questions then shifted to the years following the earthquakes (i.e., up till the time the focus groups were conducted – September 2013) and concerned such factors as family, school, recovery, and the rebuild (e.g., What are your thoughts about recovery – what does it mean to you? What are your thoughts about the rebuild of your city?). The guiding questions for international participants were very similar to those for domestic participants; however, there were some adjustments and additions. For example, references were made to family members in home countries, and questions were asked about possible cultural differences and impacts of language barriers.

To show appreciation for their time and effort, participants either received a \$20 iTunes voucher or a \$20 Prezzy Card. During each of these focus groups, an ethical support person was present in the event that a student got particularly distressed and needed to leave the discussion (see 'Ethical considerations' below for more detail).

Following the conduction of the focus groups, the video and audio recordings were securely stored on the researchers computer in a password-protected folder. The researcher then transcribed these recordings into a word document, ensuring that all names and other identifying information were removed.

Once the researcher had analysed the data (see 'Data Analysis' below for more details), a summary of the findings was emailed to participating schools, as well as participants who had requested a summary of the findings (see Appendix I).

Ethical Considerations

There were two main ethical considerations that were of importance to the researcher and participants. Firstly, the discussions focused on earthquake-related issues, which had the potential to cause distress or upset participants. Therefore, as a cautionary measure, an ethical support person was present during each of the focus groups. This person was a post-graduate psychology student, who although was present in the room, was positioned at a distance from the focus group and did not participate in the discussions in any way. In the event that a distressed student left part way through the discussion, and so they were not left alone, the ethical support person would care for the student until she accompanied them to the school counsellor, made arrangements for a caregiver to collect them, or put them in contact with a local support agency; however, in the end, this situation did not eventuate.

The second ethical consideration concerned confidentiality of participants, as well as the information shared among the group. In order to protect the privacy and confidentiality of participants in write-ups of the study, all identifiable information was removed from the transcriptions or modified. With identifiable information in quotations (e.g., personal names, places, parent's employment), more generic terms (e.g., sibling, friend, town, place of employment) were used instead. Participants also signed a confidentiality form, which declared that all information discussed within the focus group would be kept confidential.

Data Analysis

The data obtained from the focus groups were analysed using thematic analysis. This analysis was used due to the comprehensiveness and richness of the data set, and was based on Braun and Clarke's (2006) six-phase procedure. According to Braun and Clarke (2006) thematic analysis can be seen as a foundational approach to qualitative analysis, or more specifically as "a method for identifying, analysing, and reporting patterns (themes) within data" (p. 6). Such themes are found by searching across the data set, in this case transcripts. Additionally, thematic analysis is particularly appropriate for research questions that are focused on the content of what people say (Sullivan, Gibson, & Riley, 2012), which is particularly relevant to this study.

Process. According to Gibbs (2007), reliability in qualitative inquiry refers to the researcher's approach and its consistency across different researchers and projects. In order to begin demonstrating reliability and to allow for further replication and investigation, each step of the analytical procedure should be documented and made explicit (Greene, 2000).

To begin with, the researcher transcribed the verbal data obtained from the six focus groups into written form using Microsoft Word. In order to ensure the accuracy of these transcriptions, the researcher listened to the recordings a second time while following the written transcripts, correcting any errors that arose. These transcripts were then saved and printed. By carrying out this transcribing-process, the researcher had begun the task of becoming familiar with the data set; however, in order to continue this task and to become even more familiar with all aspects of the data, the entire data set was actively read and re-read. The researcher made hand written notes directly on the transcripts, including ideas for coding, which later assisted with the coding process by marking ideas for later consideration. The researcher then generated an initial list of ideas about features of the data that were particularly interesting (Braun & Clarke, 2006) - for example, ideas about family, recovery, and community response, including youths' involvement.

In order to assist with the coding process, the transcripts were imported into an online software programme called Dedoose. Using this software, the researcher systematically went through the six transcripts, tagging and naming sentences or paragraphs within each data item. The coding (i.e., organization of basic sections of data into meaningful groups [Tuckett, 2005]) was primarily data-driven. That is, an inductive approach was used and the themes identified were closely linked to the data (Patton, 1990), rather than to a pre-existing coding frame, or analytic preconceptions; however, it is important to highlight the fact that no researcher can rid themselves of their 'theoretical and epistemological commitments' and that coding does not occur in an 'epistemological vacuum' (Braun & Clarke, 2006). The researcher coded the entire data set and Dedoose automatically collated data extracts within each code. A long list of codes (i.e., 165), identified from across the data set, was then produced.

These codes were carefully analysed and considerations were made as to how different codes could combine into overarching themes. These themes were identified based on a semantic approach, in that the researcher was interested in the surface meanings of the data and nothing beyond what the participants said. Analysis involved the consideration of relationships between codes, between themes, and between different levels of themes (e.g., main themes and sub-themes) (Braun & Clarke, 2006). Initially this led to 165 codes being grouped into 23 themes; however, in order to get an even better picture of the significance of individual themes, further coding work was carried out. Following a thorough revision of the data extracts for each theme, sub-categories and overlapping themes were identified. Themes were refined, combined, or discarded, while codes that did not seem to work in already-existing themes were relocated, or discarded from the analysis (Braun & Clarke, 2006). Ultimately, an attempt was made to theorise the significance, broader meanings, and implications of the patterns identified in the data (Patton, 1990). This resulted in 71 codes, grouped into 20 themes. In order to clearly present and discuss these themes, they were organised into seven major areas (i.e., Individual, Family, School, Community, National, International, Participants' Advice for Future Planning). With the exception of Participants' Advice for Future Planning, these areas were then incorporated into an ecological model combined with a timeline spanning from the initial earthquakes (September 2010 and February 2011) till September 2013 (time of focus groups). This model is presented in the results section below. See Appendix J for the final thematic table including the complete set of themes and codes, organised according to the seven major areas identified.

The reviewing of the candidate themes occurred at two levels. The first involved the level of the coded extracts and assessed internal homogeneity, while the second concerned the entire data set and assessed external heterogeneity (Braun & Clarke, 2006; Patton, 1990). Therefore, the final themes were evaluated in terms of whether the coded extracts within them formed a coherent pattern, and whether the themes appeared valid in relation to the data set. Lastly, a final thematic map was created that "accurately reflected the meanings evident in the data set as a whole" (Braun & Clarke, 2006, p. 91). An accurate representation of the data was achieved as the thematic map represented the researcher's theoretical and analytic interest (i.e., it gave a detailed analysis of a majority of the data).

CHAPTER EIGHT: STUDY 2 RESULTS AND DISCUSSION

While Study 1 provided an overview of teenagers' experiences of the Canterbury earthquakes, Study 2 aimed to elicit an even deeper, more detailed level of insight into these experiences and to explore teenagers' opinions about a range of relevant factors occurring from the time the earthquakes hit (2010) till the conduction of the focus groups three years later (2013). In particular, these factors pertained to such things as psychological responses, family life, community response, school, support, rebuild, and recovery - factors that were deemed relevant to teenagers based on participants' responses in Study 1. Therefore, this chapter provides a window into teenagers' personal experiences of the earthquakes, as well as their views about factors relevant to the response, rebuild, and recovery stages of a disaster. These findings are presented and discussed, including their implications for current and future earthquake-exposed youth.

Following analysis, seven major areas were identified, including Individual, Family, School, Community, National, International, and Participants' Advice for Future Planning, and are presented in the final thematic map in Figure 5. With the exception of Participants' Advice for Future Planning, these major areas were conceptually similar. Therefore, in order to organise and present these six areas (including associated themes), they were incorporated into an ecological model combined with a timeline (see Figure 6). This model is grounded in the personal accounts obtained from earthquake-exposed teenagers. It includes six levels, each including associated themes: (1) Individual, (2) Family, (3) School, (4) Community, (5) National, and (6) International. The scale of importance demonstrates the strength of each of these levels (i.e., themes that appeared more important to participants at the time of the discussions). As the model shows, the relevance of these levels to youth differs depending on the time period after the initial 2010/2011 earthquakes (i.e., Immediate, Inbetween, Year of Focus Groups). It is important to emphasise that these time brackets are approximations based on participants' personal accounts. Specifically, 'Then' refers to immediately after the earthquakes (i.e., approximately the first four months), 'Inbetween' refers to the period between the first four months post-quake and the end of 2012, and 'Year of Focus Groups' refers to the year the focus groups were conducted (2013). Each of the six levels and associated themes of the ecological model are discussed below, with

references made to the approximate time period(s). This is then followed by a discussion of the seventh major area, Participants' Advice for Future Planning.

It is important to be aware that when interpreting the results from Study 2, the following limitations should be considered. Firstly, according to Robson (2002), lacking generalisability is inherent within qualitative research. With focus groups this is particularly because of the small number of respondents and the typical convenient nature of recruiting practices (Stewart & Shamdasani, 2014). In addition, only 3 out of the 31 participants were international students with all three being female. Consequently, the generalisability of the findings regarding international students is limited; however, despite these limitations, by obtaining rich accounts from teenagers own voices highly valuable insight was gained and knowledge provided that could not have been obtained in any other way. Further, this kind of research does not aim to generalise its findings – rather it aims to obtain understandings and meanings that can be used to develop theoretical models or conceptualisations. It is these models or conceptualisations that can then be generalised and tested in other situations or contexts (rather than the specific findings per se).

A second limitation of the focus groups concerns the interactions between participants. That is, the responses of group members were not independent of one another, thus, potentially impacting on the generalisability of the findings. It is also a possibility that the researcher unknowingly provided group members with cues about what responses were desirable, or sought to attain group consensus on certain topics, therefore, potentially influencing the results obtained; however, the researcher was aware of this possibility while conducting the discussions and made every attempt to prevent its occurrence. Lastly, and in terms of the recruitment of participants, students were not randomly selected, with one school in particular approaching certain students at lunchtime. It is possible that such an approach may have biased the findings obtained from that group. That is, the reasons for why those particular students were selected may have influenced the types of responses obtained.

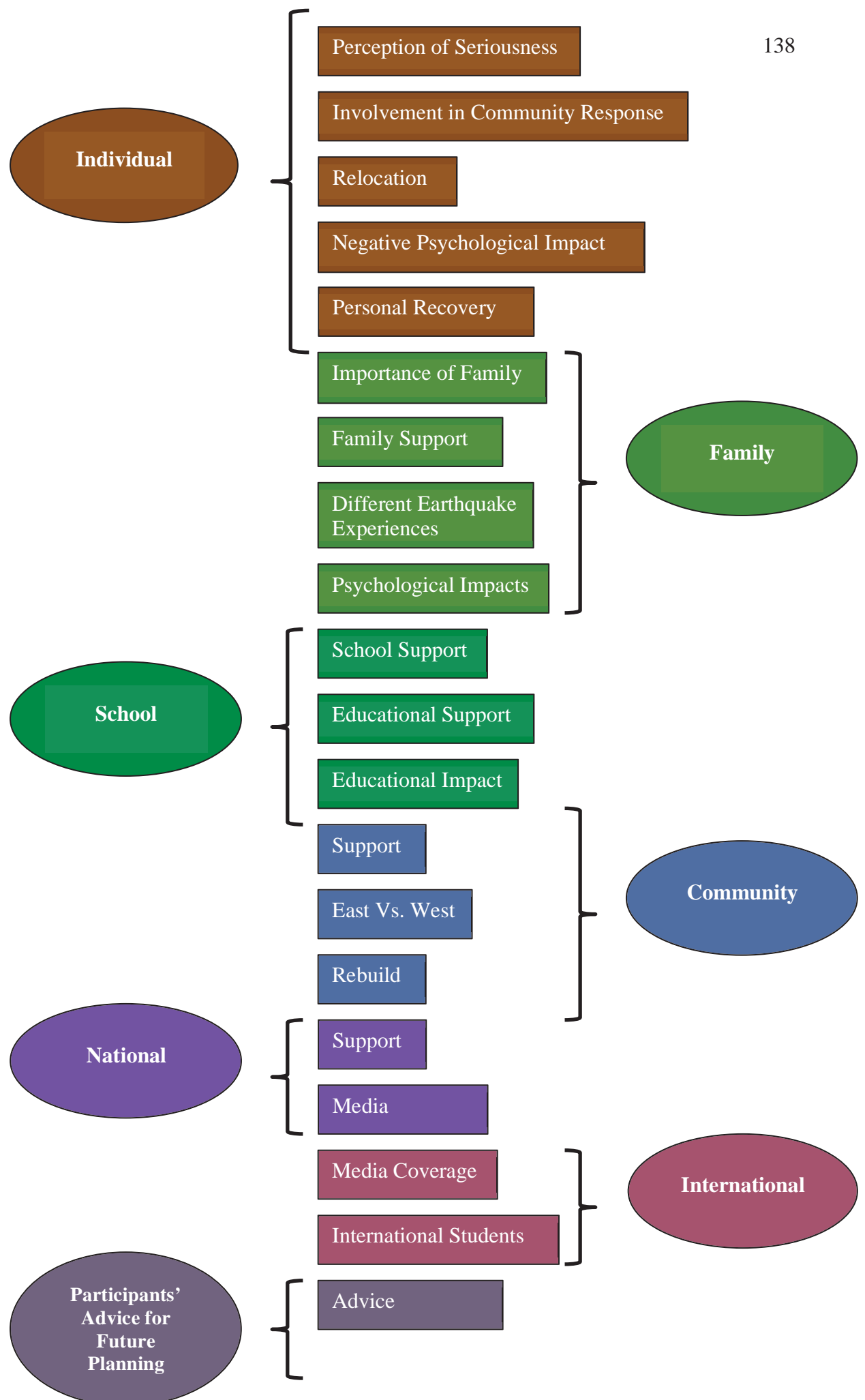


Figure 5. Thematic map showing seven major areas and associated themes.

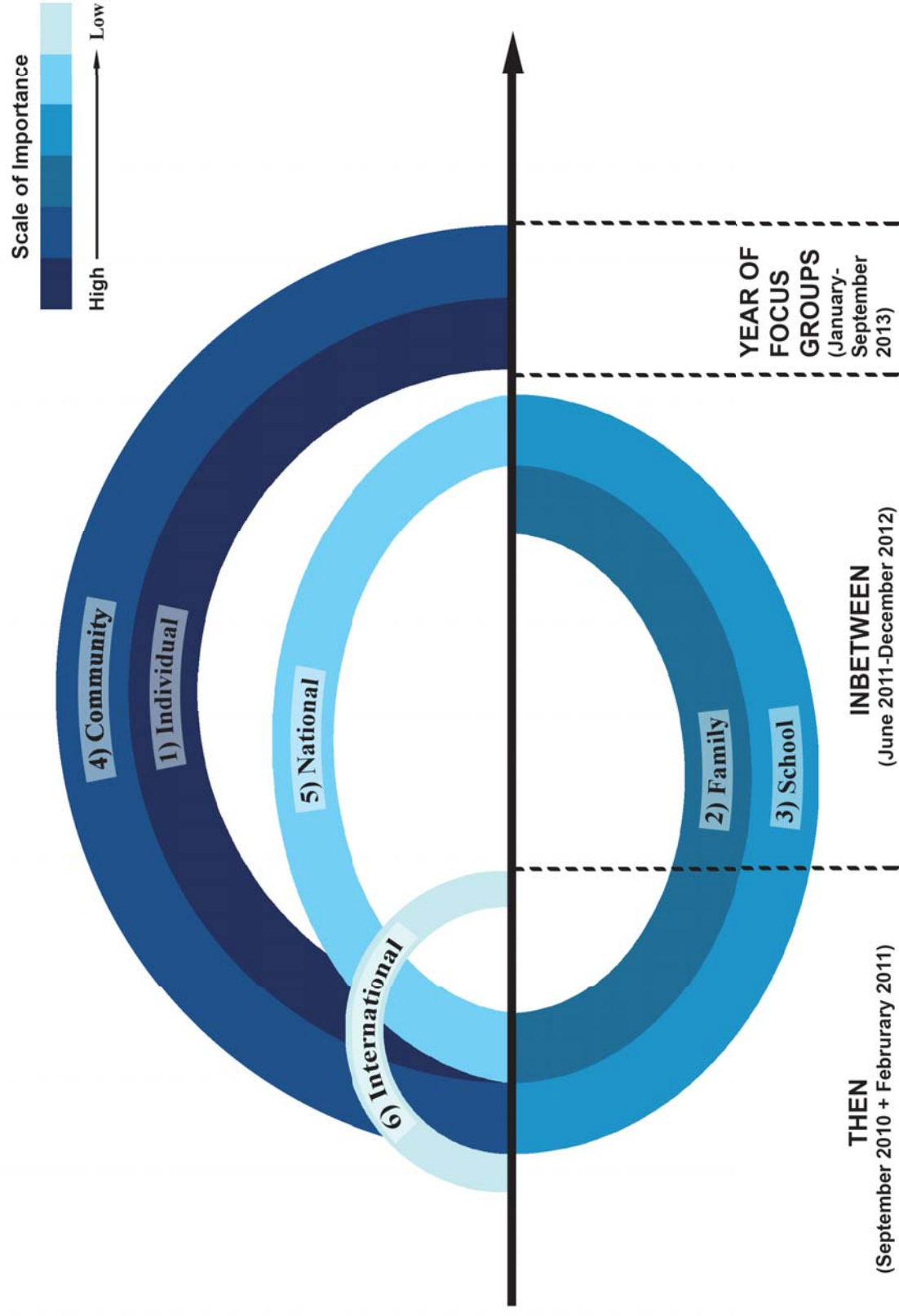


Figure 6. An ecological model of six major areas identified by teenagers following the Canterbury earthquakes, organised according to three time periods ('Then', 'Inbetween', 'Year of Focus Groups').

Individual

The individual level of the model refers to aspects of participants' reported experiences and opinions that specifically concerned the individual person. As the model shows, these factors appear across the timeline from the time at which the earthquakes hit (Immediate – 2010/2011) till approximately three years later (Year of Focus Groups - 2013). Some individual factors were more relevant back 'then' as opposed to three years later, while others continued to influence participants over time.

These factors have been divided into five themes, including personal perceptions of the seriousness of the earthquakes, personal involvement in the community response, relocation, and the negative psychological impact of the earthquakes. Perceptions of personal recovery were also relevant to this level. Each of these themes is discussed below, and includes specification as to what period of time they were most relevant to.

Personal perception of the seriousness of the earthquake [Immediate]. When the February earthquake hit, some participants did not realise the extent of its seriousness until they saw or heard particular things. Therefore, it is expected that by identifying these 'things' we can determine which factors contribute to youths' perceived seriousness of a natural disaster.

From participants' statements it appears that the extent of the resulting damage and the deaths were primary contributors to their perceptions of seriousness. Participants made comparisons between the September 2010 and February 2011 earthquakes, which highlighted these factors:

The last one didn't actually seem to do as, like no one seemed to die, so it was sort of like 'oh just another quake' you know. It wasn't, it didn't seem that serious until people were actually found dead of it. (Male, Group 5)

In addition, despite being amongst the worst hit areas, participants from the east side of Christchurch explained that when they eventually became aware of the full extent of the damage in town and the deaths, their perceived seriousness of the event increased still:

We didn't know that town, yeah we didn't know what else was happening, all we knew was what was happening on our street...and in our area, and when I seen the damage in town and hearing all these stories, I was just shocked like I didn't

know it was that bad, and I didn't even know like how many people died.
(Female, Group 2)

Overall, it was not factors about the earthquakes themselves (e.g., their size, feeling) that ultimately influenced participants' perception of their seriousness, but rather the amount of damage to the city, the extent of people affected, and the resulting deaths. Therefore, from a youth's perspective, it appears that these factors are particularly important when it comes to determining the significance of earthquakes. This perception of a disaster's seriousness can then influence young peoples' response and their possible psychological post-disaster distress (e.g., Weems & Overstreet, 2008). That is, if teenagers are exposed to a disaster that results in significant damage and deaths, and affects a wide range of people, they are at a greater risk of responding adversely. It is important to note that none of these participants had lost an immediate family member in the earthquakes, meaning these findings are limited to broader characteristics of earthquakes as opposed to personal experiences of death (e.g., of a mother).

Based on this finding and in the future event of another natural disaster, greater short- and long-term support may be necessary depending on the extent to which these factors were present (i.e., the greater the extent of damage and/or number of deaths, the greater the perceived seriousness of the event; the greater the intensity of one's reaction to the event, the higher the need for psychological support resources). Therefore, by being aware of these factors, appropriate post-disaster responses could be made or actions put in place, so to potentially reduce such post-disaster distress. This is further discussed in Chapter Nine under the heading 'Youths' perceptions of seriousness'.

Personal involvement in the community response [Immediate]. For a majority of participants, being involved in the community response was either something they did or something they wanted to do following the earthquakes. This theme specifies what participants did to help, why they wanted to help and for some, the restrictions that prevented them from getting involved.

Firstly and most importantly, participants expressed a desire to be involved in their community's response and to help following the earthquakes:

I reckon the worst bit though was just feeling so, like cause it wasn't, like it was awful afterwards but when you were at home for a few weeks and you see everything that needs to be done, but you can't do it and you just feel so helpless cause you like, I want to go out and help. (Female, Group 3)

How teenagers helped their community. Participants who did help following the earthquakes primarily helped with clean-up efforts, such as shovelling liquefaction and silt, and helping clear away damaged chimneys, as well as with baking and distributing food to those who needed it. Participants also spoke about the helpfulness of a community-based event that gave them the opportunity to help their community:

Speaker 1: The concert was a really good idea.

Speaker 2: [Sam Johnson] organised the concert, like it was free, you just had to do four hours of...

Speaker 3: Service for earthquake recovery.

Speaker 2: So like you would just sign up online and you would tick what you wanted to do, and so they would tell you where it was and like, so that was really good, like you could just go do it.

(Females, Group 1)

Additionally, one participant explained that if you couldn't physically help, talking to others was also a way of helping:

I talked to a few people and they were like 'oh I feel so bad cause like I'm not doing anything, like I'm not baking or cooking', you know doing any of that kind of stuff, and I was like 'well you know you're still helping people by talking to them and like, even if you're not doing something hands on, giving them support is really important'. (Female, Group 3)

Benefits of helping out. The teenagers then went on to speak about the reasons for why they wanted to be involved and the range of benefits that helping out provided them personally. Some participants mentioned that helping gave them something to do and was a distraction:

[Helping] was really helpful, just to kind of put it all behind you I guess, and to feel like you were actually doing something, as opposed to just sitting there and waiting for another earthquake to happen. (Female, Group 1)

Other participants explained that it made them feel good about themselves:

You see like those peoples' faces, like you just feel quite satisfied that you've done something good, you know, like a good deed kind of thing. (Female, Group 3)

According to some participants, helping gave them a sense of purpose or control:

[The student volunteer army] gave us an organised feeling of being able to do something that was right and that was doing something, like a sense of purpose, and so in whatever form that is, getting that sense of purpose. (Female, Group 2)

For me it kind of felt like you could actually control something cause, like obviously you can't control the earthquakes, but being able to help someone and comfort them, it's like, ok I can do something to improve the situation for someone else. (Female, Group 1)

Two participants also indicated that helping others helped with their own personal recovery (personal recovery is discussed later under the sub-heading 'Perceptions of personal recovery'), while others said that it gave them some perspective:

There's sort of worse stuff out there that people are going through, like so [helping] sort of stops you from being selfish in a way. (Female, Group 1)

Overall, this theme concerned young peoples' involvement in the community's response during the initial weeks or months following the earthquakes, particularly following that in February 2011. It is first important to note youths' strong desire to be involved in the response and to help others. As stated by Anderson (2005), youths are not passive onlookers in the face of natural disasters, but instead become involved in the disaster response. In fact, according to the National Mental Health Association (2005), adults should help children find ways of helping others during the aftermath of a disaster, regardless of their age. Fothergill and Peek (2006) explain that engaging in this process of helping others can reassure children and help them deal with their own sense of loss and anxiety. It can also give them a sense of agency (National Association of School Psychologists, 2008). This is consistent with findings from the 2013 Canterbury Youth

Wellbeing Survey (CERA, 2014), which found that 75% of respondents (aged 12-24 years) identified the act of helping family, friends and the community as being a positive outcome experienced due to the earthquakes.

Consistent with the findings of the current study, Wenger and James (1994) reported youth as first responders by for example, providing food to victims and engaging in other emergency activities. Little is known specifically about what young people actually do during the response or what they have contributed in the past (Anderson, 2005; Peek, 2008). Nor is much known about what motivates them to volunteer following natural disasters (Peek, 2008). In terms of the latter, the majority of reasons identified by participants appeared to function to improve their mental wellbeing - making their situation easier to cope with, and therefore, lowering their distress. In other words, for those participants capable, volunteering appeared to be a protective factor. For example, by helping, participants were able to have positive rewarding experiences, which then made them feel good about themselves and gave them a sense of purpose. This is similar to the idea of behavioural activation with depressed individuals, and the idea that by increasing rewarding experiences, life situations will be improved, and depressive symptoms will be alleviated (Martell, Dimidjian, & Herman-Dunn, 2013). In line with this idea, volunteering could be a preventative action. That is, by being involved in the disaster response, the rewarding experiences could help improve individuals' moods before depressive symptoms worsened.

In addition, by seeing others who were in worse situations than themselves, participants were able to gain perspective on their situation. This is consistent with Wills (1981) and the theory of downward comparison, which states that when misfortune has occurred and a person's subjective wellbeing has decreased, a solution is to compare themselves with someone less fortunate than their self, which then enables them to feel better about their own situation.

According to Wisner (2006), young people often have time to give following disasters, which is consistent with participants' reports about the fact that helping gave them something to do, and distracted them from their negative thoughts, stress and paranoia. The idea of helping out as being therapeutic is consistent with the literature (e.g., Kaniasty & Norris, 1999) stating that by acting to help others, attention is diverted away

from the trauma itself, and onto making things better. These goals also give people some sense of control and help them find meaning in the experienced catastrophe (Kaniasty & Norris, 1999).

Restrictions to helping out. For some participants, there were restrictions that either prevented them from helping out or made it difficult for them. These restrictions included age and the worry and concern of parents.

With age restrictions, some participants complained that because of their younger age, there were fewer organised opportunities for them to help post-disaster:

Speaker 1: Especially being so young they kind of don't want us to be helping almost.

Speaker 2: Yeah I would've been more than willing to put my time in but apart from the student volunteer army, there was nothing.

Speaker 1: Not for people our age.

Speaker 3: And then the student volunteer army was like, kind of like, older people.

Speaker 1: Yeah all university students.

Speaker 2: And then there was nothing actually targeted at us to help.

(Females, Group 1)

In contrast, other participants explained that even with age restrictions and the consequent inability to join such groups as the student volunteer army, youth could still help out:

My cousin was 13 and he just went on the road, grabbed the vest, put it on, then helped...and some of the community didn't care, they were like good work you know, keep it up. (Male, Group 2)

Alternatively, one participant doubted the helpfulness of young people her age:

I guess even though we were what - like 14 or 15, we probably thought that we could've been helpful but I don't know {laughing}. (Female, Group 3)

In addition to these age restrictions were the worries and concerns of parents, which prevented some participants from helping:

...You want to help feed people, you know all that sort of stuff and then, but if something goes wrong and they [parents] can't contact you or they don't know exactly where you are, that's my like, it just freaked them out...(Female, Group 3)

Overall, participants identified two main factors that restricted their involvement in the disaster response - age and parental concern. Children and teenagers of different ages differ in their mental and emotional maturity and physical development, and therefore have different strengths or abilities. For this reason, activities must be age-appropriate and therefore, evaluated beforehand to assess their suitability for the ages and capacities of the children involved (Raftree, Machingaidze, del Valle, & Foster, 2002). The Student Volunteer Army (SVA) in Christchurch recruited volunteers who were aged 16 years and above, therefore, excluding many participants in this study (aged 13-15 years at the time of the earthquakes), despite their willingness and availability to help. This age restriction was likely because the SVA was conscious of the risk to and safety of their volunteers (physically and mentally), and consequently deemed their activities as age-inappropriate for those younger than 16-years old; however, many young teenagers still wanted to be involved in the disaster response in some way. Therefore, in the event of another natural disaster, these findings highlight the potential usefulness of organizing volunteer groups targeting younger teenagers (i.e., 13-15 years old), and organizing age-appropriate activities for them (such as cleaning up and distributing food).

Requiring parental consent for youth aged 15 years and younger may have also been a barrier for organisers of volunteer groups, especially as parental concern was a restriction identified by a number of participants. This worry and concern for children's safety is completely understandable following such a devastating natural disaster, and one that would need to be carefully considered. It may have been due to these restrictions that participants' praised the organization of a concert by the Volunteer Army Foundation, which people of a range of ages (15+) could attend if they completed four hours of organised community service (e.g., digging a new garden bed, restoring sand dunes, helping out at the SPCA). Parents may have felt more comfortable with this idea due to the extent of organization and planning that it involved. They may have also preferred the fact that there was a range of volunteer activities that their children could

select from. Therefore, if they did not want their child participating in a particular activity they could select an alternative.

These findings regarding youths' involvement in the community response emphasise the importance of giving youth the opportunity to be involved, and in turn, highlight the usefulness of the organisation of youth-focused volunteer groups in the event of another natural disaster (i.e., for ages 13-19 years). This idea of youth involvement in a disasters' response is consistent with Anderson's (2005) reports about youths' active involvement. Of course precautions would need to be made, particularly concerning the mental and physical capability of volunteers according to age and the safety risk of activities. Therefore, it would be advised that a range of activities ranging in ability and accessibility be suggested, where teenagers, in conjunction with their parents, could select their preferred options.

Relocation [Immediate + Inbetween]. The next theme concerns the idea of relocation, with participants either remaining in Christchurch or leaving for a certain period of time. Participants' reasons for staying or going are detailed below.

Stayed in Christchurch. The primary reason for wanting to remain in Christchurch was that everyone had been through the same thing, or was in the same position, and should stay together as a community. This may have been helpful as it meant they had all shared the same or similar experience and could therefore, better relate and/or understand one another. It has also been suggested that by sharing similar experiences with others, assessments and judgments can be validated (Gist & Lubin, 1999). For example, being unemployed during times of high unemployment has been found to be less psychologically harmful, compared to if unemployment rates were low (Cohn, 1978). In addition, it has been suggested that by sharing the same stressor with many other people, the threat and severity of the stressor lessens (Gist & Lubin, 1999). In fact, one study (Butcher & Dunn, 1989) showed that separating victims was an important contributor to trauma. This may be because such separation reduces victim's opportunities for reciprocal social support, as well comparisons (Lindy & Grace, 1986).

It is also assumed that some participants stayed in Christchurch because they were not physically or mentally affected by the earthquakes, they could not afford to leave, or

their neighbourhoods or houses were not badly damaged. In terms of the latter, this was the case for some participants who did not have to move houses or leave their homes at all; however, for many participants who did remain in Christchurch, moving houses at least once and staying in the houses of friends or other family members was a common occurrence.

We stayed at my family friends for like two months and I was sleeping on the lounge floor getting woken up at 6am when the husband had to get up for work and um my brother who had a flat, came to stay with us there. (Female, Group 1)

Such displacement could have meant disruption and a loss of stability for many, as well as the loss of social networks (e.g., friends, neighbours), which may have been particularly upsetting. Each of these types of losses has been found to negatively influence a young person's mental health (Weems & Overstreet, 2008).

Left Christchurch. In terms of relocating outside of Christchurch, a number of participants explained that leaving the city was beneficial for them as it gave them a break from the disaster-struck environment and the aftershocks.

One participant spoke positively about the support she received on arrival at a school up North:

I went up there and they were really good to me and like, yeah I just turned up and they were like 'oh yep sure' and they gave me like, offering of like counselling and all this stuff and they were so good. (Female, Group 1)

Some participants also explained that they left Christchurch because of family members' concern for their safety, or because of the negative impact of the earthquakes on family members. In terms of duration, a majority of participants stated that they returned to Christchurch before school re-opened.

For these participants who left Christchurch, relocation was viewed positively and was believed to be a good thing for either themselves or another family member. Specifically, by leaving the earthquake-struck environment and continual aftershocks, the teenagers were able to have a 'break', which likely contributed positively to their

wellbeing and recovery. This was facilitated by the support and assistance they appeared to receive on arrival at schools in other areas of New Zealand. This finding is consistent with Bonanno et al. (2010), who highlighted the idea that by leaving the disaster-affected area, people may feel safer and have more access to resources. Therefore, temporary relocation for those negatively affected by earthquakes could be beneficial and therefore, considered. This is discussed in more detail in Chapter Nine under the heading 'Relocation'.

Negative psychological impact. The next theme details the reported negative emotional impact of the earthquakes on participants, including fear, stress, guilt, and shock. Fear and stress were not only the most prominent initial emotional reactions to the earthquakes, but also had longer lasting impacts on participants' behaviour and cognition.

Fear and stress

[Immediate]. The initial fear and stress experienced by participants mainly stemmed from their uncertainty regarding the safety of loved ones:

My brother text me and he said um we think Granddad might be dead {crying} because they live out in [suburb] and um so I was really stressed out about that and um I was fine up until then {still crying} but then when my brother text me, I just broke down in tears. (Female, Group 1)

For most it was the lack of communication or inability to contact loved ones that fuelled the uncertainty and fear:

That was my problem, like my brother text me with saying we think granddads died but then I couldn't contact anyone after that, so I wound myself up thinking of all the worst things because no one could reach me and I couldn't reach anyone to confirm whether he had actually died or not. (Female, Group 1)

[Immediate + Inbetween]. Fear and stress continued to impact participants. Some spoke about their sense of uncertainty that another earthquake or aftershock would hit:

We were just starting to get really paranoid, like that something worse was going to happen, or like the Wellington one would go off, or like something like that. (Female, Group 1)

Others detailed the impacts of stress. In particular one mentioned the physical impact:

You get stress headaches, like if anything like to do with earthquakes happens like you get, I get stress headaches and stuff like that. (Female, Group 2)

While another spoke about the impact on interpersonal relationships:

I think like everyone tried to be at first, like 'thank god we're alive', like just appreciate everyone but then everyone was just so stressed that you would just like, would just have fights at the easiest things, like I fought with my little sister a lot after that. (Female, Group 3)

Changes in behaviour due to fear [Immediate]. Participants explained that due to fear for their safety, they tried to avoid being indoors, especially during the days immediately after the earthquakes:

Yeah I didn't like being home alone, like I would sit outside for hours cause I just didn't want to be in the house. And like the house was fine and everything but just the thought, like buildings around you. That's the scary thing. Yeah I always wanted to go camping after the earthquakes, I just didn't want to be in buildings but yeah. (Female, Group 1)

In contrast to this avoidance of being indoors, other participants indicated a fear of being outside:

...I didn't really want to go outside or walk around buildings cause it could, another one could happen. (Female, Group 3)

Changes in behaviour due to fear [Year of Focus Groups]. Participants explained that things that sounded or felt like an earthquake continued to frighten them, indicating hyperarousal:

Speaker 1: Like it was kind of scary...sitting there in the dark watching a movie you know like going to the movies.

Speaker 2: The rumble always, even in like movies now, like if there's a movie with a rumble, I have to turn it down.

Speaker 1: Even trucks passing is like {shiver}.

Speaker 3: Yeah and trains.

(Females, Group 1)

Guilt.

[Immediate]. Some participants compared their situations with others and consequently, highlighted the guilt they felt about being ‘okay’ while others were not. For example, one participant felt bad about doing basic activities, like watching television, as there were others who did not have that “luxury”. Another questioned why she and members of her family were alive, while others were not:

Yeah I feel bad...why did I not die or why someone in my family not die but other peoples' families died...so that's what I always thought about – 'oh how come that happened to them'? (Female, Group 2)

[Year of Focus Groups]. One participant went on to discuss the guilt she felt about the progress of her own recovery, in comparison to that of others:

A part of me feels guilty for being recovered cause like, because I know people, people who have lost people in the earthquakes and like they will never recover to the state that we've recovered to you know, like, so it's like oh I should be in tears about it but you know, like yeah it's hard to explain but... (Female, Group 2)

Shock [Immediate]. Shock was another emotional reaction that participants mentioned, particularly the shock that the earthquakes actually happened in their city, and the extent of the damage, suffering and disruption they caused.

In that minute like your whole life had, well not dramatically changed, but things had changed like we couldn't come to school for a month and like things were just so different all because of like 50 seconds of shaking, so it just didn't seem real and yeah. (Female, Group 1)

Overall and as indicated by Shaw et al. (2007), it is common for adolescents to respond to life-threatening events, like earthquakes, with psychological distress. Shaw et al. (2007) further highlighted the fact that multiple domains of human functioning are involved in this response. Therefore, in this theme it is not surprising that participants described a number of earthquake-related reactions that fell within several of these functioning domains (i.e., mood, behaviour, physiology, interpersonal functioning). The first concerned mood and participants' reports about fear and stress. These emotional reactions were primarily related to the safety of loved-ones immediately after the

earthquakes, and also the fear of earthquake recurrence. According to Saari (2005), the primary reason for fear following a traumatic experience is generally fear for loved ones. Feelings of guilt were also reported, which is typical following traumatic experiences (Saari, 2005). Additionally, participants' described disbelief in the fact that the earthquakes actually hit Canterbury. According to Shaw et al. (2007), experiencing a natural disaster can potentially influence thoughts about vulnerability, as well as reduce one's trust in the world's safety and security (Shaw et al., 2007). It is possible the participants' disbelief was related to such thoughts.

Participants' fear and uncertainty impacted on their behaviour in that they reported avoidance of either being indoors or outdoors – both due to the fear of houses or buildings falling on them in the event of another earthquake. This highlights an absence of a sense of safety. The use of avoidant actions is a common coping strategy used by children (Ayers et al., 1996) and is also a frequently reported safety behaviour amongst individuals with anxiety (Clark & Beck, 2009). Participants also indicated hyperarousal to things that sounded or felt like an earthquake, and implied that this hyperarousal was a continuing factor in the years post-disaster. In other words, when participants felt or heard things similar to an earthquake, it reminded them of their experiences, which increased their anticipation of the loss of control over their safety, causing them to experience symptoms of physiological arousal, including for example, anxiety, somatic symptoms, autonomic arousal and startle responses (Bremner & Marmar, 2002). Such hyperarousal is common in individuals following traumatic events (Ursano, Fullerton, Weisaeth, & Raphael, 2007).

The interpersonal functioning domain was mentioned in terms of family members being stressed, and therefore, being more irritable and likely to argue with one another. This is discussed further under the heading 'Family'.

These findings give further evidence for the ways in which earthquakes can impact on young peoples' psychological wellbeing, the implications of which are discussed in more detail in Chapter Nine under the heading 'Psychological impact'.

Perception of personal recovery. This last theme refers to participants' perceptions of recovery and contributing factors. Firstly, as time passed (i.e., Inbetween and Year of

the focus groups), participants described that recovery was about being less fearful of earthquakes, as well as being knowledgeable of them and being prepared. For example:

Yeah I think recovery is like knowing like bits and bobs of earthquakes like knowing what they are, like how to um manage yourself and your family once an earthquake's happened and stuff and like just having a plan. (Female, Group 2)

Participants also indicated that over time, recovery was about people and communities moving forwards, as well as accepting the fact that life and the city were never going to be like they were before the earthquakes.

I think [recovery] means like remembering what happened but moving on, like I'm not expecting them to do everything straight away and have everything brand new but it's remembering what we had and being like that was really lovely, remembering the people that we did lose and taking them with us, but moving on and making something new. (Female, Group 3)

Some participants suggested that recovery was about being okay with talking and/or hearing about the earthquakes, while others indicated that it was seeing the positives of the earthquakes, rather than focusing on the negatives.

I mean it's kind of like with the whole recovery thing, like you stopped looking at all the negatives that had come. You started looking at the things that were positives about it and you just started to kind of realize that yeah it sucked that it had happened here but we are also getting a lot more that we ever would've got if it didn't happen. (Female, Group 1)

According to participants, one of the more immediate factors that contributed towards their recovery concerned the importance of normality and the routine of school. As time passed, participants explained that seeing the rebuild also contributed to their recovery and for them to recover, the city needed to be 'fixed'. Specifically, the uprising of new buildings and re-openings gave participants' a sense that the identity of Christchurch was returning. They also highlighted the positive impact that small improvements had:

Yeah it's just like heaps of little parts make a big inconvenience, so like as little parts free up you start to think 'oh this is getting better, this is getting better' and like, so say a road on the way to school is fully fixed, you're like this is way

better, not having to avoid all these like detours and that, so yeah just all these little things. (Male, Group 5)

Overall, this last theme referred to participants' perceptions of recovery and what recovery meant to them, an area largely unexplored in current disaster research (Anderson, 2005). The first factor concerned participants' fearfulness of earthquakes, and the fact that recovery was about 'not being scared anymore'. The importance of being prepared and knowledgeable about earthquakes also influenced participants' definition of recovery, which may be linked to the previous idea of being less scared. That is, having a plan and being more knowledgeable can provide greater understanding, comfort, reassurance and confidence, which may have lessened the teenagers' fear, and therefore overtime, contributed to their recovery. This is consistent with Ayers et al. (1996), who claimed that seeking understanding was a strategy used by children to cope with stressful situations. Another factor that impacted on participants' perception of recovery was the idea of focusing on the positives, rather than the negatives. Such positive thoughts are again a coping strategy used by youth as reported by Jensen et al. (2012). These findings imply that teenagers identified factors that helped them cope as factors that also contributed towards their recovery, as well as that formed part of their definition of recovery.

Moving forwards (e.g., no longer dwelling on the earthquakes, looking to the future) and accepting the changes was another factor that signified the teenagers' recovery, as was being okay with talking or hearing about the earthquakes – something that previously evoked anxiety and frustration. Instead of fighting the inevitable changes, becoming overwhelmed, and wishing things were like they were pre-earthquakes, acceptance involves being open to the changes – not necessarily liking or wanting them but just accepting the fact that they are happening (Harris, 2009). The idea of recovery as being comfortable with talking about the earthquakes is understandable in the context of repeated exposure and habituation. That is, over the past three years, participants were likely exposed to substantial earthquake-related talk in the media, at school and in everyday conversations. Due to such repeated exposure, it is reasonable to assume that teenagers' anxiety responses would at least partially begin to lessen (i.e., habituate) (Westbrook, Kennerley, & Kirk, 2011); however, this may not have been the case for teenagers who were so negatively psychologically affected by the earthquakes that their

reactions met diagnostic criteria for such disorders as Acute Stress Disorder or PTSD. With such teenagers, unguided exposure to earthquake related material could have potentially worsened symptoms.

Participants reported a number of factors that contributed to their idea of recovery. The first was mentioned previously under the heading ‘Benefits of helping out’ and concerned the idea that helping others contributed towards personal recovery. The second factor involved the idea of returning to the school setting and obtaining the normality, routine, and structure that school provides, which is consistent with past literature (Fothergill & Peek, 2006; Heft, 1993; Maida et al., 1993). The last factor that contributed towards participants’ recovery was seeing the rebuild of Christchurch and witnessing progress. Seeing such progress would likely have a positive impact on teenagers’ mental wellbeing, giving them hope and a sense of moving forwards, as well as places for entertainment and sport and recreational activities, which is discussed in more detail under the Community heading. In fact, for some teenagers, repairing the damage was central to their idea of recovery, which could not be fully achieved until all or most of the damage to the city had been repaired, although in these cases, participants appeared to be referring to the recovery of the city rather than individual recovery; however, in saying this, individual and community experiences are interactional, with one influencing the other and vice versa (Kaniasty & Norris, 1999). It is important to note the likelihood of some or all of these above factors working in combination towards recovery, rather than in isolation.

In terms of implications, it is assumed that some of these factors could be facilitated or at least encouraged. For example, over time, such people as teachers, parents, friends, and religious leaders, could help teenagers see such positives as the chance to build a new city, to learn new things, and to form connections with other youth. Based on the importance of being prepared and knowledgeable about earthquakes, necessary information could be provided to youth so that they felt reassured and as if they had some plan. In terms of seeing the rebuild, there would be limitations as rebuilding is largely under the control of the council and government; however, according to youth, the rebuild of Christchurch was too slow and despite understanding the gravity of this project, it still remained a source of frustration and an inhibitor of teenager’s full recovery. Therefore, perhaps it would have been beneficial for small projects to have

been conducted earlier that signified to youth some progress and sense of moving forwards. This is consistent with participants' reports about how small improvements made a large difference. Based on the findings, it would also be beneficial for teenagers' recovery if youth-focused spaces or places be built, thus providing them with a source of entertainment and distraction, and in turn, contributing positively to their mental wellbeing. By better understanding what contributes towards teenagers' post-disaster recovery, insight is given into how we can better support this process, thereby reducing the longer-term distress of future disaster-affected teenagers.

Family

Moving away from the individual, this area of the model targets participants' families, particularly their importance and the support they provided, as well as the impact of parent-child differences in earthquake experiences, and the post-disaster psychological impact on family members. As the model (i.e., Figure 6) indicates, some of these family factors were relevant immediately after the earthquakes, but others also continued to influence participants in the year(s) following (up till but not including 2013).

Importance of family [Immediate]. Firstly, participants stated that they needed their family most after the earthquakes. They also explained that friends were not a 'main priority' in the early stages and that compared to other friends (e.g., school peers), family friends were needed more:

I felt family were better personally because I don't know, it was just like...because they're like family and your friends all had their own kind of problems with the earthquake and all that. (Female, Group 1)

Family support [Immediate]. Participants spoke about the types of help their parents provided. For example, one participant spoke about how her father allowed and organised for her to temporarily leave Christchurch, thus demonstrating a sense of understanding and support for what she needed at the time. Another participant explained how her parents let her express her emotions and were accepting of her ways of coping:

They let me get out my emotions and kind of not be like just toughen up, like they kind of just let me cry and be angry sometimes and just kind of let you deal with it in your own way, cause everyone does it differently yeah. (Female, Group 1)

Simply being around family and spending time with them was also comforting for some participants:

It was just having them there, even if they're not saying anything, was quite good. (Female, Group 1)

In contrast to receiving help, participants also mentioned the helpfulness of providing support to younger family members themselves, specifically because it distracted them from their own problems:

I went to see my little cousin and I stayed out there for a while and that was good because like, cause she's younger than me I was the one comforting her, so like it gave me, made me feel like I had to be responsible, so it sort of like, it took the focus off me to her, which I found sort of good cause I wasn't too worried about myself, just her. (Female, Group 1)

Overall, these initial themes concerned participants' high desire to be around family following the earthquakes, which highlighted the importance of family for youth and their role in protecting teenagers' post-disaster psychological wellbeing. This is consistent with Cauce et al. (1990) who stated that parents are the primary source of social support for youth, and Prinstein et al. (1996) who claimed that parents were important sources of coping assistance following disasters. Previous literature also suggests that parents can function as a protector for their children, increasing their chances of positive coping and adaptation (e.g., Luthar et al., 2000; Masten & Coatsworth, 1998). Participants' need for family appeared to outweigh their need for friends initially after the earthquakes. Some explanations for this were that friends 'had their own kind of problems', they were not family, and that friends were simply not 'a main priority' at the time.

In addition to receiving support from family members, participants also spoke about personally supporting their younger family members (e.g., sibling, cousin) and the helpfulness of this. That is, supporting others not only distracted them from their own problems, but it also meant that someone was depending on them to be strong and present, which appeared to be a protective factor for participants. Helping others may protect or reduce feelings of inadequacy or helplessness, or increase teenagers' sense of control and self-efficacy (e.g., Jacobs et al., 2008; Margolin et al., 2010). This idea is

consistent with previous research suggesting that young people have the potential to be involved in the recovery phase of a disaster by for example, caring for other children and engaging in peer counselling (Peek, 2008).

Impact of parent-child differences in earthquake experiences.

[Immediate]. Some participants explained that their parents did not experience the earthquakes to the same extent as they did, either because they were out of town or in a less severely hit suburb of Christchurch, and did not realise the severity of the earthquake until later on.

My family were quite alright with it, like they didn't really have February...Mum was just sort of like oh yeah, she was working in [suburb] and they're like 'oh that's a good shake'...they were kind of like 'oh yeah whatever', but when they said they were closing the mall mum was like 'oh I should go and get [participant's name]' and then she came into town and then realised...So yeah my parents were pretty fine with it, it was just me really. (Female, Group 1)

[Immediate + Inbetween]. Some participants' parents were in the centre of town when the earthquake hit, where there was a massive amount of damage and chaos. This left one participant feeling as if her experience did not compare to the severity of her parents', meaning that she did not feel comfortable talking to them about how she was feeling. The statement below emphasises the idea that if teenagers do not feel understood or able to relate, they are less likely to open up and talk.

[Did you talk to them about it?]

Not really because of them being in the [damaged building in town], I was like 'oh no they won't really take me seriously', yeah I talked to my brother about it a bit because he was like in the same area as me for pretty much every single one, so he understood what I was going through and what I was feeling and stuff...but my parents, like they just didn't, because they hadn't been through the same thing as me, I felt like I couldn't really respond, like relate to them. (Female, Group 1)

Another participant also explained how her experiences over the weeks and months post-earthquake differed from those of her parents. That is, while her parents experienced the February earthquake, they did not experience any of the other main

earthquakes and did not appear to live in or have much to do with town. For this reason, and from the perspective of their daughter, they were less privy to the longer lasting impacts of the earthquakes. Due to these differences, the participant felt as if her parents did not understand or realise the extent to which she had been affected.

Kind of like, because my parents weren't in town, like they didn't think it was that bad and my mum wasn't there for any of the other ones, they didn't realise how I'd been affected and they didn't realise, like they didn't yeah, they just didn't realise how much it had affected me...(Female, Group 1)

Overall, this theme concerned parent-child differences in earthquake experiences, and the impact these differences had on participants. By not sharing similar earthquake experiences, participants' believed that their parents could not relate to them or understand their psychological responses to the earthquakes. Consequently, participants believed their parents would not take their thoughts and feelings seriously, which then prevented them from opening up and talking to them. This finding is consistent with Gist and Lubin's (1999) reports about the benefits of sharing similar experiences with others (e.g., validation, reciprocal support, comparisons), and demonstrates the fact that without such shared experiences, people feel less understood and less able to relate to one another.

Post-disaster psychological impact on family members [Immediate + Inbetween].

In contrast to previous statements implying that parents were less affected by the earthquakes, some participants detailed the negative psychological impact of the earthquakes on not only their parents but other family members as well.

In terms of parents, participants described a number of negative psychological impacts. Firstly, they highlighted the negative impact of stress on interactions between parents and their children, explaining that they got angry at each other more easily. One participant explained how the earthquakes negatively impacted on her mother's depression:

Um my Mum has depression and...the earthquakes made it worse, well she kind of had a handle on it and then like she started taking a lot more time off work like...yeah cause...I don't know, it's not a huge change in it but it's just more noticeable. (Female, Group 2)

Another spoke about the impact of stress on her parents' alcohol problems, particularly her mother's:

I noticed she started to get more into drinking and it was just kind of a reaction that would've really benefited us if it didn't happen, but it was just the way it was because they were so stressed out. (Female, Group 1)

Consequently, this participant believed she was unable to obtain enough support from her parents:

But it's still like, it was kind of a time in my life where I would've liked more support from my parents but I couldn't really get it {starting to cry}. (Female, Group 1)

One participant also suggested that her father hid his true feelings from his children, so as to protect them:

So when [Dad] got home, I think for a while he was kind of like, just couldn't believe what had happened and what he had seen and was just, I don't know, I think he coped with it really well for kind of our sake but when we weren't around I think it really did kind of affect him. (Female, Group 1)

In terms of other family members (e.g., siblings, grandparents, aunties), participants spoke about the negative impacts of the earthquakes on their mental wellbeing (e.g., fear, anxiety, not sleeping). For example:

My nana, she lived next door to us which was good, but um like every time a truck went past, she will think it's an earthquake, so like yeah she got real old like she got real, it seemed like she got real old quickly after the earthquake, cause she was just like worried all the time, yeah she was probably one of the worst affected. And we had to like stay at her house cause she got quite bad. (Female, Group 2)

However, in contrast to these negative psychological impacts, other participants spoke about how the earthquakes had positively impacted on their families as they spent more time together and became closer as a result. For example:

It definitely brought like the family closer I reckon. When mum picked me up at 7pm like I'd never appreciated her more, like I was like 'oh thank god'.

(Female, Group 3)

Overall, participants described a number of negative psychological impacts of the earthquakes on their parents and other family members, with stress being a key response. Following a disaster there are multiple sources of stress that can impact on family functioning. For instance, one study found that disaster-related property loss was a predictor of family irritability and distress (McFarlane, 1987). The consequent family conflict is then another source of family stress, and the cycle continues. Previous literature has found that such a negative family atmosphere and conflict has been associated with higher levels of child and adolescent distress (e.g., Boksztzanin, 2008; Roussos et al., 2005; Tuicomepee & Romano, 2008).

Participants also reported parental post-disaster depression and alcohol use. Numerous studies have found that increased parental symptoms (e.g., PTSD symptoms, psychopathology, irritable and/or depressed family atmosphere) have been associated with increased symptoms in children (e.g., PTSD or post-traumatic stress symptoms, serious emotional disturbance) (e.g., Gil-Rivas et al., 2010; Green et al., 1991; McLaughlin et al., 2009; Scheeringa & Zeanah, 2008). This association is understandable given that parents are the primary sources of social support (Cauce et al., 1990) and coping assistance (Prinstein et al., 1996) for children. This idea is supported by the current study and one participant's claim that because of her parents post-disaster alcohol use, she did not obtain enough support from them. This is important as according to multiple studies, low levels of perceived parental support following a trauma has been associated with increased levels of psychological distress in children (e.g., Gil-Rivas et al., 2004; Punamäki, Quota, & El Sarraj, 1997). One possible explanation for this lack of support is the potential effect of the disaster on the availability and emotional responsiveness of parents (e.g., Gil-Rivas et al., 2004; Masten & Coatsworth, 1998; Salmon & Bryant, 2002).

Some participants suspected that their parents were reluctant to talk to them about their own disaster-related reactions and/or feelings, primarily due to fears of upsetting their children. This has also been found in prior studies. For instance, one year following

Hurricane Katrina, children perceived their caregivers as unwilling or as too upset to talk. These children were also found to have higher levels of post-traumatic stress symptoms (Gil-Rivas et al., 2010). These results therefore show how a family's reluctance to share their reactions and feelings can interfere with a child's post-disaster adjustment (Bonanno et al., 2010).

Participants also highlighted their awareness of how other family members (e.g., grandparents and siblings) had been negatively affected by the earthquakes, which was difficult for them to see, and likely a source of post-disaster distress. In fact, one study found that siblings of children with mental health problems had significantly higher rates of psychopathology, dysfunctional families (e.g., rigid or chaotic, enmeshed or disengaged), and poorer quality of life compared to normally developing children. The study also indicated that the siblings were vulnerable to adjustment difficulties regardless of the child's severity of impairment or diagnosis (Barnett & Hunter, 2012).

In contrast to these negative psychological impacts, other participants spoke about how the earthquakes had positively impacted on their families, as they came to appreciate each other more and spend more time together, becoming closer as a result. This is consistent with previous literature, in which disaster exposed individuals reported how their experiences brought them and their families closer together (e.g., Henry, Tolan, & Gorman-Smith, 2004; Kessler, Galea, Jones, & Parker, 2006). This is also consistent with findings from the Wellbeing Survey (i.e., a local survey conducted between September and December 2013, by the Canterbury Earthquake Recovery Authority), which found that 59% of respondents (i.e., Cantabrians aged between 12-24 years) reported spending more time together as a family following the earthquakes (CERA, 2014). Such a positive impact on families may be helpful as according to prior studies (e.g., Gil-Rivas et al., 2004; Kronenberg et al., 2010), parental support and positive family functioning has a buffering effect on children's post-disaster reactions.

These findings demonstrate the impact that family functioning can have on teenagers' responses and adjustment to a natural disaster. They also provide evidence for the importance of involving families in youth-focused post-disaster interventions, with the idea that by providing psychoeducation and supporting the mental wellbeing of parents,

youth will also benefit. This is further discussed in Chapter Nine under the heading ‘Social support’.

School

This level includes themes that concern the school setting, namely school support, educational support, and educational impact. As the model (i.e., Figure 6) shows, these school factors were most relevant nearer the time the initial 2010/2011 earthquakes hit, with some factors continuing to influence participants in the year(s) following.

School support.

[Immediate]. With school support, some participants’ spoke positively about how their school dealt with the situation. Specifically, one participant spoke about the hope and comfort her school provided by having a plan of action and by reassuring students that the school was taking control of the situation:

Yeah this is what we’re going to do now and this is how we’re going to do it but you girls don’t need to worry about it, you worry about your education, you worry about your schooling and we’ll take care of the rest, and that was just like pressure of your shoulders and everything, and you just knew that things were going to get better and I think that was the most comforting thing...when I came back to school and realised what we were actually going to get and how things were actually going to look up and it was a lot easier to kind of settle back in.
(Female, Group 1)

[Immediate + Inbetween]. Another participant discussed the comfort she felt from the sense of school community and connectedness that resulted following the earthquakes:

I remember our Chaplain saying, cause like our chapel became a tent basically. It was very cold but like it basically, she always said, um what she’s realised is that like the chapel and everything isn’t about the building we are in, it was about us being all together as a community and like being there for each other...(Female, Group 1)

Participants then further elaborated on this sense of connectedness and how students felt closer to one another post-earthquake:

Speaker 1: In a funny sort of way the earthquake brought us a lot closer.

Speaker 2: So much closer.

Speaker 1: Yeah like year groups kind of started interacting more and stuff.

Speaker 2: Everyone cared about each other.

Speaker 1: Yeah everyone cared whereas probably before, well obviously everyone cared before, but like year groups would interact.

Speaker 3: You could talk to anyone and ask if they were ok sort of afterwards.

(Females, Group 1)

Participants also discussed the usefulness of having counsellors available at their school, and the comfort their presence potentially brought to those affected by the earthquakes:

Speaker 1: Yeah they had like, I remember they opened up a room or something where you could just go if you were feeling too stressed or something during the period.

Speaker 2: There were health nurses or something.

Speaker 1: Yeah just people who you could talk to and like counsellors and stuff.

Speaker 3: It's a good option, like it's good that even if the people that were affected just know it's there rather than having to use it, you know, just having it in the back of their mind I suppose.

(Males, Group 5)

Overall, this perceived support is beneficial for young people as according to Barrett et al.'s (2008) study, students who viewed their school environment as supportive following Hurricane Katrina, displayed fewer negative emotional symptoms compared to their peers, as well as more positive protective factors. In addition, the resulting sense of social connectedness within the school community is consistent with findings from Lee and Robbins (1998), and is an important school factor that among other things, supports positive mental health (Shochet et al., 2006). School support was particularly important for students, and should therefore be encouraged in the future event of another natural disaster.

Educational support [Inbetween]. With support concerning education, one participant spoke about the helpfulness of the understanding students received regarding their limited abilities to cope, and the importance of the support they received with

schoolwork. Other participants spoke about the helpfulness of school programmes that specifically targeted Māori and Pasifika students:

Speaker 1: But um lucky we had programmes that started like Excel, that really helped us. (Male)

[What's Excel?]

Speaker 2: It's a um tutorial class, it's on today and um it's for Pacific Island kids that need help with their homework or to...(Female)

Speaker 1: To prep for externals or internals.

Speaker 3: And they feed you. (Female)

Speaker 1: Yes they feed you and also there was a programme at uni for Māori students as well, similar, so there was a lot of help then.

(Group 2)

Following the earthquakes, NCEA (New Zealand's national qualification system) offered students derived grades. These are given to students who are unable to attend external examinations, or whose preparation for or performance during examinations is impaired (NZQA, n.d.). This was an academic support that was appreciated by many participants, particularly as it provided them with a safety net, and reduced anxiety regarding the potential impact of the earthquakes on their academic performance:

[Derived grades] was just the in case, like after June, we were like 'ok there might be something, it's just in case', but it was really good to not have to worry about it cause you've got all this stuff going on at home and you've got all the earthquake stuff, you've got everything with school, you don't want to have to worry about exams cause especially, we were first year into it so it was just like, if something went wrong we didn't want to have to worry about like what would happen. (Female, Group 3)

One participant further explained that the provision of derived grades for more than one year post-earthquakes would have been helpful, particularly due to the earthquakes' continuing impact on students' lives and their subsequent ongoing need for support:

Speaker 1: It was like, I was talking to a family friend of mine who's a teacher and she's kind of like, we should have really had derived grades and stuff last year [2012] as well because that was when it really was...

Speaker 2: It gets to you.

Speaker 1: Yeah it really was still kind of hard hitting.

(Females, Group 1)

Overall, by providing such educational supports as those mentioned above, potential post-disaster stressors for participants were reduced (e.g., potential or actual academic decline), meaning less pressure on students' emotional and coping resources, and therefore, support of their psychological wellbeing.

Teacher support (or lack of) [Immediate]. With teachers specifically, participants indicated that it was helpful when their teachers did not dwell on the earthquakes and were more future-focused:

Speaker 1: I remember the best thing was that they didn't, once we were back, they didn't dwell on it like we just moved on, like it wasn't like we've lost all our buildings and we've lost this and we've lost that, like it was kind of like...

Speaker 2: They got over it.

Speaker 1: ...What's next?

Speaker 3: What are we going to do now?

(Females, Group 1)

Consistent with this idea, were participants' reports regarding a particular teacher who 'over talked' issues and was too understanding. Another participant, who temporally relocated to a school in the west, spoke about the unhelpfulness of a teacher's insensitivity for his situation:

One of the teachers there was saying to the students, cause she didn't know that I was originally from the east side, she's like you are all very lucky that you don't have damage, that your houses are not damaged, your roads are not damaged, no liquefaction or anything, and I was like sitting there and looking around and was like, are you serious? You're saying that to everyone else.

(Male, Group 2)

Overall, once students returned to school, participants found it most helpful when teachers did not dwell on the earthquakes or the things that had been lost but rather, focused on the future and what needed to be done. This was perhaps helpful as continually discussing the earthquakes or things related to them, may have been

distressing for some participants. Talking about non-earthquake related topics or engaging in typical school subjects, may have also given students something else to focus on and therefore, offered temporary relief. In addition, focusing on the future may have given students the sense of moving forwards, as well as hope that things would eventually return to normal. Therefore, it could be helpful for those who are teaching and supporting disaster-exposed youth to consider this and be aware of how the content of their discussions could be upsetting for some pupils.

Educational impact.

[Immediate]. This theme refers to aspects of participants' education and the impact of the earthquakes on their schooling. A majority of participants explained that because they were in Year 10 at the time of the earthquakes, and not yet completing NCEA or IB (International Baccalaureate) qualifications, their schoolwork was not badly affected:

...Yea well, I mean, you don't have to study in year 10 do you, I mean it's not NCEA or anything, there's no tests, so you don't have to. (Male, Group 5)

However, some participants indicated that school was likely more stressful for those students doing NCEA:

Speaker 1: Year 10 are not...I don't know what it would be like to be in you know.

Speaker 2: Yeah cause I was doing some NCEA subjects that year and I felt really stressed out with just doing two and I couldn't imagine what it was like for the actual NCEA students.

(Females, Group 1)

[Inbetween]. Other participants explained that it was difficult to do schoolwork with everything else that was going on around them. For example, having to move houses and adapt to changes:

Speaker 1: Especially all the people, like lots of people had to move out of their house for like ages, and it's just hard to like have to work your best when you're not at your house.

Speaker 2: Or when things are like not how you imagined them to be, it's kind of hard to adapt to something else, like obviously you do it because it's what you need to do but its still, yea it's not easy. (Females, Group 1)

One participant spoke about sitting exams and the distraction caused by construction work nearby. Likewise, another participant talked about having to share school grounds and facilities, and the disruption this had on her learning:

It just wasn't like an educational environment, so it didn't really work out as well...yeah because we got like the hall to share a classroom with, and even if we had like the curtains in between when we were trying to have quiet study time, the next door were really loud, and when we were loud they would scream shut up and all that, and the hall was all kind of like, the sound kind of just echoes and people just, I don't think it was an environment that they can focus in. (Female, Group 6)

Overall, this last theme concerned the impact of the earthquakes on participants' education. According to a majority of participants, their education was not significantly impacted. This was because at the time of the earthquakes, most participants were in Year 10 and not yet completing their full NCEA or IB qualifications. This means they had less academic pressures, as they did not have assignments or state exams, and were not being assessed based on national/international standards or requirements. Therefore, it makes sense that these teenagers would have had less academic concerns and academic-related stress, compared to older students (i.e., Years 11-13). Furthermore, for those students who were completing NCEA at the time of the 2011 Earthquake, and as discussed previously, derived grades were provided, which likely helped students maintain their pre-disaster achievements.

However in saying this, some participants still reported concerns regarding the continued impacts of the earthquakes and the difficulty of studying amongst these stressors. This is understandable given the long-term impacts of the Canterbury earthquakes (e.g., house insurance difficulties, delayed rebuild, family impact) and the pressure such impacts could put on teenagers' emotional and coping resources. The stress and disruption of having to share school grounds also negatively impacted on one participant's education. This is consistent with reports claiming that long-term problems are more likely in children whose schools are unable to return to 'normal' and who consequently have to relocate and/or change their timetable (Shirlaw, 2014). It is important that schools and teachers be aware of the difficulties some students may have with managing the continuing impacts of the disaster, as well as the demands of school,

even during the years post-disaster, and to offer leniency and understanding, and to have academic supports in place for such students.

Community

The community level of the model refers to participants' views and opinions about matters that were relevant to the Canterbury community. More specifically it concerns teenagers' views about what happened ('Then' and 'Inbetween') and what was happening ('Year of Focus Groups') in their community following the earthquakes. The themes discussed below include community support, east versus west, and the rebuild.

Support.

[Immediate]. Community support refers to helpful actions made by community members in response to the earthquakes. A number of participants provided examples of the specific types of support in the community, particularly in terms of peoples' generosity and willingness to help others in need. For example:

I think it was good, like everyone was like helping each other out, and if old people sort of had like liquefaction or something, everyone would go to their houses first. Everyone would like make food for other people and stuff, like if you needed a shower, you just borrow someone else's and stuff like that. (Male, Group 4)

As a consequence of this, participants indicated a sense of togetherness in the community. For example:

I think it's really cool, like really awesome to see how everyone like came together, like to help out everyone else, I thought that was pretty awesome, I just think it was really good how like the whole of Canterbury just handled the situation to be honest. It's great to see. (Male, Group 4)

[Inbetween]. However, participants also indicated that this community togetherness and spirit eventually died down:

[Community help] just comes out of nowhere and it's, like, really surprising how much community spirit and stuff there is out there, but as it kind of dies away, everyone just goes back to their own business and stuff. (Male, Group 5)

Overall, this first theme concerned community support, with a majority of participants speaking positively about the community's response and willingness to help others. This outpour of mutual helping is common following natural disasters (e.g., Kaniasty & Norris, 1995, 2000; Tyler, 2006), and typically leads to such things as a sense of unity, solidarity and altruism (Bonanno et al., 2010). In response to the Canterbury earthquakes, the intra-community support that sprang into action was reportedly inspiring and highlighted the resilience of local Christchurch communities (McLean, Oughton, Ellis, Wakelin, & Rubin, 2012). Consistent with the latter, participants reported a sense of togetherness and spirit within the community, explaining that the earthquakes brought people closer together. This is in line with the Canterbury Youth Wellbeing Survey (CERA, 2014) where 69% of respondents (aged 12-24 years) reported having a stronger sense of community. Such communal concern and support of one another may help ease negative post-disaster psychological consequences (e.g., Quarantelli, 1985; Bonanno et al., 2010); however, participants also indicated that this community response and sense of unity eventually 'died down'. This is unsurprising as according to Norris et al. (2005), the return of appraisal of social support to baseline levels is well documented following disasters.

East versus West [Immediate + Inbetween]. Participants from both east and west sides of Christchurch highlighted a divide between these two regions. This was particularly due to differences in the extent of earthquake damage experienced by each side, with the east generally suffering the most damage. For example, some participants from the west highlighted these differences in damage and the resulting distinction between the continued post-disaster impacts in the east compared to the west:

Speaker 1: Yea cause it was quite weird, cause in the paper you would see like um in [western suburb] there wasn't that much damage, so you'd like go over to [eastern suburb] and stuff, and then it would look like a different city, and you'd hear people talking about when they were in [eastern suburb] and stuff at school, and you just, you never actually realised how close to home it was.

Speaker 2: sort of like, cause yea it was just a different city where it was happening, cause you were all fine and back to normal, and other people are still like...

Speaker 3: What the hells going on.

Speaker 2: Struggling to...

Speaker 3: Eat.

Speaker 2: Start again yea.

(Males, Group 5)

Another participant from the west explained that because of the area he lived in, the earthquakes affected him less:

Don't really pay much attention to it, I mean as much as you'd usually pay attention to [eastern suburb] which is not very much {others laughing}...yea I mean we didn't hear that much, we just carried on with life, I mean it's like, it's close but it's far away you know, it's got like, you don't usually go over there if you don't have anything to do over there...so you know what I mean, it doesn't affect ya. (Male, Group 5)

Views from participants on the east side of Christchurch also highlighted this divide:

I understood though, that you know, you should be lucky that nothing happened, cause nothing major happened on the west side. My uncle lives on the west side and they still had power and everything was fine. Ah what lucky people. (Male, Group 2)

One participant from the east explained that the differences in damage between the two areas was comical:

It was kind of, like the fact that it didn't hit the west side was kind of like this comic relief thing...whenever someone on the west side complained about something, it was like 'oh just harden up', like I, yea, I had to walk through floating poo - seriously? You're complaining {others laughing}. I mean like complaining about your fence falling over compared to that is just nothing, so it was kind of like it, yea, comic relief in a way. (Female, Group 2)

A noticeable point was that only participants from the east spoke about the lack of food, water, shelter and warmth following the earthquakes.

Every time something arrived like, um, you know the port-a-loos or the water truck, um we had a well just down the road that opened up and the little kids would run down the street and tell everyone. (Female, Group 2)

I remember there was like food being given to us, like it was in this specific area, like hot food, um our whole street would let each other know that there's food down there. (Female, Group 2)

Overall, it appeared that this divide between the eastern and western regions was likely present before the earthquakes due to such things as differences in SES; however, based on participants' comments, it also appeared that this divide was exacerbated by differences in the extent of destruction between the two areas and therefore, differences in the continued impact of the earthquakes. That is, despite living in the same earthquake-struck city, the experiences of some teenagers, depending on where they lived, were vastly different. This resulted in different attitudes about the earthquakes and perceptions about the personal impacts on lives ('...if you don't live over there [the east]...it doesn't affect ya'). For some teenagers in the west, they seemed to be able to detach themselves from the destruction in the east ('...it was just a different city where it was happening'). The return to normality in the west also appeared to occur sooner. This divide may have created resentment of the west by the east ('it was like a war being the west and the east side'), as well as a lack of empathy from the east regarding reported difficulties in the west, telling them to 'harden up'. According to the literature, it is not unusual for a sense of competition and polarization to begin forming in a disaster-struck community that was once united in shared distress (Bonanno et al., 2010).

Further, some of the eastern suburbs that suffered extensive damage were also of lower SES, which may have worsened the impacts of the earthquakes. That is, people living in poverty are more likely to have fewer resources available to lessen the effects of disasters (Gibbs & Montagnino, 2007).

The differences in damage and SES between the eastern and western regions of Christchurch demonstrated how the same disaster event could result in different attitudes or views about that event, as well as differences in the continuing impacts. It is important to be aware of these differences, and to take into account how they could influence youths' stages of recovery, and in turn, what supports, be it at school, home, or in the community, would be most suitable at a particular time. That is, interventions

would need to be tailored to the individual, so that these differences and their resulting implications could be taken into account.

Rebuild. The last theme under the Community Level refers to the rebuild of Christchurch, including participants' opinions about the consultation of youth, the pace of the rebuild, and university plans.

Consultation of youth [Inbetween]. Participants expressed a number of views regarding consultations about the rebuild. They first provided examples of the different ways youth were consulted, including forums and areas set up where they could submit ideas. For example:

There was one thing a couple of years or last year, um where was it? It was at the Westpac centre I think and it was just like a big convention and they just, for the rebuild, and people would write their ideas on post-it notes. (Male, Group 5)

However, one participant stated that going to such a convention was too effortful. In addition, despite being aware of these opportunities to have their say about the rebuild, participants did not believe their opinions would be listened to or would have much of an impact on what was actually built:

Speaker 1: You never see anything happening about it. (Female)

Speaker 2: You don't see yea. (Female)

Speaker 3: You don't see anything. (Male)

Speaker 4: I don't think our opinions get considered and stuff. (Female)

(Group 2)

Another participant referred to the BNZ Amazing Place, Christchurch City Schools' Project Competition (The Amazing Place, 2013). This competition was held early in 2013 and called for school children of different age groups (including primary, intermediate and high school students) to submit ideas for a rebuild project to be conducted in the central city. Although this participant spoke positively about the competition for younger children (i.e., to design a playground), she was also suspicious that teenagers' ideas would actually be developed as a part of the rebuild.

I really liked how after the earthquake's they, I think it was like a competition to make a new playground for like little kids, so that way they could draw their

own ideal playground and they actually took ideas from that, they're going to make it, so that's quite cool for them so they can actually see something's going to happen, but yea it's a bit more realistic with us – we know nothings really, like you can put down ideas but at the end of the day they're not going to be like 'oh yes that's such a good idea, we'll put that in the middle of town'. (Female, Group 3)

In addition, other participants expressed their suspicion that plans had already been made, and that youth and communities were simply being asked as a tokenistic engagement.

Speaker 1: But they had these forums or consultations organised but it's like they (Female)

Speaker 2: Already had the idea. (Female)

Speaker 1: They already had a plan. They already had the idea.

Speaker 3: And they kind of fitted some of our ideas into the plan like to make it look good. (Female)

Speaker 1: Yea and they would just tell you this to make it look like they were listening to our opinions but we feel as though they haven't.

Speaker 3: So true.

Speaker 4: They have their plan and then our ideas are like around them and then they just... (Male)

Speaker 3: They take away the ones they don't like.

Speaker 1: Yea.

Speaker 4: Knock each one off and stick to their one. (Male)

(Group 2)

Overall, it appears that efforts were made to involve youth in rebuild consultations; however, teenagers' suspected that these efforts were only tokenistic and that young peoples' ideas carried very little weight. Such beliefs may have been because of the typical societal status of young people and the very little input they typically have in community or policy decisions (Anderson, 2005). Wachtendorf et al. (2008) highlighted children's restricted ability to influence particular life-impacting decisions, while Anderson (2005) also commented on youths' limited opportunities to speak for themselves in multiple domains; however, as the current study shows, even if these

opportunities are provided, the important thing is whether or not youth perceive those opportunities as genuine. Otherwise, despite wanting to have a say, teenagers may not bother if they ‘don’t think [their] opinions get considered’. As Bartlett (2005) stated, there is a large difference between just “hearing” children speak and actually “listening” to what they have to say. These findings are also consistent with recommendations by Cahill et al. (2010), who suggest that strategies aimed to promote youths’ recovery should be proactive, they should seek active participation in planning, implementation and evaluation phases, and provide autonomy and agency promoting activities that foster decision-making and leadership.

In contrast to these statements, some participants explained that young peoples’ opinions were having an impact on the rebuild:

It sounds like from what I’ve heard, they’ve kind of talked to the students and stuff a lot about um, like what they would like, so that’s why they’re building up in the CBD, kind of with making things more intense and kind of more youthful.
(Male, Group 5)

These participants continued to explain that they were fine with youth not being consulted about the rebuild of the city, as they did not have much to do with that area of town:

Speaker 1: It’s hard cause you don’t really know, like being so young, you’ve never really worked there or go into pubs every Friday and stuff like that, so personally I’ve never really been to the CBD all that much and so...

Speaker 2: Yea it’s not really a huge part of your life.

(Males, Group 5)

Other participants indicated that teenagers should not be consulted about anything significant in the city, but could perhaps be consulted about school:

As teenagers, I don’t really think we know what’s quite right for the city yet but maybe if it was talking about what we wanted to happen to our school and stuff like that, but not really the city centre. (Male, Group 4)

These statements suggested that teenagers were more interested in having a say about factors that directly affected their lives (e.g., school), and were less concerned about

those that did not. This is consistent with the idea that youth should be involved in the decision-making processes relevant to the physical areas that are damaged by disasters and that youth live, learn, and spend time in (e.g., homes, schools, neighbourhoods, parks) (Peek, 2008).

Based on these findings, it is suggested that youth have involvement in rebuild consultations, particularly concerning areas that they are involved with or use on a day-to-day basis (e.g., schools, playgrounds, parks) (Peek, 2008). This could be achieved through online forums advertised through social media, or in the school setting where students could submit their ideas. Based on findings from the current and previous studies (e.g., Mutch, 2014b), it is also very important that youth know their opinions and views have been listened to and acted upon, and for them to see the results of their input. One way of doing this could be to show youth how their ideas were being selected and used (i.e., the process from the beginning to end and the final product). A good example of such youth involvement was The BNZ Amazing Place, Christchurch City Schools' Project Competition (TheAmazingPlace, 2013); **however**, from the participants' perspective, one shortcoming of this project was that teenagers did not know how their ideas were being received or if they would actually be used.

Pace of the rebuild [Inbetween + Year of Focus Groups]. Many of the participants complained about the pace of the rebuild being too slow:

I'm just personally finding everything is going really slowly and like, the bridges...if there wasn't an earthquake something like that would be done in a couple of months but seeing that there's so much of it, it's going to be all spread out, so it just seems to be taking forever and ever. (Male, Group 5)

I feel like things have kind of stopped, like it doesn't really feel like we're going anywhere anymore. (Female, Group 1)

More specifically, they spoke about their frustration:

Speaker 1: Cause I reckon like 2011, that wasn't too bad cause you're like it's just happened, it's all good, 2012 you're starting to see a few plans, you're like I know it's taking a while, they're getting insurance, that's ok, but now it's like, it's been what three years today since the first one.

Speaker 2: It's just frustrating

Speaker 1: And the amount of like, there's been like a few new buildings in town but that's it and I know they've got to demolish, I understand all that stuff, but it's just frustrating.

(Females, Group 3)

One of the international participants compared the rate of the rebuild to that in China:

Yea the rebuilding is quite slow because in China the rebuilding's like really fast; they built a new city within two years, so it's pretty slow here. (Female, Group 6)

In contrast to these statements, one participant appeared satisfied with the pace of the rebuild:

Yea no I'm surprised at how quick it's really going up. I mean this hasn't happened before so it's hard to put it into context, but it seems to be going fairly well. (Male, Group 4)

Benefits of rebuilding faster [Year of Focus Groups]. According to some participants, there were a number of reasons for why it would have been helpful if the rebuild were occurring at a faster rate. One participant spoke about normality and how a faster rebuild would have been beneficial in terms of helping people move on with their lives:

Maybe to get back into our normal lives because the broken buildings remind people of the earthquake, so the new buildings would symbolize new beginnings. (Female, Group 6)

For those who had been negatively impacted by the earthquakes, this would have been particularly helpful for their psychological wellbeing, particularly if environmental reminders were removed. Other participants also spoke about the fact that because of the slow rebuild, there was nothing to do in the city and that this was a constant reminder of the earthquakes. Participants particularly reported the absence of youth-focused activity in the city.

Like the aftermath, social life, turning 18 as well, like not staying up and going out every weekend but it would be nice to have somewhere that you could go out. (Female, Group 3)

There's nowhere, like temporary fixes as well for youth, like they complain about the violence blah blah blah but there's like nothing for us to do, it's Christchurch. (Female, Group 3)

This lack of activity in the city is consistent with the Canterbury Youth Wellbeing Survey (CERA, 2014), which reported that 25% of respondents (aged 12-24 years) indicated that the loss of spaces and places continued to have a negative effect on their everyday lives and a major negative impact on their wellbeing.

University plans [Year of Focus Groups]. This lack of youth-focused activity appeared to be influencing participants' decisions about which universities to attend once they left school. For some participants, the lack of activity was driving them outside of Christchurch:

Otago or Massey. Just leave, um I don't really have much interest in this city like with all the no actual city in itself, yea the other cities are a lot more appealing... I used to live in [city] and it's got more of a city feel to it, there's a lot more things to do there. (Male, Group 5)

This is not unusual given the fact that for many young students starting university, the anticipated social life is typically a large part of the university experience and is important for many youth. In terms of the future of the city, such relocation of students could potentially impact the social and cultural make-up of the Canterbury region (e.g., change in age structure), and/or negatively impact on its economy (e.g., Canterbury University). A report in 2012 stated that since the earthquakes, Canterbury University had 1 900 fewer domestic students and 450 fewer international students, meaning a \$19 million dollar loss in tuition revenue (Stuff, 2012).

However, for others, the anticipation of what Christchurch city would become was encouraging them to remain in the city, as well as the job opportunities:

Speaker 1: I'll probably stay and go to UC [University of Canterbury] or something and yea just, I think it will be interesting to see what Christchurch turns out like.

Speaker 2: See what it becomes yea.

Speaker 1: And like especially there's like heaps of jobs and stuff that will come up, lots of opportunities to like state your name and get out there.

(Males, Group 5)

This is consistent with findings from the Canterbury Youth Wellbeing Survey (CERA, 2014) where 75% of respondents (aged 12-24 years) agreed that Christchurch provided good opportunities for future study, and 52% for employment.

National

The national level of the model is primarily concerned with the reaction of New Zealand as a whole to the Canterbury earthquakes, including their support and media coverage. These national factors refer to the period of time immediately following the earthquakes and/or during the following years (up till but not including 2013).

Support [Immediate]. Participants spoke about the support Christchurch received from other New Zealand towns/cities, and their appreciation for that support. The support described was primarily tangible (e.g., donating blankets, food etc.) and participants appeared to be very appreciative of this and the wide range of cities and towns that assisted Canterbury during the months to year post-disaster. Apart from the fact that such support would have provided participants' and their families with much needed physical basics, it may have also given teenagers comfort and hope, as well as the sense that they and their community were not alone. In fact, received support has been linked with reduced post-disaster distress (e.g., Kwon et al., 2001; Udwin et al., 2000; Elklit, 1997), as well as better post-disaster adjustment (e.g., Ruggiero et al., 2009).

Media coverage [Immediate + Inbetween]. A part of the national response to the earthquakes included the media's response and coverage of the event, which participants' held both negative and positive views about.

Negatives. A number of participants spoke negatively about the media. Firstly, one participant mentioned the difficulty she had listening to and watching the news:

But the thing was that kind of set me off, was like all the media like just talking about it. Like I'd sit down to watch it and just be like 'oh no I can't do this' and I'd have to go out of the room. (Female, Group 1)

Other participants appeared to be annoyed by the repeated coverage of the earthquakes:

Speaker 1: Like yea it is bad but everyone's getting on with it and then like with the news coverage here, they also really didn't want to move because they like, they just kept on going on about the same thing.

Speaker 2: Showing the same pictures every night.

Speaker 3: Yup and it's like ok yup we know about that get on with it now.

(Females, Group 1)

They also elaborated on this and indicated that the continued media coverage over the years had prevented them from moving on:

I just get kind of annoyed like, on the news how it's like, it's constantly on like, how it's about rebuilding, and like the financial problem and all that stuff, it kind of seems to be constantly on about it, which I find kind of annoying cause I just want to move on but yeah. (Female, Group 1)

In addition, some participants explained that the media only focused on negative aspects, and failed to capture the positives that were going on:

Like if you went out and helped out and then you came home at night and you watched it on telly, like you think you've made a difference and you think like 'oh it's getting better', and then you turn on the telly and they just show you that it's just getting worse or it's not getting any better, so yea that's like the main problem. (Male, Group 4)

Overall, some participants had difficulties listening to the media as it invoked anxiety. It was also quite negative, 'dragging the mood down', and did not sufficiently capture the community support or 'resilient mood'. This is unfortunate, as if the media were more positive, it could have been potentially uplifting and helpful for teenagers' wellbeing, as well as for their own resiliency and ability to cope. These findings are consistent with past research indicating that the media often sensationalizes situations, which can cause adverse effects and increase distress levels (Groome & Soureti, 2004; Hobfoll et al., 2007). It is not surprising that the graphic visual imagery often displayed in news reports has been associated with increased distress levels, particularly as threatening and intrusive images are significant features of posttraumatic stress (e.g., Holmes et al., 2007). One study found that following the Oklahoma City bombing (1995), higher

levels of PTSD symptoms in middle school children were associated with greater media exposure to the bombing (Pfefferbaum et al., 2001; Pfefferbaum et al., 2003). According to Belfer (2006), the media can also magnify the concern of children and adolescents if there is a lack of understanding. In addition, participants explained that the continued media coverage of Canterbury and earthquake-related reports (e.g., blaming of engineers for the collapse of buildings, insurance problems) prevented them from moving on. Such repeated viewing of graphic images can also have a negative psychological impact, as demonstrated by a study following the September 11th (9/11) terrorist attack (New York City), where repeated viewing of images was associated with greater post-disaster psychopathology (Ahern, Galea, Resnick, & Vlahov, 2004). Another study, conducted by Silver et al. (2013), investigated the physical and psychological effects of exposure to graphic media images following 9/11 and of the Iraq War. After two to three years, they found that exposure to such media predicted increased posttraumatic stress symptoms, and provided evidence to suggest that such exposure could produce similar physical and psychological impacts as that produced by direct trauma exposure.

Positives. In contrast to these negative views about the media, participants explained some positives, particularly regarding the media's usefulness as a source of updates and information. Participants also indicated that parts of the coverage did include positive content, for example:

...We kind of wanted to know what was going on even though it was awful, like I found it better than not knowing like um, and also like in between all the bad stuff there was good stuff like what was happening, like what people were doing, where the clean ups were and like where all the wells were and stuff like that.
(Female, Group 2)

In sum, it is common following disasters for a majority of people to go to national news networks for information (Bonanno et al., 2010). Past literature also explains that media reports are a valuable source of information that distribute educational material and correct misperceptions (Belfer, 2006), as well as increase people's awareness and knowledge about the effects of a disaster (Mohay & Forbes, 2009).

Based on these findings regarding media coverage, it seems that although the media is an important and needed source of information, it also needs to evaluate its potential negative impacts on its viewers, particularly children and teenagers. One suggestion could be for the media to try to balance its coverage with both positive and negative content. Therefore, although it would cover a disaster's devastation, it could also give youth some hope by reporting on positives in the community, such as people working together or small signs of progress. It is also important for parents to be aware of the potential negative impacts of the media on their children, and to either restrict what they are watching or offer them guidance based on what their children hear and/or see. This recommendation was also made by Shaw et al. (2007).

International

The international level of the model includes participants' views about international media coverage of the earthquakes, participants' responses to the Japan 2011 earthquake, and the opinions and experiences of international students. These international factors only appeared to be relevant during the initial months post-quake.

International media coverage [Immediate]. Participants indicated that the response by international media was unhelpful due to its negative focus and the consequent distress that it caused family members overseas:

But I remember like, cause my aunty said that they showed like all the worst buildings, like the CTV and stuff like that, and they only focused, like overseas, they only focused on the deaths and things like that or like the negatives, and like that really annoyed me because whenever I was talking to my aunty and cousins they were like 'oh are you guys ok, like what's happening? What's happening with the buildings?' and it's actually not that bad anymore. (Female, Group 1)

Japan earthquake [Immediate]. The news footage of the Japan magnitude-9 earthquake (and tsunami) further highlighted the potential negative impact of the media on teenagers' distress levels. The Japan earthquake hit on 11 March 2011, less than a month after the February 2011 Canterbury earthquake. Many participants mentioned how difficult and upsetting this event was for them, particularly seeing the devastation on the news.

That was like one of the most horrifying experiences of my life, like aside from the earthquakes, cause you're like kind of in it and you know what's happening and stuff but like yea, to turn on the TV and to suddenly see like the exact same things, the same images and like it actually, like that was one of the times when I cried...cause like they have to go through what we're going through like...it was just the most heart-wrenching thing to see. (Female, Group 1)

...They just kept showing footage of it and I felt so sick, I felt so sick. (Female, Group 3)

Overall, the Japan earthquakes provide insight into how an international natural disaster and the news coverage of it, can negatively impact the psychological wellbeing of teenagers who have personally experienced a similar natural disaster. Some participants explained that this was because they had personal insight into what the people of Japan were going through, and the fact that they were still living through an earthquake's aftermath. It is also possible that viewing such footage triggered distressing memories or thoughts about their own experiences.

International students in Canterbury [Immediate]. This last theme is based on statements made by international participants who were completing their high school education in Christchurch. A number of important factors were identified, all of which were most relevant during the initial months following the earthquakes, and are discussed below.

Less affected by the earthquakes. One factor concerned the idea that the earthquakes affected international students to a lesser extent compared to domestic students. Participants identified a number of reasons for why this was the case. Firstly, they explained that because Christchurch was not their home city, they cared less than domestic students and could more easily leave:

You know you can leave here, so you don't really care like what is going on here, like to be honest, like even if there's damage or anything, I don't live here so. (Female, Group 6)

One participant explained that compared to ‘Kiwi kids’, ‘Asian kids’ appeared calmer and more composed when the earthquake hit, which she further suggested was because they were more emotionally mature:

Speaker 1: ...at the end, all of the Asian kids were kind of, like, left behind and all the kiwi kids had gone and...[the Asian kids] helped to clean things out and get things out of classrooms and all that and I think, I don't know why they did it, but I think being like international students you have to be more, I don't know, like strong let's say, emotionally...

Speaker 2: More mature

Speaker 1: To go through all that like decision-making and all that because they don't have like the families actual support in New Zealand, so I think that definitely helped many of the Asian families to just like go through the earthquake and act normal.

(Females, Group 6)

International participants also suggested that because they only had one or two immediate family members in Christchurch (i.e., mother, siblings), they had fewer family members to worry about compared to domestic students:

I think maybe because other kiwi families, they had like other family within Christchurch who were being affected, so they had like not just themselves but other family members to worry about, but for international students we just have our family, our intermediate family, to worry about so there was like less panic attacks over other people and that's probably, I don't know, maybe helped them to stay calmer. (Female, Group 6)

Overall, it appeared and was confirmed by the international participants that they were less affected by the earthquakes compared to some of their ‘kiwi’ counterparts. This was because of a number of reasons which suggested that overall, international students had fewer secondary post-disaster stressors, compared to those domestic students may have experienced (e.g., fewer family members in Christchurch, less connection to the city and therefore, less impacted by damages). If this were the case, international students would have had fewer stressors impacting on their coping and emotional resources, and therefore, less pressures on their resiliency. It is important to note that the houses of the international participants did not suffer extensive damage. If they had,

their opinions may have been slightly different due to the continuing impact that housing damages can inflict on peoples' lives.

International participants also implied that they were more resilient because they were more emotionally mature than 'kiwi' students due to their experiences of being international students and what that entailed (e.g., decision-making and being away from family). This is similar to the findings of Marlowe and Lou's (2013) study of refugees living in Christchurch, and how their past experiences (sometimes traumatic) made them somewhat resilient to the earthquakes.

These findings give insight into how international students may experience an earthquake in a country that is not their own, and how this can potentially be a protective factor. That is, international participants appeared to escape the additional secondary stress of having to worry about multiple family members, or parent's employment, or the loss of their childhood suburb. They still however, had to experience the disruptions of schools closing, temporarily leaving Christchurch, and living in a disaster struck environment.

It is also important to take into account cultural differences in terms of expressing personal information and talking about personal problems. That is, if the international participants adhered to Asian cultural values, they may have felt uncomfortable talking about personal problems with the interviewer. This is because some of these values include not losing face for one's family or self, avoiding drawing attention to self, not expressing strong emotions and maintaining reservation and restraint in personal interactions (Kim, Atkinson, & Umemoto, 2001). If the international students subscribed to such values, they may have been resistant to fully expressing themselves (i.e., their thoughts, feelings), therefore influencing the information obtained in the focus groups.

Family outside of New Zealand. Although these participants indicated that they were not really affected by the earthquakes, their families back in their home countries were still concerned:

Well my mum and I, we had a talk, and definitely my grandparents wanted me back because they didn't like that kind of stuff. (Female, Group 6)

One participant also explained that because international students had fewer family members to support them in Christchurch, they supported each other:

...Like other people, they all have like family members and stuff, so they all went down to like, down to Timaru and all that, so school was half empty but all the international students, it's not like they can go anywhere, so we kind of all stayed at school and kind of like helped each other out in a way, I guess.
(Female, Group 6)

To stay or leave Christchurch? According to participants, many international students, including their friends, left Christchurch after the February earthquake:

Speaker 1: We used to have like 20 girls from Thailand in our school. After the earthquake most of them moved.

Speaker 2: Moved schools or to another city. So now we have none.

(Females, Group 6)

The main reason for international students leaving Canterbury was either because they were scared or did not have family in Christchurch, making it easier to leave. Another possibility, as suggested by a participant, was that again because of their lack of connection to Canterbury, international students could more easily move to a different New Zealand city to escape the damage and disruption. In contrast to participants' previous claims that international students were less affected, the fact that some permanently left the city suggests differently. Therefore, more comprehensive research is needed with international students in order to capture a wider range of their views and experiences.

One participant went on to explain why she remained in Christchurch, including her and her mother's focus on education, her attitude towards the earthquakes, and the fact that she was not badly affected by them:

...I think we put more, like we focused more on like education, like what's going to actually happen after than actually worry about now, like the damaged home and like all the insurance and all that kind of problem and like yea, and the goal to come here is to get much of it as possible and if you think about it, there's like experience and think about other countries which might have earthquakes much

more often and I guess just one earthquake and several aftershocks, but it didn't really matter to me that much. (Female, Group 6)

Language. One participant spoke about language barriers and the confusion she felt about what was going on due to her lack of English; however, participants also explained that friends or teachers were available to translate for them, which was helpful. Therefore, based on their own experiences, they recommended that translators be available for others. Domestic participants also highlighted the need for more culturally appropriate information (i.e., translated material) and the unfairness of information mainly being in English:

Speaker 1: Yeah and some of the like the statements that they use and the words are not like, they don't really explain them, cause we have a lot of culture, like cultures here, like Samoan, Tongans, Indians, like we have heaps of culture and yea, but they don't really like translate it into different languages, its more, it's mainly English. Cause like my parents, they can't really understand English, that's why I have to try translate it for them. (Male)

Speaker 2: Yea that's kind of unfair in a way, like if you were real affected you may not be able to understand it. (Female) (Group 2)

These reported language difficulties are consistent with previous reports. One report in particular stated that in the initial earthquake response, major barriers were created with health and safety communications because of their lack of simple English and non-English (Christchurch Migrant Inter-Agency Group [CMIAG], 2011; Wylie, 2012). Further, the initial Ministry of Civil Defence and Emergency Management communications were not only written just in English, but also at reading levels of 17-18 years, making it particularly difficult to understand for those with less sophisticated English skills (CMIAG, 2011). Therefore, in the event of another natural disaster in New Zealand, one of the main recommendations would be for distributed information to not only be available in multiple languages (e.g., Māori, Samoan, Tongan, Mandarin, Japanese, Korean), but to also be distributed widely enough and through appropriate means. This is consistent with Ager et al. (2010) who suggested that all documents should be translated into relevant languages and widely distributed.

Overall, based on the responses of international participants in the present study, the main finding was that they were less affected by the earthquakes, primarily due to having fewer secondary stressors and thus, strain on their coping resources; however, more research is needed in this particular area (i.e., international students in disaster-struck cities), as discussed later in Chapter Nine, under the heading ‘Future Research’.

Participants’ Advice for Future Planning

This is the final of the seven major areas identified in the present study. Specifically, Participants’ advice for future planning refers to advice provided by participants about what others could do to better support future earthquake-exposed youth, including future international students, as well as what youth could do to help themselves. Each of these pieces of advice from participants is discussed below.

Advice to support youth based on personal experience. Based on personal experience, participants highlighted a number of things that others could do to support future earthquake-exposed youth and to better help them cope.

The first suggestion concerned the idea of giving youth space and time to themselves to process the event, particularly in their own way.

I think some good things was like...like reflecting and just like being able to spend time by yourself, and just breathe for a bit. (Female, Group 2)

...Like let them deal with it in their own way, yea like some people go this is how you’re supposed to do it, like this is what you’re supposed to do, you’re not supposed to do that you’re supposed to do that, just let them, give them space, let them do it. (Female, Group 1)

This idea of giving youth space is consistent with the stages of processing a traumatic experience, particularly the ‘working through and processing’ stage, which includes a person’s desire to be left alone to process the event themselves in their own mind (Saari, 2005).

The second idea was for support to be available and for youth to be aware of this support, but to not have it forced upon them:

Speaker 1: Yea but that's um what you guys were talking about, that health nurse thing, like it was open but you didn't have to go sort of thing.

Speaker 2: Yea just having the option, it's something there that you can

Speaker 1: Knowing that it's there.

Speaker 2: ...It's there for you if you need it. Just having stuff around. (Males, Group 5)

This belief in the availability of support is consistent with previous research suggesting that perceived social support is especially important for managing disaster-related stress, particularly for children and youth (e.g., Bokszczanin, 2008; Lee et al., 2004). Further, research has found that perceived support (i.e., the perception that support is available when and/or if needed) is more consistently related to beneficial health outcomes as opposed to received support (e.g., Uchino, 2004; Barrera, 2000).

Thirdly, some participants explained that rather than only talking with youth about their personal earthquake experiences, it would also be helpful to ask them about what they needed and what could be done to help them move on. Another participant explained that receiving advice would also be particularly helpful for youth, which highlights the function of talking as a means of youth gathering information and getting help.

More than actually trying to get together to talk about experience, actually having um, like helpful advice would be better because anyone can share experience and it will be kind of like along the same lines maybe - their house broke or like the deaths stuff or like, I don't know, damages or something, but hearing advice like maybe the helplines or whatever, then it would be more helpful than that. (Female, Group 6)

Other participants explained that giving youth something to do would be helpful, either as a distraction or to get them in contact with friends. Distraction is a well-known coping strategy that allows people to stop thinking about their problem situation (Ayers et al., 1996), possibly enhancing their mood.

Speaker 1: And then also like providing things for us to actually take our minds off it. Like even if it's not like recovery work but like still something that can just distract us and even possibly bring us together with our friends...like more events like the concert, like not as big as that but just...

Speaker 2: Yea it doesn't have to be that big but just like, I don't know, like watching an outdoor movie or something like...like that, just to take your mind off it.

Speaker 3: Just like distractions I reckon.

(Females, Group 1)

Participants also highlighted the idea that adults should recognise youths' desire and ability to help post-disaster, which has been discussed previously under the heading 'Personal involvement in the community response'.

Speaker 1: It was kind of frustrating like with the whole thing like how surprised the news was at how the youth were getting involved and it was like actually we're, we're totally invested, we're totally invested in Christchurch. (Female)

Speaker 2: They stereotype us into being lazy teenagers. (Female)

Speaker 3: Yea just because we're teenagers, we're lazy. (Male)

Speaker 2: But we actually do care.

(Group 2)

Advice from international students. International participants also recommended a number of ways that others could help international students in the event of another natural disaster. One participant suggested that it would be helpful if support people were of a similar culture:

Maybe have the person from the same culture to help them, then they could relate to them more...then the people being helped would relate to the people who are helping them so they feel more at home...because if you're from different cultures you think differently as well. (Female, Group 6)

Having support-people of similar cultures would perhaps help international students better relate to or identify with such support-people, who may also better understand the students' different ways of coping, thinking, behaving or expressing of emotions. This is consistent with Wylie (2012), who emphasised the need for individual agencies to employ people from diverse backgrounds. This would also be beneficial for domestic families of different cultural backgrounds.

Another participant explained that providing accommodation for international students would be helpful:

I know some of the international students, they don't have like homestay or anything in Christchurch, so they didn't have anywhere to stay after the earthquake, so it might be helpful to supply accommodation. (Female, Group 6)

By providing such accommodation, international students would have one less stressor and would perhaps gain some sense of safety or stability, which would positively contribute towards their emotional wellbeing.

Participants suggested that helping international students to contact and reassure family members back home would also be useful, perhaps through their school's website. This would give both family members and international students some peace of mind, as family members would know what was happening, and international students would not have to worry about family members being stressed due to uncertainty about their safety.

How can youth help themselves? In addition to suggesting what support people could do for youth, participants also gave advice about what youths could do to help themselves.

Firstly, they explained that youth should try to be involved in the community following a natural disaster, either helping out or just attending community events:

Speaker 1: Another thing I'd say to teenagers that will probably go through the same experience as us, is to just use the support that's provided and just get involved in community activities, it honestly helps. (Female)

Speaker 2: Get out there and do something to help others, makes you feel better, it makes them feel better. (Female)

Speaker 3: Even just more little things, like giving food and stuff. (Male)

Speaker 4: And even just if there's a place where there's stuff happening, like if you don't feel up to it, just go and watch...and like that's a huge, like it's cleansing, you go and see it and you're like this is so good and yea just be a part of, you don't have to be like totally actively involved but just be a part of it. (Female) (Group 2)

Community involvement may be helpful as it could serve as a distraction and/or source of enjoyment for youth. It may also give them a sense of community unity and togetherness, and/or hope that normality would return. There are also many other benefits of helping out, as discussed above under the heading 'Personal involvement in the community response'. Participants also spoke about the importance of having the support of friends:

I think maybe it's good to kind of keep in contact with your friends so, you know, you don't feel alone, maybe that would be good advice so, you know, kind of help them out so, you know, you're not all by yourself. (Male, Group 4)

Although some participants indicated that physically seeing friends was not a main priority immediately after the earthquakes, as time passed, obtaining support from them was. This is important as social isolation is a potential negative psychological outcome following disasters (Teasdale, Stephens, Sloboda, Stephens, & Grey, 2013).

Participants also advised youth to speak up and to talk to others. This is important as talking has been found to help individuals process the event, as well as put it into perspective (Mutch & Marlowe, 2013).

Yea sort of just don't disappear into your shell and just keep...yea everyone's sort of here to help you if you need it, so just speak up and find the help you need cause it's always there. (Male, Group 5)

However, although youth identified talking as helpful, they also explained that it was okay if youth did not feel ready to talk and that they should take their own time. This is consistent with the idea that when a person is processing a traumatic experience, and in the 'working through and processing' stage, it is typical for them to not want to discuss the event (Saari, 2005).

Don't force yourself to like talk about it, like when you're ready like it's ok, everyone's going through their own thing, or like if you don't feel like talking about it you don't have to, so yea. (Female, Group 2)

Combining such youth-informed advice (i.e., personal insight) as that presented above with that informed by the literature could be particularly useful, as well as consistent

with the idea of giving youth a voice and the opportunity to inform post-disaster youth-focused psychosocial support.

Conclusion

With reference to the proposed ecological model of teenagers' views and experiences following the earthquakes (see Figure 6), participants identified numerous different areas of importance that fell within one of the six levels relating to teenagers' post-disaster experiences (i.e., Individual, Family, School, Community, National, and International). Each of these levels included themes that were important to youth and gave unique insight into their evaluations of and views about their post-disaster experiences and situations. These themes were either more important nearer the time of the earthquakes (e.g., relocation, immediate psychological impact, involvement in community response), maintained importance during the following years (e.g., continuing psychological impact on self and family, support from family and school, divide between the east and west), or became more important as time passed (e.g., rebuild of the city, desire for youth-focused areas). In addition to these six levels, was participants' advice for future planning, which concerned advice regarding support and self-help for future earthquake-exposed youth.

Overall, Study 2 provided deeper insight into teenagers' experiences immediately after the Canterbury earthquakes, as well as throughout the following three years. This information could be used to better understand what earthquake-exposed teenagers experience and need in the weeks, months and years following a disaster event, as well as areas for support that could be altered or improved. This information could then help inform youth-based psychosocial supports and interventions and therefore, hopefully reduce post-disaster distress and improve youths' psychological wellbeing. One of the strengths of Study 2 was its expansion of findings from Study 1 and the deeper level of insight it provided, which further clarified or deepened our understanding of particular findings from Study 1. Study 2 also had the benefit of providing additional insights into areas not covered in Study 1 but that were still of importance to teenagers (e.g., views about rebuild consultations, experiences of international students, perceptions of personal recovery). The following chapter details findings that arose in both Study 1

and 2 and provides a summary of the main findings of the overall study, including implications.

CHAPTER NINE: SUMMARY AND IMPLICATIONS

The primary aim of this study was to gain insight into teenagers' experiences of the Canterbury earthquakes: to investigate earthquake-exposed teenagers' needs from their own perspectives; and to investigate the supports received (then and three years later) from such people as friends, parents, teachers, and community members. This research also aimed to investigate youths' opinions and experiences of recovery over the three years following the initial earthquakes (i.e., 2010-2013).

The investigation was divided into two parts. Study 1 involved the administration of a survey with the primary purpose of obtaining an overview of the experiences of earthquake-exposed teenagers. Study 2 then used six focus groups to extend this enquiry and to obtain deeper insight into teenagers' experiences, needs, and supports, with questions being primarily informed by the findings from Study 1.

Both Study 1 and 2 produced their own set of findings, the implications of which were discussed in Chapters Six and Eight respectively; however, this final chapter is focused on the main findings that arose in both Study 1 and 2. Specifically, the first section of the chapter summarises these main findings, including implications for current and future youth-focused supports. Final recommendations for the Ministry of Education, schools, parents/caregivers, community members, and city councils, are then outlined, followed by contributions of this research to existing literature, the benefits to my clinical practice and development as a researcher, limitations, and areas for future research.

Summary of Main Findings

The main findings are divided into three main areas of importance, the implications of which are discussed below. The first concerns social support with a primary focus on the family system. The second area of importance concerns findings relating to the individual, including the psychological impact of the earthquakes, youths' perceptions of seriousness, the need for physical basics, relocation, the need for entertainment and distraction, and the value of talking. The third and final area of importance refers to the usefulness of the school setting in terms of supporting youth.

Social support. For a majority of participants in both studies, receiving social support or having it available was extremely important both immediately following the earthquakes, as well as throughout the following years. In fact, participants viewed this support as being the most helpful factor received overall, and included such things as understanding, acceptance, openness, company, comfort, and talking. The main support figures identified by participants were family members and friends; however, as revealed by Study 2, family appeared to be participants' main priority immediately following the earthquakes. Participants spent a majority of their time with family members, particularly while schools were closed, which meant that families were in the best position to provide youth with a wide range of support. Unfortunately, as further explained in Study 2, it was sometimes difficult for youth to obtain this support as some family members were also negatively affected by the earthquakes and needed help themselves. This is consistent with Galea and Resnick's (2005) claim that a child's support system is complex and can be disrupted by a disaster, particularly due to a disaster's ability to negatively impact on significant supports.

In addition, due to young peoples' natural dependency and high need for support from adults, their vulnerability is increased. That is, their reactions are not only influenced by the disaster event itself, but also by the consequent distress of parents, teachers, and other adults (Margolin et al., 2010). Specifically, participants spoke about the negative psychological impact on family members (e.g., stress, depression, alcohol use), the difficulties of having to deal with this, the consequent inability to obtain support from parents, and the negative impact it had on interpersonal relationships (e.g., arguing). Such consequences were likely to have then negatively impacted on the psychological wellbeing and coping of participants. In fact, according to Study 1, the impact of the earthquakes on family interactions was one of the worst things overall for some teenagers. These findings are consistent with past research and the negative impact that family conflict (e.g., Bokschanin, 2008) and parental symptoms (e.g., Gil-Rivas et al., 2010) can have on the distress levels and symptoms of children.

These findings highlight the importance of not only supporting disaster-exposed teenagers, but their family members as well. Due to younger teenagers' dependency on their parents, and the known impact that parental distress and family functioning can have on the wellbeing of children, the present research suggests that youth-focused

interventions also incorporate parental mental health support. This conclusion is consistent with Joshi and Lewin (2004), who claimed that because parental psychopathology is the most significant predictor of child psychopathology, it is important to intervene and support disaster affected children through the family system. Ager et al. (2010) also found that 94% of humanitarian specialists agreed that agencies should be taught skills for supporting families to care for children in crisis settings.

In terms of early interventions, schools could potentially advertise support for parents in their newsletter, or give students hand-outs or information packs to take home. Following the Canterbury earthquakes, the Ministry of Health and Ministry of Education provided online support resources. There were also support organisations (e.g., Jigsaw, and Strategies for Kids Information for Parents [S.K.I.P]) that provided resources online. Based on the findings of the present study, it would be helpful if these services were continued in the future and extensively advertised to parents and families in the event of another natural disaster. Another suggestion could be for schools to hold functions where parents could attend individual or a series of psychoeducation sessions and learn about typical responses following earthquakes (e.g., acute stress symptoms) and where to get help. These psychoeducation sessions could also include information about the impact of family functioning on youth and the potentially negative impact that parents may inadvertently have on their children, and how to reduce or avoid this. It would also be useful for parents to be educated about the importance of being open and accepting of their children's experiences, even if they have had different earthquake experiences and consequently, different earthquake-related thoughts, feelings, or behaviours themselves. By showing an understanding of their child's perspective, it is more likely that their children will talk to parents or caregivers about their experiences and feel better understood. The importance and benefits of delivering psychoeducation to parents (as well as other significant adults) has been previously discussed in Chapter Two under the heading 'Educating people within the natural social contexts of young people'.

In Study 1, participants highlighted the importance of receiving support from friends; however, in Study 2, participants revealed that although support from friends was important, it was not a main priority immediately following the earthquakes. As most participants wanted to spend a majority of their time with family, and accessibility to

friend's houses was restricted, participants did not see much of their friends while schools were closed and, therefore, did not obtain a great deal of support from them during this time; however, once students returned to school and saw each other on a daily basis, talking and support was the most common help provided. As many students had been through the same thing, they could relate to one another. According to Vernberg and Vogel (1993), returning to school and seeing friends again is also likely to signify some normality. In addition, participants in Study 2 wanted to advise future earthquake-exposed youth to keep in contact with friends so that they did not feel isolated. Based on these findings it is suggested that teachers, parents, and other support-people should encourage youth to support and talk to one another. For instance, schools could educate students about how to support one another and suggest what may be helpful – possibly being informed by the students themselves; however, caution should be taken in the sense that some students may not have the capacity to support others due to their post-earthquake mental state.

Individual.

Psychological impact. Firstly, both Study 1 and 2 demonstrated the psychological impact of the earthquakes on the youth population across multiple functioning domains, as also reported by Shaw et al. (2007). Emotionally, teenagers reported the stress, uncertainty, fear, grief, and shock inflicted by the earthquakes. They also reported behavioural avoidance (e.g., of being indoors) and the impact of stress on interpersonal relationships, particularly within families (e.g., arguments). A majority of the psychological needs identified in Study 1 (e.g., needing space and time to relax, a sense of security, reassurance) aimed to reduce the psychological distress caused by the earthquakes. Further, in Study 1, some participants' reports indicated ongoing psychological impacts nearly three years after the initial September 2010 earthquake (e.g., thought avoidance). Such psychological reactions and needs were expanded on in Study 2, where participants wanted to advise support people to give youth space - at least initially. They also highlighted the ongoing psychological impact over the months and years post-disaster (e.g., stress, guilt, hyperarousal).

These findings indicate that post-disaster responses may not be short-term and can continue to influence teenagers' lives long after the event, particularly if certain factors are present, such as high levels of threat to life (Yule, 1992; Yule & Udwin, 1991),

extensive devastation and bereavement, and/or major ongoing impact on family functioning (McFarlane et al., 1987). In such instances, long-term support is necessary in ensuring the psychological health of youth (e.g., Wu et al., 2014). These findings also suggest that early and possibly preventative interventions could be beneficial, and that by dealing with these acute psychological responses earlier on, their intensity may be reduced, the development of secondary problems mitigated, and the onset of more long-term psychopathology minimized (Watts, 2000). Shaw et al. (2007) also highlighted the importance of providing youth with early psychosocial support to facilitate recovery.

Overall, given the high frequency of post-disaster acute stress symptoms reported in both studies, it is an important area to address in terms of youth-focused support. One suggestion could be for all schools to organise post-disaster talks by mental health professionals (e.g., psychologists, social workers) either during assemblies or in class. These talks could address such things as the thoughts, feelings and behaviours that young people typically experience following disasters and why. It could also include validation and normalization of students' responses, information about the typical duration and course of responses, self-help activities, contact information for local organisations, and/or experiences of past disaster-affected youth. This suggestion is supported by participants' need for and appreciation of information and advice following the earthquakes, as reported in both Study 1 and 2. If schools were to include formal disaster psychoeducation and preparation programmes, it could also be helpful if such information were provided before a disaster event. This could potentially give youth some sense of preparedness (i.e., physical and psychological) and knowledge about what to expect. Teachers could also be more routinely trained in the effective delivery of psychoeducation and how to support and manage students who remain psychologically affected, which is discussed later under the heading 'The school setting'.

In terms of mental wellbeing, participants in both studies reported support from school counsellors; however, participants in Study 2 revealed that even if they did not use them, the presence of school counsellors was useful. That is, youth identified and appreciated the perceived support that having counsellors on site provided. This is consistent with past literature indicating that perceived support is particularly important for children and youth and the management of disaster-related distress (e.g.,

Bokszczanin, 2008; Lee et al., 2004). Such counselling is easily accessible for students, it is free, and can demonstrate that post-disaster distress is typical and that it is okay to ask for help.

Youths' perceptions of seriousness. When a disaster strikes, a person's reaction is at least partly dependent on their perception of its seriousness (e.g., Weems & Overstreet, 2008). Both Study 1 and 2 indicated that the main contributing factors towards teenagers' perceptions of seriousness were the resulting deaths and damage inflicted by the earthquakes. That is, in Study 1, these two factors were identified as being amongst the worst things overall for participants, and in Study 2, participants revealed how the presence of these factors increased their perception of the seriousness of the earthquakes. Further, in both studies, a majority of participants explained that the February 2011 earthquake was worse compared to those in September 2010 and June 2011 - the main reported difference being the presence of deaths and severe damage, as revealed in Study 2. Therefore, it is reasonable to say that if a disaster strikes and results in deaths and extensive damage, the impact of that disaster and its perceived seriousness increases, as does the likelihood of adverse emotional reactions (e.g., distress, grief). This is consistent with past literature, which highlights the association between environmental damage and mental health outcomes (e.g., Finch & Belter, 1991; Weems & Overstreet, 2008), as well as the increased severity of post-disaster reactions following disaster-related deaths of family members or friends (Vogel & Vernberg, 1993).

The impact that deaths and damages can have on the perceived seriousness of an earthquake has potential implications for both immediate and longer-term supports. For instance, if there are deaths and severe damages, initial responses and supports by such people as disaster support groups, social workers, schools, and medical personnel, should be prepared for emotional reactions of greater intensity. This would help ensure that such emotions and behaviours were properly addressed and processed, leading to fewer youth developing more severe clinical disorders (e.g., PTSD). In terms of long-term responses, it is likely that the greater the intensity of youths' reactions, the greater the duration that supports or interventions will need to be in place (e.g., Caparrotta & Ghaffari, 2004; Shapiro et al., 1994). For example, nearly three years after the February earthquake, Study 1 showed that affected teenagers still needed forms of psychological

support (e.g., counselling, relaxation). Further, for many participants in Study 2, references were made to the continuing impact of the earthquakes in terms of dealing with the deaths, as well as the ongoing inconvenience and disruption caused by the damages. Consequently, a need for ongoing support and understanding was required (e.g., schools and leniency with schoolwork).

Need for physical basics. The need for physical basics (e.g., food, water, warmth) was teenagers' most important need in the first two weeks post-disaster; however, there were particular differences in the groups of teenagers who primarily endorsed this need and those who did not. That is, in Study 1, participants from the decile 2 eastern school reported a need for physical basics much more frequently than participants from the western schools, while in Study 2, only participants from a different decile 2 eastern school spoke about their lack of food, warmth, water and shelter. This finding may be due to differences in the extent of damage between these two regions with the east suffering the most damage, differences in SES and resources with the eastern schools being of lower deciles, or both. In sum, these findings demonstrate that not all youths exposed to the same disaster will experience the same needs to the same extent, or for the same duration. For example, teenagers living in less affected communities may be more concerned about receiving social support sooner, as opposed to physical basics. This is compared to teenagers living in badly damaged areas, who initially may be more focused on obtaining basics for survival, as opposed to social support.

The differences in damage between the east and west sides of Christchurch also appeared to result in differing attitudes between some of the youth, with some eastern participants still having to endure the physical impacts of the earthquakes over the following years. Consequently, participants from the east believed that they were worse off compared to those in the west, and that the earthquakes had had a greater, more severe impact on their lives that did not compare to the west; however, this is not to say that participants in the west were not continuing to be psychologically or physically affected, simply that the eastern region in general suffered the most physical damage, and therefore, had to endure the longer term consequences of this.

Overall, findings regarding basic physical needs clearly demonstrated that a teenager's priority of needs may be different at different times and localities, thus, highlighting the

need for individualised approaches or at least approaches that take into account the impact of different experiences, living conditions, and personal/family resources.

Relocation. In terms of relocation following the earthquakes, particularly that in February 2011, the overall finding was that temporarily leaving the Canterbury region was either desired or beneficial for those who left. This was primarily because by leaving the disaster-struck region, participants experienced less secondary stressors (e.g., having no power or clean water, or living in damaged houses or temporary accommodation). It also allowed them to have a break and to escape the aftershocks for a period of time and the consequent stress and paranoia. The aftershocks were identified as being one of the worst things overall for participants, while leaving Christchurch was reportedly an important need in the first two weeks post-disaster; however, one disadvantage of relocation was the consequent change in social structures. For example, some participants had friends who permanently left Christchurch and consequently identified this as being one of the worst things overall. Other participants disliked being separated from family members, which is important as parent-child separation has been associated with increased post-disaster negative responses in both parent and child (e.g., McFarlane, 1987). Many international students also permanently left, meaning a change in social structure (i.e., loss of friends) according to those remaining. These findings are consistent with Weems and Overstreet (2008) who suggested that a breakdown in social systems could contribute to increased post-disaster stress in both children and adults. Hobfoll (1989) also emphasised the impact that losing social relationships (i.e., condition resources) could have on an individual's ability to cope and level of distress.

Overall, these findings highlighted the benefits of temporarily relocating outside of a disaster-struck area, but also highlighted some negatives of more permanent relocation. Therefore, the *duration* of relocation may be more of a predictor of post-disaster distress compared to the act of relocation itself. This idea is supported by Blaze and Shwalb's (2009) study, which found relocation time (i.e., days, months, years) to be a significant predictor of adolescent posttraumatic stress following Hurricane Katrina. Although these differences in permanent versus temporary relocation require more research attention, the findings imply that for earthquake-affected teenagers who have the ability and resources to leave the area, temporary relocation could be considered.

Need for entertainment and distraction. Both an immediate and longer-term need for participants was for some form of entertainment or distraction following the earthquakes. In the first two weeks post-disaster, having nothing to do was frequently reported by youth and is understandable given the lack of electricity and damage to the surrounding environment; however, organizing such entertainment in the first few weeks post-disaster and the funding required to do so is likely to be unrealistic given the typical demands on other resources (e.g., distributing food, clearing liquefaction, and restoring electricity, gas and road network systems). In saying this, nearly three years following the earthquakes, participants reported the use of entertainment and distraction as a means of helping themselves. They also wanted to advise support-people to create spaces of entertainment for future earthquake-exposed youth. Therefore, these findings highlight the continued importance of the availability of entertainment to youth during the weeks, months, and years post-disaster. Importantly, if youth have resources made available to them where they can arrange their own entertainment activities, it is likely there may be benefits to the wider youth of their communities.

By creating youth-focused spaces, teenagers would have somewhere to go and to spend time with their friends - something that, according to participants, Christchurch had been lacking since the earthquakes began, with youth consequently complaining of having nothing to do. Providing sources of entertainment for youth and spaces where they could go, like they had before the earthquakes, would likely signify some normality to youth. This is important as according to Ager et al. (2010), 96% of humanitarian specialists working with children in crisis settings agreed that activities should be provided that help give youth a sense of normality. In addition, 90% agreed that providing recreational opportunities, youth clubs, and safe spaces could be valuable activities.

This reported lack of youth-focused activity was also linked to the slow pace of the rebuild, which was a source of frustration for many participants and allowed the earthquakes to have a continuing impact on their lives (even years after the initial event). This is important to note, as participants in Study 2 also indicated that observing the rebuild and seeing signs of improvement positively contributed towards their recovery by helping them move forwards and giving them the sense that the identity of Christchurch was returning.

Overall, by increasing the pace of the rebuild, conducting small rebuild projects throughout the city, and building youth-focused spaces for entertainment, the long-term impacts of the earthquakes on teenagers' lives may be lessened. Building progress may also demonstrate some normality for youth, while entertainment would provide a source of enjoyment, all of which would likely contribute positively towards teenagers' mental wellbeing and recovery. Additionally, participants in Study 2 indicated a desire to be involved in consultations regarding the rebuild of structures or areas relevant to their lives (e.g., school, playgrounds, parks), which is therefore, something that should be further investigated and facilitated by councils and communities. It is important to note that even if these opportunities are provided to youth (e.g., the BNZ Amazing Place, Christchurch City Schools' Project Competition), effort should be made to ensure that teenagers feel heard and are able to see the results of their input.

The value of talking. Mutch and Marlowe (2013) suggested that talking to others following a disaster is helpful for a number of reasons, including for example, putting the event into perspective and allowing people to begin processing the event; however, the findings from Study 1 and 2 both give mixed results regarding the helpfulness of talking. Firstly, some participants reported that talking to others (e.g., family, friends) post-disaster was helpful and a form of support; however, at school, they preferred it when teachers briefly talked about the earthquakes and then moved on to unrelated topics. Some participants also preferred it when other students did not talk about the earthquakes. Further, nearly three years later, participants commonly reported the unhelpfulness of earthquake-related talk. Based on these results, a general pattern emerged, which appeared to be consistent with a stage process. That is, immediately following the earthquakes, participants wanted to talk with family and friends; however, they also appeared to enter a stage where they wanted space and time to process the event themselves and to temporarily stop discussing the earthquakes or their impacts. This is consistent with Saari's (2005) 'working through and processing' stage following traumatic experiences where individuals no longer want to discuss the event; however, there seems to have been a point where participants began to find talking useful again (e.g., with friends, siblings, parents). Unfortunately, it is unknown as to exactly when this occurred or under what circumstances.

Additionally, participants in Study 2 retrospectively knew that talking was helpful, and wanted to advise future disaster-exposed youth to talk to others, but only when they were ready. Based on these findings, it is suggested that adults (e.g., parents, teachers) should keep checking in on youth, letting them know they are available to talk, but not pushing them into it. This conclusion was also made by Fothergill and Peek's study (2006), which found that it was helpful for adolescents to talk but only when they needed to. Additionally, the content and frequency of conversations was also important, with youth explaining that over time, always talking about their earthquake experiences eventually became unhelpful, and that more future-oriented talk and receiving more advice and information was needed.

The school setting. The usefulness of the school setting as a source of support has already been briefly discussed in terms of the dissemination of information to parents and students. School settings are particularly useful for a number of reasons, some of which include the fact that they contain the target audience (i.e. youth) in a familiar, predictable, and structured learning environment. School is also a central part of a majority of young peoples' lives, and should therefore have plans in place for what the school will do in the event of a natural disaster, and how they will support their students. A noticeable point mentioned in Study 1 and extended in Study 2 concerned the idea of school as an effective source of normality and structure for youth, which they reportedly needed following the earthquakes.

Both studies also highlighted the important role of teachers in terms of supporting students. Therefore, due to their influential role and in order to meet the needs of their students, it is necessary for teachers to not only cover regular curricula, but to also enhance their role as educators. To enhance teachers' roles as educators, it is suggested that teachers receive training about how to support their students following a disaster, and that through this training students receive the necessary support, disaster-related education, and psychoeducation. Following the Canterbury earthquakes, the Ministry of Education did offer online support resources for teachers, as well as post-earthquake workshops. The findings from the present study indicate that the provision of such resources should be continued in the future event of a natural disaster, but that training could also be extended and possibly delivered to schools across the country. Online training courses could also be a possibility.

One study demonstrated the effectiveness of teacher training programmes following the 1999 earthquakes in Turkey (Wolmer et al., 2003). This involved teachers and the principal of a school taking part in a school reactivation programme four months after the earthquakes where, among other things, they were trained by a local professional team to implement the programme and were educated about children's responses to trauma. They engaged in weekly training (4 hours in total) where they were taught about various aspects of recovery, such as dealing with intrusive thoughts, understanding reactions in the family, coping with guilt, loss and death, planning for the future, learning about earthquakes and earthquake preparedness, creating a safe place, extracting life lessons, and restructuring traumatic experiences. It is important to note that the present study provides further empirical support for such a programme, a number of these teaching points being consistent with topics or themes that arose in both Study 1 and 2 (e.g., family reactions, acute stress symptoms, needing a sense of safety, wanting teachers to focus on the future, discussions about earthquakes, earthquake preparedness, and seeing the positives [e.g., life lessons]). At the end of this four-week intervention, children's estimates of posttraumatic stress disorder had decreased from 30% to 18%.

In addition, before learning about how to support their students, it is equally important that teachers receive psychoeducation themselves so that they can be better prepared to cope with their own disaster reactions. It is also important that they receive the necessary mental health support, so that they can effectively support their students. This same conclusion was made by Shaw et al. (2007), and acted on by the New Zealand Ministry of Education, who following the Canterbury earthquakes, offered school staff and trustees counselling and support through their Employee Assistance Programme (MOE, 2011), as well as workshops for principals and teachers in Christchurch to help them to assist other staff and students (MOE, 2010).

In the future, it may also be beneficial to conduct teacher training before a disaster event occurred. This way, it may be less likely that teachers are negatively psychologically affected and therefore, more cognitively able to get the most out of training (e.g., less distracted by stressors, concentration intact). Additionally, in the context of New Zealand, it would be ideal for all schools across the country to conduct this teacher training; however, if this were not possible, it could at least be conducted in cities or

regions that were particularly susceptible to natural disasters (e.g., Wellington and earthquakes). One possible suggestion could be for professional development opportunities to be created for all teachers in New Zealand, including programmes that covered such things as typical post-disaster reactions in youth, earthquake preparedness, the importance of teacher support, typical family reactions, coping strategies, the benefits of future-focused planning, and strategies to help students emotionally process their experiences.

The academic impact of the earthquakes on participants was not a frequently reported concern in Study 1, nor was it an issue for a majority of participants in Study 2. This may have been either due to the educational support students received (e.g., derived grades, leniency with schoolwork, extra before and after school classes), or the fact that most participants were in Year 10 when the most significant earthquakes hit and not yet completing state-wide academic qualifications (e.g., NCEA, IB), meaning less academic stress. Many students spoke favourably about the educational support they received, and such support should therefore be encouraged in the event of another natural disaster. This support could also be continued over the months and for those still negatively affected, possibly years post-disaster, especially as some participants reported difficulties managing both the continuing impacts of the earthquakes (e.g., damaged homes), as well as the demands of school.

Contributions to Existing Literature

Overall, the findings from the present study contribute to the literature in a number of different ways. Firstly, and most importantly, this study directly asked teenagers about their personal disaster experiences, including what they needed and what was particularly helpful or unhelpful, as well as other important factors that influenced their lives. This approach of directly asking teenagers themselves has been largely missing in past disaster research. By gaining such insight into the personal experiences of teenagers, areas of particular importance were identified. Consequently, a wide range of information was obtained that can now be used to help inform youth-focused post-disaster supports. This information has resulted in a number of recommendations, which are summarised below under the heading 'Final Recommendations'. Some of this information has also been written up as a paper for publication, which is currently under

review. This paper was drawn from Study 2 and was titled ‘Rolling with the shakes: An insight into teenagers’ perceptions of recovery following the Canterbury earthquakes’.

An ecological model was developed from Study 2 (see Figure 6) that improves our understanding of what teenagers’ believe to be important reactions and experiences over the weeks, months, and years following an earthquake. This model also highlights the fact that teenagers are not isolated individuals but rather part of a larger interconnected system (including family, school, community, national and international levels), where impacts in one area can cause follow-on effects in others. For example, the slow pace of the rebuild and associated insurance difficulties may put stress on parents due to loss of income or housing security. This can then negatively impact on the functioning of the family and parents’ psychological wellbeing, which can then negatively impact on a teenager’s reactions and ability to cope, perhaps leading to behavioural or interpersonal problems, and increasing parents’ distress.

In addition to gaining a deeper understanding of youths’ experiences from their perspective, insight was obtained into particular areas that had previously received minimal research attention. For instance, three main areas included a) teenagers’ potential involvement in a disaster’s response and the motivation behind their participation; b) youths’ understanding of their personal recovery and what contributes towards it; and c) the experiences of international students in a disaster-struck city.

In sum, the findings from the present study give readers insight into youths’ perceptions of a disastrous event, its consequences (both physical and psychological), youths’ most important needs, their opinions about support and significant people in their lives, as well as their school and community, and their capability and desire to be more actively involved in a disaster’s response and recovery phase. It is the expectation of the present study that this information be used to help support-people (e.g., parents, teachers, psychologists, counsellors) better understand how youth experience earthquakes, and in turn, be used to help improve the post-disaster psychological wellbeing of earthquake-exposed teenagers. It is likely that having a deeper understanding of what teenagers need from their own perspective, as well as their views regarding support, may help contribute to lowering the levels of short- and long-term post-earthquake mental health difficulties in youth.

Benefits to my clinical practice and development as a researcher. There are a number of ways that the present study has likely benefitted my future practice as a clinical psychologist. Firstly, it has contributed to my ability to abide by the scientist practitioner model. That is, the skills I have acquired regarding data collection, methodology and data analysis can be applied both in terms of evaluating the effectiveness of a client's intervention, as well as better understanding the literature that informs my practice.

Secondly, through this study, I have been able to practise and improve my communication and people skills through both the recruitment and coordination of schools, and the conduction of focus groups. The focus groups in particular gave me the opportunity to exercise and refine some of my clinical skills (e.g., micro-skills), and required me to manage groups of up to six teenagers (similar to group therapy). The research process has also given me additional experience with dealing with sensitive issues like death and self-harm, as well as increased my awareness of particular cultural differences between Asian (Chinese, Korean) and New Zealand youth. With the latter, I particularly noticed the additional effort needed with international students to acquire information regarding strong feelings or talking about personal problems.

Thirdly, when analysing the qualitative data based on the essentialist/realist paradigm and in comparison to quantitative analysis in Study 1, it became apparent that this approach allowed for a broader, deeper and more nuanced understanding of teenagers' needs and experiences. For instance, some ideas or points that obtained low frequencies in Study 1 (e.g., youth involvement in the disaster response, views on the rebuild, the divide between east and west, relocation) received little attention or were ignored due to their apparent lack of significance; however, in Study 2, when youth were given the opportunity to freely talk about their ideas or views, these points were emphasised. Therefore, from doing this research, I have gained a greater appreciation for qualitative research, particularly thematic analysis and the like, and its ability to provide deeper insight and therefore, understanding of a particular phenomenon.

Through this research I have also become more aware of how a researcher's personal and theoretical beliefs and assumptions may influence their interpretation of the data and the identification of themes. Coming from a psychological background, it is likely

that being psychologically minded would have influenced my interpretation of participants' statements, and the consequent themes I identified (for example, negative psychological impact, perceptions of recovery). I am also aware that by not having experienced the earthquakes myself, I was approaching the situation from an outside perspective. If I had personally experienced the earthquakes, my interpretations may have been influenced by personal earthquake-related thoughts, feelings and/or experiences.

Fourthly, when interpreting the obtained data, I applied certain psychological theories and conceptualisations relevant to clinical practice (e.g., principles from developmental psychology, Cognitive Behavioural Therapy, Acceptance and Commitment Therapy, psychological disorders), which in turn, enhanced my understanding of such areas.

Lastly, through this study, I was able to obtain some insight into important factors regarding youth that could directly relate to my practice. For example, the importance of incorporating parents/caregivers in the assessment and therapy process, and the potentially significant impact that parental mental health can have on the functioning of the child. A majority of participants in this study expressed the belief that young people were not heard and that adults overlooked their opinions. In practice when working with youth, it is important to be aware of such beliefs and to consciously ensure that they are disconfirmed when it comes to the therapeutic relationship. In addition, given that many psychological difficulties are preceded by periods of stress, it has been valuable to conduct a study that has assisted my understanding of how stress and trauma can impact on lives, and in particular, on the lives of teenagers.

Final Recommendations

Below is a summary of recommendations for supporting teenagers in stressful or traumatic situations, based on the findings from the present study. These recommendations take into account teenagers' reports regarding their experiences, needs and what they found helpful or unhelpful over the three years following the earthquakes. Overall, the recommendations are particularly relevant to schools, the Ministry of Education, parents/caregivers, community members, and city councils. It was the intention of the present study that its findings and consequent recommendations be used to help inform post-disaster youth-focused supports, so to attempt to reduce

teenagers' post-disaster distress and in turn, the number of teenagers going on to develop psychological disorders. The following recommendations are organised into categories, including suggestions for supporting teenagers, psychoeducation for significant adults, provision of accurate information for teenagers, recommendations for communities and councils, and media.

Specific suggestions for supporting teenagers

It is recommended that:

- Acute post-disaster psychological responses in youth be addressed early on and preventative interventions arranged. In some cases, more long-term mental health support may be necessary.
- Youth-focused interventions incorporate parental mental health support.
- Support provided to youths, be it from teachers, parents, psychologists, or social workers, be individualised and take into account the impact of different earthquake experiences including damages, as well as different living conditions and personal/family resources.
- Different coping strategies be emphasised depending on gender, or supports be tailored to suit gender differences.
- Adults (e.g., parents, teachers) keep checking in on youth, letting them know they are available to talk, but not pushing them into it.
- Youth be encouraged to support and talk to one another. For some teenagers, non-earthquake related talk might be most beneficial.
- School support – it is recommended that:
 - Schools have plans in place for what they will do in the event of a natural disaster, and how they will support their students.
 - Schools be re-opened as soon as possible with the intention of resuming normality and re-establishing a structured routine; however, for those still badly affected, it is advised that a balance be reached between returning to a regular school routine and making adjustments.
 - Schools provide students with general support, educational support, and psychological support. If students continued to be negatively affected, these supports would need to be long-term.

- Schools have systems in place to help international students contact their families back home.

Provide psychoeducation to significant adults

It is recommended that:

- The awareness of significant adults (e.g., parents, teachers, religious leaders) be increased in terms of the initial and potentially long-lasting psychological impacts on teenagers, and strategies to help them cope. Specifically, it is advised that:
 - The Ministry of Education provide optional or mandatory professional development opportunities for teachers and other school personnel across New Zealand. It is also recommended that teachers be educated about how to identify students who continue to be psychologically affected (e.g., during the months or year post-disaster) and what to do in those circumstances.
 - Schools or the Ministry of Education ensure that teachers receive psychoeducation about typical disaster reactions themselves and possible coping strategies, as well as further mental health support for themselves if necessary.
 - Schools are used as sites to deliver psychoeducation sessions to parents.
 - Online resources for parents and teachers provided by the Ministry of Health, the Ministry of Education, and community organisations, be continued in the future event of another natural disaster.

Provide teenagers with accurate information

It is recommended that:

- Adults (e.g., parents, teachers) provide youth with accurate earthquake-related information, ensuring that its delivery is developmentally appropriate and that support is provided to assist youth in processing and understanding it.
- While schools are closed, students be updated on the progress being made, and given clear and detailed information about expectations regarding schoolwork and how schoolwork will be managed once they return.

- Once schools are re-opened, schools discuss the earthquakes with students; however, it is advised that caution be taken regarding the duration and intensity of earthquake-related talk, and that teachers check-in with youth to determine the helpfulness of earthquake-related talk.
- Schools across New Zealand educate their students about the psychological (and physical) impacts of a natural disaster before and/or after it hits, including information about what their school's probable plan may be following a disaster.

Recommendations for communities and councils

It is recommended that:

- Communities provide or facilitate entertainment for youth during the weeks, months and years post-disaster.
- Communities give teenagers (i.e., ages 13-19) the opportunity to be involved in a disaster's response by organising youth-focused volunteer groups.
- The government and city council commence the rebuild of a disaster-struck city as soon as possible, and maintain gains in progress.
- Youth have involvement in rebuild consultations, particularly concerning areas that they are involved with or use on a daily basis.
- Information distributed to disaster-struck communities be easily accessed and available in multiple languages, not just English (e.g., Māori, Samoan, Tongan, Mandarin, Japanese, Korean).
- Culturally-similar or -sensitive support-people be available for international students, either at schools or community services.
- Alternative accommodation be arranged by schools or community groups for international students boarding at schools with significant damage.

Media

It is recommended that

- Media coverage of a disaster event maintains a balance between both positive and negative content.
- Parents are aware of the potential negative impacts of the media on their children, and either restrict viewing or offer guidance based on what their children hear and/or see.

Limitations

There are some limitations that should be considered when interpreting the findings of the present study. The first concerns delayed reports, which have often been viewed as problematic within life-events research due to the risk of individuals' memories fading. That is, the present study was conducted nearly three years after the earthquakes; therefore, the accuracy of such delayed reports may have been impacted by lapses in participants' memories. As stated by Greenhoot (2012), the act of remembering is imperfect and prone to distortions, forgetting, and illusions, especially as the time delay between the event and recollection increases; however, this concern regarding delayed recall is only valid if the events being researched are considered to be "ordinary" (e.g., relocation, retirement) rather than "extraordinary" (such as natural disasters) (Norris & Kaniasty, 1992). This view is supported by findings that suggest that the more salient the event (e.g., death of a spouse as opposed to a family illness), the greater the reliability of the delayed reports (Funch & Marshall, 1984). Raphael, Cloitre, and Dohrenwend (1991) also found that despite people forgetting minor life events, they still remembered those that caused significant changes in their lives. In the case of the present study, it is expected that the Canterbury earthquakes were extraordinary events that changed participants' lives in multiple ways (e.g., in their community, school, home).

It is also possible that participants' moods at the time of memory retrieval may have influenced which memories were recalled. That is, literature has shown that our emotional experience during retrieval can influence the accessibility of different events and which details are most likely to be recalled (Holland & Kensinger, 2013). One example of this is mood-congruent recall, in which the event recalled is congruent in valence to the individual's current mood (e.g., recalling positive information when in a positive mood) (see Blaney, 1986). This mood-congruent effect has also been found to influence the ratings of memories as positive or negative (Holland & Kensinger, 2013).

Both Study 1 and 2 were cross-sectional studies that gathered data at one point in time. For this reason, it was difficult to interpret associations between time and other variables. That is, change was difficult to investigate – for example, the potential change in needs or supports over time, the process of recovery for youth or changes in perceptions of recovery, or the psychological impact of the earthquakes at different time

points post-disaster. The former could have been potentially addressed by asking about needs at different time points (e.g., not only the first two weeks post-disaster but also the following 4-6 months); however, as this would have been retrospective, it would have again introduced difficulties concerning delayed recall. The cross-sectional design of both Study 1 and 2 also meant that cause-effect relationships could not be established.

As mentioned previously in Chapter Eight, lacking generalisability in qualitative research is inherent and therefore, needs to be considered; however, one method used to enhance the generalisability of qualitative findings is to use purposive sampling strategies. By purposively sampling respondents from extreme ends of a continuum, it is thought that insight can be obtained into the distribution of a phenomenon within a population (Karasz, 2011). This purposive sampling strategy was used in the present study where schools of low to high deciles were selected, as well as schools with students from a range of ethnicities. In addition, according to Merriam (1998), lacking generalisability can be mitigated by the use of rich, thick description. In the present study, the researcher focused on “rich” data collection both in the qualitative survey material and subsequent focus groups.

When interpreting the results, it is important to consider the possible confounding impact of such demographic factors as gender, SES and ethnicity. That is, when groups were compared (e.g., school deciles and gender) and differences were found, it was difficult to determine if the cause was solely due to SES, ethnicity or gender, or a combination of these factors. It is also important to acknowledge the overall silence on cultural factors in Study 1 and 2, and the subsequent inability to incorporate such factors into the findings and interpretations of both studies. This information would have also been helpful in terms of adapting the recommended educational and community-based initiatives so to engage different cultures (e.g., how best to engage whanau, hapu and iwi for Māori youth).

The remaining limitations concern the representativeness of the study population. Firstly, the population sample did not include students who had left school but were still between the ages of 16-18 years. Nor did it include those who had permanently relocated to a different city or country following the earthquakes. Self-selection bias

was another concern. That is, as suggested by Kumar (2010), those who completed the survey or participated in the focus groups may have had attitudes, attributes or motivations that were different from those who did not respond; however, it should be noted that it was not within the scope of the study to extend the range of participants beyond the Canterbury region and not possible given the available time for the completion of the study. It was expected; however, that a volunteer-sample could provide some insight into teenagers' experiences of the earthquakes, and that approaching teenagers through schools was the most appropriate and efficient method for the present study.

There were also a number of schools that denied consent, possibly due to already receiving research attention or not wanting to risk causing distress to their students. The factors discussed above could have impacted on the representativeness of the study population of earthquake-exposed teenagers (including international students), and possibly on the generalisability of the findings to a larger population.

Unfortunately, due to the voluntary nature of participation, data was not obtained from schools of decile ratings between four and eight, and in Study 2 in particular, three of the four schools were of higher deciles (i.e., 9 and 10). Out of the participating schools, fewer were located within the eastern region of Christchurch (i.e., in Study 1, only two of the six schools and in Study 2, only one of the four schools were located in the east). This is important as the eastern region was the most damaged and respondents may have had different experiences and/or views than those from the west. Therefore, and although attempts were made to prevent this, such limits may have again reduced the representativeness of the study population, particularly in terms of socio-economic status and geographical location.

Future Research

Based on the above limitations, it is recommended that if such a research project were replicated in the future, attempts should be made to obtain more schools of a range of different deciles and geographical locations, ideally with relatively equal sample sizes across the schools. It is also recommended that the study sample include teenagers (aged 16+) who were not attending school, as well as a sample of those who relocated outside of the disaster-struck city.

In terms of international students and in order to obtain a greater understanding of different experiences and situations, a much larger sample size would be needed, as well as a wider range of international students who had left the city and were of both genders. In general, more research is needed with this population group, focusing on their experiences of natural disasters, including their needs and perhaps an evaluation of the post-disaster supports and services available to them.

Lastly, two additional recommendations for future research concern relocation and recovery. With the former and as already mentioned in Chapter Eight, some insight was gained into the helpfulness and unhelpfulness of relocation, with duration and permanency appearing to be important factors. Therefore, there is a need for more research to obtain a better understanding of how this potential relationship can impact on post-disaster distress. In terms of recovery, more longitudinal research could be conducted in order to obtain more insight into youths' perceptions of recovery at different time points post-disaster (e.g., 6 months, 18 months, 36 months). This may provide a better understanding of what contributes to youths' recovery and whether particular factors change or become more or less significant over time (for instance, the actions of schools, the pace of the rebuild).

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APPENDIX A. Survey (including information sheet) (Study 1)



MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

***Teenagers have their say
about the Christchurch earthquakes (2010-2013)***

Hi everyone!

I'm Nikki and I'm a Doctoral research student at Massey University in Wellington. I am interested in finding out what things were like for you around the times of the worst Christchurch earthquakes, what it's been like for you since then, and what things are still important for you right now. The things I find out from your survey responses can be used in the future to help teenagers like you, who've been through some pretty tough times.

So, the information you give us will help us to work out what students your age need in difficult situations, and what you might still need now.

INVITATION

This questionnaire is being given to hundreds of Year 11-13 students at various Christchurch secondary schools. As a teenager who has experienced the Christchurch earthquakes yourself, you are invited to take part.

\$150 IN PREZZY CARDS UP FOR GRABS!

As a way of saying thanks for your participation, you can enter into a draw to win either a \$100 Prezzy Card or a \$50 Prezzy Card (this voucher can be used at any physical or online retail store that accepts Visa credit cards). If you choose to enter this draw, you will need to provide your name and contact details at the end of the questionnaire so that if you do win, I can deliver the Prezzy Card to you.

THE QUESTIONNAIRE

This should take you approximately 15 minutes to complete. I hope you enjoy reading the questions and putting in your answers.

In the questionnaire, you will see two sorts of questions. One sort asks you to simply tick an option that gives your best answer to a question. The other sort asks you to write whatever you like as an answer for a question (if you want to do that). You can write as much or as little as you like.

It is possible that some of the questions may make you feel uncomfortable (e.g. worried, angry, etc.). If this is the case and you want to talk to someone, the contact details of psychological support organisations are provided at the end of the survey. You are also given the opportunity to state your name and contact number if you wish to be contacted about any research-related questions.

WHAT HAPPENS WITH YOUR RESPONSES?

At the end of the study, your answers will be put together with other participants' answers and will be securely stored for a five-year period, after which it will be destroyed.

No one at your school will be able to see what you've written. The results of this study will be presented as group results and no school or student will be identifiable in the write up.

CONFIDENTIALITY

All personal information that you decide to provide will be kept highly confidential. Neither you nor your school will be able to be identified in anything I write up about this study.

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Be given access to a summary of the project findings when it is concluded;
- Withdraw from the study (within 2 weeks of data collection);
- Provide information on the understanding that your name will not be used unless you give permission to the researcher to contact you if:
 - You win a Prezzy Card
 - If you have any general research-related questions and want the researcher to contact you.
- Ask any questions about the study before or after completing the survey.

Thank you very much for filling in this questionnaire. I hope things are going well for you now. If you have any questions, please do not hesitate to contact us.

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This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 13/25. If you have any concerns about the conduct of this research, please contact Dr Nathan Matthews, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 350 5799 x 80877, email humanethicsouthb@massey.ac.nz

Your participation implies consent.

For ethical reasons, you need to be 16 years or older to complete this questionnaire.

Are you 16 years old or older?

Yes

No

☐
☐

Let's get started!

First of all, it would help me to know a little bit about you so I can see how students similar to you are getting on. I don't need to know your name, as your answers will be anonymous.

Please select the box that best applies to you, or write your answer in the space provided.

Male

Female

1. Are you a male or female ?

☐
☐

2. How old are you? _____ years

3. How would you describe your ethnicity?

New Zealand European

☐

Maori

☐

Pacific Islander

☐

Asian

☐

My country of origin is _____

Other

☐

My country of origin is _____

4. What is the name of your school? _____

Relocation

5. How many years have you lived in Christchurch? _____ years
6. At any time between the September 2010 earthquake and now, have you shifted house to somewhere else **within** Christchurch?

Yes

No

☐☐

7. At any time between the September 2010 earthquake and now, have you moved **outside** of Christchurch before moving back again?

Yes

No

☐☐**If Yes:**

i) Where did you move to? _____

ii) All together, how long would you say you were away for
(an estimate is ok)? _____

What did you need?

The next few questions are about what you needed most in the two weeks or so after the earthquake that was worst for you.

- 8a. Which earthquake was **worst** for **you** (e.g. it could be the September 2010 earthquake, the February 2011 earthquake, the June 2011 earthquake, or any other aftershocks)?

- 8b. Where were you when this worst earthquake happened?

- 9a. The thing I needed **most** of all in the **first couple of weeks** after the worst earthquake was

9b. Did you get it?

☐

Not at all

☐

To some
extent

☐

I got quite
a bit

☐

I totally got
what I needed

10a. The **next most** important thing I needed was

10b. Did you get it?

☐

Not at all

☐

To some
extent

☐

I got quite
a bit

☐

I totally got
what I needed

11. What else did you need that you **didn't get**, or **didn't get enough of** in the first couple of weeks? You can write whatever you like here, and you can write as much or as little as you like.

Helpful and unhelpful things

12. What did you get, or what happened that **was helpful** for you in the first couple of weeks?

- 13.** What did you get, or what happened that **was unhelpful** for you in the first couple of weeks?

Siblings

- 14.** Were any of your brother(s) and/or sister(s) in Christchurch when the earthquakes began?

Yes

☐

No

☐

I don't have any
brothers or sisters.
(skip to Q16)

☐

- 15.** What do you think your brother(s) or sister(s) needed most during the time since the earthquakes started?

Brother(s) needed this:

Age: _____

Age: _____

Age: _____

Sister(s) needed this:

Age: _____

Age: _____

Age: _____

How much do you agree with these statements?

- 16.** In the first couple of weeks, my **parents/caregivers** mostly knew what I needed without me telling them.

☐

Not at all

☐

To some
extent

☐

Quite a bit

☐

Very much

- 17.** In the first couple of weeks, at least one **brother or sister** mostly knew what I needed without me telling them.

☐

Not at all

☐

To some
extent

☐

Quite a bit

☐

Very much

I don't have any brothers or sisters.

☐

- 18.** In the first couple of weeks, **My friends** mostly understood what I needed without me telling them.

☐

Not at all

☐

To some
extent

☐

Quite a bit

☐

Very much

OR I don't really have friends. ☐

19a. In the first couple of weeks back to school, **most** of my **teachers** helped me in some way.

☐

Not at all

☐

To some
extent

☐

Quite a bit

☐

Very much

19b. If teachers were able to help you, what did they talk about or do?

The next group of questions refers to any time since the earthquakes started.

20a. Some other students in my classes were able to help me.

☐

Not at all

☐

To some
extent

☐

Quite a bit

☐

Very much

20b. If other students helped you, what did they talk about or do?

21a. I was able to help some of the others in my classes at times.

☐
☐
☐
☐

Not at all

To some
extent

Quite a bit

Very much

21b. How do you think you were able to help them?

22. I talked to other students about how I was affected by the earthquakes.

☐
☐
☐
☐

Not at all

To some
extent

Quite a bit

Very much

23. Did anyone else help you through the worst times?

Yes

No

☐
☐

If Yes:

i) Who was this? _____

ii) What did they talk about or do? _____

24. Overall, what has been the **worst** thing for *you*?

25. Overall, what would you say has been the thing that has **helped** *you* most?

The last three questions talk about what's happening for you now.

26. What sort of things are **people** doing now that are just **not helpful** for you?

27. What sort of things are **people** doing now that **are helpful** for you?

28. What sort of things are **you** doing now that are helpful for you?

THANK YOU!

Thank you for completing the questionnaire! I hope it's been helpful for you to think about the questions on this form, and I hope things are going ok for you now. Your view is very important in helping us better understand how to support disaster-affected youth.

Your responses will be put together with other students' responses and a summary of the research findings will be made available to you once the study is completed.

Is there anything else you'd like to say? You can say it here.

Win a Prezzy Card!

As a way of me saying thank you for your participation, you can be entered into the draw to win either a \$100 Prezzy Card or a \$50 Prezzy Card. Do you wish to be entered into this draw?

Yes

☐

No

☐

If yes: Please provide your full name and email address below. If you're the winner, I'll email you so you can tell me where to post the Prezzy Card (remember: all personal information you provide will be kept highly confidential).

Full name: _____

Email address: _____

Need some help??

If you would like some assistance to help you deal with any difficulties (for instance, if you're feeling really stressed, worried, angry, or sad) and want to talk to someone, you can contact the following support agencies who would be able to help you:

.....

Your own school counselor

.....

Address the Stress: tips and advice for hard times

<http://www.addressthestress.co.nz/>

.....

Skylight: helping children and young people deal with change, loss and grief

<http://www.skylight.org.nz/>

+64 4 939 6767

.....

Chur Chur Bro: a bilingual mental health website for rangatahi Māori

http://www.churchurbro.co.nz/entry_page.html

.....

Youthline

[http://www.youthline.co.](http://www.youthline.co.nz/index.php)

[nz/index.php](http://www.youthline.co.nz/index.php)

0800 37 66 33

Free text CHCH followed by your message to 234

Email: talk@youthline.co.nz

.....

The Lowdown: helping youth with
depression

<http://www.thelowdown.co.nz/#/home/>

Free text 5626 for help

Email: team@thelowdown.co.nz

.....

OR: If you have any questions or concerns and would like me to contact you about this research, you are welcome to put your name and contact details below:

Full name: _____

Phone number: _____

Email address: _____

Extra writing page

[illegible]

APPENDIX B. full list of all code categories, including frequencies, code descriptions and examples (Study 1)

Frequencies and percentages of participants' worst earthquake

Earthquake event	Frequency	Percent
February 2011	319	81.80
September 2010	52	13.33
June 2011	19	4.87
Total	390	100%

Frequencies and percentages of participants' location when their worst earthquake hit

Location	Frequency	Percent
School grounds (inside + outside)	146	36.78
At home	86	21.66
Outside (not at school)	69	17.38
On transport	29	7.30
Shop/building	26	6.55
Central Business District/city	20	5.04
Other house (not their own)	12	3.02
Outside of Christchurch	9	2.27
Total	397	100%

Coding scheme and frequency of response categories for participants' reported needs in the first two weeks following their worst earthquake

Code	Description	Example	Frequency	Percent
Physical basics	Food, water, warmth, sleep, shelter, electricity, plumbing.	<p>"Water and power, didn't have these two for 3 weeks."</p> <p>"The thing I needed most was a warm blanket and a warm house to stay in."</p> <p>"A house and food and warmth."</p>	391	42.22
Social support	Support from others, especially family and friends – talking, company, comfort, understanding, physical support (e.g. clean up), general support without specifying a particular person.	<p>"Being around friends and family members."</p> <p>"Sympathy. Most of my family bounced back, but I needed them to be aware that I was terrified."</p> <p>"Company."</p> <p>"Comfort from family and friends."</p> <p>"Support from my family, for them to understand how hard it was coping."</p> <p>"Friends to take my mind off it."</p> <p>"Support – to talk about it."</p> <p>"Didn't get much help cleaning up all the silt, it was left all to me, took me 5-6 hours by myself. Not fun."</p> <p>"To be cared for."</p> <p>"To relax and not be stressed out."</p> <p>"To escape everyone complaining."</p> <p>"Safety – to get away."</p> <p>"Stability and a plan of action."</p> <p>"Help with my anxiety surrounding the earthquakes."</p> <p>"Mental support."</p> <p>"To know that my friends and family were safe."</p> <p>"Time by myself to process what I had seen."</p> <p>"Media/information about the quakes."</p> <p>"To be updated on what was going on in the inner</p>	187	20.19
Psychological needs	Sense of security and stability, mental health support, space and time to relax, peace of mind, receiving forms of general or specified reassurance (including the reassurance of the safety of loved ones).		106	11.45
Information/Communication	Information about the earthquakes, school, city, house, the recovery. Communication with others		50	5.40

	(i.e., school, family and/or friends), and the means require to do so (e.g., phone, internet).	city and how the recovery was going whilst I was stuck at home.” “Clarity from the school of what was happening to the school and how long we had off.” “My phone – to keep in contact with others and how they were dealing with it.” “I guess support from my school teachers...and boarding matrons.” “Derived grades.” “A break from school.” “School to be lenient with work load.” “School advice on the earthquakes and discussions on it.” “I needed to go to school again as I was bored and missing out on my learning after the first week.” “All of my possessions that were stuck in the boarding house for weeks. I had no belongings but a few things I had left at home and the uniform I was wearing.” “My tv and my photos of family and some clothes.” “For things to go back into the old routine.” “To be able to stick to normal routines.” “Normality of life like it was before the earthquakes.” “Businesses to be active again.” “Internet” “A lot of cigarettes.” “To go home.” “Money.” “I wish there was more entertainment around because the environment was just super depressing.”	43	4.64
Educational support	School support in general, returning to school, a break from school, support with schoolwork, stating school itself with no specification as to why.			
Material needs	Belongings in general or specific items (e.g., clothes and electronics).		26	2.81
Normality/Routine	Normality (i.e. for things to go back to normal) and to maintain routines.		24	2.59
Indefinable	Needs where the exact function was unknown but could potentially fit into multiple categories.		24	2.59
Entertainment/ Distraction	Entertainment or distraction during the weeks after the earthquake.		23	2.48

Infrastructure	Fixing of physical and organisational structures (e.g., houses, roads, transport) and for things to be cleaned up.	<p>“I needed more things to keep my mind of the quakes.”</p> <p>“I needed to be able to do something productive with my time off school because I became very frustrated and unmotivated.”</p> <p>“To help get rid of the liquefaction out of the streets in Christchurch.”</p> <p>“A road!!”</p> <p>“For our stuff to be fixed, toilet, bathroom, kitchen etc.”</p> <p>“A bus service to start running again...”</p> <p>“I needed to get out of Christchurch.”</p> <p>“To leave Christchurch.”</p> <p>“To get away from the aftershocks.”</p> <p>“The ground to stop shaking.”</p> <p>“The aftershocks to stop.”</p> <p>“Access to parts of Christchurch.”</p> <p>“Access to town.”</p> <p>“Something to do that made me feel needed instead of simply sitting at home unable to go any where.”</p> <p>“To help those in a worse position than myself.”</p> <p>“I only regret not getting out and helping people more, I remember wanting to do something and not knowing what to do.”</p> <p>“Jesus”</p> <p>“God is all I needed.”</p> <p>“I wanted the news to stop telling us about it...”</p>	14	1.51
To leave Christchurch	To leave Christchurch after the earthquakes.		12	1.30
Lack of aftershocks	The aftershocks to stop or to get away from them.		11	1.19
Access to places	To access parts of Christchurch, as well as their home.		6	0.65
To help	To help others following the earthquakes.		6	0.65
Spiritual needs	References to religious figures.		2	0.22
Media to stop	The media to stop focusing on the earthquakes.		1	0.11
Total Needs			926	100%

Coding scheme and frequencies of siblings' needs

Code	Description	Example	Frequency	Percent
Social support	Support from family, friends, community, boyfriend – talking, company, comfort, understanding, general support.	<p>“She needed to be around family most.”</p> <p>“Family and friends – comfort of some sort.”</p> <p>“Support and understanding from friends and family.”</p> <p>“A sense of support from...community.”</p> <p>“Hugs and encouragement.”</p> <p>“Company of some sort.”</p> <p>“Needed someone to talk to so after a while he did and got counseling.”</p> <p>“Brother needed medication because he went crazy.”</p> <p>“A positive environment to be in.”</p> <p>“Stability and calm”</p> <p>“To have some time out just to take in what had happened.”</p> <p>“Reassurance that it was going to be ok.”</p> <p>“Water, food, power, showers/toilets etc.”</p> <p>“A safe house.”</p> <p>“Internet”</p> <p>“Money”</p> <p>“Packet of smokes”</p> <p>“Something to keep their minds off them (earthquakes).”</p> <p>“Shops, cafes etc. to be restored or built so there is stuff to do.”</p> <p>“I think my brother wanted to go out and socialize...but it was difficult with the closed roads and uncertainty.”</p> <p>“Sense of support from school.”</p>	134	40.00
Psychological needs	Sense of security and stability, mental health support, medication, calmness/positivity, reassurance.		59	17.61
Physical basics	Food, water, shelter, petrol, electricity, plumbing.		54	16.12
Indefinable	Needs where the exact function was unknown but could potentially fit into multiple categories.		21	6.27
Entertainment/ Distraction	Entertainment or distraction during the weeks after the earthquake.		18	5.37
Educational support	School support in general, returning to school,		15	4.48

	support with schoolwork, stating school itself with no specification as to why.	“To be able to go back to school.” “School work as he was in his last year of school. The quakes really interrupted his studies.”		
Information/ Communication	Information about what was happening and a means of communicating with friends and/or family.	“Just knowledge of what was happening.” “A phone call to ensure everyone’s safety.” “Wanted internet to contact her friends.”	15	4.48
Normality	Normality (i.e. for things to go back to normal) and to maintain routines.	“The same as me some normality and routine.” “To carry on with normal events.”	8	2.39
Material needs	Belongings in general or specific items.	“New glasses as hers broke.” “He didn’t need much but all his belongings.”	5	1.49
Transport	A mode of transport.	“Way home from school after the earthquake.” “A way to get home from work, other side of Christchurch.”	4	1.19
Spiritual needs	References to religious figures.	“Jesus.”	1	0.30
Avoid media	To avoid media on the television.	“Not watch too much of the media on tv.”	1	0.30
Total Siblings Needs			335	100%

*Coding scheme and frequencies for **helpful factors** in first **two weeks** following participants' worst earthquake (a), and **most helpful factors overall** to date (b)*

Code	Description	Example	a) Helpful		b) Most Helpful	
			Frequency	Percent	Frequency	Percent
Social support	Support from friends, family, community (e.g. neighbors), physical support (i.e., clean up, place to stay), general support (e.g., understanding, being helpful, company).	"Mum talked to me a lot about the earthquakes and ensured I was okay."	139	33.49	173	52.11
		"Support from our neighbors, we all looked after each other."				
		"People being understanding of circumstances."				
Physical basics	Food, petrol, water, warmth, sleep, shelter, electricity, plumbing.	"We had food and got power and water."	114	27.47	20	6.02
		"The council brought over toilets and port-a-loos to our house."				
		"Shelter in with my family."				
Educational support	School support in general, acts of support from school, support with schoolwork, going back to school, having time off school.	"School community was fantastic! Everyone was understanding and helpful."	42	10.12	25	7.53
		"School ran after-school and before-school classes to catch up on work."				
		"The NCEA derived grades."				
		"Getting back to school early to keep us distracted."				
		"Time off school – was good as became mentally prepared to come back."				
Information	Receiving advice, updates, and information about the earthquakes or the consequences of them (e.g. road closure) was helpful.	"Information from the govt, council, geonet etc. about how the situation was panning out."	31	7.47	5	1.51
		"School was very good at giving us				

		updates.” “Finding out as much about it as I could via internet, tv and talking to others.” “We had people come in – like speakers about sleeping, anxiety etc.” “Getting out of Christchurch and going to Auckland where everything was normal and not falling down.” “I left Christchurch, that was helpful to get away from it – the aftershocks, no home etc.”	26	6.27	10	3.01
Leaving Christchurch	Being able to leave Christchurch for a certain period of time.					
Organizational and voluntary help	Help from volunteers and organizations such as the Salvation Army, Red Cross, Westpac, and religious groups.	“Salvation army supplied us some water, food, blankets.” “The army came and helped us build a boulder fence.” “Buddhists kindly gave food and blankets for my whole family.” “Grants.” “Internet” “I got a job.” “Being able to be at home.”	20	4.82	16	4.82
Indefinable	Helpful things where the exact function was unknown but could potentially fit into multiple categories.	“Rowing camp gave me something to do.” “People to be around and keep myself distracted from what I had seen.” “My computer for providing entertainment.” “Keeping my mind off the earthquakes.”	14	3.37	3	0.90
Entertainment/ Distractions	Things that were entertaining or distracting.		11	2.65	8	2.41
Psychological	Time to relax and process the	“Being given time to myself and not	10	2.41	21	6.33

factors	event, moving on, positivity, receiving forms of general or specified reassurance.	being rushed.” “Going to the city center and consciously looking at what is being created, rather than what we have lost.” “Continuity of life; getting on with it.” “Knowing that my family were safe throughout this whole situation.” “The reassurance of the school and the adults that were in positions of power.” “Going back to normal and getting the routine back.” “That school started again and it felt more normal.”	7	1.69	13	3.92
Normality/Routine	Normality (i.e. things going back to normal) and getting back into a routine.					
To help	Helping others following the earthquakes.	“Helping other people out...It was good because you felt like you were doing something helpful and also it just gave you something to do.”	1	0.24	-	-
Talking	Talking to people either in general or about their experiences.	“Talking to people you trust.” “Just talking to people about my experiences.”	-	-	14	4.22
Rebuild	Rebuilding Christchurch, houses being fixed, and insurance money.	“Watching Christchurch rebuild itself to a certain extent (e.g. the gapfillers).” “Getting a new house.”	-	-	8	2.41
Experiences of the earthquakes	Experiencing the earthquakes themselves or a positive outcome of having experienced the earthquakes.	“Know more about earthquakes.” “I have experienced some form of disaster in my life.” “The whole experience has made me more open to change, and also made me become more confident around others.”	-	-	7	2.11
Others who can	Other people had gone through	“The fact that everyone else has been	-	-	3	0.90

relate	the same thing.	through it.”			
Location	Where they lived following the earthquakes.	“Moving to Auckland for a month.”	-	-	0.90
		“Being able to stay in my house.”			
		“Boarding house – living with people you can talk to any time of the day.”			
Time	Time itself.	“Time, as I managed to get used to them...”	-	-	0.60
		“Time, a long amount of time.”			
Religion	Religious figures.	“God...”	-	-	0.30
Total			415	100.00%	100%

Coding scheme and frequencies of helpful things received at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	Percent
Rebuild of Christchurch	Factors associated with the rebuild of Christchurch, including insurance.	<p>“The gap fillers, knocking down buildings so that we can move on and start building new ones.”</p> <p>“I suppose actually seeing things being rebuilt gives me some optimism.”</p> <p>“...getting new buildings in the school has made me feel safe.”</p> <p>“EQC are finally fixing my house in October.”</p>	41	22.16
Support	General support, understanding, community support, general support from school and help with schoolwork.	<p>“People are always asking how I feel and how I am doing and if I still need any help.”</p> <p>“Respecting the time it will take for Christchurch to recover and not telling us to ‘get over it’.”</p> <p>“Having the events that the Christchurch youth community can just go and have fun in while helping the community.”</p> <p>“School now is prepared and has the website which will keep me updated with work if need be.”</p> <p>“Helping with study.”</p>	39	21.08
Getting on with life	Others moving on with their lives.	“Getting on with life and normality.”	34	18.38
Nothing	Others were not doing anything or did not need to do anything to help.	“Rebuilding their lives.”	27	14.60
Talk	Talking in general or about the earthquakes.	<p>“Nothing right now.”</p> <p>“Nothing. I feel I don’t need any help now.”</p> <p>“Talking to me about my problems.”</p> <p>“People talk about what we have been through a lot more now, we are able to share our experiences.”</p>	13	7.03
Other peoples reactions	Other people being positive and not over-reacting to things.	<p>“...staying calm in every aftershock.”</p> <p>“Just not making the earthquake into a big deal.”</p> <p>“...creating good things from bad.”</p>	10	5.41
Not talking	Not talking about the earthquakes.	“Not speaking about them all the time, it’s a bad reminder for many.”	9	4.86

Preparation	Being prepared in the event of another earthquake.	“Not talking about it, I don’t really like to think about it very much it was very scary.” “Not mentioning it – letting us move on.” “... working on ways to prevent damage from future earthquakes.”	5	2.70
Basics Volunteer organizations Information	Others providing food. Volunteer organizations.	“Always having our emergency kit.”	3	1.62
		“Giving me food.”	2	1.08
		“Volunteer service.”		
	Being given information.	“Red cross.” “... when people say what roads are shut etc. it is a real help.” “Explaining.”	2	1.08
Total of Helpful Things From Others			185	100%

Coding scheme and frequencies of helpful things participants were doing for themselves at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	Percent
Moving on	Moving on with their lives and returning to normality, positive/future oriented thinking.	"Getting on with life and my goals. Living as normally as I can and looking forward to my future."	73	35.27
Thought avoidance	Not thinking about the earthquakes, trying to forget it happened.	"Making the most out of a bad situation."		
Education	Focusing on education	"Just forgetting about it all."	21	10.14
		"Not thinking too much about it."		
Activities	Physical and/or social activities	"Focusing more on school."	21	10.14
		"Getting an education."		
Helping others	Doing things that were helpful for others.	"Being involved in lots of sports."	15	7.25
		"Hanging with my friends."		
		"Community service."	15	7.25
		"Helping as many people as possible."		
		"Being there for my friends."		
Being prepared	Being prepared for another earthquake or natural disaster.	"Making sure things are earthquake safe and having an emergency kit."	13	6.28
		"Having a mind set prepared if another natural disaster occurs."		
Entertainment/ Distractions	Distracting or keeping himself/herself preoccupied.	"Just keep doing things to keep my mind off it."	11	5.31
Relaxing	Taking time out to relax.	"Doing stuff that entertain me."		
		"Meditating, relaxing, taking time to just be still and quiet - to get all my thoughts and emotions in order."	10	4.83
Physical basics	Physical basics refer to participants eating and sleeping.	"Eating and sleeping."	6	2.90
Talking	Talking in general, or about things related to the earthquakes.	"Getting enough sleep."		
		"Being able to talk about what happened and how I felt."	6	2.90
Personal growth	Having personally grown or changed because of the earthquakes.	"Being a stronger person."		
		"I think it helped me to learn to be more compassionate for others."	5	2.42

Leaving Christchurch Job	Being able to leave Christchurch.	“I still don’t like going into the city or into large buildings, but every time I do, I feel a little bit more comfortable, so I think this is good for me.” “Leaving Christchurch for university in 6 months!”	4	1.93
	Having work or earning money.	“Earning money.” “Finding a job.”	3	1.45
Counseling/ medication	Receiving counseling or taking medication.	“Monthly support groups and counseling sessions.” “Being medicated.” “Cutting...”	3	1.45
Self-harm	Inflicting harm on self.		1	0.48
Total of Helpful Things For Self			207	100%

*Coding scheme and frequencies for **unhelpful** factors in the first two weeks following participants' worst earthquake (a), and worst things overall to date (b)*

Code	Description	Example	a) Unhelpful		b) Worst overall	
			Frequency	Percent	Frequency	Percent
Lack of physical basics	Lack of food, water, sleep, shelter, electricity, plumbing.	<p>"Proper living facilities – water, showers, power, living space."</p> <p>"A supply of needs, economic needs, like shelter and food."</p> <p>"Intermittent power and not being able to use the toilet much."</p> <p>"No sleep!!!"</p>	34	14.98	26	6.63
Comments/ actions of others	Unhelpful actions and comments made by others, including questioning and over talking about the earthquakes, EQC and a lack of understanding.	<p>"Lack of awareness from others about the extent of the quakes on some people."</p> <p>"Looters in the central city."</p> <p>"People constantly asking about it."</p> <p>"EQC are very slow."</p> <p>"Sick of people playing the "blame game" for events related to the earthquake."</p>	34	14.98	16	4.08
Earthquake/ Aftershocks	The earthquakes themselves and/or the consequent aftershocks	<p>"Being in the violent earthquake."</p> <p>"The aftershocks because you never knew if it was going to get bigger or not."</p>	28	12.33	33	8.42
School factors	Receiving or missing schoolwork during closures, having to go to school or missing it, moving or sharing a school, school damages, impact on education.	<p>"We couldn't come to school for awhile and were later sharing school with Cashmere High School. It was hard for me to cope with this."</p> <p>"They expected us to do school work by email when we were at home. I was in no state of mind and needed help."</p> <p>"I didn't really get any work or anything to do from school so I fell behind in my studies a lot."</p>	23	10.13	21	5.36

Physical consequences	Liquefaction, flooding, damages to the city, home, and school.	<p>“Liquefaction in my yard and along the road.”</p> <p>“My house got destroyed.”</p> <p>“Watching the places I’ve grown up around and my favourite buildings getting pulled down.”</p> <p>“The damage to the city. It feels lost and almost abandoned.”</p> <p>“The destruction to the school and seeing everything fall apart.”</p>	20	8.81	77	19.64
Media coverage	Media coverage of the earthquakes.	<p>“Media blowing it up and keeping dwelling on the situation and reminding us of what it was like with videos of buildings collapsing and the sounds of sirens.”</p> <p>“The media constantly covering the trauma we had been through!!!!!!”</p> <p>“Seeing the destruction on tv.”</p>	18	7.93	7	1.78
Lack of communication/information	False information, lack of information, inability to contact people or school.	<p>“False information about where water was. Food was sold out – there was no notice.”</p> <p>“No information about school.”</p> <p>“Having no electricity to reach loved ones.”</p> <p>“Not being contacted by friends or couldn’t contact them.”</p> <p>“The constant unknown facts like not knowing what was going to happen to our houses.”</p>	13	5.73	6	1.53
Psychological factors	The uncertainty, lack of support, understanding, and	<p>“The uncertainty of what was going to happen.”</p>	12	5.29	66	16.84

	stability/security, the mental impact of the earthquakes (e.g. being scared, paranoid, stressed, shocked).	“Being told to toughen up in the boarding house...” “Feeling unsafe, that any minute another earthquake could happen and I’m not by my family.” “Not getting the medical or psychological help I needed post-quake...” “The aftershocks and the environment of the screaming and the deaths just frightened me and gave me nightmares.” “Not being able to get to places to help people.” “Not being able to enter my home to get all my own stuff.” “Accessibility to some things.” “Inconvenient time of the year for it to happen.” “Lack of stock in supermarkets.” “Large queues at supermarkets for food and water.” “Too much road works happening.” “Not being able to see my family members.” “Arguing between family members for what’s best for us as a family.” “Stress it has put on my whole family.” “My mum being severely traumatized.” “Parents divorced very shortly after earthquake.” “Not being at home when the February earthquake happened because I was away			
Limited access to places	Not being able to enter certain places like homes or other buildings, or not being able to get to places easily.		12	5.29	-
Inconveniences	Inconveniences including queues in supermarkets, low stocks of food, busses not working, and the time of the year the earthquakes hit.		10	4.41	-
Interpersonal and family factors	Being away from family and friends, or the impact of the earthquakes on family members (e.g., the health of family members, stress).		9	3.96	33 8.42
Location	Location when the earthquake hit, or location following the		5	2.20	3 0.76

	earthquakes (i.e., leaving or staying in Christchurch or having to move houses at least once).	from mum and I couldn't find her." "Sending me away to Timaru for schooling." "Not being able to go home (I'm a boarder)." "Constant moving." "A broken knee." "Got sick." "Things changing round school e.g. having lots of days off and not having a timetable or comforts of normal everyday life."	3	1.32	-	
Physical health	Being physically injured or unwell.					
Disruptions	Disrupted normalcy or not having a routine, or having to move houses at least once.		3	1.32	29	7.40
		"Not being in a routine!" "The fact that life still hasn't gone back." "Having to move houses several times." "Not knowing what to do for the first couple of weeks." "Not being able to go out and clean my city." "Staying at home for about a month without school, very boring, nothing to do." "There's nothing here for younger people." "Nothing to do in the city." "Losing my friend in the earthquake." "Knowing that people lost their lives was quite hard." "Loosing so many friends. Like they all moved out of Christchurch..." "Now, having road works and demolitions				
Restricted activity	Not being able to help, having nothing to do or not knowing what to do.		3	1.32	15	3.83
Loss of people	Loss of people either in terms of deaths or friends moving away, or simply stating losses.		-	-	31	7.91
Rebuild	Negative factors relating to the		-	-	20	5.10

Indefinable	rebuild of Christchurch, as well as EQC/insurance issues.	and rebuilding everywhere...”				
		“Slowness of rebuild.”				
		“...the rebuild being such a drama.”				
		“The EQC haven’t tried to fix our house yet. It’s like they forgot us.”				
		“Waiting.”	-	-	9	2.30
		“The few weeks or months after the earthquake.”				
		“Being a boarder in Christchurch.”				
Total		“Not having internet for few days.”				
		“Staying in Christchurch.”				
			227	100%	392	100%

Coding scheme and frequencies of unhelpful things at the time of survey administration (June-September 2013)

Code	Description	Example	Frequency	Percent
Rebuild factors	Unhelpful factors related to the rebuild of Christchurch, including the lack of youth involvement, factors referring to EQC and the government.	<p>“Working very slowly to rebuild city.”</p> <p>“That the focus is on building a new city and that they’re not noticing the people in need...”</p> <p>“...wasting all our money on repairing roads in commercial places before residential.”</p> <p>“Road works! Everywhere!”</p> <p>“Not letting youth have much of a say in the future development of the city...”</p> <p>“EQC not doing anything for us.”</p> <p>“Defining their lives by the earthquake and defining Christchurch by the earthquake...”</p> <p>“Being negative.”</p> <p>“Over-reacting to small earthquakes and getting everyone worked up.”</p> <p>“Parents getting stressed with EQC.”</p> <p>“Bringing it up, it’s a constant reminder.”</p> <p>“Going on and on about the earthquakes.”</p> <p>“Expecting me to ‘be over it’ by now.”</p> <p>“Making fun of what happened.”</p> <p>“Putting pressure on me.”</p> <p>“Verbal discouragement.”</p> <p>“Schools pretty dumb, teachers are affected as well so learning isn’t really great.”</p> <p>“Having different school times.”</p> <p>“Not giving frequent updates on roading issues.”</p> <p>“Sometimes not actually talking about it.”</p> <p>“Closing themselves off.”</p> <p>“Keeping me in this horrible dead city.”</p>	55	34.59
Other people	Unhelpful comments and actions made by other people, people over-reacting or not moving on, or stressed parents.		40	25.16
Talking	Others continuing to talk about the earthquakes, or things related to them.		35	22.00
Lack of understanding	Lack of support or understanding from others.		12	7.55
School factors	Dissatisfaction with factors relating to school and education, including the merging of schools.		9	5.66
Lack of information	Lack of updated information.		4	2.52
Not talking	Others not talking in general or about the earthquakes.		3	1.89
Staying in Christchurch	Staying in Christchurch.		1	0.63
Total of Unhelpful Things From Others			159	100%

Frequencies of others who helped (a) and what they did or talked about (b)

Code	Description	Example	Frequency	Percent
a) Who Else Helped?				
Family members	Family members, including parents	“Grandparents.”	89	58.17
Friends	Friends	“Family – aunts and uncles.”		
		“My close friends.”	31	20.26
Counsellor	School or private counselors, or psychiatrists.	“Counsellor outside of school.”	11	7.19
		“The school counsellor.”		
School personnel	School community, school staff and other students.	“My matron.”	10	6.54
		“Teacher.”		
		“Older students at my school (head and deputy head girl at the time).”		
Community	Neighbors and the Christchurch community.	“Christchurch as a whole.”	5	3.27
		“My neighbor.”		
Religion	Church or religious figures.	“Church community, God.”	4	2.61
		“Jesus.”		
Government	The army or the government.	“The army.”	3	1.96
		“Government.”		
Total of Who Else Helped?			153	100%
b) What Did They Talk About or Do?				
Supportive	General signs of support (e.g. understanding, being there for them).	“Checked if I was okay.”	57	39.86
		“Helped me understand everything.”		
		“She just kept me calm.”		
		“Being positive and supportive.”		
		“Put things in perspective, encouragement.”		
Physical actions	Offering a place to stay, helping with clean up, and offering basics like food and water.	“Took me in to live with her.”	33	23.08
		“They helped me to catch up on work...”		
		“Help dig all the liquefaction.”		
		“Slept with me in my bed and kept me safe.”		
Talk/listen	Talking and/or listening to them.	“They talked about their experiences which made	22	15.38

		me feel better.”			
		“If I talked to them about anything, they would listen to me...”			
		“My mum talked to me about how I was feeling...”			
Comfort/reassurance	Providing comfort or reassurance.	“They said it’s going to be okay.”	11		7.69
		“Just make me feel safe and comfortable again.”			
Anything and everything	Anything and/or everything	“Everything.”	5		3.50
Coping	Talking about coping.	“Anything on my mind.”	4		2.79
		“They talked about how to cope mentally with what was going on.”			
Preparation	Talking about what to do if there was another earthquake, or preparing them for the damages caused by the earthquakes.	“We talked about what we would do if there was another quake and made strategies.”	3		2.10
		“They just prepared me for what I would be going back to.”			
Information	Explanations and details about what was going on.	“Told us everything that was going on – didn’t hide anything from us.”	2		1.40
		“Explained...”			
Normalcy	Returning to normality.	“St Hilda’s for letting me come to their school and get back into normality.”	2		1.40
		“He touched on the earthquakes briefly but kept going with everything as usual.”			
Humour	Finding things to laugh about.	“...found things to laugh and smile at despite everything that was going on.”	2		1.40
		“Just laughed about it (in a good way).”			
Distractions	Keeping them busy or by distracting them.	“Helped me get my mind off the earthquakes/aftershocks, distracted me.”	2		1.40
Total of Help From Others			143		100%

Coding scheme and frequencies of types of help from teachers

Code	Description	Example	Frequency	Percent
Support	General support like understanding and asking if students were ok, comfort/reassurance, informing students of what supports were available (e.g. counseling), support with schoolwork, and school actions like providing food and water.	<p>“They just encouraged us and made us aware support was available.”</p> <p>“Were really understanding regarding the stress of earthquakes combined with the stress of upcoming exams.”</p> <p>“They told me if I needed help then to talk to them about stuff that we needed.”</p> <p>“Checked that my family was ok and that you were fine.”</p> <p>“They were patient and acted human – it was comforting to know that they were experiencing the same things as you.”</p> <p>“Talked about dealing with it.”</p> <p>“A lot about the earthquake actually and what happened...”</p> <p>“They just told you to open up and talk about your earthquake experience.”</p> <p>“Talked about their experiences and what they went through.”</p>	149	57.98
Discuss earthquakes	Discussing the earthquakes, either in terms of general information and facts, personal talk about experiences, problems, and impacts, or unspecified talk about the earthquakes.	<p>“Told us what to do in case there was another one. Emergency points.”</p> <p>“Most of the teachers just got on with teaching and didn’t really talk too much about it which was good because it was just good to get back to normal.”</p> <p>“Getting back into routine – trying to keep us busy.”</p> <p>“The school emailed out and said what we would do about studying etc. etc.”</p> <p>“Made sure that we were okay via email.”</p> <p>“Just talked about it quick and then left it, so we didn’t really think about it.”</p> <p>“They said ”it’s okay” a lot which felt kinda redundant since it wasn’t really ok.”</p> <p>“Talk about what happened, talking about it, and doing</p>	41	15.95
Earthquake preparedness	Taught safety information and drills in the event of another earthquake.	“Told us what to do in case there was another one. Emergency points.”	27	10.51
Normalcy	Returning to normal school routine, with teachers continuing to teach.	“Most of the teachers just got on with teaching and didn’t really talk too much about it which was good because it was just good to get back to normal.”	19	7.40
Communication	Contacting students during school closures.	“Getting back into routine – trying to keep us busy.”	7	2.72
No earthquake talk	Not talking about the earthquakes.	“Made sure that we were okay via email.”	7	2.72
Unhelpful	Things that teachers/schools did that were unhelpful.	“They said ”it’s okay” a lot which felt kinda redundant since it wasn’t really ok.”	7	2.72

work at school about it was stressful when all I wanted to do was forget.”
“They did not email us much work to do, like they were meant to as we were meant to be doing normal school work at home, while our school was shut.”

Total of Help From Teachers	257	100%
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Coding scheme and frequencies of types of help from other students

Code	Description	Example	Frequency	Percent
Talking and listening	Other students talking about their earthquake experiences, the impact or problems caused by the earthquakes, their feelings, how they were coping, and/or about the rebuild.	“They talked about their experience and how they coped with what had happened.” “They listened to and shared their own stories which was good because it reminded us that we were all in it together.” “Just spoke about what effect the earthquakes had on me and my family.”	59	32.42
Support	Other students helped by being supportive and understanding.	“Everybody was supportive and understood what you were handling.” “Checking on how everyone was...”	53	29.12
Physical actions	Receiving help with schoolwork, having fun or hanging out, or students offering places to stay.	“Just went over some stuff that we had been learning.” “We baked food for people.” “Just hung out, as friends as always.”	31	17.03
Normalcy	Getting on with it and continuing on as normal.	“They gave me a place to stay when I needed it.” “Not treat the earthquakes/what had happened as some massive deal, moving on and getting on with life was the best thing.” “Retaining normality.”	8	4.40
Provided information	Providing useful information.	“They told us where to meet as a class and explained about the drill.” “Told me about things like not flushing the toilet and not drinking straight from the tap.”	8	4.40
Could relate	Could relate with other students as they had all been through and were coping with the same thing.	“... we could relate to each other with our experiences and it helped to get over the whole thing.”	7	3.84
Did not talk about earthquakes	Not talking about the earthquakes.	“Talk about other things and not mentioning the earthquakes.”	6	3.30
Humour	Joking and laughing.	“...Having laughs and stuff was still really	6	3.30

Distractions	Keeping them busy or distracting them.	important...” “Distract me from what was happening around me.”	3	1.64
Drugs	Offering them drugs to help them cope.	“Gave me drugs to help with the loneliness in my life.”	1	0.55
Total of Help From Other Students			182	100%

Coding scheme and frequencies of what participants did to help other students

Code	Description	Example	Frequency	Percent
Support	Provided general supportive actions like being there, contacting them, and being understanding.	<p>“Just being there, giving stability.”</p> <p>“Understood how they felt.”</p> <p>“Gave hugs, advice and encouragement.”</p> <p>“By telling them that it was okay.”</p> <p>“Just contact them.”</p>	83	39.15
Talking and listening	Talked or listened to other students.	<p>“By letting them talk to me and just listening...”</p>	61	28.77
Physical actions	Actions of support like spending time with other students, offering transport or places to stay, or helping with schoolwork.	<p>“Help them move stuff and get what they needed.”</p> <p>“By catching up...”</p> <p>“Took them to the counsellor.”</p>	36	16.98
Reassurance/comfort	Providing other students with comfort and/or reassurance.	<p>“Tell them that it is not going to happen again.”</p> <p>“Comforting them.”</p>	7	3.30
Provided safety information	Trying to maintain normality.	<p>“Just trying to keep things as normal as possible.”</p>	7	3.30
Distracted them	Using humour.	<p>“Telling funny jokes.”</p> <p>“Made them laugh.”</p>	6	2.83
Humour	Providing information about what to do during an earthquake and also where to find basics (i.e. food/water).	<p>“Where to get food and water.”</p> <p>“By reminding them what to do and what not to do.”</p>	5	2.36
I couldn't	Trying to distract or entertain other students.	<p>“Played card games to cheer them up.”</p> <p>“Keep their minds off certain things they were worrying about.”</p>	4	1.89
Normality	Not in a state or position where they could help other students.	<p>“I couldn't. I had to get by first. As selfish as that sounds.”</p> <p>“I didn't really have anything I could offer to people.”</p>	3	1.42
Total of Helping Other Students			212	100%

APPENDIX C. Summary of findings sent to participating schools (Study 1)



TEENAGERS HAVE THEIR SAY ABOUT THE CANTERBURY EARTHQUAKES (2010-2013)

SUMMARY OF SURVEY FINDINGS

In June-September 2013, your school participated in a study aimed to obtain an overview of the needs of and supports received by teenagers exposed to the Canterbury earthquakes. Specifically, this study involved the administration of a survey to students aged between 16 and 18 years. Overall, six Christchurch schools participated in the study with 398 students completing the survey.

A wide range of results were obtained from the survey responses and organised into nine themes based on the most commonly occurring responses – a summary of these findings are provided below.

Physical Basics

- A need for physical basics was participants' most important need in the first two weeks post-earthquakes.
- Definition: Need for such basics as food, water, warmth, shelter, and sleep, as well as concerns about lack of electricity and plumbing.
- On a scale ranging from 1 (Not at all) to 4 (I totally got what I needed), this need for physical basics was, on average, met 'To some extent' (rating of 2) in the first two weeks post-earthquakes.

Social Support

- Social support was participants' second most important need, as well as the most helpful thing received overall.
- Definition: Support from others, especially family and friends, including such things as talking, company, comfort, understanding, and physical support (e.g., help with clean up).
- On a scale ranging from 1 (Not at all) to 4 (I totally got what I needed), this need for social support was, on average, met 'Quite a bit' (rating of 3) in the first two weeks post-earthquakes.

Psychological Needs

- Psychological needs were participants' third most important need in the first two weeks post-earthquakes.
- Definition: Need for stability, a sense of security and safety, mental health support, space and time to relax, peace of mind, and reassurance.
- Many participants reported the negative emotional impact of the earthquakes (e.g., being scared, paranoid, and stressed).

- These findings suggest that the earthquakes sufficiently impacted on participants' mental wellbeing (e.g., stress, shock) to the extent that it was one of the things they needed support with the most.
- On a scale ranging from 1 (Not at all) to 4 (I totally got what I needed), psychological needs were, on average, met 'To some extent' (rating of 2) in the first two weeks post-earthquakes.

Gender

Of the male participants, 67% reported physical basics as their most important need.

However, of the female participants, 55% reported social support or psychological needs as their most important.

Secondary Stressors

- Participants commonly reported secondary stressors as being unhelpful during the first two weeks post-earthquakes, as well as the worst things overall.
- Secondary stressors refer to post-disaster hardships and adversities, and for participants these referred to the continuing aftershocks, the damage to homes, schools, and the city, dealing with the deaths, and the impacts on interpersonal relationships (e.g., stress on family, friends moving away).

Coping

Talking

- Talking about earthquake experiences or problems, or simply talking in general was reportedly helpful.
- However, it was also helpful when teachers did not talk too much about the earthquakes. Therefore, although acknowledging and talking about a disaster can be helpful, there is a point where it may become unhelpful.

Information and communication

- Receiving information and being in communication with others were important factors.
- By wanting information about such things as the earthquakes, schools, houses and their city, participants were likely trying to understand what was happening in important areas of their lives, as well as trying to assess their current situation.

Normality and routine

- Definition: Need for things to return to normal and to re-establish and maintain routines.
- In the school setting, teachers helped participants by returning to a normal school routine, and continuing to teach.
- Participants indicated that returning to school and continuing with their learning was helpful as it gave them a sense of normality.

Entertainment or distraction

- Participants commonly reported a need for some form of entertainment or distraction during the weeks post-earthquakes.
- Restricted activity (i.e., not being able to help, having nothing to do) was amongst the worst things for participants overall.

- Main reason for the need of entertainment or distraction was to help buffer any negative emotions and thoughts associated with the earthquakes (e.g., depression, paranoia, grief).
- Participants continued to report the use of distractions as helpful nearly three years following the initial earthquakes.

School

Support

- Participants appreciated the educational support they received from school and teachers, including understanding, assistance and leniency with schoolwork (e.g., derived grades), receiving information, initially having a break from school, and returning to school.
- During school closures, participants appreciated and/or wanted information/updates about what was happening with such things as re-opening dates, the extent of school damage, and what was expected with schoolwork.

Unhelpful school factors

- School closures and the inability to return to school for a certain period of time.
- Having to share school grounds with other schools.
- Damages to school buildings and grounds.
- Receiving schoolwork during school closures - however, some participants found this helpful as it offered a distraction and/or eased concern about falling behind. This may have depended on the individual's physical and psychological situation following the earthquakes.

Support Figures

Family

- A majority of participants' responses (36%) indicated that their parents understood their needs 'very much' and to a significantly greater extent than siblings or friends, therefore, putting them in a better position to support participants.
- Compared to parents and friends, participants believed that their siblings were the least aware of their needs.

Friends and other students

- On a scale ranging from 1 (Not at all) to 4 (Very much), participants received help from other students (e.g., talking, support, physical acts) 'to some extent' (rating of 2).
- Participants also helped other students 'to some extent'.
- Likewise, participants' friends on average only understood their needs to 'some extent'.
- For some participants, their friends did not understand what they were going through - largely due to differing earthquake experiences.
- For others, friends did understand their needs, possibly because they had been through the same sort of experience and could therefore relate.

Teachers

- Teachers helped participants to a significantly greater degree than other students in their class helped them.
- Overall, the findings highlighted the important role that teachers had in helping teenagers recover and cope post-disaster, and the wide range of ways in which they

helped (e.g., being understanding, support with schoolwork, earthquake-related discussions, earthquake preparedness, normality).

Recovery

External factors

Nearly three years following the initial September 2010 earthquake, participants reported a number of helpful and unhelpful factors from others that were likely still influencing their recovery. Based on these responses, there were three main areas of interest:

Rebuild:

- The rebuild was the most important factor for teenagers at the time of survey administration (i.e., June-September 2013).
- Helpful factors included their houses being fixed, the uprising of new buildings or leisure spaces, and/or the demolition and removal of damaged buildings.
- Unhelpful factors included the slow pace of the rebuild, the inconveniences (e.g., road works), the perceived focus on some areas more than others (e.g., commercial ahead of residential areas), and the difficulties with insurance.

Support:

- Helpful factors related to support included such things as understanding from others, community support, school support (e.g., disaster preparedness, school work), and talking to others about problems or earthquake experiences.
- Unhelpful factors referred to others continually talking about the earthquakes or things related to them.

Comments or actions of other people:

- Participants found it helpful when others were positive and did not over-react to the earthquakes or aftershocks.
- Unhelpful comments or actions included others over-reacting to aftershocks, vandalizing property, being negative, not moving on, and/or being stressed.

Personal factors (ways of helping themselves)

When participants were asked about what they were doing that was helpful for themselves nearly three years post-disaster, there were three main responses:

- A majority of participants reported that moving on with their lives was helpful, which included returning to normality, and thinking positively and about the future.
- Thought avoidance was commonly reported (i.e., not thinking about the earthquakes).
- Education was also important, whereby participants explained that focusing on their education and working hard was helpful for them.

Overall, the findings of this study highlighted a number of important areas that could be considered when trying to support both current and future earthquake-exposed teenagers. Findings also provided insight into how teenagers experience a natural disaster. This information could contribute towards a more supportive post-disaster environment that offers empirically informed youth-based psychosocial support.

APPENDIX D. Participant information sheet (Study 2)



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

Teenagers have their say about the Christchurch earthquakes (2010-2013)

Who is the researcher?

I'm Nikki Pine, a Doctoral student at Massey University in Wellington. This study is being undertaken as part of my gaining a Doctorate in Clinical Psychology.

What is this research about?

The aims of this research project are to find out what things were like for teenagers like you around the times of the worst Christchurch earthquakes, what it's been like for you since then, and what things are still important now. The things I find out from your responses can be used in the future to help teenagers like you, who've been through some pretty tough times.

How was I selected?

I was very interested in conducting this study and including male and female teenagers aged at least 16 years old who experienced the Christchurch earthquakes (particularly the September 2010/February 2011 ones). You were identified by your school principal as a student who might be interested in providing information on your experiences following the Christchurch earthquakes.

What will happen in the study?

I will be conducting several group discussions at a number of Christchurch secondary schools and as your school has agreed to be a part of this research, you are being invited to take part. I am hopeful that you will agree to be part of a group of students from your school who will give me their opinions on this topic.

What would I have to do if I agreed to take part?

You would take part in a group discussion with me and 4-5 other students from your school. We will talk about your experiences following the Christchurch earthquakes, what you think and how things are going for you now. The group discussions will be video and audiotaped. The discussion will take place at a room in your school, after school, and will take approximately 50 minutes. Light snacks and juice will also be provided.

You don't have to do any preparation beforehand, and there are no right or wrong answers.

The discussion groups should be interesting and engaging. I will ask all participants to sign an agreement maintaining the confidentiality of what is said in the groups. I will also remind people not to provide any information that they do not want recorded. Before the discussion begins, participants will be able to choose their own pseudonyms (e.g. select a different name). All other identifying information (e.g. school, town names, names of friends, etc) will be omitted or changed in the written transcript of the group discussion.

To say thanks for your time and contribution, all participants will receive a **\$25 Prezzy Card** at the end of the discussion.

What will happen to the information collected?

The recordings of the group discussions will be transcribed (i.e. written up) into text by the researcher. You will not be able to review this text; however, everything you say will be kept highly confidential and neither you nor your school will be able to be identified in anything I write up about this study. Your name will be changed and all audio and video recordings will be destroyed once your responses have been transcribed (i.e. written down).

Transcriptions will be stored securely and only the researcher and my supervisors will have access to the data. No identifying information will be used in transcripts, analysis, findings or reports. Once the project is completed, the data collected from this project will be securely stored for five years (as required by the university), at which time it will be destroyed.

Is there any risk to me?

It is unlikely that any risk or harm will occur as the result of participating in this project. It is possible that some of the questions may make you feel uncomfortable (e.g. worried, angry, etc.). If this is the case and you want to talk to someone, I will give you the contact details of support organizations at the end of the group discussion.

What happens next?

At the end of the study, your responses to questions will be put together with other participants' responses and summarized. The findings will not only be used to answer the research questions but also to inform a wide range of post-disaster support people and groups (such as social workers, schools, parents and disaster support groups) about how to better support you and other teenagers after a disaster. A summary of the research findings will also be made available to you. Please note that the results of this study will be presented as group results and no school or student will be identifiable in the write up.

If you are thinking of participating in this study, it is recommended that you discuss this with your parent(s)/caregiver(s) first and ask if they give you permission to give the researcher their contact number (as a cautionary measure).

Please note that if too many students are willing to take part in this study, I will need to randomly select a subtest of these students.

What are my rights?

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Withdraw from the study (within one week of the discussion group);
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Be given access to a summary of the project findings when it is concluded.

Thank you very much for taking the time to consider participating in this research. If you have any questions, do not hesitate to contact me (Nikki) or my supervisor.

Nikki Pine BSc (Hons)
Email: Nikki.Pine.1@uni.massey.ac.nz
Phone: +64 4 801-5799, Ext 62528

Dr Ruth Tarrant (supervisor)
Email: R.A.Tarrant@massey.ac.nz
Phone: +64 4 801-5799, Ext 63411

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application 13/47. If you have any concerns about the conduct of this research, please contact Dr Nathan Matthews, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 350 5799 x 80877, email humanethicsouthb@massey.ac.nz

APPENDIX E. Participant consent form (Study 2)



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

Teenagers have their say about the Christchurch earthquakes (2010-2013)

DISCUSSION GROUP PARTICIPANT CONSENT FORM

I have read the Information Sheet and have had the details of the study explained to me.
My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that any information that I provide will be kept confidential to the researcher and research supervisors. All identifiable information will be omitted or changed by the researcher in any written reports on the study.

I agree to the focus group being video and audio recorded.

I agree not to talk about anything discussed in the discussion group with people outside of the group.

I agree to participate in this study under the conditions set out in the Information Sheet.

Do you want a summary of the findings to be emailed to you? (Please tick)

☐

Yes

☐

No

Signature:		Date:	
Full Name - printed			
Email:			

APPENDIX F. Confidentiality agreement (Study 2)



MASSEY UNIVERSITY
COLLEGE OF HUMANITIES
AND SOCIAL SCIENCES
TE KURA PŪKENGĀ TANGATA

***Teenagers have their say
about the Christchurch earthquakes (2010-2013)***

PARTICIPANT'S CONFIDENTIALITY AGREEMENT

I (Full Name - printed)

agree to keep all information discussed within the focus group on exploring teenager's needs and opinions following the Christchurch earthquakes confidential.

Signature:

Date:

.....

.....

APPENDIX G. Guiding questions for focus group discussions
(domestic participants) (Study 2)

During the aftermath (within the weeks/months following), how did the earthquake affect your life?

- What did you do during this time? What did you want to do that would've helped but you didn't/couldn't do? *e.g. help others (student army)*
- Social life
 - o Why's that?
 - o What did you want?
 - o How do you think that could've been done?
 - o Once you did see friends again, perhaps once back at school, how did the earthquake affect your relationship with friends? [Did some understand more than others – irritated/annoyed at those who didn't etc.]
- Family
 - o How did your family deal with the earthquakes?
 - o Tell me about how they helped you, how they didn't help you, what else they could've done (if anything)
 - o What about your siblings?
 - o What could've your siblings done to help? What did you want from them?

What are your thoughts about your schools response following the earthquake?

- Soon after the earthquake → What did your school do? Tell me about the communication between your school and your family? What happened with schoolwork while school was closed? How did you feel about this? Why? What sorts of things would've been helpful?
- Once returned to school → What was it like? What did your school do/how'd they handle the situation? In the classroom? What sorts of supports or help was offered (if any)? What sorts of changes were there, if any, in their expectations about schoolwork? Due dates/quality of work?
 - o How did it affect your schoolwork? Performance?
 - o What did your school do that was really helpful? Anything unhelpful?
 - o If anything, what do you think could have been done better?
- What sorts of things, if any, were just not possible for you to do/achieve at that time? How did you deal with that?

What are your thoughts about your community's response following the earthquake?

- What did they do?
- Was that helpful/unhelpful? Why?
- What do you think was done well?
- What could've been done better?
- What are your thoughts about your own involvement in the response? Some survey responses indicated that they wanted to help the community in some way, what do you think about this?

If anything, what did others (who may not have been mentioned yet) do that was helpful? Unhelpful? What did you want people to do?

What did you do during this time to help yourselves? That made you feel better? Why was that helpful?

How are the earthquakes affecting your life now?

- Family
- School work
- Socially

What are your thoughts about recovery?

- What does it mean to you?
- Do you think you have recovered? When do you think this happened? (e.g. when you returned to school?)
- What do you think helped you recover?
- Prevented you from recovering?

What are your thoughts about the rebuild of your city?

- Have you guys (or other young people you know) been given the opportunity to have some input into it?
- Would you want more of a say?
- Why?
- How?

Imagine that the same thing happened in another NZ city: What key advice would you give to people trying to help others like you?

If anything, what are some good things that have come out of these earthquakes? Personally? For your family? For your community?

Is there anything else you'd like to say that I haven't mentioned or asked you about?

APPENDIX H. Guiding questions for focus group discussions
(International participants) (Study 2)

During the aftermath (within the weeks/months following):

- What did you do during this time? What did you want to do that would've helped but you didn't/couldn't do?
- Host family/boarding staff
 - o How did they deal with the earthquakes?
 - o Tell me about how they helped you,
 - o How they didn't help you, what else they could've done (if anything)
- What about your families back home?
 - o How did they deal with it?
 - o What was it like not having them with you? How did you cope with that?
- How did it affect your social life? Did you still see friends etc?
 - o Why's that?
 - o What did you want?
 - o How do you think that could've been done?

What are your thoughts about your schools response following the earthquake?

- Soon after the earthquake → What did your school do? What happened with schoolwork while school was closed? How did you feel about this? Why? What sorts of things would've been helpful?
- Once returned to school → What was it like? What did your school do/how'd they handle the situation? In the classroom? What sorts of supports or help was offered (if any)? What sorts of changes were there, if any, in their expectations about schoolwork? Due dates/quality of work?
 - o What did your school do that was really helpful? Anything unhelpful?
 - o If anything, what do you think could have been done better?

What did you need?

What was it like having English as your second language? Did you understand what was going on? Have all the information?

What are your thoughts about the community's response following the earthquake?

- What did they do?
- *Was that helpful/unhelpful? Why?*
- What do you think was done well?
- What could've been done better?
- What are your thoughts about your own involvement in the response? Some survey responses indicated that they wanted to help the community in some way, what do you think about this?

Did you ask for anything in particular from your teachers, friends, or other people?

Have any of you experienced a natural disaster in your home countries before coming to NZ?

- How do you think that may have influenced your experiences of the Christchurch earthquakes?

Being international students, do you think your experiences of the earthquakes have been different from local students? (not the experience of the actual event but what happened after) How?

- Any cultural differences that you noticed that affected you in some way?

If anything, what did others (who may not have been mentioned yet) do that was helpful? Unhelpful? What did you want people to do?

What did you do during this time to help yourselves? That made you feel better? Why was that helpful?

How are the earthquakes affecting your life now?

- Family
- School work
- Socially

What are your thoughts about recovery?

- What does it mean to you?
- Do you think you have recovered? When do you think this happened? (e.g. when you returned to school?)
- What do you think helped you recover?
- Prevented you from recovering?

What are your thoughts about the rebuild of the city?

- Have you guys been given the opportunity to have some input into it?
- Would you want more of a say?
- Why?
- How?

Imagine that the same thing happened in another NZ city: What key advice would you give to people trying to help others like you?

If anything, what are some good things that have come out of these earthquakes? Personally? For your family? For your community?

Is there anything else you'd like to say that I haven't mentioned or asked you about?

APPENDIX I. Summary of findings sent to participating schools (Study 2)



MASSEY UNIVERSITY
TE KUNenga KI PŪREHUROA

TEENAGERS HAVE THEIR SAY ABOUT THE CANTERBURY EARTHQUAKES (2010-2013)

SUMMARY OF FOCUS GROUP FINDINGS

In September 2013, a sample of your students participated in a study involving the conduction of focus groups. Within these groups, students discussed their views on and experiences of the Canterbury earthquakes over the three years since the initial September 2010 quake. This study was conducted secondary to a survey and allowed for a deeper level of insight to be obtained into teenagers' experiences and needs.

In total, four Christchurch schools took part in this study and a total of six focus groups were conducted. These groups consisted of three to six students (aged 16-18 years) who had experienced at least one of the major earthquakes.

The discussions were transcribed by the researcher and analysed using thematic analysis. Following this analysis, seven major areas of importance were identified, including Individual, Family, School, Community, National, International, and Advice for Future Planning. Each of these major areas consisted of associated themes and are summarised below.

Individual

This area referred to aspects of participants' reported experiences and opinions that specifically concerned the individual person, and was divided into five themes.

Personal perceptions of the seriousness of the earthquakes

It was found that certain factors influenced teenagers' perceptions of the seriousness of the earthquakes. Specifically, it was not factors about the earthquakes themselves (e.g., their size, feeling) that influenced perceptions of seriousness, but rather the amount of damage to the city, the extent of people affected, and the resulting number of deaths.

Personal involvement in the community response

For a majority of participants, being involved in the community response (e.g., cleaning up liquefaction, baking food) was either something they did or something they wanted to do following the earthquakes.

Participants highlighted a number of benefits that participation provided: a) helping was a distraction and gave them something to do; b) it made them feel good about themselves; c) it gave them a sense of purpose or control; d) it helped with their personal recovery; and e) it gave them perspective.

However for some, age restrictions (e.g., 16 years and over for the Student Volunteer Army) and the concern of parents, restricted their involvement in the community response. The age restrictions in particular were frustrating for participants who felt capable and wanted to help.

Relocation

The main reason for wanting to remain in Christchurch was that everyone had been through the same thing, or was in the same position, and should stay together as a community; however,

some students viewed temporarily leaving Christchurch as beneficial as it gave them a break from the disaster-struck environment and the aftershocks. Others left because of family members' concern for their safety, or because of the negative impact of the earthquakes on other family members (e.g., siblings).

Negative psychological impact

Participants reported the negative emotional impact of the earthquakes, including fear, stress, guilt, and shock. Fear and stress were not only the most prominent initial emotional reactions to the earthquakes, but also had longer lasting impacts on participants' behaviour (e.g., avoidance, hyperarousal) and cognition (e.g., why did I survive?).

Perception of personal recovery

- Participants provided insight into what they perceived as 'recovery'. Recovery was:
- Being less fearful of earthquakes.
- Being knowledgeable of earthquakes and being prepared.
- People and communities moving forwards (e.g., returning to normality, focusing on the future), and accepting the fact that life and the city were never going to be like they were pre-earthquakes.
- Being okay with talking and/or hearing about the earthquakes.
- Seeing the positives of the earthquakes, rather than focusing on the negatives.

The main factors that contributed towards students' recovery included the return to normality and the routine of school, as well as seeing the rebuild of residential and commercial areas (even small improvements helped).

Family

This area targeted participants' families and included three themes.

Importance and support

Participants expressed a high desire and need for their family following the earthquakes. Important forms of support included understanding, allowing the expression of emotions and acceptance of ways of coping, and just being there and spending time with them. Overall, the importance of family for youth and their role in helping them cope was highlighted.

Parent-child differences in earthquake experiences

This theme concerned parent-child differences in earthquake experiences, and the impact these differences had on participants. By not sharing similar earthquake experiences, some participants' believed that their parents could not relate to them or understand their psychological responses to the earthquakes. Consequently, participants believed their parents would not take their thoughts and/or feelings seriously, which then prevented them from opening up and talking to their parents.

Post-disaster psychological impact on family members

Participants described a number of negative psychological impacts of the earthquakes on their parents and other family members, with stress being a key response. Parental depression and alcohol use were also reported, as well as the consequent inability to obtain enough support from affected parents. These findings highlighted the importance of involving families in youth-focused post-disaster interventions, with the idea that by supporting the mental health of parents, youths' wellbeing would also benefit.

However, some participants also reported positive impacts on families, as they came to appreciate each other more and spend more time together, becoming closer as a result.

School

This referred to the school setting, and was divided into three main themes.

Support

With school support, participants appreciated schools that communicated a plan of action and reassured their students that they were taking control of the situation. Participants also found comfort in the sense of school community and connectedness that resulted following the earthquakes. The presence of school counsellors was also helpful as participants found the option comforting – even if they did not use it.

Educational support

Participants valued the understanding of schools and teachers regarding their limited abilities to cope, and the extra support they received with schoolwork. Derived grades were highly valued as it provided a safety net and reduced anxiety regarding their academic performance; however, for some, the continuing impact of the earthquakes on their lives meant that the provision of derived grades for more than one year would have been helpful.

Teacher support - once students returned to school, participants found it most helpful when teachers did not dwell on the earthquakes or the things that had been lost but rather, focused on the future and what needed to be done.

Educational impact

For a majority of participants, their perception was that their education was not significantly impacted. This was because at the time of the earthquakes, most participants were in Year 10 and not yet completing their full NCEA or IB qualifications, meaning less academic pressures; however in saying this, some participants still reported concerns regarding the continued impacts of the earthquakes over the years and the difficulty of studying amongst these stressors (e.g., house damage).

Community

This area referred to participants' views and opinions about matters that were relevant to the Christchurch community.

Support

A majority of participants spoke positively about the community's response and willingness to help others. They reported a sense of togetherness and spirit within the community, explaining that the earthquakes brought people closer together; however, participants also indicated that this community response and sense of unity eventually 'died down'.

East versus West

Participants from both east and west sides of Christchurch highlighted a divide between these two regions - particularly due to differences in the extent of earthquake damage experienced by each side, with the east generally suffering the worst. This resulted in different attitudes about the earthquakes and perceptions about the personal impacts on lives ('...If you don't live over there [the east]...it doesn't affect ya'). For some teenagers in the west, they seemed to be able to detach themselves from the destruction in the east ('...It was just a different city where it was happening'). The return to normality in the west also appeared to occur sooner for participants in this area.

Rebuild

Consultation of youth: It appears that efforts were made to involve youth in rebuild consultations (e.g., online forums, conventions, The Amazing Place school competition); however, teenagers' suspected that these efforts were only tokenistic and that young peoples' ideas carried very little weight. Some teenagers were more interested in having a say about

factors that directly affected their lives (e.g., school), and were less concerned about those that did not.

Pace of the rebuild: Many participants complained about the pace of the rebuild being too slow, and their frustration around this. They particularly reported the absence of youth-focused activity in the city, which both reminded them of the earthquakes and influenced their decisions about university. That is, for some, the lack of activity was driving them outside of Christchurch; however, for others, the anticipation of what Christchurch city would become was encouraging them to remain in the city, as well as the job opportunities.

National

This area was concerned with the reaction of New Zealand as a whole to the Canterbury earthquakes.

Support

Participants spoke about the support Christchurch received from other New Zealand towns/cities, and their appreciation for that support.

Media coverage

Some participants had difficulties listening to the media as it invoked anxiety. It was also reportedly quite negative, 'dragging the mood down', and did not sufficiently capture the community support or 'resilient mood'. In contrast, participants also spoke about the media's usefulness as a source of updates and information, and the fact that it did include some positive content.

International

This area concerned factors related to the response of international persons or countries to the earthquakes.

International media coverage

Participants indicated that the response by international media was unhelpful due to its negative focus and the consequent distress that it caused family members overseas.

News footage of the 2011 Japan magnitude-9 earthquake (and tsunami) further highlighted the negative impact of the media on teenagers' distress levels. Many participants mentioned how difficult and upsetting this event was for them, particularly seeing the devastation on the news.

International students

One of the focus groups only included international students. The main finding from this discussion was that international participants appeared to be less affected by the earthquakes compared to some of their 'kiwi' counterparts. They identified a couple of reasons for this: a) they had fewer secondary post-disaster stressors (e.g., fewer family members in Christchurch to worry about, less connection to the city and therefore, less impacted by the damage and loss); and b) international students believed they were more resilient and emotionally mature than 'kiwi' students due to their experiences of being international students and what that entailed (e.g., decision-making and being away from family).

Advice for Future Planning

Participants provided advice for what others could do in the future event of another natural disaster, as well as what youth could do to help themselves.

Advice to support youth based on personal experience

- Give youth space and time to themselves to process the event, particularly in their own way.

- Have support available and ensure youth are aware of this support, but do not force it upon them.
- In addition to talking with youth about their personal earthquake experiences, also ask them about what they need and what could be done to help them move on. Also, give them suggestions about what they could do.
- Give youth something to do, either as a distraction or to get them in contact with friends.
- Adults should recognise and enable youths' desire and ability to help their community post-disaster.

Advice to help international students

- Have support people of a similar culture who could relate to the students.
- Provide accommodation for international students who were previously boarding at school.
- Help international students contact and reassure family members back home.

How can youth help themselves?

Students made the following three main suggestions:

- Try to be involved in the community following a natural disaster, either helping out or just attending community events.
- Be open to support from friends.
- Speak up and to talk to others – but only if you feel ready.

Overall, the findings of this study highlighted a number of important areas that could be considered when trying to support both current and future earthquake-exposed teenagers. Findings also provided insight into how teenagers experience a natural disaster. This information could contribute towards a more supportive post-disaster environment that offers empirically informed youth-based psychosocial support.

Appendix J. Final thematic table of seven major areas, including complete set of themes (20) and codes (71) identified in the data

INDIVIDUAL	FAMILY	SCHOOL	COMMUNITY	NATIONAL	INTERNATIONAL	FUTURE
Perception of Seriousness	Importance of Family	School Support	Community Support	Support	Media Coverage	Advice
1-Realisation of the seriousness	1-Need for family	1-General school support	1-Community response	1-National support	1-Negatives of international media coverage	1-Supporting future earthquake-exposed teenagers
2-September Vs. February earthquake	Family Support	2- Sense of togetherness	East vs. West	Media Coverage	2-Japan earthquake	2-Supporting future
3- Deaths	2-Support given	3- School counselors	3-East vs. West	2-Negatives of media coverage	International Students	2-Supporting future international students
Personal Involvement in Community Response	3-Supporting family members	Educational Support	Rebuild	3-Positives of media coverage	3-International students less affected by earthquakes	3-Teenagers helping themselves
4-Desire to help	Parent-Child Differences in Earthquake Experiences	4-Educational support	4-Rebuild consultations		4-Family outside NZ	
5-Anyone can help		5-Derived grades	5-Limited access to consultations		5-Support from international students	
6-Volunteer activities	4-Differing earthquake experiences	6-Teacher support	6-Youths' opinions not considered		6-Stayed in Christchurch	
7-Volunteering concert	5-Impact of differing experiences	7-Lack of teacher support	7-Feelings about lack of involvement in consultations		7-Left Christchurch	
8-Benefits of helping out		Educational Impact	8-Pace of the rebuild		8-Language barriers	
9-Restrictions to helping out	Psychological Impact on Family Members	8-No impact on work	9-Benefits of rebuilding faster		9-Translators	
Relocation		9-Negative impact	10-Current views on the city			
10-Stayed in Christchurch	6-Psychological impact on parents	10-Positive impact	11-Plans to leave Christchurch for university			
11-Benefits of staying	7-Consequences for child	11-Sharing Schools				

INDIVIDUAL	FAMILY	SCHOOL	COMMUNITY	NATIONAL	INTERNATIONAL	FUTURE
12-Stayed in same house	8-Parents hiding feelings		12-Plans to stay for university			
13-Left Christchurch	9- Impact on grandparents					
14-Support when left Christchurch	10-Impact on siblings					
15-Benefits of leaving	11-Positive impact on families					
Negative Psychological Impact						
16-Fear						
17-Stress						
18-Avoidant behaviour						
19-Hyperarousal						
20-Guilt						
21-Shock						
Personal Recovery						
22-Factors contributing to recovery						