

PSYCHOLOGY AND THE CANTERBURY (NZ) EARTHQUAKES

PART 1

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In the early hours of the morning of 4th September, 2010, residents of the Canterbury region in New Zealand's South Island, and its major city, Christchurch (regional population ~400,000), were woken by the noise and shaking of an earthquake. Earthquakes are not unfamiliar to us. NZ lies on the Pacific "ring of fire" and a major fault-line – the Alpine Fault – runs down the western side of the Island, marking where the Pacific tectonic plate grinds past the Australian plate. As the shaking grew in severity most of us assumed that this was the long-predicted "big one" – an overdue release of seismic energy on the Alpine Fault. We soon learned, however, that we had experienced a 7.1 magnitude quake on a previously unknown fault lying under rural land about 30kms west of the city.

Canterbury has been occupied by humans for about 700 years. The indigenous Maori used the swamps where the modern city of Christchurch now stands for food-gathering but it was not until European settlers arrived in 1850 that the swamps were drained and a city built. Christchurch retained many of its late 19th – early 20th C heritage buildings, constructed of stone and unreinforced masonry. Such buildings suffered extensive damage, and huge areas of the city were covered with liquefaction silt, as the vibration of the quake turned previously swampy soil to liquid. Despite the extensive damage, however, there were no deaths and only two serious injuries – truly remarkable given the severity of the earthquake.

The widespread reaction in the days afterwards was that, first, we had been extremely lucky, and second, that we had discovered (or rediscovered) a new sense of community, as folk checked on neighbours, helped dig out the liquefaction, and assisted with the social and economic repair that quickly got underway. But this sense of community was soon to be tested to a new level. At 12.51pm on Tuesday, 22 February, 2011, a catastrophic 6.1 magnitude aftershock struck, at shallow depth, on another unknown fault, this time within 10kms of downtown, and with an orientation that funnelled energy into the centre. The vertical accelerations, at >2gravities and among the largest ever recorded for a modern earthquake, greatly exceeded the building code. The centre of the city was devastated, severe damage was widespread across the region, liquefaction was worse in depth and extent than in

the September quake, more than 6000 people were injured, and 185 died. Among the dead was a leading clinical psychologist (and her client).

The city was without power, water, and sewage, although the telephone system continued to operate, as did emergency services and the main hospitals, despite damage. Roads were badly damaged, many bridges unusable. A state of emergency was declared, the central city area was cordoned off by the NZ armed forces, and Urban Search and Rescue (USAR) teams from all round NZ flew in. They were soon joined by teams from Australia, Singapore, Japan¹, the UK and USA, and we remain profoundly grateful for that assistance, and other assistance by way of financial aid that has been offered from around the world.

Over the next days, weeks and months emergency welfare centers were set up across the city, homes and businesses throughout the city were checked for casualties and welfare needs, basic services restored, and some semblance of social and business life resumed. One remarkable story of volunteer response is the “Student Army”. Since all the city’s universities, polytechnics and schools were closed, a group of student leaders at the University of Canterbury set up a system through which student volunteers could be despatched to different parts of the city armed with shovels and wheelbarrows to help dig properties out from the liquefaction silt. At its peak several thousand Student Army helpers were organised daily, using the social media Facebook. Other volunteer groups were modelled on this, such as the “Farmy Army” which involved farmers from nearby rural communities. All told, more than 500,000 tonnes of silt has been removed from Christchurch since the earthquakes began. However, one year on and 10,000+ aftershock later, the centre of the city remains cordoned off, almost all heritage buildings have been or will be demolished (including our iconic cathedrals), most high-rise buildings, major art venues, libraries, and sports facilities are closed and many are waiting for demolition, more than 6000 homes have been condemned, tens of thousands of homes are damaged but habitable, and large tracts of city land are deemed too dangerous to build on again.

What was the response of psychologists to this extreme experience? Among affected psychologists were clinical psychologists employed in the public health system (the Canterbury District Health Board, CDHB); clinical psychologists employed in private practice; some other private practitioners, mostly in the industrial-organizational area; educational psychologists serving the public school system, NZ Defence Force psychologists, and academic psychologists and their students, mostly at the University of Canterbury. All

experienced some level of personal distress and disruption from the earthquake, including the destruction of homes and places of work. Nevertheless, within days most were back functioning in some professional role. In this part of the account I will focus on clinical, industrial-organizational, and educational psychologists' roles and responses. In the second part I will discuss the response of academics, especially their research.

For many organizations and the individuals within them, the initial September earthquake provided a rehearsal of the responses that were required on a much larger scale following 22nd February. For the CDHB psychologists, following both quakes, they provided professional psychological support to the Emergency Welfare Centres that were set up as refuges for displaced people. This provided advice and support to the emergency management personnel, helped to monitor and deal with growing stress and distress among such staff, and provided direct clinical services to individuals using the Emergency Centres, for instance by monitoring those with pre-existing mental health conditions who were experiencing exacerbation of their symptoms, and dealing with distress and anxiety arising from events such as continuing aftershocks, or the necessity of returning home. The professional challenges faced were much greater after the February quake, both because of the severity of the disaster and the fact that many of the mental health services lost access to their buildings and therefore to their professional records and resources. Despite continuing losses and difficulties two leaders of this group concluded "The magnitude of these events has also forced a 'shake-up' ... of the boundaries and silos that people have traditionally worked in. This has led to improved communication between key agencies and more collaborative and flexible ways of working than was the case before September, 2010." (Chambers & Henderson, 2011).

In the immediate aftermath of the February event, CDHB psychologists, private practitioners, and academics were involved in providing direct support to rescue workers, family members, and survivors particularly at the two sites where the collapse of multi-story buildings resulted in many casualties (116 at one site alone). This support later extended to personnel of the Disaster Victim Identification team established at a nearby military base. It quickly became clear that different organizations had quite different levels of understanding of the benefits of and the capacity to engage with psychological input in such a situation. For instance, the NZ military has its own psychologists (Sutton & Fourie, 2011) and the NZ Police force, nationally and locally, has a long-standing system for calling on psychologists to help with staff distress and trauma. At the other extreme, it took some time to realise that the men

operating the cranes and diggers that were being used to recover bodies from the wreckage (mostly employees of private contractors) had no support system. Some ingenuity was called on to arrange appropriate support for these indispensable workers. For many private practitioners their workplaces were damaged or inaccessible behind the city cordon, and so for a time a number volunteered to assist with counselling at the Canterbury Charity Hospital. This is a fully volunteer hospital which, prior to the February quake, provided day-surgery treatment for those not qualifying for public or private health services. Following the quake the hospital's management realised the need for counselling services, recruited volunteer counsellors, and found premises for the work. During 2011 it is estimated to have served approximately 1200 clients. Among the psychologists volunteering were the staff and trainee clinical psychologists of the University's Psychology Clinic who unable to access their university facilities for three months.

The coordination of all this work was assisted by an informal weekly meeting attended by a diverse group of psychologists. This group (assisted by CDHB and academic psychologists) also arranged for public information statements to be distributed in various media, designed to help the public understand normal responses to stress and trauma, deal with anxiety, recognise when family members, especially children needed help, and know where to locate help when it was needed. This was greatly assisted by material generously supplied by the NZ Psychological Society (NZPsS), the NZ College of Clinical Psychology, and the Australian Psychological Society. Later, the Association for Psychological Science made a useful document available (Bonnano, Brewin, Kaniasty, & La Greca, 2010). Underlying much of this public education was a desire to moderate references in the news media to "trauma" and "post-traumatic stress disorder" (PTSD) etc. Our fear was that this would set up an expectation that everyone was going to suffer PTSD or similar, and to some extent create a self-fulfilling prophecy.

Industrial-Organizational psychologists, almost all of whom are private practitioners, tell a similar story (Black & McLean, 2011) of the need to provide educational resources for managers and workers that counteracted myths about "trauma", that facilitated coping, and that helped identify those who needed more specialist support and help. Among other communication channels, podcasts on company intranets were used to disseminate such information. These authors also discuss "Community Divergence" which occurred in a number of contexts, but in particular reflected that the most seriously affected parts of the city were the centre and the east, and the east is industrial and working-class, while professionals

and managers tended to live in western suburbs that were not as badly affected. This posed a challenge for management and leadership in some organizations. Equally, however, phone or text messages from managers checking on workers' welfare and situation, similar mutual contacts between employees, and rapid organization of work, such as clearing up, rescuing equipment, and helping with business relocation, all helped with personal recovery and resilience.

In NZ Educational (School) Psychologists are employed by the government Ministry of Education, and provide services from pre-school to high school levels. Schools, however, are autonomous entities, each with its own Board of Trustees, and a Principal (as CEO and professional leader of the teaching staff). It is much to the credit of Christchurch schools that no school pupils or staff were killed or seriously injured in the February earthquake, and the general experience of parents after they had fought their way through gridlocked traffic and damaged streets to pick up their children was to find them in well-organised class groups waiting in relative calm on the school's open spaces – notwithstanding constant and often major aftershocks. After the September earthquake schools were closed for only a short time, but from February onwards, schools were closed for weeks or more, some schools were forced to relocate, and others had to shift their daily schedule so that two schools could use the same facilities, one in the morning the other in the afternoon. So in addition to the disruption of life that everyone experienced, many pupils and teachers also faced dealing with unfamiliar places and routines. Educational Psychologists worked within a Ministry-devised psychosocial support framework described as Respond, Recover, Renew (Brown, 2011). Again, provision of information through websites and face-to-face presentations was a key task. While deeply cognizant of safety issues, schools were encouraged to open as soon as possible, recognizing that getting back to familiar routines and social relationships was very important for child and family wellbeing. An Education Welfare Response Team was formed to provide more specialist help to school staff and students. The most seriously affected schools had their own team while other schools worked through liaison staff. As was the case with CDHB psychologist, educational psychologists typically worked in multi-disciplinary teams, and this seems to have been a positive experience (Gilmore & Larson, 2011).

In part 2 I will discuss the response to the earthquake of the academic community, and also say more about how psychologists' organizations, especially NZPsS, have engaged with the aftermath. Some of this research will be presented at the International Congress of Psychology, Cape Town, July, 2012.

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Footnotes:

1. When the devastating earthquake and tsunami struck Japan on 11th March, 2011, the Japanese USAR team returned to Japan. We were able to reciprocate their help, and sent a NZUSAR team to help with their much larger disaster.

2. The Special Issue of the *New Zealand Journal of Psychology*, vol 40 (4), *Psychology and Disasters*, is available on the Society's website www.psychology.org.nz

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