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ABSTRACT: *This paper explores the process of resilience in multiple system levels through the perspectives of people who experienced a natural disaster in Australia. By focussing on human resilience, the paper adds to the literature by taking a salutogenic approach to addressing the effects on mental health arising from living through a natural disaster. The authors analysed 19*

INTRODUCTION

Disasters affect communities across the globe. In 2010 alone,

of disasters (McFarlane, Clayer & Bookless, 1997; Parslow, Jorm & Christensen, 2006; Bryant et al. 2014). After the most recent Australian Black Saturday bushfires in 2009, persistent fire related post-traumatic stress disorder (15.6%), depression (12.9%) and psychological distress (9.8%) was more prevalent in communities that were highly affected.

Despite the adverse consequences associated with disaster, there is also a body of evidence that has identified unexpectedly positive outcomes. Prevalence of the absence of pathology (identified as resilience) at six months post disaster was found to be as high as 65.1 per cent in a total sample of 2,752 participants exposed to the

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World Trade Centre terrorist attack (Bonanno, Galea, Bucciarelli & Vlahov, 2007), and 77.3% in participants exposed to the Australian

Eighteen months later, parts of Victoria experienced up to three serious flooding events between the 3rd of September 2010 and the 15th of January 2011. Two hundred Victorians evacuated after the initial floods in 2010 while the final episode in 2011 affected over 100 towns (Comrie, 2011). The financial impact of the floods was estimated to be \$1.3 billion (Comrie, 2011).

Participants

These events provided two contrasting samples for this study. The first data set selected 20 witnesses from the 100 lay people who presented to the 2009 Victorian Bushfires Royal Commission. This Royal Commission was established to investigate the deaths associated with the fires and provide recommendations on fire preparation, response and recovery. The final report (<http://www.royalcommission.vic.gov.au/commission-reports/final-report>)

over eight months to promote credibility of the findings. Researcher triangulation with the second and third authors was used to verify coding. Negative cases were actively sought and contradictory data was discussed amongst the researchers until consensus was reached. For example, data from the interview participants who doubted their resilience was reviewed and it was observed that their data reflected the complementarity of categories identified by those who did feel resilient.

The Study Limitations

The sample of the bushfire witness transcripts is biased towards older people and to some extent this is apparent in the food sample recruitment also. This is not surprising given previous research has established that older people may be more resilient and so may be more likely to agree to participate in research or present at a Royal Commission (Bonanno, Galea, Bucciarelli & Vlahov, 2007) It may be that younger people chose other forums to share their experiences with the wider community. Consequently, it cannot be claimed that this research reflects their experiences.

Caution needs to be taken with generalising the results of this study to the wider community that has experienced these events, as this assumes that those who agreed to participate in either the Royal Commission or the research interviews were no different from those who chose not to engage. It is possible that food affected participants and bushfire witnesses have a certain amount of self-efficacy and confidence in their ability to articulate and communicate their experiences not evident in the broader population.

No participant in either sample identified themselves as being an Aboriginal or Torres Strait Islander and the representation of people born overseas is below the state percentage. This suggests that the role of culture could not be adequately observed in this sample. The findings may need to be further modified for Aboriginal and Torres Strait Islanders due to the unique set of adversities they face and their attachment to land.

Finally the data collection was limited to a single point in time and so does not account for the possible change in perceptions of the food affected participants and bushfire witnesses throughout the disaster experience.

RESULTS

Resilience as Rebuilding

The analysis used the ecological model to reveal that there was a consistent meaning ascribed by food affected participants and bushfire witnesses to their resilience that was created by their personal experiences. The overarching theme of resilience, whether faced with a food or fire, was characterised by *getting going with rebuilding*. The experience of *getting going with rebuilding* appeared within each system described in Bronfenbrenner's ecological model (2005). Resilience framed as *getting going with rebuilding* was understood at the microsystem level as taking steps as soon as possible to rebuild lives and establish a sense of normalcy with a view to the future. Participants reported their key decisions about when to return home after evacuation, whether to return to their community, and when/where/how reconstruction of their dwelling should occur. As such, *rebuilding* was strongly focused on reconstruction of housing, but importantly, in the context of re-establishing a home, rather than just shelter. This meaning of resilience as rebuilding incorporated building the individual's social network (mesosystem) and restoring communities (exosystem) and again extended beyond structural repair to include rebuilding lives and a sense of community, with recognition of macrosystem influences of funding and insurance.

[name] and I have also been involved in the [community development group], which has worked with companies like

[corporation] on establishing semi-permanent accommodation in [town] so that residents can return there and rebuild the local community. (bushfire witness #34 - female)

...we are a vibrant close-knit community, there is pride in the community and we want to build that up again. (food affected participant #5 - female)

Intersystem Processes

Resilience as a rebuilding occurring within a number of nested systems also appeared to rely on some key processes that connected the ecological systems depicted in Figure 1. Processes that enabled effective communication and conveyed a caring response underpinned the rebuilding processes described in this paper.

Effective communication of relevant information was identified as a dominant process both within systems but also between systems. Communication of information from macro/exo/mesosystems in the ecological model was critical for making decisions about reconstruction. It was a key process that contributed to receiving emotional support in the microsystem and maintaining community connections or expanding networks within the mesosystem as well as connecting with exosystem based organisations. Communication from the macrosystem was also recognised to be important in achieving the goals of rebuilding individual lives as well as communities.

I believe the critical issue was accessible, honest information. In this regard, I think the community meetings worked well. Due to the limitations or absence of other means of communication, we were restricted to what we could do on a face-to-face basis. That meant finding somewhere for meetings that was sheltered and where a large number of people could congregate, and then sharing what we needed to know. People have said that the meetings were also a chance to come together and to touch base with each other – certainly the conversations and catching up continued long after the formal business of the meetings concluded. (bushfire witness #20 - female)

Emotional support that conveyed a sense of being cared about by others also emerged within and across the systems. The bushfire witnesses and food affected participants were recipients of donations, practical support as well as emotional support from meso/exo/macrosystems, all conveying sympathy and helping to manage emotions within the microsystem. However some of the food affected participants and bushfire witnesses were also providers of community support to others extending into their mesosystem. Helping occurred during the emergency phase, with many taking time out of fighting the bushfires or foods on their own land, to assist others with defending property. Assistance was most commonly provided during recovery through home visiting, coordinating fodder distribution, contributing to recovery committee work, helping to remember those who died, advocating for the needs of others, helping others reconstruct their dwelling, helping others with their health and providing communal meals. Assisting others appeared to form part of the reconstruction activities that supported their recovery.

Those sorts of things kept me very busy and that was my way of coping with everything that had happened. I wanted to use some of my skills to benefit the community rather than just my immediate family. (bushfire witness #24 - male).

Individual Processes (Microsystem)

Resilience as rebuilding began with processes that occurred within the individual (microsystem) in the ecological model. The food affected participants and witnesses described how strategies for managing their emotions and thoughts were linked to their ability to take action. They were able to seek and use information to make effective decisions and plans for the future. They were also able to access resources and coordinate activities from the complex array

of interventions available. The person's ability to manage their emotions, make decisions, take action, access resources and plan for their future contributed to their resilience.

Emotions and Cognitions

In both samples, it was evident that the disaster experience led to

Flood affected participants also discussed the timing of their own recovery, and their expectations of what was normal. In addition

- Glandon, D.M., Muller, J. & Almedom, A.M. (2008). Resilience in post-Katrina New Orleans, Louisiana: a preliminary study. *African Health Sciences*, 8(1), S21-S27.
- Gordon, R. (2004). Community process and the recovery environment following emergency. *Environmental Health*, 4(1), 9-24.
- Greenhill, J., King, D., Lane, A. & MacDougall, C. (2009). Understanding resilience in South Australian farm families. *Rural Society*, 19(4), 318-325.
- Guha-Sapir, D., Vos, F., Below, R. & Ponserre, S. (2011). *Annual Disaster Statistical Review 2010: The numbers and trends*, Centre for Research on the Epidemiology of Disasters (CRED) Université Catholique de Louvain.
- Harville, E.W., Xiong, X., Buekens, P., Pridjian, G. & Elkind-Hirsch, K. (2010). Resilience after hurricane Katrina among pregnant and postpartum women. *Yqo gpu" J gcmj"kuuwgu*, 20(1), 20-27.
- Hegney, D.G., Ross, H., Baker, P., Rogers-Clark, C., King, C., Buikstra, E., et al. (2008). *ƔfgpvkŁecvkqp" qh" rgtuqpcn" cpf" community resilience that enhance psychological resilience: A Stanhope study*, Toowoomba, University of Southern Queensland.
- Hobfoll, S.E., Watson, P., Bell, C.C., Bryant, R.A., Brymer, M.J., Friedman, M.J., et al. (2007). Five essential elements of immediate and mid-term mass trauma intervention: empirical evidence. *Psychiatry*, 70(4), 283-315.
- Hobfoll, S.E., Canetti-Nisim, D., Johnson, R.J., Palmieri, P.A., Varley, J.D. & Galea, S. (2008). The association of exposure, risk, and resiliency factors with PTSD among Jews and Arabs exposed to repeated acts of terrorism in Israel. *Journal of Traumatic Stress*, 21(1), 9-21.

