

## Australian Child and Adolescent Trauma, Loss and Grief Network (ACATLGN) Australian National University

### Evidence Review Summary: Children and Disasters

**Exposure to disasters is not a rare event for children.** Considering the frequency, intensity and magnitude of natural hazards and disasters is correlated with climate change and intense weather events, recent research showing that approximately 175 million children will be affected per year by disasters relating to climate change supports a significant need for child-specific disaster responses.<sup>1</sup> Children are also one of the most vulnerable groups during and after disaster and make up 30-50% of all global disaster-related deaths.<sup>2</sup> Following the 2009 Black Saturday bushfires, it was recognised by the 2009 Victorian Bushfires Royal Commission that vulnerable people, defined as young persons, older persons, and persons with impaired health, were overrepresented in mortality and injury statistics.<sup>3,4</sup>

#### Are children vulnerable in disaster?

- **Disasters do not affect all members of a population equally.** A review of 60,000 people who experienced disaster over a 20 year period determined that children are the demographic group most vulnerable to severe psychosocial effects following a disaster.<sup>5</sup> Children are uniquely impacted according to a wide range of factors such as their age and developmental stage, the family members or adults who may be with them to help them to understand what is going on, any pre-existing vulnerabilities such as health problems or learning delays, their cultural context, etc. Research from 2011 called for a developmental approach to understanding children's trauma reactions, as these are mediated by a number of factors.<sup>6</sup> There is a need to not only target vulnerable populations, such as children, before and during disasters, but to tailor the psychosocial response to the event and affected population.<sup>7</sup>

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<sup>1</sup> Midtbust, L.G.H., Dyregrov, A. & Djup. H.W. (2018) Communicating with Children and Adolescents about the Risk of Natural Disasters. *European Journal of Psychotraumatology*, 9, 14297771.

<sup>2</sup> Ronan, K. & Towers, B. (2015) Child-Centred Disaster Risk Reduction Project. *Bushfire and Natural Hazards CRC Annual Report 2014*.

<sup>3</sup> Garlick, D. (2015). The vulnerable people in emergencies policy: Hiding vulnerable people in plain sight. *The Australian Journal of Emergency Management*, 30(1): 31-34.

<sup>4</sup> Towers, Christianson & Eriksen (2019). Impacts of wildfire on children. In Manzillo (ed.) *Encyclopaedia of Wildfires and Wildland-Urban Interface Fires*, [https://doi.org/10.1007/978-3-319-51727-8\\_90-1](https://doi.org/10.1007/978-3-319-51727-8_90-1)

<sup>5</sup> Norris FH, Friedman MJ, Watson PJ, Byrne CM, Diaz E, Kaniasty K. 60,000 disaster victims speak: Part I. An empirical review of the empirical literature, 1981–2001. *Psychiatry*, 2002; 65:207–239.

<sup>6</sup> Franks, B. (2011). Moving targets: A developmental framework for understanding children's changes following disasters. *Journal of Applied Developmental Psychology*, 32(2), 58-69.

<sup>7</sup> Reifels, L., Pietrantonio, L., Prati, G., Kim, Y., Kilpatrick, D., Dyb, G., Halpern, J., Olff, M., Brewin, C. and O'Donnell, M. (2013). Lessons learned about psychosocial responses to disaster and mass trauma: an international perspective. *European Journal of Psychotraumatology*, 4(1), 22897.

- **Children are physically vulnerable in emergency/disasters.** They are dependent on adults for safety and protection, are in formative periods of physical and psychological development, and may be unable to recognise or respond to hazards on their own. Additionally, their skin is physically thinner and respiratory rate higher so they breathe in smoke and chemicals faster, and psychologically, they appear to be more severely affected by disaster and trauma than adults.<sup>8</sup> Because children's understanding of events is also mediated by age and developmental ability, in the event of a separation, they can be unable to look after themselves and can become vulnerable to occurrences of abuse and neglect from others. Infants are particularly vulnerable as they have specific feeding requirements, an immature immune system, are vulnerable to dehydration, and are completely dependent on others for their needs.<sup>9</sup>
- **Children are psychologically vulnerable during and after disaster.** Human and animal studies have observed a “sensitive period” of brain development in childhood, where brain plasticity is at its peak and life experience directly affects brain development processes like neurogenesis, synaptic growth, and neural circuitry organisation. There are changes in stress-sensitive areas including hippocampus, prefrontal cortex, and amygdala.<sup>10</sup> Infancy, early children and preadolescence are key periods for optimum neurological development, and experiencing trauma and adversity during the childhood years increases risk for various physical and mental health issues across the lifespan, including toxic stress disorders and later-life psychopathology.<sup>11</sup>

### What are some of the impacts on children?

- **Traumatic reactions and effects:** Studies estimate approximately 5-43% of affected children will develop post-traumatic stress disorder (PTSD) following disaster, and a number more may develop depression, anxiety, or other health disturbances.<sup>12</sup> Like adults, children may experience psychological effects such as post-traumatic stress disorder (PTSD) or acute stress disorder (ASD) but unlike adults, they will need slightly different approaches to treatment and care. Most children who experience disasters will not end up developing mental health difficulties severe enough to require clinical intervention, but the widespread nature of disasters means the low percentage who will need intervention can involve a large

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<sup>8</sup> Grindlay, J. and Breeze, K. (2016). Planning for disasters involving children in Australia: A practical guide. *Journal of Paediatrics and Child Health*, 52(2), 204-212.

<sup>9</sup> Gribble, K., Peterson, M., & Brown, D. (2019). Emergency preparedness for infant and young child feeding in emergencies (YCF-E): an Australian audit of emergency plans and guidance. *BMC Public Health*, 19(1).

<sup>10</sup> Cross, D., Fani, N., Powers, A., & Bradley, B. (2017). Neurobiological Development in the Context of Childhood Trauma. *Clinical Psychology: Science And Practice*, 24(2), 111-124.

<sup>11</sup> Pechtel, P., Lyons-Ruth, K., Anderson, C. and Teicher, M. (2014). Sensitive periods of amygdala development: The role of maltreatment in preadolescence. *NeuroImage*, 97, 236-244.

<sup>12</sup> Dyregrov, A., Yule, W., & Olf, M. (2018). Children and natural disasters. *European Journal of Psychotraumatology*, 9, 1500823.

number of children.<sup>4,13</sup> Children are also vulnerable to ‘trauma transference’ through exposure to other family members’ experiences and/or media reports.<sup>14</sup>

All children will be psychologically affected in some way by disaster exposure and early research on childhood stress has been reinforced by later research; trauma exposure can have lasting effects but often the effects are short term and mediated by parent availability, care, support, and healthy functioning.<sup>15</sup> However, some researchers have negated the idea that an event’s effect on children’s mental health is facilitated by its effect on the parents and family environment.<sup>16</sup> This means that child-centred elements (as well as parental care and support) need to be integrated along with disaster preparedness and response to help mitigate its psychosocial and emotional impact on children.

- **Impacted academic performance:** Although people acknowledge that disaster can disrupt the logistics of attending school, less well-known are the traumatic impacts on children’s brains and development that impede their academic learning and performances for up to years afterwards. The likely influence of individual/family/systemic stressors on child academic performance has been known for some time<sup>17</sup> but the evidence base for nature/extent/timing of post-disaster impacts on academic performance is more limited. International research has demonstrated that due to the nature of learning as building upon previous knowledge, early traumatic interruptions can continue to disadvantage children up to and including attending university. Within Australia, research from 2019 from Gibbs et al showed that expected gains in reading and numeracy were reduced in primary school students who experienced higher levels of bushfire impact.<sup>18</sup>

Research has also suggested that teachers also deserve more recognition for their role as first responders in the immediate post-disaster context and the significant role they play in supporting children and families throughout the recovery process.<sup>19</sup> Their role as ongoing psychosocial support for children and families in disaster means they are an ideal workforce to upskill in terms of recognising traumatic reactions, supporting distressed children, and self-care.

- **What affects the parents affects the children:** Parents and carers are one of the most important supports for children during and after disaster. However, parents who experience a disaster and who develop post-event mental health problems are likely to face extra challenges in supporting their children. Research has found that children’s post-disaster

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<sup>13</sup> Dyregrov, A., Yule, W., & Olf, M. (2018). Children and natural disasters. *European Journal of Psychotraumatology*, 9, 1500823.

<sup>14</sup> Pfefferbaum, B., Newman, E., Nelson, S., Nitiéma, P., Pfefferbaum, R. and Rahman, A. (2014). Disaster Media Coverage and Psychological Outcomes: Descriptive Findings in the Extant Research. *Current Psychiatry Reports*, 16(9).

<sup>15</sup> Masten, A.S. & Narayan, A.J. (2011). Child Development in the Context of Disaster, War and Terrorism: Pathways of Risk and Resilience. *Annual Review of Psychology*, 63: 227-257.

<sup>16</sup> Cobham, V., McDermott, B., Haslam, D. and Sanders, M. (2016). The Role of Parents, Parenting and the Family Environment in Children’s Post-Disaster Mental Health. *Current Psychiatry Reports*, 18(6).

<sup>17</sup> Vogel, J. M., & Vernberg, E. M. (1993). Part 1: Children’s psychological responses to disasters. *Journal of Clinical Child Psychology*, 22, 464–484.

<sup>18</sup> Gibbs, L., Nursey, J., Cook, J., Ireton, G., Alkemade, N., & Roberts, M. et al. (2019). Delayed Disaster Impacts on Academic Performance of Primary School Children. *Child Development*, 90(4), 1402-1412.

<sup>19</sup> Mutch, C. (2015). Quiet heroes: Teachers and the Canterbury, New Zealand, earthquakes. *Australasian Journal of Disaster and Trauma Studies*, 19(2), 77-85.

reactions are associated with their parent's mental health status, meaning that parents are a crucial target group for pre- and post-disaster support.<sup>20</sup>

Section 1.4.8 from *Final Report Volume II* from 2009 Victorian Bushfires Royal Commission notes that "Exposure to such an event is traumatic and can have long-term adverse psychological consequences, especially for children. It also notes that "the impact [of disaster] on adults is often profound", which in turn, can affect the psychological wellbeing of the family as a whole. The report stated that "it is not only a child's exposure to a bushfire that can have adverse long-term psychological consequences, but also parent's exposure and its impact on the parents' psychological health."<sup>21</sup>

*(Anecdotally, within the needs analysis ACATLGN conducted in 2018 for the development of the Community Trauma Toolkit, interviews with emergency management workforces and people with lived experience revealed that some of the greatest impacts on children come from post-disaster changes in family functioning, and not the disaster event itself. This included children of emergency management and response workers.)*

- **Strengthening community resilience protects children.** Australian disaster events such as the Victorian 2009 Black Saturday bushfires and the 2010-2011 Queensland floods re-emphasised the strong positive correlation between a community's structural, economic, and psychosocial vulnerabilities and its post-disaster functioning.<sup>22</sup> Disasters disrupt not only physical structures but the social influences and relationships related to or affected by the event, including the links between children, family and schools.<sup>23,24</sup> Early calls for communities to 'tap into' these links as a potential resource for information dissemination and education are becoming more relevant as the demographics of the first responder workforce changes.<sup>25</sup> Ronan and Johnston (2005) also note that "the days are gone where emergency management activity is carried out by a select group of 'civil defence' officers directing... a mainly passive public", with strategic focus turning to strengthening multiple community networks as conduits for preparedness education and active participants in response.<sup>26</sup>
- **Potential for post-traumatic growth:** Children can be active participants in disaster risk reduction, response, and recovery<sup>27</sup>. Labelling children as a 'vulnerable population' without

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<sup>20</sup> Pfefferbaum, B., Simic, Z., & North, C.S. (2018). Parent-Reported Child Reactions to the September 11, 2001 World Trade Center Attacks (New York USA) in Relation to Parent Post-Disaster Psychopathology Three Years After the Event. *Prehospital and Disaster Medicine*, 33, 5, 558-564.

<sup>21</sup> Section 1.4.8 'The Psychological Impact', *Final Report Volume II: Fire Preparation, Response and Recovery of The 2009 Victorian Bushfires Royal Commission final report*, Parliament of Victoria, p. 21-22.  
[http://royalcommission.vic.gov.au/finaldocuments/volume-2/PF/VBRC\\_Vol2\\_Chapter01\\_PF.pdf](http://royalcommission.vic.gov.au/finaldocuments/volume-2/PF/VBRC_Vol2_Chapter01_PF.pdf)

<sup>22</sup> Wickes, R., Zahnow, R., Taylor, M. and Piquero, A. (2015). Neighborhood Structure, Social Capital, and Community Resilience: Longitudinal Evidence from the 2011 Brisbane Flood Disaster. *Social Science Quarterly*, 96(2), 330-353.

<sup>23</sup> Ronan, K.R. & Johnston, D.M. (2005). *Promoting community resilience in disasters: The role for schools, youth and families*. New York: Springer.

<sup>24</sup> Peek & Fothergill. (2015). *Children of Katrina*. University of Texas Press: Austin.

<sup>25</sup> Slovic, P. Fischhoff, B., & Lichtenstein, S. (1981). Perceived risk: psychological factors and social implications. *Proceedings of the Royal Society of London*, A376, 17-34.

<sup>26</sup> Ronan, K.R. & Johnston, D.M. (2005). *Promoting community resilience in disasters: The role for schools, youth and families*. New York: Springer.

<sup>27</sup> Ronan, K., Haynes, K., Towers, B., Alisic, E., Amri, A., Davie, S., Ireland, N., & Petal, M. (2016). Child-centred disaster risk reduction: can disaster resilience programs reduce risk and increase the resilience of children and households? *Australian Journal of Emergency Management*, 31(3), 49-58.

acknowledging their potential for agency disregards the variety of impacts on them and their ability to take active roles in their community's disaster preparation and recovery work<sup>28</sup>.

Australian research undertaken in Canberra after the 2003 bushfires identified children as a "community motivational reservoir"<sup>29</sup> who should be included in preparation and recovery strategies for their ability to encourage and teach others, their energy and creativity, and their capacity to learn good habits early. Lori Peek (2008) has listed a number of instances where the actions of young people in disasters have saved lives, though she notes that children are not often asked about their thoughts and opinions on disaster preparation/response.<sup>30</sup> Webb & Ronan (2014) also discuss the "common sense notion" that behaviour is governed by habits that develop over time. In including children in the strategies and policies that concern them, there is greater likelihood that they will engage in disaster risk reduction and response strategies that will protect them and others.<sup>31</sup>

While some have raised concerns that preemptively discussing disasters can increase children's anxiety and stress around the issue, Australian studies show that children who have received disaster and hazard education were more knowledgeable and less anxious than their peers regarding disaster risk reduction and preparation.<sup>32,33</sup>

### What are some of the research and practice gaps around children and disasters?

- **Children are impacted by disaster planning that sometimes fails to acknowledge their unique needs.** Children need developmentally-appropriate psychosocial, emotional, and medical care, and researchers note that disaster plans have often failed to prepare specifically for children's needs.<sup>34</sup> The Victorian Government stated in their 2013 emergency management planning guide that "Children are not 'little adults' and should not be managed in the same way as adults."<sup>35</sup> However, *Save the Children Australia* noted in 2013 that there is currently no standard practice for emergency management planning for the unique needs of children. They noted that there is no standard code of conduct or consistent requirement for Working with Children Checks (or equivalent) for emergency management or evacuation centre staff. They also note that "The needs of animals are considered in planning far more

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<sup>28</sup> Towers, B., Perillo, S & Ronan, K. (2018). Evaluation of Survive and Thrive: Final Report to the Victorian Country Fire Authority. Bushfire Natural Hazards CRC, East Melbourne.

<sup>29</sup> Webb, M. and Ronan, K. (2014). Interactive Hazards Education Program for Youth in a Low SES Community: A Quasi-Experimental Pilot Study. *Risk Analysis*, 34(10), pp.1882-1893; Peek, L. (2008). Children and disasters: Understanding vulnerability, developing capacities, and promoting resilience—An introduction. *Children, Youth and Environments*, 18:1-29.

<sup>30</sup> Peek, L. (2008). Children and Disasters: Understanding Vulnerability, Developing Capacities, and Promoting Resilience – An Introduction. *Children, Youth and Environments* 18(1): 1-29.

<sup>31</sup> Webb, M. and Ronan, K. (2014). *Interactive Hazards Education Program for Youth in a Low SES Community: A Quasi-Experimental Pilot Study*. *Risk Analysis*, 34(10), pp.1882-1893.

<sup>32</sup> Ronan, K.R. & Johnston, D.M. (2003). Hazards education for youth: A quasi-experimental investigation. *Risk Analysis*, 23(5), 1009-1020; Ronan, K.R., Johnston, D.M., Daly, M., & Fairley, R. (2001). School children's risk perceptions and preparedness: A hazard education survey. *The Australian Journal of Disaster and Trauma Studies*, 1.

<sup>33</sup> Towers, B. (2015). Children's knowledge of emergency bushfire response. *International Journal of Wildland Fire*, 24 (2), 179-189, 2015.

<sup>34</sup> Burke, R., Iverson, E., Goodhue, C., Neches, R. and Upperman, J. (2010). Disaster and mass casualty events in the pediatric population. *Seminars in Pediatric Surgery*, 19(4), 265-270.

<sup>35</sup> Health & Human Services Emergency Management, Victorian Government. (2013). *Emergency management planning for children and young people: Planning guide for local government*.

than the needs of children.”<sup>36</sup>

- **There is a need for child-centred and family-focused disaster education and psychosocial support.** Despite concerted efforts over recent decades, Australian children were largely excluded from national disaster research and formal planning agendas until approximately five to ten years ago, with planning largely relegated to child specific services such as State education and health departments. An increase of Australian-based child-centred research in a number of key areas has contributed to a shift in focus, but of Australia’s current child-centred disaster risk reduction projects, most practical strategies and programs focus on the ‘preparedness’ arm of emergency management.<sup>37</sup> While the role of disaster preparedness is acknowledged as crucial to consolidating a community’s resilience, the varied responses to trauma and complexity of social relationships affected means that psychosocial and emotional recovery also needs to be prioritised by workforces. Currently, there is less overall focus on psychosocial recovery in national disaster strategy, and the majority of information resources available elsewhere either cater only for adults or focus on PTSD as the main psychosocial impact.<sup>38</sup>
- **There is a need for further research and policy targeting unaccompanied and separated children.** The Victorian State Government noted in 2013 that “current plans leave us ill-prepared to handle disasters that result in significant numbers of unaccompanied children.”<sup>39</sup> It is also important to note that unaccompanied children does not only mean situations where the parents are missing or separated. There is anecdotal evidence of parents leaving their children alone at evacuation centres while they deal with other pressing matters.<sup>40</sup>

Susan Davie from *Save the Children Australia* has done some significant work in the area.<sup>41</sup> Davie notes the risk to children during disasters increases significantly when the children are unaccompanied. Children are more susceptible to heat and diseases like influenza, more sensitive to the effects of smoke and chemicals, and can be more easily swept away in flood waters. Davie notes that “all plans should clearly state that there is a procedure for managing unaccompanied children.” Even a simple operating procedure that outlines who is responsible and what actions staff should take to ensure the safety and wellbeing of unaccompanied children. These plans should be available to the public so they know who to report to if they have concerns.

A national policy/code of conduct/strategy for unaccompanied children could highlight the dangers unaccompanied children in disasters face (higher environmental hazard risks,

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<sup>36</sup> Davie, Susan. (2013) ‘Don’t Leave Me Alone: Protecting Children in Australian Disasters and Emergencies.’ *Government Report Card on Emergency Management Planning*. Save the Children Australia.

<sup>37</sup> Towers, B., Haynes, K., Sewell, F., Bailie, H., & Cross, D. (2014). Child-centred disaster risk reduction in Australia: progress, gaps and opportunities. *Australian Journal of Emergency Management*, 29(1), 31-38.

<sup>38</sup> Warsini, S., West, C., Ed (TT), G., Res Meth, G., Mills, J. and Usher, K. (2014). The Psychosocial Impact of Natural Disasters among Adult Survivors: An Integrative Review. *Issues Mental Health Nursing*, 35(6), 420-436.

<sup>39</sup> State Government of Victoria (2013). *Emergency management planning for children and young people: Planning guide for local government*. Health & Human Services Emergency Management, Victorian Government Department of Human Services: Melbourne.

<sup>40</sup> Davie, S., Erwin, E., Stuart, M., & Williams, F. (2014). Child Friendly Spaces: protecting and supporting children in emergency response and recovery. *Australian Journal of Emergency Management*, 29(1).

<sup>41</sup> Davie, Susan. (2013) ‘Don’t Leave Me Alone: Protecting Children in Australian Disasters and Emergencies.’ *Government Report Card on Emergency Management Planning*. Save the Children Australia.

possible neglect/potential for abuse within evacuation/recovery centres if left alone, etc) and set out a plan for their identification and protection, a plan to prioritise available family reunification, a code of conduct for all staff working with children and families, and national requirements for staff (such as a Working With Children Check).

*Unaccompanied children emerged as an area of concern during ACATLGN's needs analysis for the Community Trauma Toolkit, but there was not adequate scope within the toolkit to address this directly.*