21 Separation and reunification in disasters

The importance of understanding the psychosocial consequences

John F. Richardson,[1] *Elyse Baker, Hugh Colin Gallagher, Lisa Gibbs, Karen Block, Dean Lusher, Connie Kellett, Colin MacDougall, Louise Harms, and Marita Smith*

Introduction

Disasters, often being sudden-onset and destructive events, produce unpredictable consequences that frequently lead to the separation of family members. People mention that separation from family members is one of the most stressful aspects of such events. Hazards may restrict physical access to an area, both during the threat period and afterwards due to the loss of transport infrastructure (e.g., roads), and communications may be disrupted directly or indirectly through loss of power. As a result of this disruption to people's ability to communicate with each other, many emergency management systems recognize the importance of reuniting families separated by disaster, and therefore provide a means for people to reunite (e.g., Safe and Well operated by the American Red Cross).[2] The term "reunification" is commonly used in the emergency sector. In this chapter, it refers to the point when someone becomes aware of their family member's status and whereabouts (e.g., through phone contact, word of mouth, Internet, face-to-face, or through the Red Cross); it does not necessarily involve being brought together in the same physical location. Despite the rationale for reunification services being supportive for people's wellbeing, there is little empirical evidence relating to the short- and longer-term psychosocial impact of separation from family members during and immediately after a disaster event.

The term "uncertainty" is used in this paper to refer to a lack of knowledge as to the safety and whereabouts of family members. This phenomenon takes place within a broader uncertainty in disasters, occurring not only because of disruption to communication, but contextualized by an "anarchical profusion of information" that occurs when organizational structures are no longer functioning and relaying reliable information to the public.[3] This broader understanding of uncertainty and separation from people other than close family members is recognized as an additional cause of stress and is beyond the scope of this chapter to consider.

Literature review

Evidence has been explored within a previous literature review conducted between 2002 and 2013, focused on stress caused by separation during and immediately after disasters and the uncertainty experienced by family and friends.[4] The review found

most papers concerned with separation focused upon longer-term separation caused by displacement, referring to family members living in a new location as a result of the disaster and in some cases living apart from family members. Separation, in these cases caused by displacement, does not necessarily relate to peri-disaster separation – that is, separation that takes place during the threat period – and therefore does not take into account the uncertainty and stress caused by this phenomenon. No studies published during the review time period relating to the short- or long-term psychosocial consequences of separation and reunification were found.[5]

This paper will present a case study from *Beyond Bushfires*, a large study conducted in Victoria, Australia, which explored the specific experiences of people separated from close family members during and after severe bushfires in 2009. The term "bushfires" will be used within this chapter, as it is a commonly used term within Australia to describe forest or grassland fires in rural areas. In other countries they would be commonly known as wildfires.

Disaster planning and behavioral responses to separation

Separation of families can occur in disasters, even with the most prepared plans, due to their unpredictability (e.g., children could be at school when a disaster occurs, parents at work). Disaster planning should consist of multiple scenarios that support keeping the family together, including the safety of children.[6] Practical guidelines suggest that multiple modes of contact should be available within the local community to reunite children and parents post-disaster through family message centers, social media, and hospitals (for injured children).[7] Agencies suggest that families should plan and prepare for disasters that include the possibility of separation.[8]

Encouraging families to stay together is also important to avoid unnecessary risks. One example of an additional risk resulting from separation is convergence, when people become increasingly worried about others they are unable to contact and undertake risky behavior to be reunited, such as attempting to drive to the disaster-affected area to look for their family member(s).[9] This can also lead to road congestion, conflicts, and demands on agencies managing the disaster site. Lives may be put at risk, especially when people attempt to return to a disaster zone, which could lead to emergency personnel undertaking avoidable rescues.

Sorensen and Mileti[10] found that people go through a number of cognitive stages when evacuating in response to a threat:

- Hearing the warning;[11]
- Understanding the contents of the warning;
- Believing the warning to be credible;
- Personalizing the warning to oneself;
- Confirming that the warning is true; and
- Responding by taking protective action.

If people do not go through these cognitive stages, it can result in delayed evacuation. Therefore, if a family is separated during a disaster, evacuation is more likely to be delayed until the status of all family members is known.[12] This delay can lead to a greater risk of death, injury, or exposure to traumatic situations.

Emergency management practitioners report other observed phenomena. Family members unable to contact their loved one(s) will often initially contact the emergency dispatch hotline for police, fire, or ambulance (in Australia this is known as 000). If they are unable to get through, they may try to contact other emergency or public services (e.g., fire services or hospitals). These actions have the effect of overloading the communication lines, resulting in the potential consequence of calls regarding life-threatening situations being blocked.[13]

Whilst it is clear that family separation causes short-term stress and may increase risk behaviors of harm from the hazard,[14] little is known about the long-term impacts on the mental health of family separation during a disaster. Therefore, empirical research is needed to determine whether longer-term effects are played out.

Current practice

Over the last half century, there has been an investment in establishing reunification services for separated families following disasters.[15] This includes practical guidelines supporting family reunification services to reduce possible psychological impacts, stress, and additional injuries resulting from stress during and immediately after disasters.[16]

The international focus on agencies' reunification services in post-disaster settings is on reuniting children with parents.[17] The World Health Organization (WHO) recommends a focus on family reunification post-disaster as part of restoring activities and community participation for positive mental health.[18] The *Sphere Handbook* is a universal guide with contributions from individuals and agencies (including government) for people affected by disasters.[19] One of the indicators discussed in the Sphere Handbook is "[w]hen necessary, a tracing service is established to reunite people and families"; however, reviews of this indicator found limited supportive evidence. This literature mainly focuses on reunification of families after an extended period of time (e.g., refugee families).[20]

Separation and reunification in Australia

In December 1974, a powerful Category 4 cyclone (Cyclone Tracy) destroyed the northern Australian city of Darwin. As a result of the levels of destruction, the subsequent public health issues, and the city's remoteness from the rest of Australia, a decision was taken at the time to evacuate children, women, and the elderly. Over the course of the week, over 30,000 people were evacuated by air and road.[21] The evacuation was rushed and the registration standards of evacuees were variable, resulting in some individuals reporting being separated from their families for significant periods.[22]

The National Registration and Inquiry System (NRIS)[23] was established in 1979 by the then Natural Disaster Organization as a result of the experiences of Cyclone Tracy.[24] The Australian Red Cross was asked to assist state police and other agencies in the operation of the system. This role came about as a result of the Red Cross's wartime experience of assisting with the reunification of families separated by World War II.[25] The system, a paper-based filing and retrieval system, allowed evacuees to register at an evacuation center; copies of the records were then transported to a central point, allowing family and friends to make phone inquiries to determine if people had registered as safe. This manual, paper-based process comprised three main

components: registration (of impacted persons); inquiries (by family or friends); and matching (to identify a match and share relevant information on the impacted person).[26]

The Black Saturday bushfires

The southeastern corner of Australia is one of the most bushfire-prone areas in the world. The Wurundjeri people, an indigenous people who traditionally owned the lands around what is now Melbourne, recognize as part of the seasonal calendar that a "big fire" season occurs approximately every seven years.[27] The area has experienced significant bushfires since European settlement, including Red Tuesday in 1898, with the loss of 2,000 buildings; Black Friday in 1939, with the loss of 71 lives and 650 buildings; and Ash Wednesday in 1983, with the loss of 47 lives and 2,000 homes.[28]

In January 2009, following a prolonged decade-long drought, fire conditions became extreme, with fires beginning to ignite in areas east of Melbourne in the state of Victoria and continued to burn for several weeks (see Figure 21.1). Saturday, February 7, saw extreme temperatures, which climbed to 47° Celsius (117° Fahrenheit), while winds gusted at over 100km/h (60mph) and multiple new fires ignited across the state of Victoria. It was described by fire chiefs at the time as the worst fire conditions they had experienced in a generation. As a result of these fires, 173 lives were lost, over 2,200 homes and businesses were destroyed, 109 communities self-identified as being

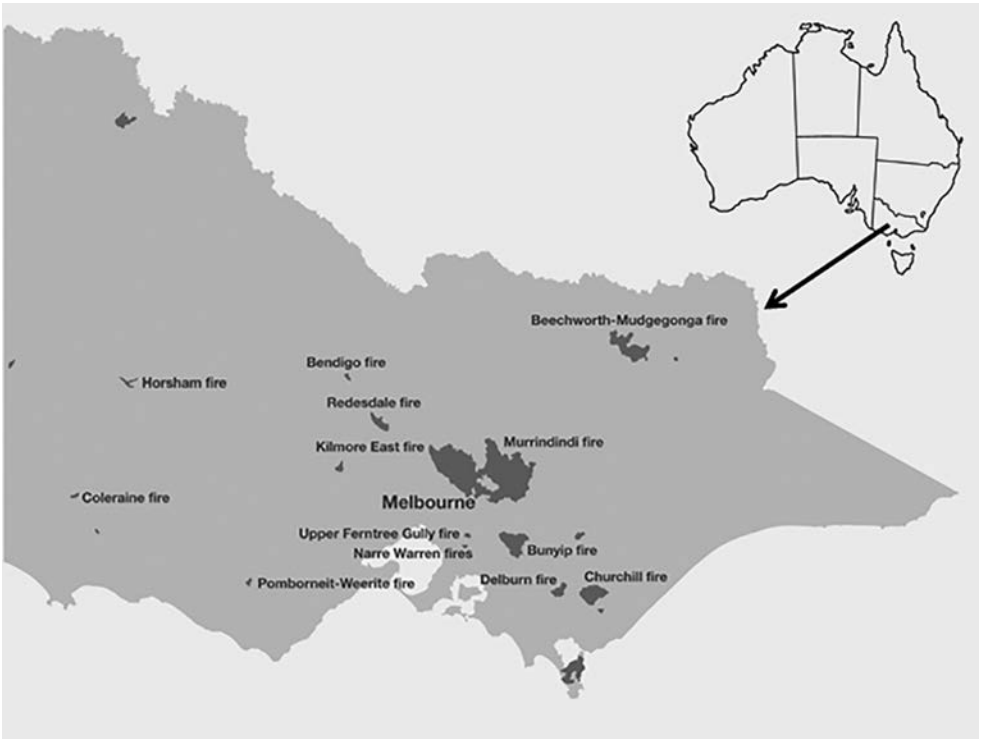

Figure 21.1 Locations of the 2009 victorian bushfires.[29]

impacted by the fires, and 400,000 hectares of landscape were burnt (twice the size of greater Tokyo). Two townships were completely destroyed and others were significantly damaged, resulting in loss of access and loss of public utilities to these areas. Power and communication difficulties in most places were restored within two days; however, it took two and a half weeks to restore power to one of the destroyed townships.[30] More than 4,500 roadblocks were set up, with some roads closed for over a month (Kinglake, Strathewen, Dixons Creek, Steels Creek, and Humevale) in severely impacted areas and nearly two months in one case (Marysville).[31] Access to bushfire areas was restricted for safety reasons and to enable Victoria Police to conduct searches for missing people and dead bodies.

During this period, the Australian Red Cross established the largest NRIS operation in its history. Over a two-week period, 22,000 registrations from affected people were taken and 21,000 inquiries were made.[32]

Importantly for the context of peri-disaster separation, at the time of the Black Saturday fires, fire agencies within Australia had adopted a policy called "prepare, stay and defend, or leave early." This policy advocated that people living in areas at risk of a bushfire should develop a bushfire preparedness plan in which they would assess their capacity to prepare their property for a bushfire so they could stay and actively defend it, or decide to leave early on a day of a high fire danger to remove themselves from the threat.[33] Victoria does not have a mandatory evacuation policy; unless a state of disaster is declared, authorities can only advise that people should relocate in the face of an emergency threat.[34]

The *Beyond Bushfires* study

The Beyond Bushfires: Community, Resilience and Recovery study[35] is a large-scale study tracking the health and social consequences of the 2009 Black Saturday bushfires.[36] Participants for the research were drawn from residents of 25 communities in ten locations in rural and regional Victoria. Communities were selected on the basis of varying levels of disaster impact, including high-impact (many houses lost, plus fatalities), medium-impact (a small number or no fatalities, but significant property damage), and low-impact (no evidence of fires being present). Contact details for both current residents and those who relocated after the fires were obtained through the Victorian Electoral Commission (VEC) (N = 7,693 adults). These individuals received one personalized letter of invitation, in agreement with the VEC.

Various recruitment and engagement efforts were also undertaken to increase awareness and opportunities to participate. Surveys were then conducted between December 2011 and January 2013, approximately three to four years after the disaster.[37] Survey questions gathered data from participants concerning their demographic characteristics; fire exposure; individual and organizational support networks; mental health; general health, wellbeing, and resilience; and attitudes towards their community. Fire exposure questions included four specific questions relating to separation and reunification. These were developed in collaboration between the Australian Red Cross and researchers from a range of universities, agencies, and government departments to explore the impacts during and after the bushfires (including the role of Australian Red Cross), and the link between separation experiences and medium- and longer-term health consequences.

Method

Participants

The original sample consisted of 1,016 individuals; however, 52 participants were excluded, as they reported that neither they, nor anyone they knew, nor their property were at risk, and therefore were not asked about separation. For the purposes of the statistical analyses below, the sub-sample analyzed consisted of 964 adults who lived in one of the *Beyond Bushfires* study communities at the time of the bushfires (585 women and 379 men; average age, 52.8 years).

Measures

Separation, uncertainty, and reunification

Separation was determined by participants' responses to the question "were you separated from close family members during the fire?" Participants who had been separated were then asked to recall how long it was before they had accounted for all their family members. For the purposes of the logistic regression analyses below, an individual was considered "separated" if he or she was separated from a family member and did not remain in contact with the individual from whom they were separated (N = 474).[38] Participants who reported separation were asked to recall the degree to which the separation caused them stress, on a scale of 0 ("not at all") to 10 ("extreme stress"). Finally, participants were asked how they found out about the whereabouts of their close family members (phone contact, face-to-face, word of mouth, Internet/social media, through Red Cross, other).

Disaster exposure

Participants were asked an array of other questions regarding their disaster experiences and subsequent life events. Among these were whether individuals feared for their own life (Yes/No), whether someone close had died as a result of the fires (Yes/No) and the extent of property loss (from 0, "Nothing," to 10, "Everything").

Other life circumstances

Participants were also asked about possible major life events occurring after the fires. For the analyses below, two indices were created, including a count of major life stressors (negative changes in employment status, accommodation and/or relationship status) and a count of subsequent traumatic events (a natural disaster, not including the fires of January and February 2009, a serious accident, or an experience of assault or violence). Also, for secondary analyses, participants were asked whether they had been diagnosed by a doctor as having any of seven specific chronic health conditions.[39]

Mental health

A variety of self-report measures were used to assess probable mental health outcomes. The Patient Health Questions (PHQ-9) were used to assess Major Depressive Episodes (MDE);[40] an abbreviated version of the Post-Traumatic Stress Disorder checklist (PCL)

was also used.[41] The K6 scale was used to index non-specific psychological distress.[42] Further information regarding the use of these scales, including information on thresholds used, has been reported elsewhere.[43]

Results and discussion

Patterns of separation

The number of people who reported separation from close family members is noteworthy, at over 50 percent. Without other empirical studies, it is difficult to determine if this is usual for separations during a disaster. A number of significant and important differences between those who reported separation and those who did not were observed (see Table 21.1). On average, those who were separated were older than non-separated individuals. There are also different distributions of education level between the two groups, with the non-separated group having greater numbers of both less- and highly educated individuals. As expected, those who were separated reported higher disaster impacts (fear for life, loss of someone close, property loss). Furthermore, separated individuals also reported more subsequent major life events (major stressors and traumatic events). Finally, when controlling for age, separated individuals reported more chronic health conditions.

Table 21.1 Participant characteristics, by separation

	Non-separated (N = 394) N (%)	*Separated (N = 570) N (%)*	*Difference between groups*
Gender			
Female	233 (59.1%)	352 (61.9%)	$z = .81_{ns}$
Male	161 (40.9%)	218 (38.2%)	
Education			
High school or less	151 (38.8%)	190 (33.7%)	
Trade/other postsecondary	88 (22.6%)	184 (32.6%)	$\chi^2(2) = 11.29***$
Tertiary and higher	237 (38.6%)	190 (33.7%)	
Regional affectedness			
High	237 (60.2%)	392 (68.8%)	
Med	66 (16.8%)	111 (19.5%)	$\chi^2(2) = 21.88***$
Low	91 (23.1%)	67 (11.8%)	
Fear for life	171 (44.2%)	317 (56.9%)	$z = 3.85***$
Lost someone close	97 (24.7%)	197 (35.0%)	$z = 3.37***$
	M (SD)	M (SD)	
Age	54.9 (13.6)	51.3 (12.8)	$t(961) = 4.27***$
Extent of property damage	4.2 (4.1)	5.0 (3.9)	Odds Ratio = 1.05**
# Major life stressors	.6 (.7)	.8 (.8)	Odds Ratio = 1.48***
# Traumatic events	.2 (.4)	.4 (.6)	Odds Ratio = 1.68***
# Health conditions[a]	1.5 (1.3)	1.6 (1.4)	Odds Ratio = 1.17**

***$p \leq .001$; **$p \leq .01$; *$p \leq .05$; $_{ns}$ non-significant

[a] controlled for age.

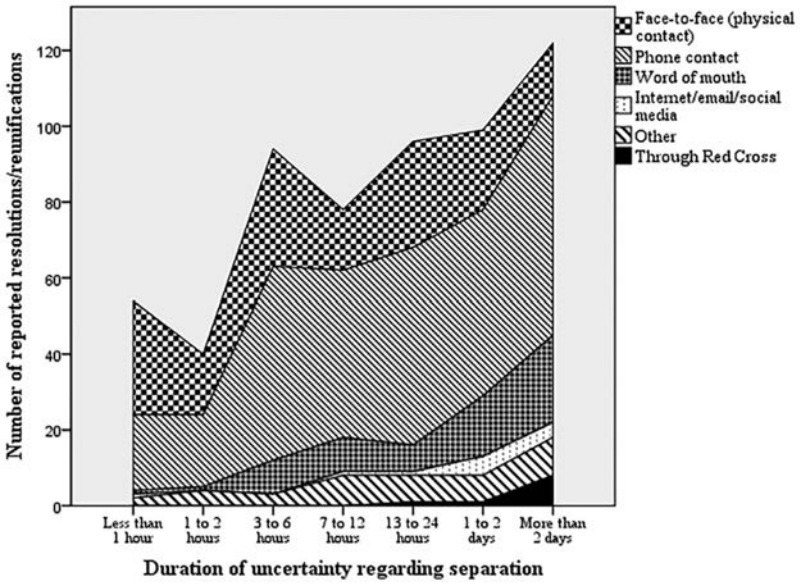

Figure 21.2 Method of resolution of separation uncertainty over time. Note that individuals reported multiple methods which are likely to have occurred at different times.

The results show that most people were able to make contact on their own in the first few hours after being separated, in person or via phone, but as time passed, other methods started gaining importance, including (but not limited to) the reunification service provided by the Australian Red Cross (see Figure 21.2). It is important to note that some people reported multiple methods of reestablishing contact. In situations where greater devastation occurs and there are limited resources available to restore power and communications, phone contact may be greatly reduced. Therefore, having multiple options of reconnection is vital to identify the whereabouts of family members and to support reunification in a timely manner.

Extent of separation and stress

Factors that may have contributed to the high rate of separation (over 50 percent) include the fact that the fires impacted communities in the late afternoon and early evening on a weekend, when people may have been out and about for various work or social reasons. Conditions were hot, dry, and windy, and the fires developed very quickly and moved fast, possibly leaving little time to connect with family members. Additionally, people may have actively decided to separate from their families, as previous research has found family decision-making in regard to the "prepare, stay and defend, or leave early" policy referred to earlier often led men to stay with the property while women left the area with children.[44]

A high number of people (45 percent of those who reported separation) were separated from family members for more than 12 hours, some up to two days or more.[45] The fires had their major impact late in the afternoon and early in the evening;

therefore, being separated for more than 12 hours meant that people probably spent a night not knowing the whereabouts of their family member(s). High levels of stress were reported by those separated from family members as a result of the bushfires (M = 7.90, SD = 2.70), with nearly half of those reporting separation (45.3 percent) reporting the highest level of stress. However, among individuals who did not remain in contact, there was no significant correlation between the *length* of unresolved separation and levels of self-reported stress (r_s = .04, p = .332).

Separation during a disaster could have greater stress impacts because of expectations of constant contact through the use of current technology. Reliance on mobile phones has rapidly increased, changing social impacts, spatial mobility, and planning/scheduling.[46] They have become increasingly common in Australia, especially with young people, and for some their use has resulted in addictive behaviors.[47] Therefore, within a disaster situation where communications and power (to charge mobile devices) are limited or lost, feelings of disconnection and separation may have more powerful impacts because of the usual availability of such connections. This highlights the importance of taking into account the potential for separation, noting the increased dependence on mobile telephony and computing when planning, at both the household and at the emergency management levels. Household emergency plans need to detail how people will act and stay in touch with each other in the event that they are separated by the disaster and unable to rely on technology for communication.

Medium- and longer-term consequences

Earlier findings from the *Beyond Bushfires* study showed that the level of exposure to the bushfires, as well as subsequent negative life events (which were also associated with exposure) were linked to increased rates of depression, post-traumatic stress disorder (PTSD), and general psychological distress.[48] The analyses reported here show that separation with uncertainty was also found to contribute to poorer longer-term mental health outcomes, including PTSD, three to four years after the disaster. This provides empirical evidence for Nager's[49] suggestion that being separated from family members during a disaster can have long-term impacts.

In the current case study, longer periods of uncertainty were not associated with greater reported stress (probably because even short periods of uncertainty were reported to be extremely stressful; see Figure 21.3), but were associated with greater mental health issues after controlling for basic socio-demographic factors and disaster exposure (see Table 21.2). Separation and length of uncertainty are therefore important indicators of risk that can be used by services to identify people who may be in need of mental health support.

Methods of reunification

The most popular method of resolving uncertainty was through phone and face-to-face contact. The Red Cross National Registration and Inquiry Service (NRIS) accounted for 2.5 percent of participants identifying the whereabouts of family members, and the majority of these occurred after one day. The extent of the fires only became fully apparent the next morning after the fires, which is when this service could have been more readily accessed. As shown in Figure 21.2, most people were able to ascertain the whereabouts of their family member(s) quickly through means other than the NRIS.

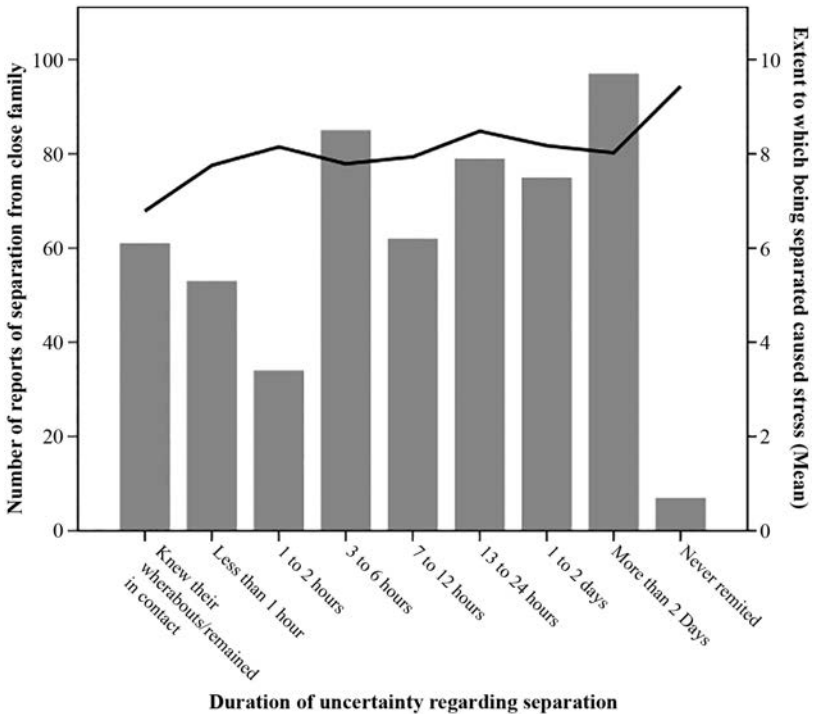

Figure 21.3 Number of cases of reported separation from close family members (N = 560) with extent of reported stress (line).

Table 21.2 Predictors of medium-term psychological outcomes (four years post-disaster). Individuals who reported separation with uncertainty (N = 474)

	PTSD	*MDE*	*Distress (K6)*
	Odds ratios (95% confidence interval)		
Sex (female)	1.48 (.89–2.47)[a]	1.10 (.61–1.97)	1.66 (.79–3.47)
Age	.99 (.97–1.01)	.99 (.97–1.02)	.98 (.95–1.00)a
Educational level	.89 (.77–1.02)[a]	.93 (.80–1.09)	.80 (.66-.98)*
Fear for life in bushfires	2.27 (1.34–3.84)**	2.46 (1.32–4.6)**	2.06 (.97–4.40)a
Lost someone in bushfires	1.72 (1.05–2.80)*	1.79 (1.03–3.11)*	2.35 (1.20–4.61)*
Property loss	1.06 (.99–1.14)	1.05 (.97–1.14)	1.06 (.96–1.17)
Major life stressors	2.20 (1.59–3.05)***	1.76 (1.23–2.52)**	2.02 (1.31–3.12)***
Traumatic events	1.46 (.99–2.14)[a]	.83 (.52–1.32)	.89 (.52–1.53)
Length of uncertainty	1.16 (1.02–1.31)*	1.22 (1.05–1.41)**	1.33 (1.10–1.61)**

$^{***}p \leq .001$; $^{**}p \leq .01$; $^{*}p$

Efforts to find family members were likely to have been hampered by loss of power and communications and by roadblocks that physically prevented contact. It seems that when people were not able to locate their family members through their usual modes of communication, alternative contact services such as NRIS were used. The

success rate of inquiries matching registrations was 31 percent over the two weeks that NRIS was operated after the Black Saturday Bushfires.[50] This was the highest rate of reunification that had ever been achieved by the NRIS.

As a result of post-disaster reviews, including the Victorian Bushfires Royal Commission, the Australian Government and Australian Red Cross undertook improvements and updates to the NRIS.[51] The renamed "Register. Find. Reunite." service, informed by the age of mobile telephony, computing, and instantaneous connection, is directly accessible online by the public, which may result in the usage of this service increasing. The online component is mainly in place for people living outside the disaster-affected area to determine the status of friends and family within impacted areas. Services need to be established early to provide certainty and facilitate reunification.[52] As noted earlier, there are changing societal patterns and behaviors relating to immediacy of contact, particularly through social media and mobile telephony.[53] However, this new system can still be undertaken manually to account for loss of power and communications.

Limitations and future directions

The current study contains a number of limitations. First, participants were reporting their recollections of separation and levels of stress several years after the event, with the possibility that these recollections may have been affected by subsequent events, mental health status, or attachment styles. Furthermore, separation was assessed quite broadly in terms of "close family members," and so detail was lacking on potentially important aspects of separation, such as parental and spousal responsibilities. Future research should therefore examine patterns of separation in more detail, including more precise information regarding the roles and relations associated with multiple potential separations (e.g., from spouses, children, friends, etc.).

For future research, it would also be useful to understand individuals' reactions and feelings, how they behaved (did they wait; did they try to seek more information; or did they converge on the emergency site?) and how they felt after reunification, whether their feelings of stress were resolved. Agencies currently advocate that children should receive education about potential separation in disaster preparedness programs; these results suggest that it may also be beneficial to prepare adults for that possible scenario. The current registration service "Register. Find. Reunite." makes use of technology improvements, which could increase its future use and accessibility in a society where technology-based mediums are constantly accessed and utilized. Also, the ability to operate the system manually enables utilization in a catastrophic disaster scenario where there is widespread and prolonged disruption to power communications and transport networks.

Conclusion

Separation from family members is a significant issue, creating high levels of stress in the short term and, for some, serious longer-term mental health consequences, particularly for those who experienced longer periods of separation. Despite the increasing connectivity of the community, separation is experienced when there is a loss of power, transportation, and telecommunications. Expectations of the immediacy of communication can exacerbate the experience of separation for family members.

Therefore, it is important to ensure that reunification services are established early and promoted widely, in order to reduce stress and the potential for the development of post-traumatic stress. This study supports agency policies regarding the importance of timely reunification. Technological advances provide an opportunity to increase the efficiency, accessibility, and immediacy of reunification services, provided they are not also compromised by on-site power and communication failures.

Acknowledgments

This chapter reports on findings from the *Beyond Bushfires* study. The authors and investigators wish to thank the community members, local government, and service providers from the participating communities who have supported the development and conduct of the *Beyond Bushfires* study. We acknowledge the late Professor Elizabeth Waters and Professor Richard Bryant, as well as Professor David Forbes, Greg Ireton, Vikki Sinnott, and Professor Philippa Pattison, who, although they were not involved in writing this paper, contributed greatly to the *Beyond Bushfires* study as investigators. We also wish to acknowledge the literature review conducted by Marita Smith as part of her Master of Social Work research, which was helpful background to the work prepared for this paper. We gratefully acknowledge the funding support received from the Australian Research Council for the *Beyond Bushfires* study and from the Jack Brockhoff Foundation for infrastructure and salary support for Lisa Gibbs and Elizabeth Waters.

Notes

1 Please address any correspondence to John F. Richardson, Australian Red Cross, jfrichardson@redcross.org.au
2 American Red Cross (n.d.), "Safe and Well," [communication platform], retrieved January 10, 2016, from https://safeandwell.communityos.org/cms/index.php
3 C. Gilbert (1995), "Studying Disaster: A Review of the Main Conceptual Tools," *International Journal of Mass Emergencies and Disasters* 13(3), p. 237.
4 M. Smith (2013), "The Psycho-Social Impact of Displacement and Reunification of Families During Disaster," Unpublished thesis, submitted for the degree Master of Social Work (Research), University of Melbourne, Australia.
5 Ibid., p. 44.
6 S. Chung and N. Blake (2014), "Family Reunification after Disasters," *Clinical Pediatric Emergency Medicine* 15(4), p. 336.
7 T.E. Drabek (2013), *The Human Side of Disaster*, 2nd edn. (Boca Raton, FL: CRC), p. 122; Chung and Blake (2014), p. 339.
8 Australian Red Cross (2008), *Emergency Rediplan: Four Steps to Prepare Your Household* (Melbourne, Australia: Author), p. 10; Chung and Blake (2014), p. 334.
9 E. Auf der Heide (2003), "Convergence Behavior in Disasters," *Annals of Emergency Medicine* 41, p. 464; Drabek (2013), p. 122; B. Raphael (1986), *When Disaster Strikes: How Individuals and Communities Cope with Catastrophe* (New York, NY: Basic Books), p. 73.
10 J.H. Sorensen and D.S. Mileti (1988), "Warning and Evacuation: Answering Some Basic Questions," *Organization and Environment* 2(3/4), p. 195.
11 In some circumstances, warnings may not be received due to the suddenness of an event, e.g., an earthquake or technological disaster. People may also not receive a warning if there is no power for radios or warnings are not issued, for example. However, people will respond to triggers to evacuate.
12 Drabek (2013), p. 122; L. Peek (2010), "Age," in *Social Vulnerability to Disasters*, B. Phillips, D. Thomas, A. Fothergill, and L. Blinn-Pike, eds., p. 161 (Boca Raton, FL: CRC Press).

13 Auf der Heide (2003), p. 464.
14 Ibid.; Drabek (2013), p. 234; B. Raphael (1986), *When Disaster Strikes: How Individuals and Communities Cope with Catastrophe* (New York, NY: Basic Books), pp. 72–73.
15 Ibid., p. 259; J.S. Tyhurst (1957), "Psychological and Social Aspects of Civilian Disaster," *Canadian Medical Association Journal* 76(5), p. 389.
16 A.L. Nager (2009), "Family Reunification – Concepts and Challenges," *Clinical Pediatric Emergency Medicine* 10, p. 197.
17 L. Peek and K. Richardson (2010), "In their Own Words: Displaced Children's Educational Recovery Needs after Hurricane Katrina," *Disaster Medicine and Public Health Preparedness* 4, S70.
18 S. Saxena, M. van Ommeren, and B. Saraceno (2006), "Mental Health Assistance to Populations Affected by Disasters: World Health Organization's Role," *International Review of Psychiatry* 18(3), pp. 199–204.
19 Sphere Project (2011), *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*, retrieved March 18, 2015, from http://www.sphereproject.org/handbook/, p. 40.
20 R. Batniji, M. Van Ommeren, and B. Saraceno (2006), "Mental and Social Health in Disasters: Relating Qualitative Social Science Research and the Sphere Standard," *Social Science and Medicine* 62, p. 1858.
21 S. Cunningham (2014), *Warning: The Story of Cyclone Tracy* (Melbourne, Australia: Text Publishing), p. 7.
22 Ibid., p. 104.
23 The service is now known as "Register. Find. Reunite." and has been further developed to support web-based registrations and online queries from the public. (See https://register.redcross.org.au/.)
24 L. Avery (1995), "NRIS and Its Use within Victoria," *The Australian Journal of Emergency Management* 10(1), p. 34.
25 A role that continues today.
26 Avery (1995), p. 35.
27 C. Hansen and T. Griffiths (2012), *Living with Fire: People, Nature and History in Steels Creek* (Collingwood, Victoria: CSIRO), p. 120.
28 Department of Environment and Primary Industries (Australia), (2013/2015, March 4), *Bushfire History*, retrieved March 16, 2015, from http://www.depi.vic.gov.au/fire-and-emergencies/managing-risk-and-learning-about-managing-fire/bushfire-history
29 ©State of Victoria, Australia. Copyright for this publication is owned by the Crown in right of the State of Victoria, Australia. This extract is reproduced with the permission of the Crown in right of the State of Victoria, Australia. The State of Victoria accepts no responsibility for the accuracy and completeness of the reproduction of the report. Golbez [pseudonym] (2006), *Blank Map of the States of Australia*, retrieved January 10, 2016, from http://commons.wikimedia.org/wiki/File:Australia_states_blank.png; B. Teague (2010a), *2009 Victorian Bushfires Royal Commission: Final Report Summary* (Melbourne: Government Printer for the State of Victoria), p. 3.
30 Murrindindi Shire Council (2009), "From the SP Ausnet," *Murrindindi Recovery Newsletter*; National Electrical and Communications Association (2014), "Black Saturday . . . 5 Years On," *NECA Victoria Magazine*. March/April, p. 26.
31 Personal Communication from Superintendent Matt Ryan of the Victoria Police (Australia) to John F. Richardson, March 9, 2015; Teague (2009a), p. 9; B. Teague (2010b), *2009 Victorian Bushfires Royal Commission: Volume I. The Fire and the Fire-Related Deaths* (Melbourne, Australia: Government Printer for the State of Victoria), p. 231.
32 B. Teague (2010c), *2009 Victorian Bushfires Royal Commission: Volume II. Fire Preparation, Response, and Recovery* (Melbourne, Australia: Government Printer for the State of Victoria).
33 Hansen and Griffiths (2012), p. 169.
34 Department of Environment and Primary Industries (Victoria, Australia) (2013/2015, March 4), pp. 3–33.
35 "Beyond Bushfires," *Melbourne School of Population and Global Health* [Web page], www.beyondbushfires.org.au

36 Gibbs, L., E. Waters, R. Bryant, P. Pattison, D. Lusher, L. Harms, and D. Forbes (2013), "Beyond Bushfires: Community, Resilience and Recovery – A Longitudinal Mixed-Method Study of the Medium- to Long-Term Impacts of Bushfires on Mental Health and Social Connectedness," *BMC Public Health* 13(1036), doi:10.1186/1471-2458-13-1036
37 Ibid., p. 7.
38 See H.C. Gallagher, J. Richardson, D. Forbes, L. Harms, L. Gibbs, N. Alkemade, C. MacDougall, E. Waters, K. Block, D. Lusher, et al. (2016, January). "Mental Health Following Separation in a Disaster: The Role of Attachment Style," *Journal of Traumatic Stress*, doi:10.1002/jts.22071
39 Heart disease (angina, heart failure, heart attack), asthma, stroke, cancer, diabetes, arthritis, dermatitis, emphysema, back problems, chronic back pain or sciatica, and high cholesterol.
40 K. Kroenke, R.L. Spitzer, and J.B.W. Williams (2001), "The PHQ-9 – Validity of a Brief Depression Severity Measure," *Journal of General Internal Medicine* 16(9), pp. 606–13.
41 P.D. Bliese, K.M. Wright, A.B. Adler, O. Cabrera, C.A. Castro, and C.W. Hoge (2008), "Validating the Primary Care Posttraumatic Stress Disorder Screen and the Posttraumatic Stress Disorder Checklist with Soldiers Returning from Combat," *Journal of Consulting and Clinical Psychology* 76(2), pp. 272–81.
42 R.C. Kessler, P.R. Barker, L.J. Colpe, J.F. Epstein, J.C. Gfroerer, E. Hiripi, and A.M. Zaslavsky (2003), "Screening for Serious Mental Illness in the General Population," *Archives of General Psychiatry* 2, p. 184.
43 R.A. Bryant, E. Waters, L. Gibbs, H.C. Gallagher, P. Pattison, D. Lusher, and D. Forbes (2014), "Psychological Outcomes Following the Victorian Black Saturday Bushfires," *The Australian And New Zealand Journal of Psychiatry* 48(7), pp. 634–43.
44 C. Eriksen (2014), "Gendered Risk Engagement: Challenging the Embedded Vulnerability, Social Norms and Power Relations in Conventional Australian Bushfire Education," *Geographical Research* 52(1), p. 30; B. Teague, R. McLeod, and S. Pascoe (2009), "2009 Victorian Bushfires Royal Commission Interim Report," in *Government Printer for the State of Victoria*, ed., Vol. 225, Session 2006–09, p. 193.
45 In addition, seven people reported never being reunited with those from whom they were separated.
46 E. Thulin and B. Vilhelmson (2007), "Mobiles Everywhere: Youth, the Mobile Phone, and Changes in Everyday Practice," *Young: Nordic Journal of Youth Research* 15(3), p. 236.
47 S.P. Walsh, K.M. White, and R.M. Young (2008), "Over-Connected? A Qualitative Exploration of the Relationship between Australian Youth and Their Mobile Phones," *Journal of Adolescence* 31, p. 78.
48 R.A. Bryant, E. Waters, L. Gibbs, H.C. Gallagher, P. Pattison, D. Lusher, and D. Forbes (2014), "Psychological Outcomes Following the Victorian Black Saturday Bushfires," *The Australian And New Zealand Journal of Psychiatry* 48(7), pp. 634–43.
49 A.L. Nager (2009), "Family Reunification – Concepts and Challenges," *Clinical Pediatric Emergency Medicine* 10, p. 204.
50 Teague et al. (2010).
51 Teague (2010c), p. 332.
52 Avery (1995).
53 Thulin and Vilhelmson (2007); Walsh et al. (2008).

Bibliography

Auf der Heide, E. (2003). "Convergence Behavior in Disasters." *Annals of Emergency Medicine* 41, pp. 463–66, doi:10.1067/mem.2003.126

Australian Red Cross. (2008). *Emergency Rediplan: Four Steps to Prepare Your Household*. Melbourne, Australia: Author.

Avery, L. (1995). "NRIS and Its Use within Victoria." *The Australian Journal of Emergency Management* 10(1), pp. 34–38.

Batniji, R., M. Van Ommeren, and B. Saraceno. (2006). "Mental and Social Health in Disasters: Relating Qualitative Social Science Research and the Sphere Standard." *Social Science and Medicine* 62, pp. 1853–64, doi:10.1016/j.socscimed.2005.08.050

Bliese, P.D., K.M. Wright, A.B. Adler, O. Cabrera, C.A. Castro, and C.W. Hoge. (2008). "Validating the Primary Care Posttraumatic Stress Disorder Screen and the Posttraumatic Stress Disorder Checklist with Soldiers Returning from Combat." *Journal of Consulting and Clinical Psychology* 76(2), pp. 272–81.

Bryant, R.A., E. Waters, L. Gibbs, H.C. Gallagher, P. Pattison, D. Lusher, and D. Forbes. (2014). "Psychological Outcomes Following the Victorian Black Saturday Bushfires." *The Australian And New Zealand Journal of Psychiatry* 48(7), pp. 634–43.

Chung, S., and N. Blake. (2014). "Family Reunification after Disasters." *Clinical Pediatric Emergency Medicine* 15(4), pp. 334–42, doi:10.1016/j.cpem.2014.09.006

Cunningham, S. (2014). *Warning: The Story of Cyclone Tracy*. Melbourne, Australia: Text Publishing.

Department of Environment and Primary Industries (Victoria, Australia). (2013/2015, March 4). *Bushfire History*. Retrieved March 16, 2015, from http://www.depi.vic.gov.au/fire-and-emergencies/managing-risk-and-learning-about-managing-fire/bushfire-history

Drabek, T.E. (2013). *The Human Side of Disaster*. 2nd edn. Boca Raton, FL: CRC.

Eriksen, C. (2014). "Gendered Risk Engagement: Challenging the Embedded Vulnerability, Social Norms and Power Relations in Conventional Australian Bushfire Education." *Geographical Research* 52(1), pp. 23–33.

Gallagher, H.C., J. Richardson, D. Forbes, L. Harms, L. Gibbs, N. Alkemade, C. MacDougall, E. Waters, K. Block, D. Lusher, et al. (2016, January). "Mental Health Following Separation in a Disaster: The Role of Attachment Style." *Journal of Traumatic Stress*, doi:10.1002/jts.22071

Gibbs, L., E. Waters, R. Bryant, P. Pattison, D. Lusher, L. Harms, and D. Forbes. (2013). "Beyond Bushfires: Community, Resilience and Recovery – A Longitudinal Mixed-Method Study of the Medium- to Long-Term Impacts of Bushfires on Mental Health and Social Connectedness." *BMC Public Health* 13(1036), doi:10.1186/1471-2458-13-1036

Gilbert, C. (1995). "Studying Disaster: A Review of the Main Conceptual Tools." *International Journal of Mass Emergencies and Disasters* 13(3), pp. 231–40.

Golbez [pseudonym]. (2006). *Blank Map of the States of Australia*. Retrieved January 10, 2016, from http://commons.wikimedia.org/wiki/File:Australia_states_blank.png

Hansen, C., and T. Griffiths. (2012). *Living with Fire: People, Nature and History in Steels Creek*. Collingwood, Victoria: CSIRO.

Kessler, R.C., P.R. Barker, L.J. Colpe, J.F. Epstein, J.C. Gfroerer, E. Hiripi, and A.M. Zaslavsky. (2003). "Screening for Serious Mental Illness in the General Population." *Archives of General Psychiatry* 2, p. 184.

Kroenke, K., R.L. Spitzer, and J.B.W. Williams. (2001). "The PHQ-9 – Validity of a Brief Depression Severity Measure." *Journal of General Internal Medicine* 16(9), pp. 606–13.

Murrindindi Shire Council. (2009). "From the SP Ausnet." *Murrindindi Recovery Newsletter,* p. 1. Murrindindi, Victoria, Australia: Murrindindi Shire Council.

Nager, A.L. (2009). "Family Reunification – Concepts and Challenges." *Clinical Pediatric Emergency Medicine* 10, pp. 195–207, doi:10.1016/j.cpem.2009.06.003

National Electrical and Communications Association. (2014). "Black Saturday . . . 5 Years On." *NECA Victoria Magazine*. March/April.

Peek, L. (2010). "Age." In *Social Vulnerability to Disasters*. B. Phillips, D. Thomas, A. Fothergill and L. Blinn-Pike, eds., pp. 155–185. Boca Raton, FL: CRC Press.

Peek, L., and K. Richardson. (2010). "In Their Own Words: Displaced Children's Educational Recovery Needs after Hurricane Katrina." *Disaster Medicine and Public Health Preparedness* 4, p. S70.

Raphael, B. (1986). *When Disaster Strikes: How Individuals and Communities Cope with Catastrophe*. New York, NY: Basic Books.

Saxena, S., M. van Ommeren, and B. Saraceno. (2006). "Mental Health Assistance to Populations Affected by Disasters: World Health Organization's Role." *International Review of Psychiatry* 18(3), pp. 199–204, doi:10.1080/09540260600655755

Smith, M. (2013). "The Psycho-Social Impact of Displacement and Reunification of Families During Disaster." Unpublished thesis, submitted for the degree Master of Social Work (Research), University of Melbourne, Australia.

Sorensen, J.H., and D.S. Mileti. (1988). "Warning and Evacuation: Answering Some Basic Questions." *Organization and Environment* 2(3/4), p. 195.

Sphere Project. (2011). *The Sphere Handbook: Humanitarian Charter and Minimum Standards in Humanitarian Response*. Retrieved March 18, 2015, from http://www.sphereproject.org/handbook/

Teague, B. (2010a). *2009 Victorian Bushfires Royal Commission: Final Report Summary*. Melbourne: Government Printer for the State of Victoria.

Teague, B. (2010b). *2009 Victorian Bushfires Royal Commission: Volume I. The Fire and the Fire-Related Deaths*. Melbourne, Australia: Government Printer for the State of Victoria.

Teague, B. (2010c). *2009 Victorian Bushfires Royal Commission: Volume II. Fire Preparation, Response, and Recovery*. Melbourne, Australia: Government Printer for the State of Victoria.

Teague, B., R. McLeod, and S. Pascoe. (2009). "2009 Victorian Bushfires Royal Commission Interim Report." In *Government Printer for the State of Victoria*, ed., Vol. 225, Session 2006–09. Melbourne, Australia: Parliament of Victoria.

Thulin, E., and B. Vilhelmson. (2007). "Mobiles Everywhere: Youth, the Mobile Phone, and Changes in Everyday Practice." *Young: Nordic Journal of Youth Research* 15(3), pp. 235–54.

Tyhurst, J.S. (1957). "Psychological and Social Aspects of Civilian Disaster." *Canadian Medical Association Journal* 76(5), pp. 385–93.

Walsh, S.P., K.M. White, and R.M. Young. (2008). "Over-Connected? A Qualitative Exploration of the Relationship between Australian Youth and Their Mobile Phones." *Journal of Adolescence* 31, pp. 77–92, doi:10.1016/j.adolescence.2007.04.004