Family functioning in the aftermath of natural disaster

Catherine Caruana

The devastating Victorian bushfires of February 2009, which caused unprecedented destruction and loss of life, brought forth stories of horror and suffering, triggering a collective outpouring both of grief and generosity. In the months that followed, extensive flooding occurred across the eastern seaboard of Australia. In some areas, drought relief funding was temporarily re-allocated for flood relief. While far from unusual occurrences in Australia, the fires and floods afflicting the continent in early 2009 may be the harbinger of more frequent and ferocious weather events associated with climate change. Coupled with protracted drought across much of the country, these events have dealt a heavy financial, social and personal blow on rural and urban fringe communities. For the families directly affected, surviving the lived reality and aftermath of acute and chronic natural disaster can be bewildering and arduous. What follows is a review of the literature on the psychosocial impacts of both sudden-onset, catastrophic events (such as severe bushfires) and chronic, slow-onset ecological disasters (such as drought) on individual and family functioning, with a particular focus on the responses of children and adolescents.

Definition and reach of “disaster trauma”

Exposure to trauma is a relatively common human experience, with around 50–65% of Australians and a similar proportion in the United States experiencing a traumatic event in their lifetime. Surviving a natural disaster has been found to be the third most common type of traumatic experience (Creamer, Burgess, & McFarlane, 2001). Events such as flood, famine, drought, bushfires, earthquakes, tornados, tsunamis and mudslides affect millions of people worldwide each year (for criteria for defining and classifying disasters, see Box 1). While Australian studies indicate that around 20% of men and 13% of women (about one in six) are exposed to natural disasters over their lifetime (McFarlane, 2005), a global estimate of prevalence would be considerably higher, given that developing countries, particularly those in the Asian region, report a disproportionate number of catastrophic incidents (Scheuren et al., 2008).

While there has been an extensive body of psychosocial research conducted over the last 60 years on the human response to a wide range of acute disaster events, the human cost of drought has only recently become a focus of study. The literature indicates that differentiating between outcomes from particular types of events is less important than adopting an approach that focuses on the severity and the duration of the traumatic experience, the losses incurred and the resources available in the aftermath to support recovery. This not only allows for a crossover in learnings, but allows for the recognition that each event is unique, and that each affected community will respond in a unique way. The process of recovery from sudden- and slow-onset environmental change, viewed at an individual,
Disaster events can be classified in a number of ways: the following criteria: the World Health Organization's (WHO) Centre for Research on the Epidemiology of Disasters (CRED), an event must involve at least one of the following criteria:
- 10 or more people killed;
- 100 or more people affected;
- a declaration of a state of emergency; and/or
- a call for international assistance (Rodriguez et al., 2008).
Disaster events can be classified in a number of ways:
- disasters that occur naturally or result from human negligence or intent (or a combination of both);
- events that are sudden and catastrophic or unfold over a period of time; and
- incidents that are specific to a distinct geographical location or that are more diffuse in reach.

In the literature, “disaster” is commonly conceived as an adverse event or situation beyond the capacity of the local community to manage. To qualify as a disaster for the purposes of the research conducted by the World Health Organization’s (WHO) Centre for Research on the Epidemiology of Disasters (CRED), an event must involve at least one of the following criteria:

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- incidents that are specific to a distinct geographical location or that are more diffuse in reach.

In the immediate aftermath of community-wide disasters, families are often required to turn to external bodies such as welfare and government agencies for practical support. In a study of adolescent survivors of Hurricane Katrina, researchers found a negative correlation between the extent of the family's reliance on external support, and psychological outcomes for adolescents. Young people whose families relied heavily on relief agencies reported lower self-esteem, greater psychological distress and symptoms of depression than those from less needy families whose families relied heavily on relief agencies.3 While, of course, the provision of relief services is essential in these situations, any loss of family function could be balanced by the recognition of the family as a potential moderator of the impact of trauma. The more a victim family can turn to its own members or to extended kin for comfort, a sense of safety and material aid, the more likely it will be that they will rebound from the disaster psychologically (Bolin, 1976).

In the bushfire study by McFarlane (1987), families who did not share their immediate reactions to the disaster (e.g., where children were sent elsewhere while parents focused on salvage work) were more likely to have trouble with their long-term adjustment (McFarlane, 1987a). Single-parent families are also at higher risk of impairment after disasters as they may have fewer resources to begin with and feel the loss of social supports more keenly (Solomon & Smith, 1994).

The association between PTSD and impaired interpersonal functioning has long been accepted (American Psychiatric Association, 1980). The psychiatric morbidity associated with trauma, such as irritability, withdrawal and depression, can cause family relationships to suffer (McFarlane, 1987a). It is important for family members to be tolerant of each other’s different coping styles and processes of dealing with grief, as “transitional conflict” can occur where family members process their experiences differently (Landau et al., 2008). While there is a dearth of data on the rate of family breakdown following natural disasters, anecdotal evidence, supported by a small number of studies, suggests that intimate partner violence, child abuse and sexual violence are more prevalent after disasters.1 In the

**Recovery from sudden-onset disasters**

**The familial response**

There is limited research on the impact of sudden-onset natural disasters on families, but more numerous studies looking at the responses to disaster of young children and adolescents, identified as an at-risk population for impairment (Davidson & McFarlane, 2006). Nevertheless, the literature in relation to individual responses to disaster, including that of children, when viewed in light of what is known about the impact of stress on individual functioning and marital outcomes, allows us to extrapolate the effects to the family context. In non-disaster populations, three or more normal life event stressors within a short period of time are likely to disrupt the normal functioning of the family system, and where there are insufficient existing resources to deal with the stressors, negative outcomes can result (Landau, Mittal, & Wieling, 2008). Maladaptive responses to stress are likely, in turn, to negatively affect intimate relationships, particularly in relation to young children. The high prevalence of secondary trauma (Brom, Danieli, & Sills, 2005), whereby someone who has close contact with a victim of trauma themselves experience a stress response, bears this out.

Whether the event has been experienced by the family as a unit or by an individual family member, catastrophic events affect family relationships in a number of ways. From a positive perspective, early studies have found that there may initially be increased closeness and familial cohesion immediately following a disaster, and subsequently at different points of the recovery process (Silber, Perry & Bloch, 1958). In a study involving families affected by the 1983 Ash Wednesday fires in southern Australia, McFarlane (1987a) found that increased levels of closeness and shared goals were reported in families 26 months after the event, but not at 8 months. Links between nuclear and extended families can be strengthened over the long term, and are associated with family recovery (Drabek & Key, 1976). Strong external social links that the family already had are often further strengthened, while those that were weak are often further weakened (Bolin, 1976).

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Post-traumatic stress disorder

Post-traumatic stress disorder (PTSD) is a form of neurobiological dysfunction that represents a failure to recover from an acute stress response (Foa, Stein, & McFarlane, 2006).

While it is the most commonly observed disorder in the literature, it is not necessarily the most common outcome of disasters. Natural disasters and accidents have been found to account for relatively low rates of PTSD, while victims of rape (both male and female) account for the highest rates (Foa et al., 2006).

Distress responses can include a re-experiencing of the event, avoidance, numbing and hyperarousal. PTSD is four times more likely to co-exist with a range of other disorders (Smith & North, 1993).

Overall, PTSD has been found to resolve in 60% of cases, with symptoms enduring for a mean of 36 months in people who receive treatment and 64 months for those who do not (Foa et al., 2006). Symptoms of PTSD can fluctuate over time, worsen at particular intervals, or be delayed by 6 months or more after the traumatic event.

Depression

Depression is the second most common condition observed to arise in the aftermath of a sudden-onset disaster (Norris et al., 2002). There is known to be a relationship between a history of depression and the development of PTSD following exposure to trauma (Foa et al., 2006).

Depression, anxiety disorders and substance abuse have been found to be the more common conditions to become manifest in slow-onset disasters (Coehlo, Adair & Mocellin, 2004; Judd, 2005; Sartore, Kelly, Stain, Albrect, & Higginbotham, 2008).

Anxiety

Generalised anxiety disorder is characterised by excessive worry or apprehension occurring most days for a period in excess of 6 months, triggering impaired concentration, restlessness, irritability as well as physical symptoms such as muscle tension and palpitations (Foa et al., 2006).

Complicated grief

Complicated grief is a distinct syndrome that persists in 10–15% of all bereaved people but will be higher following traumatic death (Prigerson et al., 1999).

Substance abuse

Rates of excessive alcohol consumption have been found to increase in communities following disasters, particularly among emergency service workers (Norris et al., 2002) and among men (Green, 1996).

Somatic responses

A range of physical conditions is commonly associated with a stress response, including diabetes, heart disease and sleep disorders. Patients suffering from PTSD can be plagued by somatic symptoms such as lower gastrointestinal, dermatological and/or skeletomuscular conditions (Foa et al., 2006; McFarlane, 2005).

United States, in the six months after Hurricane Floyd, there was found to be a five-fold increase in reports of traumatic brain injury of children under the age of two in affected counties, while other studies show increases in the reporting of child abuse following disasters (WHO, 2005).

For those dealing with trauma-impaired spouses, “compassion fatigue” or secondary traumatic stress disorder can lead to escalating conflict (Figley, 2002). The phenomenon of secondary trauma (where the stress experienced by those who are close to primary victims leads to depression and other psychological symptoms), is well documented, especially within families. After primary victims, those at greatest risk following catastrophic events are those with a significant attachment to the primary victims (Wright & Bartone, 1994), followed by rescue and support personnel, who have been found to show grief reactions similar to those of direct victims (McFarlane & Raphael, 1984). A longitudinal study on the impact of the Oklahoma bombing, showed that for every direct victim, five additional people suffered secondary trauma, with symptoms of stress evident ten years after the event (Brom, Danieli, & Sills, 2005). This is of particular concern when looking at outcomes for children following disasters.

As discussed in more detail below, research shows that children's long-term adjustment has more to do with the response of their adult caregivers than direct exposure to the event. Parental PTSD has been linked to parental (and particularly maternal) over-protectiveness, and subsequently to poorer outcomes in children (McFarlane, 1987a). In instances of severe and prolonged trauma, such as that experienced by Holocaust survivors, there is the risk that negative patterns will affect future generations (Danieli, 1985). Traumatic experiences during pregnancy can also have repercussions for the unborn (Muzik, Cameron, Fezzey, & Rosenblum, 2009).

The importance of the family as a facilitator of recovery for individuals has only recently been recognised (Landau et al., 2008; Rowe & Liddle, 2008; Walsh, 2007). There is now greater acknowledgement of the importance of looking at the impact of trauma on families when considering treatment options for individuals, especially children and adolescents, and of adopting a multi-systemic, and resilience-based approach.

The individual psychological response

Responses to trauma can vary greatly from person to person and from event to event, may manifest differently at different points of time, and can be compounded by ongoing stressors. While the majority of people will report distress of some degree soon after experiencing a catastrophic event in a natural disaster, symptoms gradually subside over the following months, with most rebounding a year or so after the event. Only 10–12% of those exposed will develop symptoms consistent with a diagnosis of PTSD (Friedman, Ritchie, & Watson, 2006), and around 20% will report that their mental health and happiness have deteriorated as a result of the disaster experience (Gordon, n. d.).
A description of the whole spectrum of psychological responses likely to occur at different phases of the disaster experience (for example, in the lead-up to and during the crisis, at the rescue, during the transitional reconstruction phase, and from a more longitudinal perspective) is beyond the scope of this paper. Therefore, what follows is a general overview of the literature on the longer term psychological disorders associated with sudden onset disasters.

It is important to note, however, that for some people, surviving a traumatic situation can result in positive psychological changes and provide opportunities for personal growth. The development of deeper relationships, compassion, resilience and spirituality as well as an enhanced appreciation of life, can be some of the positive outcomes flowing from the experience of an adverse event (Tedeschi & Calhoun, 2004). In a study of the aftermath of a tornado in Xenia, Ohio, in 1974, the majority of respondents reported positive outcomes, while research on combat experiences reveal a similar phenomena (Sledge, Boydstun, & Rahe, 1980). Similarly, families emerging from a life-threatening experience can benefit from an enhanced sense of self-efficacy, greater preparedness for future adversity and closer bonds (Monnier & Hobfall, 2000; Tedeschi & Calhoun, 2004).

The impact on children and adolescents

Children and adolescents are particularly vulnerable to psychiatric impairment following exposure to trauma (McDermott & Palmer, 2002). However, there is little agreement in the research literature regarding the effect of age on the psychological outcomes of trauma; some studies have found no effect of age, others that higher rates occur among older children and adolescents and still others that higher rates occur among younger children. One study of primary school children who experienced a bushfire reported a peak prevalence of PTSD in middle school years (i.e., grades 4–6), with a greater incidence of depressive symptoms in younger children (McDermott & Palmer, 2002). This suggests that “differences in risk factors and outcomes should be expected across the infant, child and adolescent developmental ranges” (McFarlane, 1987b).

Some common disorders and behaviours children may present with in the aftermath of a disaster include depression, separation anxiety, re-experiencing of the event via nightmares and repetitive re-enactment in play (the latter being seen both as a sign of distress and an attempt at mastery; see Terr, 1981). Children may also demonstrate guilt, avoidant behaviour, have fears of recurrence and worry for the safety of others. Adolescents are also at risk of anxiety and depression, substance abuse, increased risk-taking, aggressive behaviour and incoherent thinking (Fullerton & Ursano, 2005). One study suggested that high levels of distress and behavioural disturbance evident in children soon after the event, especially when this is manifest at school rather than at home, is a predictor of the development of more enduring post-traumatic symptoms (McFarlane, 1987b).

Symptoms have also been found to persist in children. Of the children involved in the Ash Wednesday fires in Southern Australia, one-third of those studied were found to have a continuing preoccupation with their exposure to the fire 26 months after the event (McFarlane, 1987b). Adverse events in the children’s lives occurring in the 18 months prior to interview that were unrelated to the bushfire also played a part in this continuing preoccupation. However, in one of the few longitudinal studies of child disaster victims, the disaster experience was found to have minimal long-term impact on their psychiatric morbidity as adults, with only 1.1% of the sample meeting the full diagnostic criteria for lifetime PTSD (McFarlane & Van Hooft, 2009).

Children and teenagers are particularly susceptible to secondary trauma following disasters. The mental health of parents, separation from parents in the immediate aftermath and disturbed family functioning may be more important determinants of a child’s response than their own direct exposure to the disaster (McFarlane, 1987a). For example, in their study, continued fire-related play by children following the bushfire was found to be associated with maternal over-protectiveness, and the mother having difficulty coping with memories of the event, rather than the child’s experience of the fire. One child’s reaction may also have a significant impact on other children in the family, or on the family as a whole. A parent’s distress may result from or be maintained by concerns for an affected child (McFarlane, 1987a). Studies have also found evidence of discordance between parent and child reports of symptoms, a disparity that appears to increase with the child’s age. Parents report significantly fewer post-disaster symptoms in their children (and these tend to be behavioural in nature), while child self-reports reveal more symptoms overall and more internalising symptoms (McDermott, Gibbon, & Lee, 2005).

Ongoing stressors

Survivors of community-wide disasters are likely to encounter significant ongoing stressors that can act to amplify the original trauma. In the short term, these can include homelessness, lawlessness, and the threat of
epidemic. Unemployment and its resulting financial worries; bureaucratic processes involved in accessing disaster relief, government support or insurance monies; and the inconveniences of living in temporary accommodation away from social networks are other stressors that may impede recovery. The degree of community destruction following a disaster, including the extent of relocation that is necessary, may affect rates of psychological morbidity, as the social and work spheres that might normally support recovery from trauma are more likely to be in disarray (Fullerton & Ursano, 2005; Uscher-Pines, 2009).

**Risk and protective factors**

The question of vulnerability involves a complex interplay between the nature of the traumatic event, the personal characteristics of the victim and the social supports available to them in the aftermath. The degree of exposure to the stressor and the level of perceived threat have been found to be critical determinants of the risk of experiencing psychological problems (McDermott, Gibbon et al., 2005; McFarlane, 2005), accounting both for prevalence of disorders and duration of symptoms (Weiseath, 1996). Facing the prospect of imminent death in a life-threatening situation has been identified by one clinician as a pivotal experience that can provoke severe and pervasive symptoms in an individual (Gordon, 2005).

Davidson & McFarlane (2006) found that the kinds of disasters associated with psychological impairment include those with at least two of the following characteristics:

- a high prevalence of physical injury;
- threat to or actual loss of life;
- widespread property damage;
- serious ongoing financial difficulty; and
- involvement of human carelessness or intent.

Physical injury suggests that survivors are likely to have had a greater exposure to life threat, creates additional stressors and provides a constant reminder of the incident (Fullerton & Ursano, 2005). Other factors noted in the literature include characteristics such as an inability to control or predict the event, the possibility that the disaster will reoccur, and exposure to the grotesque or macabre (Fullerton & Ursano, 2005). The personal characteristics most consistently associated with impairment were a history of psychiatric illness and of childhood abuse (Bryant, 2009; Fullerton & Ursano, 2005). The impact of age on impairment risk is most evident in children and adolescents, although as discussed above, the correlation is complex and non-linear. At the other end of the life stage, research suggests that middle-aged people fare worse than older people, perhaps because financial responsibilities at this age are greater and the life experiences of older people may afford them some resilience (McFarlane, 2005; Norris et al., 2002).

The influence of gender is also unclear; girls, including those of a preschool age, may be more likely to report higher levels of subjective fear following a traumatic event, but this does not appear to translate into significant differences in psychiatric morbidity (McDermott & Palmer, 2002; McDermott, Lee, Judd, & Gibbon, 2005).

**Chronic, slow-onset disasters: Living with drought**

While dryness is an enduring feature of rural life in Australia, the drought experienced in many parts of the country in the last 10 years has been the most severe and prolonged on record (National Climate Centre, 2007). In a classic contraposition of terms, some areas of Australia have been declared as experiencing “exceptional circumstances”—the benchmark for the allocation of government income support—for 13 of the past 16 years (Drought Policy Review Experts Social Panel [DPRESP], 2008). As the earth heats up and the dire predictions associated with climate change become a lived reality, extreme weather conditions such as drought—and associated conditions such as soil erosion, salination, crop and herd disease, fire and famine—are likely to occur more frequently (Intergovernmental Panel on Climate Change [IPCC], 2007). The Australian Bureau of Meteorology and CSIRO have warned of a higher risk of severe drought, and accompanying hotter temperatures, over the next 20–30 years than has been seen in the last 100 years, particularly over southern Australia (DRESP, 2008).

Persistent dryness, combined with ongoing structural change occurring in the agricultural sector, is placing rural families under increasing stress.

As discussed earlier, the human cost of extended drought worldwide is potentially more catastrophic than that resulting from sudden onset disasters, and yet, while much is known about the financial and environmental consequences of drought, the social consequences have attracted a fraction of the research focus. Unlike the literature on acute disasters, the little sociological research that has been done on drought tends to focus on coping responses at the familial, community and national level, rather than individual responses. In Australia, research has tended to consist of in-depth, small-scale studies of particular communities (Alston & Kent, 2004; Dean & Stain, 2007; Stehlik, Gray & Lawrence, 1999). However, the nationally representative Rural and Regional Families Survey, conducted by the Australian Institute of Family Studies in 2007, goes some way to address the limitations of previous studies. Using a large sample (with 8,000 people interviewed) and national coverage, this study compares individuals living in drought-affected areas with those not in drought (Edwards, Gray, & Hunter, 2008, 2009).

The Rural and Regional Families Survey used a meteorological definition of drought that compared rainfall.

**Box 3: What constitutes drought?**

There are a number of indices linked with a definition of drought. It can be defined:

- meteorologically, as reduced rainfall;
- hydrologically, as reduced surface and underground water supply;
- agriculturally, such as through measures of reduced soil moisture, crop and herd yields; and
- socio-economically, in terms of its impact on people and their livelihoods (Bureau of Rural Sciences, 2008).
The accumulated losses associated with drought have been seen to have a potentially similar impact. When drought threatens the viability of a family farm, it threatens more than a livelihood and a workplace, but also a home, a lifestyle, a family tradition, an asset to pass on to future generations and hence, for many, a sense of self. As such, psychological responses to drought have been found to resemble the long-term chronic conditions resulting from fast-onset disasters (Zamani et al., 2006), particularly anxiety and depression (Coelho et al., 2004; Sartore et al., 2008). Drought as a chronic stressor can engender feelings of hopelessness, helplessness and a lack of mastery. Underlying the personal stress of many individuals is ongoing concern for family, friends and the community (Sartore et al., 2008) as well as for the environment. A new term, “solastalgia”, has been coined to describe the distress experienced by those witnessing the environmental degradation of their home environment (Albrect et al., 2007). This is said to affect women more, some of whom feel keenly the loss of home gardens, an essential buffer from the harsh environment of the farm (Sartore et al., 2008).

In Australia, findings on the mental health impacts of drought are somewhat mixed. While drought in spring has been found to have a detrimental effect on life satisfaction in rural areas (Carrol, Fritjers, & Shields, 2007), the population incidence of depression has been found to be no greater there than in metropolitan areas, giving some credence to the view of farmers as being tough and resilient (Andrews, Hall, Teeson, & Henderson, 1999; Eckert, Taylor, Wilkinson, & Tucker, 2004; Murray et al., 2004). Similarly, a 2005 study looking at the impact of drought on adolescents from rural NSW found that while drought conditions clearly affected their lives, levels of distress were no greater than the norm (Dean & Stain, 2007). However, respondents using a social definition of drought in the Rural and Regional Families Survey reported

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<th>deficits in the previous 3 years with those of the last 100 years to arrive at the following measures:</th>
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<td>■ severe drought (over the last 3 years, rainfall was in the 0–5th percentile compared to rainfall over the last 100 years);9</td>
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<td>■ drought (6–10th percentile);</td>
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<td>■ below average rainfall (11–49th percentile); and</td>
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<td>■ above average rainfall (50–100th percentile).</td>
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The social definition of drought used in this study was based on people’s perceptions as to whether they were currently or had recently been in drought (Edwards et al., 2009).

**Loss: The common denominator**

If our knowledge about the social impacts of drought is limited, to what extent is the literature related to psychological responses to sudden-onset disasters applicable to the slow-onset drought experience? In spite of the very different characteristics of slow- and sudden-onset environmental disasters, the widespread loss of personal and material resources associated with both has led some researchers to identify crossovers in learning. In particular, the application of Hobfoll’s (1988) conservation of resources theory has been found to apply in many situations involving chronic stressors, such as acute natural disasters and enduring drought (Ironson et al., 1997; Salzer & Bickman, 1999; Zamani et al., 2006). Hobfoll theorised that an individual’s resources are important not only for their intrinsic value, but also as a way of defining self.10 Thus, when an individual’s resources are threatened, are lost, or fall in value, a stress response occurs. As is evident in the literature, when the losses are acute, and the stress response continues unchecked, there can be serious implications for mental and physical health.
a significant impact on mental health, particularly among farmers and the unemployed (Edwards et al., 2009). The rate of suicide among farmers is significantly higher than that of both the general population and non-farming males, and is responsible for almost as many deaths as work-related accidents on farms (Page & Fragar, 2002). Farmers have also reported increased alcohol use, stress-related skin rashes, fatigue and social withdrawal, with young farmers being particularly vulnerable (Judd, 2005). This suggests, perhaps, that in the long term stoicism does not serve farmers well.

Financial hardship

The financial consequences of all natural disasters are likely to exacerbate negative outcomes for families (Borden, 2004). This is particularly so in the case of drought, where reduced farm output, higher costs associated with production, increased debt burden and limited employment opportunities elsewhere can lead to deepening poverty over an extended period of time. Anecdotal reports to the Drought Policy Review Expert Social Panel (2008) suggest that financial hardship brings with it increased work burdens for farming families, especially for women, children and older people. Women are increasingly seeking employment off the farm, and are becoming more involved in the running of farms (Sartore et al., 2008). Working parents may become less accessible to their children, while children are required to spend more time doing farm work, in some cases missing school or leaving school early to contribute financially (Alston, 2007; DPRESP, 2008). Farmers are also delaying retirement, potentially triggering conflict over farm succession. In addition, a financial downturn in rural areas negatively affects small businesses, seasonal workers and contractors who service the rural sector (Edwards et al., 2008, 2009). Although the financial impact is severe and pervasive, drought is less likely to trigger the mobilisation of external material support and government aid one sees in response to other community-wide catastrophes. In spite of a strong tradition of community support and volunteering via non-government organisations and churches, there is little in the way of a long-term coordinated and sustainable approach to managing drought.

The impact on families

As with any trauma, the stress related to drought is likely to have a flow-on effect in families and intimate relationships. Families may well be “the first line of defence against the hardship of drought”, (Stehlik et al., 1999, p. xi), but are also potentially the site that takes the force of the blow. After widespread community consultations and a review of the literature and commissioned data, the Drought Policy Review Expert Social Panel appointed by the Australian Government to report on the social impacts of drought formed the view that while farmers may report that they are coping, their coping strategies are placing greater pressure on families. Anecdotal evidence was presented to the panel of marriages breaking down under the strain of physical separation and the burden of debt (DPRESP, 2008). Yet the Rural and Regional Families Survey found no evidence that drought has resulted in increased rates of family conflict and separation, or led to diminished quality of couple relationships or family functioning (Edwards et al., 2008). Rural areas have a significantly lower proportion of one-parent families than the general population: 3% as opposed to 16% respectively (DPRESP, 2008). This may be a function of the older demographic of rural areas or be part of the “bunker-down” mentality of sitting out tough times (B. Edwards, personal communication, December 2009). While rural couples may be staying together, they are having fewer children; the number of births in rural Australia across all states and territories decreased between 2001 and 2006 (DPRESP, 2008).

Communities in drought

Drought can also have serious repercussions at the community level. Population drift to urban centres is a recognised characteristic of drought (International Strategy for Disaster Reduction, 1997). In Australia, although there may be some demographic changes occurring in drought-affected areas in the short term, with certain family members forced to relocate temporarily to undertake paid employment, the impact of drought on migration has been found to be minimal (Hunter & Biddle, 2009). Temporary demographic changes may have the potential to affect community amenities—as people leave, local businesses, social amenities and community services, already spread thinly, are at risk of declining further (Alston, 2007). Zamani et al. (2006) have suggested that there exists an interdependence between community and individual responses, with community responses to disaster seen to help or hinder individual reactions, and individual responses affecting the ability of the community to cope. Reduced community engagement and morale can lead to the erosion of social capital (the valuable connections within and between social groups), which in turn increases social isolation (Sartore et al., 2008). This is especially true in the bush where traditionally there is a strong reliance on community values and collective coping mechanisms in difficult times (Caldwell & Boyd, 2009).

Coping with drought

There is a range of factors that may impede a person’s ability to cope, in a practical or emotional sense, with extended drought, some of which might be attributed to personal characteristics common among rural populations and some that could be seen as external stressors. A stoic approach to adversity, particularly among men, may bring with it maladaptive coping strategies such as denial, a disinclination to seek professional help and a tendency to self-medicate with alcohol (Caldwell & Boyd, 2009). In the case of farmers, the workplace is also home, so there is less ability to escape the stress associated with either work or family conflict (Judd, 2005; Sartore et al., 2008). The perceived complexity and inflexibility of regulations surrounding drought assistance, and the division and resentment they raise (Alston, 2007; Stehlik et al., 1999), as well as the paucity of existing support services in rural areas (Alston, 2007; Judd, 2006; Sartore et al., 2008), are external factors that have the potential to exacerbate stress.
Family resources—such as social support, financial reserves, emotional and physical wellbeing of family members and previous experiences—can affect their responses to a crisis. The key to understanding psychological responses to chronic stressors such as extended or possibly indefinite drought is to look at the way in which people cope, the effects of their coping and whether those strategies result in further resource loss or resource gain. However, as with the research related to acute disasters, there is also some evidence of positive outcomes emerging from the adversity of drought, in particular the gain of personal resources. Study respondents in Australia have reported stronger friendships, marriages and community ties forged in hard times, the latter evidenced by higher rates of membership of community organisations (Edwards et al., 2008; Judd, 2005; see also Zarafshani, Zamani & Gorgievski-Duijvesteijn, 2005).

Limitations of the “disaster” literature

While this extensive body of research on the mental health effects of acute disasters has much to contribute to the existing trauma literature, there are some limitations. Firstly, there has been criticism of the methodological rigour of the research. These include concerns about the lack of benchmark data and subsequent failure to take into account pre-existing psychiatric morbidity (Parry & Kraakamp, 2006); the nature and adequacy of outcome measures, stressor measures and sampling designs; the absence of appropriate cohort and control groups; and the paucity of longitudinal data. In addition, studies looking at different communities at varying times after the event may result in different conclusions about the same event (McFarlane, 2005).

The cultural bias evident in the literature also limits generalisability. Populations in developing countries suffer disproportionately in both the frequency and impact of disasters. Yet McFarlane (2005) found that 86% of the published studies focused on catastrophic events (not limited to natural disasters) in the developed world. Gaps in the literature have been identified. Unlike the research on the psychological effects of military combat, natural disaster studies tend to focus on individual responses to trauma, with minimal research on families, both in terms of impact and as sites of recovery. This individualistic and pathology-based approach comes at the expense of a more holistic understanding of the range of human suffering resulting from these events and the social context in which it occurs (McFarlane, 2005). According to Gordon (2007), an Australian clinical psychologist who has worked in the field of disaster trauma for close to 25 years, disasters are by definition a social phenomenon, and it is what is happening in the social fabric of an affected community that contains the key to recovery. Similarly, more longitudinal research is needed to gauge the slow burn of drought, as is a greater focus on the effects of drought on sub-groups in rural communities, such as seasonal workers and those employed in the service sector of small towns.

Conclusion

The vast international literature that has emerged over the last fifty years, which has catalogued the human suffering engendered by catastrophic events, has much to contribute to our understanding of the way in which individuals and families respond to natural disaster, whether sudden- or slow-onset. Loss is central to the experience of disaster—loss of home, loved ones, independence, identity and a sense of the world as a safe place—and it is the way in which this loss is accommodated that will determine how individuals, families and communities rebound. While a certain percentage emerge from adversity with greater personal resources, most will suffer a degree of distress in the short term, and a minority will suffer chronic, enduring psychological impairment. Adolescents and children in the middle primary grades are particularly vulnerable to the effects of trauma and social upheaval, especially if parents or caregivers are similarly affected. The impacts of trauma, whether sudden or cumulative, have the potential to spread beyond those directly affected by the event, and families of survivors are increasingly seen as being pivotal, both as sites of secondary transmission and as sites of recovery.

Endnotes

1 The Centre for Research on the Epidemiology of Disasters (CRED) has reported an upward global trend in the occurrence of natural disasters over the last decade, with hydrological disasters such as flood being the most common (Rodriguez, Vos, Below, & Guha-Sapir, 2008).
2 For example, there is some suggestion in the literature that human-made events cause more frequent and more persistent psychological symptoms. This has not been borne out: A meta-analysis of the relationship between disasters and trauma-related psychopathology found that natural disasters resulted in greater rates of disorder (McFarlane, 2005). As McFarlane pointed out, this may in part be attributable to the different thresholds of exposure applied in particular studies, or may be affected by access to monetary compensation for victims of disasters caused by human negligence. In any case, there is likely to be a blurred distinction between the two as the aetiology and consequences of natural disasters often have human elements, e.g., in sub-standard buildings in an earthquake zone or the deliberate lighting of fires in times of extreme dryness (Fullerton & Usano, 2005).
3 Another possible explanation for these findings is that those more severely affected or traumatised were more reliant on relief agencies and it is the severity of their family’s circumstances that is related to the poor self-esteem of adolescents.
4 However, a study of relationship trajectories following Hurricane Hugo in the United States in 1989 found that marriage, birth and divorce rates
increased in the year following the hurricane, suggesting that a life-threatening event motivated people to take significant action in their close relationships (Coohan & Cole, 2002).

5 For an excellent overview of the different phases of the disaster experience, see Gordon (n. d.).

6 Note however that there is a lower prevalence of PTSD in children after natural disasters (5–15%) as opposed to Kideng’s (90–100%) and major transport accidents (40–60%) (McDermott, 2008).

7 The mean surface temperature of the earth has increased by nearly 1 degree Celsius over the last 100 years (WHO, 2007).

8 Data from the Rural and Regional Families Survey suggest that respondents in drought-affected areas have a higher risk of also experiencing bushfire: 22% of respondents who identified as being from a region currently in drought had also been affected by bushfire, as opposed to 24% who reported no drought.

9 These figures represent the average rainfall of the last 3 years compared to 33 three-year averages of the last 100 years.

10 According to the conservation of resources theory, people strive to acquire, conserve and protect resources of value to them. These can be: material objects, personal characteristics, such as skills and self-esteem, a condition, such as marital and occupational status; or energies, such as access to money or credit.

11 Derived from the Latin forms of the words ‘solace’ and ‘nostalgia’.

12 In the Rural and Regional Families Survey, 40% of farmers reported that the current drought had reduced yields to the lowest point ever or had eliminated productivity completely (Edwards, Gray, & Hunter, 2008).

13 From 2001 to 2006, the average increase of mothers engaged in full-time employment (i.e., non-farm based) across the non-capital city regions of Australia was 4.9%, compared with 3.4% in capital cities (Bureau of Rural Sciences, 2008).

14 The average age of farmers is increasing; the percentage who are older than 65 years increased from 15% in 2001 to 18% in 2006. Farmers are working well into their 60s at a rate that is 10% higher than the rest of the country (DPREPSP, 2008). There has also been a loss of young people in the industry: the number of young men entering farming has more than halved since 1976, and tertiary enrolments in agriculture courses have fallen (DPREPSP, 2008).

15 The Red Cross has estimated that in the period from 1997 to 2011, people in developing countries and the developed world were affected by disasters (both natural and technological) on an annual basis at a ratio of 166 to 1. (International Federation of Red Cross and Red Crescent Societies, 1993). Not surprisingly, studies of disasters occurring in poorer countries, which have more vulnerable populations and infrastructure, report the highest rates of resulting psychological impairment, while those in the United States appear to fare better than populations in other developed countries (Norris et al., 2002).

References


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