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Peter J. Camilleri
University of Wollongong, petercam@uow.edu.au

Christine Healy
ACT Bushfire Recovery Centre

Elspeth M. Macdonald
Australian National University

Susan Nicholls
University of Canberra

Jolyon Sykes
University of Canberra, jolyonsykes@bigpond.com

See next page for additional authors

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Keywords

recovery, bushfires, 2003, years, after, experience, three, canberra

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Recovery from bushfires: The experience of the 2003 Canberra bushfires three years after

Peter Camilleri, PhD[1] **Christine Healy** BA, Dip Soc Studies, Dip BusinessAdmin, MSocial Policy[2] **Elspeth Mary Macdonald**, PhD.[3] **Susan Nicholls,** PhD[4] **Jolyon Sykes**, M.Journalism[5] **Gail Winkworth**, DSW[6]
Merrilyn Woodward, BA, BSW, Grad Dip Ed.[7]

[1]Professor of Social Work, Australian Catholic University; [2]Former Director, ACT Bushfire Recovery Centre; [3]Senior Research Fellow, Centre for Mental Health Research, The Australian National University; [4]Adjunct Assoc. Professor, Australian Institute for Sustainable Communities, University of Canberra; [5]Freelance Journalist Researcher, University of Canberra; [6]Senior Research Fellow, Institute of Child Protection Studies, Australian Catholic University; [7]Research Officer, Institute of Child Protection Studies, Australian Catholic University.

Abstract

Background and Aim
The Canberra Bushfires were one of the largest single day natural disasters in Australian history. A group of researchers from across disciplines and sectors (Universities and Government) undertook a major project to study the experiences of people directly affected by the fires in the recovery process. The research team was interested in the longer term recovery experience (approximately three years following the event). The paper briefly outlines the research process, provides an overview of the findings on people's bushfire experiences, health and wellbeing, and views on what helped in individual and community recovery.

Methods
Sixteen hundred households that had been registered with the Bushfire Recovery Centre were surveyed. Five hundred questionnaires were returned and forty people interviewed. The survey consisted of 126 items. The survey took between 40 to 70 minutes to complete and the response rate was 32%.

Results
Many respondents experienced substantial property losses as a result of this bushfire (74% reported structural loss or damage to dwellings), and 78% of people recalled that they felt a threat of death or injury to themselves or significant others during the fires. The majority of respondents were positive about their health and wellbeing. A considerable number of individuals reported ongoing health and psychosocial problems related to the bushfires. Respondents commented on what helped in the recovery process.

Conclusion
With adequate support many people may not experience lasting negative outcomes for their health, mental health or wellbeing in the years following a bushfire disaster. However, continuing adverse effects on health and wellbeing are expected in the context of a high degree of loss, threat to life, and life stressors. Long term support is required for those experiencing ongoing health and psychosocial problems related to the bushfire. Given the diversity of experiences post-disaster a range of recovery responses are required over a period of years to support community and individual needs.

Keywords*:* *disaster management; disaster recovery; disasters**;** Canberra bushfires 2003; fires; mental health; public health; relief work; stress disorders.*

Introduction

On the 18th of January 2003, Canberra, the National Capital of Australia, experienced what was officially described as a 'firestorm'. Four people died, three people were treated for serious burns and transferred to Royal North Shore Hospital Sydney, 49 people were admitted to hospitals in the Australian Capital Territory (ACT) and 440 people received outpatient care. The emergency departments treated people with breathing problems/smoke inhalation; eye problems (irritation, ulcer, foreign body); trauma; and burns.[1]

Within the space of a few hours, 488 houses were destroyed in both urban and rural ACT. Nearly 160,000 hectares were burnt, including over 16,000 hectares of plantation forests and 31,000 hectares of rural leases. More than 5,000 people were evacuated to emergency centres and many more fled to safety with family and friends. A State of Emergency existed from the onset of the firestorm on the 18th January until it was lifted on the 28th January 2003. Over 50,000 residents lost their utility services (electricity, gas and water) during the early post-fire stage. Up to 1,600 households experienced some damage due to the fires and sought assistance from government services. The estimated total financial cost of the fires was $AU350 million.[2]

For many Canberra residents this was a devastating experience that changed their lives and, as noted by one reporter, "the fires that ripped through Canberra and the surrounding region … changed us and our city forever".[3] The Report of the Bushfire Recovery Taskforce[2] noted that "January 2003 bushfires in the ACT ranks as one of the largest single day disasters in Australian history". The Report also noted the quick recovery process put in place and the overwhelming support of the community "about the needs, responses and approach regarding recovery". The ACT Government established the ACT Recovery Centre on the 24th January 2003 as a central point for all services to those affected by the bushfires.

Recovery

Recovery is a multi-faceted term. Within the Integrated Emergency Management process, recovery is articulated as a model in which *prevention, preparedness, response, and recovery* appear sequentially, yet at the same time interact constantly with each other.[4]
The recovery phase of a disaster has been described as:

> *"the prolonged period of return to community and individual adjustment or equilibrium. It commences as rescue is completed and individuals and communities face the task of bringing their lives and activities back to normal. Much will depend on the extent of devastation and destruction that has occurred as well as injuries and lives lost.*[5]

Recovery also refers to as an act or process for individuals who are managing the negative effects of traumatic events. Recovery has come to signify an active process whereby the individual integrates the traumatic events into their memory and life story. This serves to minimise the ongoing, destructive impact of these events on their current life, and allow the individual to move forward into an, albeit changed, post-trauma future. Using the term 'recovery' in this sense does not imply that everyone who has experienced a traumatic event will experience long-term negative effects that require such integration.

Most of the disaster recovery literature in Australia, and thus Governments, has focused on the immediate aftermath of natural disasters and short term recovery processes.[6] This paper instead provides an overview of a study of the medium-term recovery process, and describes factors that appeared to help people in their recovery. In this paper, we describe the recovery of people in terms of

their health and wellbeing three years after the Canberra bushfires (i.e., where people 'are at' three-years post fires), and their reflections on what helped them over the period of time since the fires. We did not give specific definitions of recovery to the participants and hoped people would talk about recovery in their own terms. Instead, we explained that:

> *"After a disaster such as a bushfire, most people usually find they feel a bit up and down for a while. However, not everyone responds in the same way. Lots of things influence how easy or difficult people find life after a disaster. We want to understand more about how life has been for you in the time since the bushfire – its ups and downs – and how you feel you are now [about three years later]."*

The paper briefly outlines the research process, provides an overview of the findings on people's bushfire experiences, health and wellbeing, and views on what helped in individual and community recovery. These provide the key 'lessons learnt' and what can be drawn from this Canberra experience to assist other communities in responding to natural disasters. The annual bushfire season provides a constant reminder that Australia is subjected to extraordinary threats to life, property and the environment.

This paper reports on survey respondents' approximately 3 years post-bushfire in terms of their health, mental health and quality of life, and perceived changes in their overall health, and personal wellbeing and social relationships since the bushfire. Measures of health and mental health were selected so that findings could be compared with ACT and national population estimates.

Research Methods

A multidisciplinary research team was established with researchers from Australian Catholic University (Social Work); University of Canberra (Journalism and Communication); and ACT Health (Mental Health ACT) and ACT Government Services ACT Chief Minister's Department. The project was funded by Emergency Management Australia and Mental Heath ACT. Reflecting the multidisciplinary nature of this team, the study had four interlocking strands: individual and community recovery and resilience; government and community recovery programs; health and mental health outcomes for individuals; and communication and information provision. As the experience of bringing together researchers from Universities and Government was so unique, a Memorandum of Understanding was signed by all parties to ensure the independence of the research team and to specify the rights of researchers to publish their findings. The research was approved by the ACT Health and Community Human Research Ethics Committee, the Australian Catholic University Human Research Ethics Committee and the University of Canberra Human Research Ethics Committee.

The community survey that provided the data for this study used a multi-strategy methodology including quantitative research, in the form of a paper/pencil survey, and in-depth interviews of selected respondents. These interviews are summarised elsewhere.[6] The survey was distributed by post at the beginning of April 2006 (following the Canberra bushfire season) to the 1,600 households that had sought assistance from government services. Participants were asked to provide responses to 126 questions on a range of topics relating to the impact of the bushfires. These included multi-item ratings and a number of open-ended questions designed to elicit brief personal narratives concerning the participant's response to the disaster, their stage in the recovery process, and their perspective on what aided 'recovery'. Adults (18 and over) were the primary group to be surveyed, with 15 to 17 year olds being able to participate with their parents consent.

Participants

Of the 1600 households that had been registered with the Bushfire Recovery Centre, all were sent two copies of the questionnaire. At the time the report was submitted to the funding body, 510 surveys were returned, and only 10 of those were incomplete. Twenty five surveys were returned as "address unknown", and no more than one questionnaire was returned from a single household.

The survey response rate was 32%, a rate that can be considered typical for mail out surveys.[7] The survey was estimated to take between 40 to 70 minutes to complete, depending on the respondent's answers to open-ended questions.[8] More women than men responded to the survey, most were middle aged (between mid-40 and 60s) and the majority of respondents were highly educated (46% with a University degree and 26% with certificate level education). 52% were in households where the principal income earner was in full-time work. 34% were in households where the principal income earner was not in the labour force and only 2% were in households where the principal income earner was unemployed and looking for work. These characteristics are consistent with the demographic of Canberra residents. The research team cautions that whilst the findings of this study provide insight into the recovery process of people who have experienced bushfire, the responses provided by this sample are not completely generalisable to other populations. This is because the experiences of disaster-affected groups will vary according to the nature of the disaster, the management process, and the individuals themselves.

Measures

Exposure

Respondents were asked to report on their exposure to the disaster, including: their experiences of threats and losses as a result of the bushfire. Items related to individuals' perceived threat to self and significant others, death of significant other, major injury to self, loss of house, death or injury to pets, separation from people who normally lived in the house at time of the disaster, property loss, loss of personal or sentimental belongings, structural damage to dwelling, moving house three or more times in three years, and damage to neighbouring houses or the workplace.

Health

Survey respondents' self-rated health status was measured using an item from the SF-12 health survey, which is widely used in population studies.[9,10] This item asks *"In general, would you say your health is: Excellent, Very good, Good, Fair or Poor?"*. This provided a measure of respondents' perceived (overall) health status at the time of the survey. Self-rated health is believed to "provide insights into how people perceive their own health in relation to being overweight or obese, high risk drinkers, smokers or having a sedentary lifestyle. The Australian Bureau of Statistics[11] also make reference to studies by Gerdtham et al[12] and McCallum et al[13] whose research has shown that self-assessed health is a predictor of mortality and morbidity.

In a separate question respondents were asked to rate whether the bushfire had a lasting positive or negative effect on their overall health. Further, in an open-ended question in the survey respondents were given the opportunity to provide details of the effects they perceived the bushfires had on their overall health.

Mental Health

General psychological distress was measured using the 10-item Kessler Psychological Distress Scale (K10).[14] The K10 is widely used in population health surveys, including the Australian Bureau of Statistics National Health Survey and National Survey of Mental Health and Wellbeing. It is also used as a measure of outcomes in primary care and mental health settings.[15] Use of the K10 was recently recommended by the Research and Evaluation Consensus Meeting for Mental Health Aspects of Disaster and Terrorism.[16] The K10 asks about negative emotional states over the previous four weeks, and can be self-administered (as it was in this study), or by an interviewer. Scores on the K10 range from 10 to 50, with higher scores denoting higher levels of distress. K10 cut off scores were obtained according to those used by the Australian Bureau of Statistics to indicate the level of psychological distress: low (0-15); moderate (16-21); high (22-29); very high (30-50).[17,18] According to the ABS 2001 National Health Survey, individuals with very high levels of psychological distress are more than twice as likely to use health services (hospital admissions, GP visits) than individuals with low levels of distress,[18] and may need professional help.[17]

Personal wellbeing and social relationship issues
Respondents were asked about their current quality of life with the item: *"How do you feel about your life now as a whole, taking into account what has happened in the last year and what you expect to happen in the future?"*. This item was adapted from the ABS NHS 2001.[19] Responses ranged from 1 (delighted) to 7 (terrible).

Respondents were also asked to think about how their day-to-day life before the bushfire, compared to now (about three years after the bushfire), and to identify whether their day-to-day life was: much more difficult; a bit more difficult; much the same; or better.

In addition, respondents were given the opportunity to assess various aspects of their lives, including housing and living situation; their work and finances; their relationship with family, friends and neighbours; the wellbeing of their children; and, their connection to their neighbourhood and local community before and after the bushfire.

Perceptions of What Helped in the Recovery Process
Respondents were asked to identify the types of help they received and their involvement in community events and use of various information sources. Ratings were obtained about the helpfulness of (a) the services and information provided by the ACT Bushfire Recovery Centre, (b) community events, and (c) media information sources.

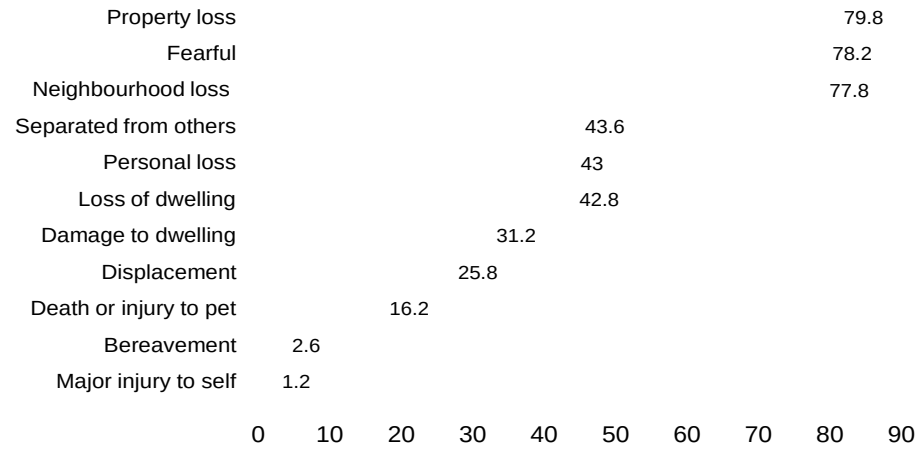
Throughout the survey respondents were given a number of opportunities to provide descriptive information about what has helped them since the bushfire. For example,

- "What do you think were the THREE most important things that help people to 'recover' after a bushfire?"
- "Is there anything else you would like to say about the help you received after the bushfire? For example, things you found particularly helpful or things that could have been done differently?"
- "Please give as much detail as you can of anything in the media that you found particularly helpful."

Results

Exposure to the disaster
The prevalence of each of the disaster-related threats and losses are reported in Figure 1 and summarised below.

Figure 1: Prevalence of fire-related losses and stressors



Threat and Injury
78.2% of respondents reported that they perceived a threat for self or significant others (fearful might die or be injured) during the fires; 60% feared they might be killed or suffer serious injury; 72.4% feared the same for a family member or close friend. Six (1.2%) respondents received major injuries; 17.6% (n=88) received minor injuries. Thirteen (2.6%) respondents had suffered the loss of a family member or close friend as a result of the bushfires. 16.2% (n=81) reported the death or injury of pets.

Loss
73.8% of the sample reported structural loss or damage to their dwelling/s. The houses of 42.8% (n=214) respondents were destroyed, and the houses of 31.2% (n=156) were damaged. While we refer to residential dwellings as houses in this paper, the researchers are respectfully aware that they are not 'houses' but 'homes' (as commented by some survey respondents). The effect on respondents' neighbourhoods in terms of damage to the surrounding houses and their places of work was extensive. This form of neighbourhood loss was reported by 77.8% (n=389) respondents. Neighbouring houses damaged or destroyed was reported by 74.2%; business or places of work which were significantly damaged or destroyed affected 11.6%.

Loss of personal or sentimental belongings was reported by 43.0% (n=215). 25.8% (n=125) respondents were displaced due to structural damage to their dwelling (either destroyed or damaged) and had move house 3 or more times in 3 years. Seventy-seven percent (n=385) reported damage or destruction of their gardens or trees. 6.8% (n=34) reported losses of crops or stock.

Health
Approximately three quarters of respondents reported that their current, overall health was good or better (74.8%, n=371); 42.5% (n=211) of respondents identified their overall health to be *very good* or *excellent;* 25.2% (n=125) considered themselves to be in *fair* or *poor* health. These survey data on overall health were compared with epidemiological data.
The 2004-05 National Health Survey (NHS)[15] results for those considering themselves to be in either *very good* or *excellent health* are:

- 56.0% of Australians (15 years and over);
- 60.3% of ACT residents (18-64 years); and
- 35.7% of ACT residents (65 years and over).

The 2004-05 NHS results for *fair* or *poor health* are:

- 15.7% of Australians (15 years and over);
- 11.3% of ACT residents (18-64 years); and
- 34.4% of ACT residents (65 years and over) (ABS 2006).

Variation between the health of our sample and population estimates is expected due to their experience of trauma, but also due to demographic differences. In the current sample, over three quarters (76.9%, n=484) were aged 46 years or over; only 2.6% were 25 years of age or under. The proportion of people reporting very good or excellent health is likely to reduce with age and the proportion of people reporting poor health is likely to increase with age as found in the age-standardised NHS self assessments of health status.[17] For example the NHS proportions with poor self-reported health status increased from 1.8% for 25 – 54 year olds to 7.6% for 55 to 64 year olds.

Perceived effects of the bushfire on overall health
Over half the survey respondents (56.4%, n=272) indicated that the bushfire did not have a lasting effect on their overall health three years later, while 2.5% (or 12 respondents) reported that their

overall health was better than before. In comparison, 40.9% (n=197) of the survey respondents reported a lasting negative effect of the bushfire on their overall health.

Over two thirds (68.8%, n=22) of the 33 respondents who reported that their current overall health was *poor* (on the SF12 general-health question above) reported that the bushfire had a lasting effect on their health, with their health currently not as good as before the bushfire.

Brief comments were given in the short-answer response format for this question. Most of these comments related to perceived negative effects on the physical and/or mental health of themselves and their families; however, some related to positive effects. Responses were grouped according to categories of perceived effects on the bushfire on overall health. A number of people described negative effects on their own health as: feeling more anxious and nervous; feeling at-risk or on-guard when faced with reminders of bushfires (such as fire and smoke), feeling less optimistic or depressed; having a pervasive sadness or insecurity, a loss of *joi de vivre*, or a loss of optimism; their diminished interest or participation in activities they previously enjoyed; experiencing post-traumatic stress symptoms, being more reactive to stress, feeling resentful and angry, having difficulty dealing with loss and grief, being concerned about physical safety and security, and worsening of pre-existing problems and responses to subsequent life stressors. Finally, some sample members described positive effects of their bushfire experience, including improvements in their ability to deal with health-related adversity.

Mental health

Almost one-fifth (19.5%, n=95) of respondents reported high to very high levels of psychological distress over the past four weeks. 11.5% of respondents reported high levels of psychological distress, and 8.0% very high levels. Of these, 63.4% (n=59) were women and 36.6% (n=34) were men. Of the 477 respondents with data available for psychological distress and gender, 21.3% (n=59) of 277 women reported high to very high levels of psychological distress, compared with 17.0% (n=34) of 200 men. A little over half (52.0%) of respondents were categorized with low levels of current psychological distress, and 28.5% with moderate levels.

Comparative proportions from the ABS 2004-2005 National Health Survey[17] (post-bushfire population data) and ABS 2001 National Health Survey[18] (pre-bushfire population data) are shown in Table 1.

Table 1: Current levels of psychological distress amongst sample members compared to national estimates

Level of psychological distress on K10	Community (bushfire) Survey (N=488)	ABS 2004-2005 National Health Survey (ACT)	ABS 2001 National Health Survey (ACT)
Low (10-15)	52.0% (n=254)	62.9%	66.8%
Moderate (16-21)	28.5% (n=139)	24.1%	23.6%
High (22-29)	11.5% (n=56)	9.2%	7.0%
Very High (30-50)	8.0% (n=39)	3.8%	2.6%

These data can also be compared with the K10 data from the 2004 ACT SNAPS survey, taken from the ACT Chief Health Officer's Report 2006.[20] State data for the ACT reports high/very high levels of distress for 11.4% of 18-64 year olds[20], with national estimates reported at 13.4%.[18]

Although there are some differences in reported age groups and the number of respondents in each age group is small, the proportion of high/very high psychological distress levels appear to be high for respondents when compared with data from the ACT SNAPS survey[20] and ABS National Health

Survey 2004-2005,[17] especially for those aged from mid-40s to 60s. The proportions of respondents' with high/very high are almost double some of the rates reported in epidemiological studies.

Personal wellbeing and social relationships

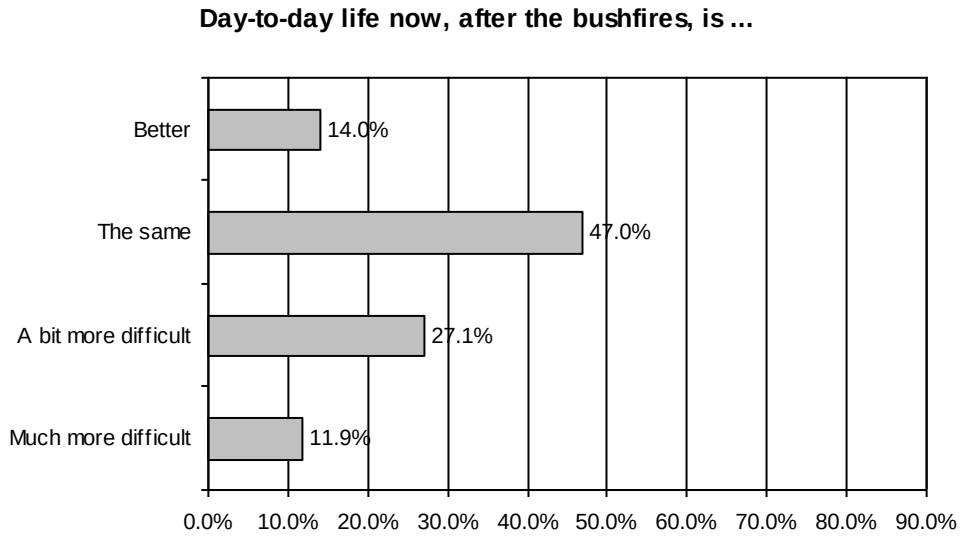
Current quality of life

One in eight (12.1%, n=59) survey respondents indicated they currently felt mostly dissatisfied, unhappy, or terrible about their lives as a whole. The majority, 87.9% of survey respondents, indicated they felt mixed (about equally satisfied and dissatisfied) feelings, mostly satisfied, pleased or delighted.

Day-to-day life compared with before the bushfire three years post-bushfire

As shown in Figure 2, sample members most commonly reported that their lives were now the same as they had been before the bushfires. The majority of respondents (two thirds 61%) perceived the lasting effects of the bushfires as either non-existent or quite beneficial for their day-to-day life. However, 11.9% (n=59) and 27.1% (n=134) still reported their day-to-day lives were much more, or a bit more, difficult than before the bushfires. As a result, over one third of respondents (39%) perceived lasting negative consequences for their day-to-day life.

Figure 2. Change in day-to-day life since the bushfires (three years later)

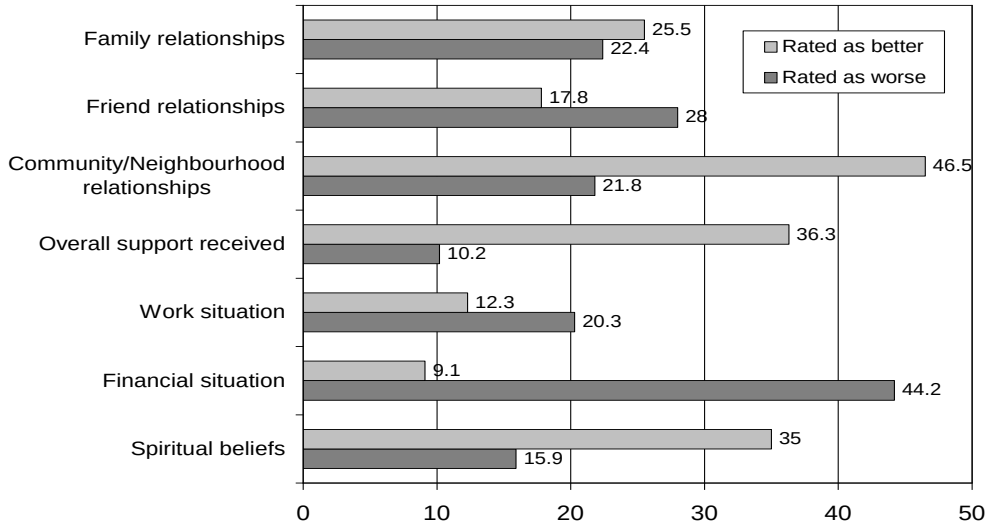


What had changed in their lives?

Figure 3 shows perceived lasting effects (both positive and negative) of the bushfires on different aspects of respondents' lives. The major positive effect appears to be community and neighbourhood relationships, with 46.5% of the sample indicating a lasting positive effect. Positive lasting effects were also reported by approximately one-third of respondents in areas of spiritual beliefs or on their belief in humanity (38%); their relationships with neighbours and others in their community, their relationship with friends (28%); family relationships (25.5%). The major negative effect appears to be financial situations, with 44.2% of respondents indicating a long lasting negative effect. This is not surprising as most respondents whose houses were destroyed reported being under-insured (69%; n=127). Replacing an existing house and all contents is a financial strain irrespective of the level of

insurance. Lasting negative effects were also reported by approximately one-fifth of respondents for work situation (20.3%).

Figure 3: Self-report of lasting positive and negative effects of the bushfires



Perceptions of What Helped in the Recovery Process

Respondents comments on what may have helped in the recovery process were grouped into five categories: whole of government services; community capacity building; support from family, friends and neighbours; personal efficacy and hope; and communication and the media. Many of these were the direct outcome of services provided by the ACT Government, whilst other areas were attributed to the outcome of direct action undertaken by the respondents through self-help, mutual aid groups or informal networks.

Whole of Government Services

The survey respondents were overwhelming in their support of the Bushfire Recovery Centre and its staff. 88.3% (n=436) of respondents attended the Recovery Centre, with 86.2% of those who attended (n=376) reporting that the Centre was very helpful or helpful. 70.1 (n=288) of respondents used a recovery worker, and 85.7% of respondents who used a recovery worker (n=247) found their recovery worker *helpful* or *very helpful*. They found the centre staff welcoming and supportive and the community involvement allowed respondents to feel 'at ease' with the services offered.

Respondents also made suggestions on how the recovery model used by Government services could be improved. Some respondents, such as rural residents, and those who did not lose their home, found the model less responsive to their needs. Most people were very positive about the level of outreach some would have appreciated more outreach services to their homes and rural communities. Those respondents who found it harder to access the Centre reported that this was because they were working.

Community capacity building

The capacity of the community to organize itself cohesively in community events and activities, to support each other socially and emotionally, and to provide information to assist people to make the many decisions confronting them, was considered an important aspect of the recovery process. New organisations such as residents' groups arose out of the disaster. Existing groups based around

schools, churches, service groups, business, peak groups and other communities of interest were also thought to play a strong role.

Organisations not previously aligned, or used to working together, formed alliances to organize assistance for the bushfire-affected community. These formal and informal groups, and the ACT Government, often in partnership, organised a number of social, commemorative and information events for bushfire-affected people and the wider ACT community. Events were arranged for geographic communities such as streets and neighbourhoods, as well as for communities of interest such as children, older people, rebuilders and people interested in the regeneration of the environment, or parents who had babies close to the time of the disaster. Often recovery workers and recovery centre counselors attended these events and mingled to offer help to those struggling with the effects of the disaster.

According to respondents the most popular of these events were those organised by local streets and neighbourhoods these were often enabled by the recovery workers from the Recovery Centre, to assist people to get to back in touch and share experiences, discuss common issues and get information on help available to them. 61% (n=292) of respondents attended these events, and 91.7 % (n=268) found these events *helpful* or *very helpful*.

The next most popular of these community gatherings were commemorative events such as the first anniversary commemoration, the memorial service for animals who died in the disaster, and the dedication of the bushfire memorial. 39.1% (n=191) of respondents attended commemorative events and 86.4% (n=165) attending found these events helpful or very helpful.

Other events were attended by fewer respondents; however, those attending found them helpful. Information sessions on the emotional effects of disaster were attended by 14.8% (n=72) and 87.5% (63) found them *helpful* or *very helpful*. Rebuilding information events were attended by 30.4% (n=152) and 79% (n=120) attending found them *helpful* or *very helpful*. Children's events were attended by 6.4% (n=30) and of those, 93% (28) found them *helpful* or *very helpful*. Events for particular age or interest groups were attended by 6.6% (n=32), and of those, 81.25% (26) found the events *helpful* or *very helpful*.

Support through family, friends and neighbours

Respondents indicated that the support of family, friends and neighbours helped their recovery. This was described in a variety of ways such as:

- practical and emotional support from family;
- family support; talking with family, expressing feelings and sharing emotions with them;
- support from friends;
- support/talking/kindness;
- neighbours coming together, helping each other;
- sitting down as a family and talking about it all the time and letting our children talk openly about it;
- understanding each other's feelings and talking about them within your own fire-affected family;
- friends and neighbours helping one another.

Many comments highlighted the importance to the recovery process of people's relationships and the level of support and understanding they received through those relationships. Within families, it was often the person's partner whose love and support was crucial to their recovery, and a number of people interviewed considered that sharing the experience of the fire and all the difficulties that resulted from it actually brought them closer and strengthened their relationship, which in turn helped them in their recovery.

The support provided by family, friends and neighbours was not limited to emotional and social support. It also often took the form of practical help such as accommodation, clothing, furniture and

goods, or financial help. Beyond the obvious value of this kind of support, it was evident that it promoted recovery because it also let people know that others understood and cared about what had happened to them. A number of people mentioned that their awareness of the generosity and understanding displayed by the wider community had helped to sustain them.

Personal efficacy and hope

Respondents described aspects of themselves that they felt enabled them to deal with adversity and change, and experience recovery. A number of respondents provided suggestions with respect to what they thought other people could do, or what might help or hinder recovery in future. Key strategies perceived to promote personal recovery were:

- returning life to normality and routine;
- dealing with difficult emotions;
- making decisions for the future and moving forward;
- approaching life with hope;
- having a sense of control and acceptance and engaging in meaningful activities.

Role of communication and media

Overall, information and communication provided by the ACT Government to assist in recovery was praised by respondents. In particular, the newsletter Community Update was singled out by a large majority of respondents as meeting their needs. With very few exceptions, the mass media served the affected community very well.

Most respondents regularly received the Community Update newsletter (89.8%). The newsletter provided a range of information and the respondents rated these as very helpful or helpful in descending order: Information about upcoming events (84.4%); information about support and grants schemes (83.7%); articles about public health issues, counselling services, gardening, bush regeneration (75%); information on finance and insurance (68.1%); demolition or rebuilding (67.5%); stories about other affected families (63.7%). It should be noted that only 39% found messages from politicians helpful or very helpful.

Discussion

This paper provides an overview of the health and wellbeing of a sample of people who were affected by the 2003 Canberra Bushfire, three years after this event. At this time, the majority of sample members rated their overall health as good, very good or excellent. However, 25% reported that their health was fair or poor, a rate much higher than the general population of Canberra (11.3% for ACT residents 18-64 years).[18] Similarly, whilst 19.5% of our sample were found to have high-to-very-high levels of psychological distress on the K10; the comparative rate in the general population was 13.4%.[18]

The relatively high prevalence of fair-to-poor self-rated health and psychological distress in our sample is consistent with further information provided by participants about the perceived effects of the bushfire on their health even three years later. Thirty-nine percent of our sample reported that their lives were more difficult since the bushfire. Approximately two thirds of people who rated their overall health as poor also reported that the bushfire had a lasting effect on their health, with their health currently not as good as before the bushfire. These effects included increased feelings of anxiety, nervousness and sadness.

These and further reflections on the negative effects on respondent's health and well-being are consistent with symptoms of post-traumatic stress, depression, and other mental health problems that have been linked to the experience of natural disasters.[21] Notably however, these symptoms are not necessarily indicative of an ongoing mental health problem or functional impairment. They can arise

occasionally in response to environmental stimuli and as previously mentioned, symptoms may settle over time and most people recover from without formal interventions.

The majority of respondents had indicated that life was either the same as before the fires, and a smaller proportion believed life was better. These respondents who commented that life was better despite the trauma of the fires are consistent with research findings on 'adversarial growth', where some individuals experience positive change and attain more optimal levels of functioning after adverse or traumatic experiences. The Recovery literature also supports that traumatic events can lead to psychological and personal growth.[22]

The findings of this study indicate that many people in our sample were not experiencing lasting negative outcomes for their health, mental health or wellbeing, three years after the bushfire. However, a considerable number of individuals still reported deterioration of their everyday lives and ongoing health and psychosocial problems related to the bushfire. It is of concern that three years after the bushfire approximately one-third of respondents (39%) perceived lasting negative consequences for their day-to-day life. This scenario is to be expected given the high degree of exposure, loss, threat to life, and related ongoing stressors that were evident in this sample of people. Many experienced substantial property losses as a result of this bushfire (74% reported structural loss or damage to dwellings), and 78% of people recalled that they felt a threat of death or injury to themselves or significant others during the fires.

These findings are relevant to a select population but, nevertheless, are consistent with a previous study that showed ongoing mental health concerns from the 2003 Canberra bushfire amongst a general community sample of young adults aged 24 to 30 years.[23] Our pattern of findings for the 2003 Canberra bushfire are also consistent with research into other Australian natural disasters; for example, the Ash Wednesday bushfires 1983[24] and the Newcastle earthquake 1989.[25] Stress-related health problems were also reported by people who experienced the Ash Wednesday bushfires.[26] These adverse effects on health and wellbeing are likely to be more prevalent and lasting following events where there has been even greater loss of life and injury, as in the 2009 Victorian bushfires.

Key features of the recovery process following the Canberra bushfire was the Recovery Centre model and community involvement. One of the significant intervention strategies undertaken by the ACT Government was the establishment of the *Canberra Bushfire Recovery Centre.* This was a 'one-stop model' which provided access to most services under one roof and used a case management approach through a personal recovery worker. The Centre provided for the co-ordination of government, non-government and community services. It is possible that individual and community recovery after the Canberra bushfires was influenced by the services and support provided through formal and informal services, government and non-government, and the actions that people took to help themselves and each other. Our sample described the benefits of individual, group and community actions consistent with empirically supported principles for interventions post-disaster: promotion of sense of connectedness and social support, self- and collective-efficacy, adaptive coping and hopefulness.[27, 28]

It is important to remember, however, that lasting consequences for health and wellbeing are likely to occur despite the extensive services and support for bushfire-affected residents according to the community-based recovery model. Not everyone accesses, utilises or benefits from the Recovery Centre model of support and community recovery activities. A wide range of referral and support options are needed to meet individual needs and to address enduring or more serious problems. Active outreach to those in need of service, and identification of those at high risk of continuing problems,[28] are important for primary health care. Targeted and effective strategies are necessary to optimise long-term outcome in terms of health and wellbeing. Readily accessible information, referral and assistance are recommended for a range of physical, mental health and other psychosocial problems that may be encountered in the months and years post disaster.

Finally, we observed diverse experiences and a range of factors that helped bushfire-affected individuals who responded to the community survey. Responses covered almost every aspect of recovery, and were marked by their diversity across the study sample. This diversity has significant

implications for recovery planning in order to provide services that respond to needs across the whole of the disaster-affected community.

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