Impacts of fire service volunteering on the families of volunteers:
A literature review and research agenda

SEAN COWLISHAW AND JIM MCLENNAN

ABSTRACT

Despite the frequently acknowledged importance of the families of fire service volunteers in supporting the volunteering endeavour, little is known about how being a volunteer firefighter impacts on his or her family. Almost no research has been reported on the experiences of families of Australian volunteer firefighters. The limited amount of published research which examined impacts on families of career (salaried) firefighters, paramedics, police officers and military personnel suggests several potential stressors which are likely to have negative effects on family relationships. A proposed program of research studying the families of volunteer firefighters is summarised. Such a research program is needed so as to inform fire agencies about the kinds of supports needed by the families of their volunteers.

INTRODUCTION: VOLUNTEER FIREFIGHERS AND THE FAMILIES OF VOLUNTEERS

Bushfires are an inherent and unavoidable feature of Australian life (Willis 2005). At any time of the year, regions of the continent are vulnerable to bushfires that threaten life, property and the environment (Ellis, Kanowski & Whelan 2004). Outside capital cities and major regional centres, community protection against fire is provided mostly by Australia's 220,000 volunteer firefighters (McLennan & Birch 2005). These volunteers make major contributions to the Australian economy. They save millions of dollars each year by minimising damage caused by bushfires and emergencies (e.g. house fires, motor vehicle accidents, storm damage), and are estimated to save State and Territory governments between 1.5 and 2 billion dollars annually through their voluntary contribution of labour (McLennan & Birch 2005; McLennan & Birch 2006a).

Notwithstanding the essential role of volunteer firefighters in providing community fire protection, most Australian volunteer-based fire agencies report that their volunteer numbers have fallen. Over the course of the past ten years, agencies have reported that the annual intake of new volunteers has been usually less than the annual number of losses due to resignations. The reasons for the decline in the overall number of volunteer firefighters are several and complex: changes in the nature of work due to globalisation of the economy, an ageing population, and a population drift from smaller rural communities to capital cities and large regional centres have all contributed to the problem (McLennan & Birch 2005). Over and above these macro-factors, recent surveys suggest that family commitments and responsibilities may be an important contributing factor in many volunteer resignations, and reluctance by community members to volunteer with local fire brigades (Birch & McLennan 2006; McLennan 2006; McLennan & Birch 2006b).

The limited information available indicates that fire service volunteering is a 'family matter' for many volunteers. For example, a recent survey of 392 newly recruited Victorian

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

47

Country Fire Authority (CFA) volunteers found that 60% of these firefighters were married, and 17% had dependent children aged less than 13 years old (McLennan 2006). A survey of women volunteers in the South Australian Country Fire Service in operational roles (as distinct from support roles) found that 26% of these volunteers were: married, cared for at least one child under 13 years of age, and worked full- or part-time (McLennan & Birch 2006b).

Figures such as these highlight that effective community fire protection is sustained not only by the efforts of individual volunteers but also, in part, by the families of many volunteers. It is these families that facilitate and support the volunteer in his or her work as a firefighter, or alternatively, resist the unwanted intrusion of fire service volunteering into family life. But while the contributions made by families of fire service volunteers are commonly acknowledged by agency CEOs, the experiences of families of volunteer firefighters are poorly understood. This lack of understanding is due to a dearth of systematic research investigating the impacts of fire service volunteering on the families of volunteers.

Media reports indicate all too graphically the real possibility of severe trauma to families of volunteer firefighters. The recent deaths of CFA volunteers Trevor Day (Ziffer, Boulton & Milovanovic 2006) and Rebecca Helwig (Russell 2006), and the images of the families they left behind, illustrate the tragic consequences for families of volunteer firefighters who lose their lives in the line of duty.

The aims of the current paper were to: (a) review the small amount of literature available which may shed light on the experiences of volunteer firefighter families; and (b) outline a program of research which needs to be undertaken in order to inform volunteer agencies on effective strategies to support the families of their volunteers.

The present review is in four parts. In the first section, some of the distinctive characteristics of firefighting that potentially impact on the families of firefighters are described. Next, the small amount of research illustrating the effects of these specific job characteristics on the families of firefighters and emergency responders is discussed. Given the lack of specific research on volunteer firefighters' families, relevant studies of both career (employed) firefighters and other emergency service organisations, from Australia and overseas, have been examined. In the third section, evidence is introduced suggesting ways in which the relationships that emergency service workers share with their family members are affected by emergency work. Finally, an agenda for future research is proposed.

FIREFIGHTING: OCCUPATIONAL CHARACTERISTICS

Firefighting is characterised by a number of unique job features that distinguish it from many other activities (Guidotti & Clough 1992). In the United States, firefighting is consistently rated as one of the most dangerous and stressful occupations, and ranks high in the annual number of occupational fatalities (Murphy, Beaton, Pike & Johnson 1999). Firefighting characteristically involves exposure to physical, thermal and chemical hazards, which threaten both immediate (e.g. burns, injuries) and long-term (e.g. lung cancer, cardiovascular disease) health (Guidotti & Clough 1992). In addition, firefighting and emergency service work also involves exposure to psychological risk factors, including high levels of stressful and potentially traumatic operational situations. These potentially traumatic experiences are commonly labelled 'critical incidents' (see Mitchell 1983), and include death or injury to children (Haslam & Mallon 2003), loss of life, motor vehicle accidents, and the rescue of

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

48

severely injured persons (Moran & Colless 1995). This research also indicates that firefighters are keenly aware of their frequent exposure to stressful and traumatic operational demands (Beaton, Murphy, Johnson, Pike & Corneil 1998; Bryant & Harvey 1996), and perceive their job as more stressful than most other occupations (Moran & Colless 1995).

A CFA Submission to the *Economic Development Committee of the Parliament of Victoria* (CFA 2001, pp. 10-11) proposed the following as necessary attributes for fire service volunteers, not required generally of volunteers in other [volunteer] organisations:

- compliance with the disciplines of emergency 'command and control' and the requirements of standard operating procedures imposed by the organisation;
- willingness to face danger and to sustain personal trauma and injury (and sometimes death itself);
- toleration of appalling working conditions including, for example, physical exertion, extreme heat, dehydration and thirst, smoke, uncertainty, etc.
- the carrying of a range of direct costs associated with service delivery on behalf of the agency (essentially a subsidy or an indirect form of tax to support government safety programs and/or the profits of the insurance industry, where property protection is the paramount focus);
- exposure to the risk of litigation over allegations of negligence; and
- preparedness to be on call 24 hours a day, especially during summer months, with unpredictable disruption of family and personal life.

Noran (1995) noted that the nature of the work and organisational culture of (United States salaried) firefighters may afford some protection against the potentially detrimental impacts of job stress. In particular, she suggested that the exciting nature and significance of firefighting, combined with a degree of heroic self-disillusionment and a closed and supportive organisational culture may protect firefighters against many of the pressures of their work. However, Noran also noted that while these job and organisational characteristics may potentially shield firefighters from some of the distressing aspects of their work, the families of firefighters typically lack access to such resources and supports. Consequently, she speculated that the job pressures may be perceived as more stressful by families of firefighters than by the firefighters themselves.

FIREFIGHTING AND THE FAMILIES OF FIREFIGHTERS

A small amount of evidence supports the common-sense notion that families are also exposed to stressors as a result of having a family member who is a volunteer firefighter. For example, a focus group investigation of the experiences of volunteer firefighters in New Zealand indicates that many have difficulty balancing both family and firefighting responsibilities (UMR Research 2001). Two quotes from this report are illustrative:

You're constantly away or have three calls during the week and there's a working bee at the weekend or you're away for competitions or training.. (p. 43)

It's hard on your family, they take second place, I run out on the family possibly once every three or four weeks. (p. 44)

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

49

A focus group study of the experiences of CFA volunteers indicated concerns from volunteers about the possible effects on their families:

> *…There did appear to be some negative perceptions about the impacts of conditions of CFA working contexts on the families of volunteers. A widespread view was that families missed out on the opportunity for summer family holidays and day trips because of the need for volunteers to be on standby.*
>
> *There was also a widespread perception that families (partners and children) needed to provide support and work that was almost completely unrecognised by CFA: for example, in answering fire calls [on the Emergency Reporting System on the home telephone]. Families were frustrated by the interruptions to their daily lives from CFA activities, including emergency call outs, ringing around brigade members to assemble crews, and false alarms…*
>
> *Trauma and stress were seen as common features of the lives of many volunteers. These came from critical incidents, including fires (especially when there was loss of life) but mostly from road accident trauma. When volunteers returned home from traumatic incidents, they often did not wish to speak about their experiences, which then caused tension and misunderstanding between volunteers and their partners. (CFA Corporate 1998, p. 5)*

The few available studies of families of emergency service workers implicate specific features of their work role in the experiences of families. Regehr, Dimitropoulos, Bright, George and Henderson (2005) explored, via in-depth interviews, the experiences of 12 women married to career firefighters in the United States. Regehr et al. identified two recurring themes concerning the impact of firefighting on families: the dangers of the job, and unpredictable shift-work and call-outs. Evidence from a number of studies of career emergency services personnel converges on similar themes and supports the negative impacts these work characteristics have on family functioning.

Dangerous and potentially life threatening situations are an inherent part of firefighting and emergency services work generally, and both acute and chronic health risks may be a source of anxiety for the family members of firefighters (Regehr et al. 2005). Acute risks refer to situations that threaten direct harm to the firefighter, and include any number of physical, thermal or chemical hazards potentially resulting in outcomes like injury or respiratory disorder. Counter-intuitively perhaps, current research provides somewhat mixed evidence on the impacts of acute risks on the experiences of families. For instance, Regehr et al. (2005) found that the partners of (salaried) firefighters did not report a great deal of fear or anxiety concerning the safety of their partner in the presence of acute risks. Instead, the authors suggest that faith in both the skills and training of the firefighter, as well as a general reluctance on the part of the emergency responder to share details of potentially dangerous situations with family members, may largely protect families against such anxieties. Regehr et al. noted that anxieties and worries about acute risks also seemed to diminish over time. This suggests that concerns over acute danger and risk may be most problematic for new firefighters, or newly formed families, who initially have little experience coping with the inherent risks to the health and safety of the firefighter.

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

50

Conversely, the results of other studies of emergency responder families support different conclusions. Focus groups with 29 Australian female police officers found that having a family member exposed to dangerous situations caused worry, anxiety, and sleeping difficulties amongst family members (Thompson, Kirk-Brown & Brown 2001). These findings are consistent with research conducted with families of military personnel, which suggests strongly that high-risk jobs are a source of considerable distress for families. For example, Foreman (2001) interviewed Australian Defence Force (ADF) families, and found that many military spouses felt exhausted and fatigued as a result of service separations and risk factors associated with their partners' occupation. For children, negative impacts took the form of bed-wetting, altered sleep patterns and disruptive behaviours. For spouses, feelings of anxiety, being run-down and at times depressed were common, and supported the proposition that high-risk occupations, such as fighting wars, peacekeeping, policing and firefighting, have the potential to impact negatively on the families of those involved.

Threats to the long-term health of firefighters are an additional source of potential concern for families. These anxieties often involve concern about the long-term cardiac health of emergency responders, as well as their level of exposure to carcinogens. In contrast to anxieties resulting from acute risks, it seems that concerns about long-term health hazards may become more salient with the passage of time (Regehr et al. 2005). Thus, while worries over the risk of acute dangers may decrease, anxiety over the threat of exposure to long-term health risks may become more salient and a greater source of stress for families as firefighters age.

While both acute and chronic risks are potential sources of distress for families, other characteristics of firefighting and emergency service work may also have consequences for families. Shiftwork and unpredictable call-outs are an inherent part of firefighting work, and have been shown to have negative impacts on individuals' functioning (Takeyama et al. 2005). These strains may, in turn, place pressures on the families of firefighters. The unpredictable nature of call-outs may require families to continually adapt to changing patterns of spouse/parent availability (Regehr et al. 2005). For instance, Regehr (2005) found that an inability to predict whether the emergency responder would be working substantially longer than anticipated was a source of significant pressure and strain for partners of emergency medical service personnel. These impacts were apparently compounded where the nature of the call-out made it impossible for their partner to call home and explain their absence.

Unpredictable shift-work and call-outs may also force the redistribution of family responsibilities, placing extra burden and strain on the remaining partner. For example, both Regehr et al's (2005) investigation of firefighter partners and Regehr's (2005) study of paramedics' spouses found that the partner often reported being left feeling like a 'single parent'. The women studied by Regehr et al. (2005) also reported on how shifts and the needs of children meant that shared time between couples took a lower priority, and the quality of shared spousal time deteriorated. Focus groups of female police officers uncovered similar reports of difficulty in finding time to share with intimate partners (Thompson et al. 2001).

The negative effects of time pressure may be particularly problematic for volunteer firefighters, who must also balance high demands from both volunteering and paid

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

51

employment. For instance, Lyons and Passey (2005) estimate that non-emergency service volunteers in Australia dedicate 2.5 hours per week to volunteering. Although comparable figures for Australian emergency service volunteers are currently unavailable, data from the United States suggests that emergency service volunteers contribute an average of 16 hours per week to volunteering (D'Intino 2006). The majority of volunteer firefighters are also involved in full-time work related activities (McLennan 2006; McLennan & Birch 2006b). Thus volunteering demands must be balanced with both work and family responsibilities, making it probable that many volunteer families will be particularly vulnerable to stressors arising from time pressures, exacerbated by the volunteer firefighting role.

TRANSMISSION EFFECTS ON FAMILY RELATIONSHIPS

Research on the interface between work and family (e.g. Westman & Vinokur 1998), indicates that work events have negative consequences for families when feelings of anger, frustration and fatigue are carried over from work environments to home. Such transmission of mood and energy can alter the way that family members typically interact, and may generate tension within the family unit (Roberts & Levenson 2001). Emergency services work, such as firefighting, has the potential to impact on individual mood and functioning to a greater extent than many other occupational fields. Corneil, Beaton, Murphy, Johnson and Pike (1999), for example, documented the acute impacts of firefighting on individual functioning, noting an elevated prevalence of post-traumatic stress disorder (PTSD) amongst samples of Canadian and North American firefighters when compared to the general population. Similarly, Regehr, Goldberg and Hughes (2002) relate how paramedics' exposure to the death, injury and distress of other people may lead to pronounced emotional reactions in emergency responders. Thus, the spill over of work stress to family life may be particularly pronounced in emergency responder populations, including firefighters.

Whilst only a small amount of research has explicitly studied the family interactions that typically occur following stress at work, some of these investigations have focused specifically on emergency service populations. Roberts and Levenson (2001), for example, explored relationships between police officers' job stresses and the type of interactions they shared with their partners. It was found that high levels of job stress were associated with fewer positive exchanges between couples, and more negative behaviours from the police officers during marital interactions.

Other lines of research suggest that characteristic responses to negative work events may have implications for family functioning. For example, a tendency to withdraw socially and emotionally from others is a relatively normal response to stress and fatigue (Repetti 1992), and may be common following mentally and physically exhausting emergency service work. Regehr et al. (2002) found that paramedics were often aware of being disengaged and emotionally distant from family members after returning from work, whilst Regehr (2005) found that paramedics' wives were extremely aware of their partners' tendency to withdraw from family following stressful and distressing days. Repetti (1992) argues that social withdrawal may be an effective short-term strategy for reducing one's negative mood, and may also reflect a deliberate attempt to prevent family members from being exposed to distressing personal experiences and moods. Thompson et al. (2001) concluded that female police officers consciously avoided the discussion of work stresses at home, due to concerns that members of their family would not understand, or would become distressed themselves.

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

52

While such patterns of withdrawal and avoidance may be effective in improving mood or reducing discomfort about exposing family members to stories of work events, doing so may also inadvertently promote long-term negative adaptations within the family. For example, research suggests that emotional withdrawal can lead to deterioration of relationship quality (Gross & John 2003), whilst possibly causing confusion and feelings of rejection among family members. In addition, physical withdrawal from family activities by the firefighter may create the need to redistribute family role responsibilities, likely placing further burden on the partner. Thus, if used long-term, a pattern of withdrawal following firefighting activities may well be destructive of family patterns of relating positively.

The paramedics' wives studied by Regehr (2005) also spoke of how families had to develop unique sensitivities to the moods of the emergency responder, which often needed to be managed with 'kid gloves' (p. 106). Regehr et al. (2005) described how firefighters' wives reported being extremely attuned to their husbands' moods when returning from work, and spoke of using deliberate strategies to manage their partners' distress. Having to consciously manage and work around the mood of the family member may thus become a source of additional stress on the family unit.

All this suggests that both specific job characteristics of firefighting, as well as the negative moods and fatigue emergency responders experience following work, may have implications for family functioning. The cited studies provide clues about the nature of these interactions. However, the number of studies reported is small, most describe the North American context, and only a handful focus on volunteer firefighters. There are several potentially important ways in which the experience of being a volunteer firefighter may differ significantly from that of a career (employed) firefighter. The first is that a volunteer chooses, more or less freely, to donate his or her time for motives other than financial reward. Consequently, it may be easier for a volunteer, than for a career firefighter, to withdraw from firefighting activities if the impact on his or her family is seen to be negative. Conversely, unlike salaried firefighters who work within structured shifts, volunteers remain on call 24-hours and are subject to both formal and informal pressures to respond to emergencies and contribute to non-operational activities (e.g. fundraising). Another likely difference is that overwhelmingly, volunteer firefighters reside in the community they protect. This implies that it may be easier for the families of volunteers to mobilise extra support from their community in times of need. However, being based on anecdotal accounts, the extent to which these possibilities actually apply to volunteer firefighters is unknown.

AN AGENDA FOR FUTURE RESEARCH

If families experience negative consequences from having a member who is a volunteer firefighter, then volunteer-based fire agencies may be able to put in place mechanisms to minimise these adverse impacts. However, before strategies to more effectively support families can be developed, research is needed to provide agencies with a better understanding of the experiences of families of their volunteers. In particular, the following questions seem to be in need of urgent answers:

- What are the main aspects of firefighting that partners' and children of volunteers find difficult?
- What do families believe could minimise hardships resulting from having a member who is a volunteer firefighter?

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

53

- What could be done by fire agencies, and communities, to recognise and assist with the contributions made by families of volunteer firefighters?
- Are there gender differences in the effects of fire service volunteering on families?
- What typically happens to a volunteer when his or her family is having difficulty coping?
- What positive experiences do families benefit from, associated with having a member who is a volunteer firefighter?

If specific dimensions of volunteer firefighting are common sources of pressure for partners and children, then awareness of these may allow new volunteer families to become better informed and prepared for these experiences. Research on what families believe could minimise these difficulties may also be a valuable source of ideas which agencies might adopt to support families of volunteers.

Given that men and women traditionally undertake different roles within families, it is important to investigate possible gender differences associated with the impacts of firefighting on families. Family responsibilities are believed to be a contributing factor to the traditionally relatively low representation of women in volunteer fire brigades (Beatson & McLennan 2005), and awareness of gender differences may provide agencies with the knowledge necessary to enhance the recruitment and retention of female volunteers. Research on how the families of firefighters impact on the commitment of individual volunteers may have similar benefits for volunteer agencies through effects on recruitment and retention. Families that are having difficulty coping with a member who is a firefighter will likely exert pressure on the individual volunteer to minimise or cease his or her fire service volunteering. Research on the demands coming *from* the family unit may thus give volunteer agencies further insight into ways to maximise volunteer retention and minimise attrition.

Finally, there are presumably some positive consequences for families from having a member who is a volunteer firefighter, such as pride in the family members' role as a firefighter or benefits taken from expanded social networks (Regehr et al. 2005). Knowledge of these positive impacts may give volunteer agencies information to market to potential volunteers, thus becoming an important aspect of volunteer recruitment processes.

REFERENCES

Beaton R, Murphy S, Johnson C, Pike K and Corneil W 1998, 'Exposure to duty-related incident stressors in urban fire-fighters and paramedics', *Journal of Traumatic Stress,* vol. 11, pp. 821-28

Beatson R and McLennan J 2005, 'Australia's women volunteer fire fighters: A literature review and research agenda', *Australian Journal on Volunteering*, vol. 10, pp. 18-27

Birch A and McLennan J 2000, NSW *Grain belt community survey 2005: Evaluating the community's understanding about the NSW Rural Fire Service.* Bushfire Cooperative Research Centre, School of Psychological Science, La Trobe University

Bryant R and Harvey A 1996, 'Posttraumatic stress reactions in volunteer firefighters', *Journal of Traumatic Stress*, vol. 9, pp. 51-2

CFA 2001, *The impact of structural change on the Victorian economy. Submission by Country Fire Authority on the impact of structural change on volunteerism within*

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

54

CFA. Submission to the Economic Development Committee of the Parliament of Victoria, CFA, East Burwood

CFA Corporate 1998, *Focus group report*, Volunteer development project, East Burwood: CFA Corporate

Corneil W, Beaton R, Murphy S, Johnson C and Pike K 1999, 'Exposure to traumatic incidents and prevalence of posttraumatic stress symptoms in urban firefighters in two countries', *Journal of Occupational Health Psychology,* vol. 4, pp. 131-41

D'Intino R 2006, *Volunteer firefighter recruitment and retention in rural Pennsylvania,* The Center for Rural Pennsylvania

Ellis S, Kanowski P and Whelan R 2004, *National inquiry on bushfire mitigation and management*, Commonwealth of Australia, Canberra

Foreman D 2001, 'The impact of service separations on family life in the ADF: Townsville' in G Kearney, M Creamer, R Marshall and A Goyne (eds) *The management of stress in the Australian Defence Force,* Canberra: Department of Defence

Gross J and John O 2003, 'Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being', *Journal of Personality and Social Psychology,* vol. 85, pp. 348-62

Guidotti T and Clough V 1992, 'Occupational health concerns of firefighting', *Annual Review of Public Health*, vol. 13, pp. 151-71

Haslam C and Mallon K 2003, 'A preliminary investigation of post-traumatic stress symptoms among firefighters', *Work & Stress,* vol. 17, pp. 277-85

Lyons M and Passey A 2006, *Australians giving and volunteering 2004*, Canberra: Department of Families, Community Services and Indigenous Affairs

McLennan J 2006, *Survey of new volunteers at six months: April−September 2005 entry cohorts,* Bushfire Cooperative Research Centre, School of Psychological Science, La Trobe University

McLennan J and Birch A 2005, 'A potential crisis in wildfire emergency response capability? Australia's volunteer firefighters', *Environmental Hazards*, vol. 6, pp. 101-07

——— 2006a, *The relative contribution of volunteer firefighters to the Australian economy,* Bushfire Cooperative Research Centre Volunteerism Project Brief Report No. 1: 2006, School of Psychological Science, La Trobe University

———- 2006b, *Survey of South Australian Country Fire Service volunteers,* Bushfire Cooperative Research Centre, School of Psychological Science, La Trobe University

Mitchell J 1983, 'When disaster strikes: The critical incident stress debriefing process', *Journal of Emergency Medical Service,* vol. 8, pp. 36-9

Moran C and Colless E 1995, 'Perceptions of work stress in Australian firefighters', *Work & Stress*, vol. 9, pp. 405-15

Murphy S, Beaton R, Pike K and Johnson L 1999, 'Occupational stressors, stress responses, and alcohol consumption among professional firefighters: A prospective longitudinal analysis', *International Journal of Stress Management*, vol. 6, pp. 179-96

Noran A 1995, 'Literature search on the wives of firefighters', *Employee Assistance Quarterly*, vol. 10, pp. 65-79

Regehr C 2005, 'Bringing the trauma home: Spouses of paramedics', *Journal of Loss and Trauma*, vol. 10, pp. 97-114

Regehr C, Dimitropoulos G, Bright E, George S and Henderson J 2005, 'Behind the brotherhood: Rewards and challenges for wives of firefighters', *Family Relations*, vol. 54, pp. 423-35

Regehr C, Goldberg G and Hughes J 2002, 'Exposure to human tragedy, empathy, and trauma in ambulance paramedics', *American Journal of Orthopsychiatry*, vol. 72, pp. 505-13

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

55

Repetti R 1992, 'Social withdrawal as a short-term coping response to daily stressors' in H Friedman (ed) *Hostility, coping, and health,* American Psychological Association, Washington

Roberts N and Levenson R 2001, 'The remains of the workday: Impact of job stress and exhaustion on marital interaction in police couples', *Journal of Marriage and the Family*, vol. 63, pp. 1052-67

Russell M 2006, 'Family mourns firefighting wife, mother', *The Age,* Retrieved June 18, 2006, from http://www.theage.com.au/news/national/family-mourns-firefighting-wife-mother/2006/02/18/1140151851312.html February 19

Takeyama H, Itani T, Tachi N, Sakamura O, Murata K, Inoue T, Takanishi T, Suzumura H and Niwa S 2005, 'Effects of shift schedule on fatigue and physiological functions among firefighters during night duty', *Ergonomics*, vol. 48, pp. 1-11

Thompson B, Kirk-Brown A and Brown D 2001, 'Women police: The impact of work stress on family members' in P Hancock and P Desmond (eds) *Stress, workload, and fatigue,* Lawrence Erlbaum, NJ

UMR Research 2001, *Developing a strategy to nurture, enhance, and expand the volunteer fire brigade,* New Zealand Fire Service Commission Research Report Number 23

Westman M and Vinokur A 1998, **'**Unravelling the relationship of distress levels within couples: Common stressors, empathic reactions, or crossover via social interaction?', *Human Relations, vol. 51, pp. 137-56*

Willis M 2005, 'Bushfires – How can we avoid the unavoidable?', *Environmental Hazards*, vol. 6, pp. 93-9

Ziffer D, Boulton M and Milovanovic S 2006, 'Counting cost of killer fires', *The Age,* 25 January 2006, p. 1

Sean Cowlishaw is currently undertaking his PhD in Psychology at LaTrobe University as a research scholarship holder with the Volunteerism Project of the Bushfire Cooperative Research Centre (CRC). His research interests involve family system reactions to individual stressors, with a focus on relationships between fire service volunteering and the family systems of volunteers. Sean's interest in volunteering is motivated by the aim to raise awareness about the unrecognised efforts and sacrifices made by families, so as to understand how these labours can be better recognised while minimising the prices they pay. Sean currently acts as a volunteer crisis counsellor with Wesley Mission Melbourne.

Jim McLennan is a Senior Research Fellow in the School of Psychological Science, La Trobe University, Bundoora, and the Manager of the Bushfire Cooperative Research Centre (BCRC) Volunteerism Project. He is an author of several articles and reports on volunteer firefighter recruitment and retention and has made presentations on aspects of fire service volunteering at Australasian Fire Authorities Council national conferences.

Inaugural Volunteering Research Symposium
7-8 March 2006, Melbourne
Volunteering Australia www.volunteeringaustralia.org

56