Abstract

In Aotearoa-New Zealand and perhaps in other countries, firefighters are increasingly required to attend highly demanding and stressful non-fire incidents. This study used a qualitative descriptive research design to examine the gaps in preparation experienced by firefighters in Aotearoa-New Zealand when responding to non-fire incidents, particularly medical calls. Forty-four firefighters and 12 selected informants were interviewed. Ten Māori firefighters took part in a face-to-face focus group. Results indicate that firefighters equated preparation with training for their role. Training was considered by some to be limited to a specific range of first aid skills and it was felt a higher level of medical training would be beneficial. A need for more training in relation to working cross-culturally was also identified, particularly in relation to Māori and the application of cultural processes and protocols when death occurs. Training to improve firefighters' abilities to console and communicate with families at incidents was also noted. Besides training, participants identified the need to prepare for unfavourable outcomes, this included reframing what 'success' looks like, enhancing psychological wellbeing and encouraging help-seeking behaviours.

Ready to respond: preparing firefighters for non-fire incidents

Peer reviewed

En-Yi Lin[1] ⓘ
ORCID: 0000-0002-5720-2813

Verne-Maree McManus[1]

Jeffery Adams[1] ⓘ
ORCID: 0000-0003-3052-5249

1. Massey University, Auckland, New Zealand.

Introduction

Firefighting is dangerous and stressful work, presenting both physical and psychological challenges for firefighters (Carey *et al.* 2011, Piazza-Gardner *et al.* 2014, Wagner & O'Neill 2012). In addition to their core role of attending and extinguishing fires, firefighters are often involved with non-fire responsibilities including attending car accidents, providing urban search and rescue, stabilising incidents involving hazardous substances, performing animal rescues and rescues from swift water, controlling traffic around incidents and promoting fire safety in communities (Fire and Emergency New Zealand 2022). Alongside this has been a recent trend in many countries to call on firefighters to attend medical emergencies in community settings (Svensson *et al.* 2018, Williams *et al.* 2017).

There is evidence of acceptance among firefighters in countries such as England, Sweden and Australia of the need to attend medical call outs as this role expansion is viewed as being part of a contemporary emergency service (Abelsson 2019, Byrne-Davis *et al.* 2019, Smith *et al.* 2001). These incidents can vary considerably and include life-threatening events (cardiac and respiratory), suicide, drowning, road traffic crashes and direct rescue. Such events are highly demanding and stressful (Benedek, Fullerton & Ursano 2007; McLennan *et al.* 2009; Regehr *et al.* 2003) and can overwhelm a firefighter's normal ability to cope (Deanne, Jane & Ian 2014; Harris, Baloğlu & Stacks 2002; Straud *et al.* 2018). There is limited research relating to firefighters attending non-fire related incidents. A Swedish study examining firefighters' experiences of first response emergency care (Abelsson 2019) found that having time to mentally prepare and being allowed to show feelings were factors that assisted firefighters to cope.

The New Zealand context

Fire and Emergency New Zealand identified that the number of medical emergencies, including suicides, heart attacks and respiratory arrests that firefighters respond to is significantly increasing. In 2021, there were over 13,000 medical co-response and first response callouts (Fire and Emergency New Zealand 2022). Firefighters, including those with a medical role, are exposed to dangerous and stressful

situations and potentially traumatising events in the course of their work (Deanne, Jane & Ian 2014; Straud *et al.* 2018).

In late 2014, New Zealand Fire Service (now known as Fire and Emergency New Zealand) participated in a collaborative approach for medical emergencies with 2 ambulance services (St John New Zealand and Wellington Free Ambulance). This required firefighters to attend life-threatening cardiac or respiratory arrest emergencies (known as 'purple' calls) as co-responders. While, in some situations, ambulances also attend co-response calls, firefighters are often first to arrive, especially in smaller communities where ambulance and police officers are based further away.

The aim of this study was to understand how firefighters can better prepare for non-fire incidents, particularly medical calls, and to identify potential actions to help them manage the adverse effects of non-fire incidents.

Method

Recruitment

This study was carried out in New Zealand during 2017 and 2018. At the time of study, there were 469 fire stations and depots staffed by 1,739 career firefighters, 11,260 volunteer firefighters and 866 management and support personnel (Fire and Emergency New Zealand 2018). Attracting study participants (any active career or volunteer firefighter) was undertaken by Fire and Emergency New Zealand. Interested participants contacted the research team and telephone interviews were scheduled at times convenient for the participants. A face-to-face focus group of Māori firefighters was also held. Māori participants were invited by Fire and Emergency New Zealand's National Māori Advisor. Ethical approval was obtained from the Massey University Northern Human Ethics Committee (NOR17/47).

Participants

A total of 44 firefighters were interviewed individually by telephone and 10 firefighters took part in the face-to-face focus group. Thirty-seven of the firefighters interviewed individually were Pākehā (New Zealanders of European descent) or Australian. Two of the firefighters who were interviewed and all 10 focus group participants identified as Māori. Five participants did not provide their ethnicity.

Similar numbers of male and female volunteers (first and co-responders) participated, while there were more male than female participants in the career firefighter sample. The age range of firefighters interviewed was 18 years to 69 years. The length of service of firefighter participants (individual interviews and focus groups) ranged from 1 year to 44 years; 26 (59%) had 10 or more years of service (see Table 1).

Data collection and analysis

A guide was developed for the individual interviews and the focus group to ensure a similar range of topics was covered. The interviews were digitally recorded with interviewee consent and transcribed. A general inductive analytic approach was employed

Table 1: Research summary (N=54)

Characteristics	Details
Interview method	44 by telephone, 10 by face-to-face focus group
Ethnicity	37 Pākehā /Australian, 12 Māori, 5 unspecified
Gender	14 male volunteer firefighters, 12 female volunteer firefighters 21 male career firefighters, 7 female career firefighters
Age	Between 18 and 69 years
Length of service	Between 1 and 44 years 26 participants (59%) had 10 or more years of service

(Thomas 2006). In this approach, both the research aims and the raw data guided the data analysis. All transcriptions were printed, read independently and discussed by 2 researchers who then developed the themes. The quotes presented in this paper are slightly edited to facilitate ease of reading.

Results

The research results are presented under 2 main themes: preparation for necessary skills and preparation for unfavourable outcomes.

Preparation for necessary skills

Firefighters generally equated preparation for their role with the training they had received for their respective functions. Firefighters reported a direct link between being well trained and having confidence to perform the medical aspects of their role. Although firefighters mentioned the importance of having sufficient medical and technical skills, much of the training identified was related to 'soft skills' (such as cross-cultural skills and relational skills).

Medical and technical skills

Firefighters reported that the medical skills they learnt and the experiences of attending medical calls had positive results on their personal lives. These positive effects typically centred on firefighters valuing and appreciating their lives and their families more as well as their increased ability to cope with stressful situations and emergencies in their personal lives.

… you kind of just appreciate life so much more, and your family and you just, you hold things dearer to your heart, you can see how life is snuffed out in an instant, and it has no rhyme or reason, it just happens so you kind of, I don't know, I appreciate things more, I make sure I utilise every day as much as I can, and do things I enjoy doing.

Training for medical calls was seen by some participants as being an additional responsibility on top of firefighting requirements. It was viewed as important to ensure training for

fire responsibilities was maintained, but there should be scope to enhance medical training, particularly as some medical calls could be challenging and difficult to cope with and, with extra training, firefighters could be confident and effective.

… we are going to more and more of those medical calls, I would like to feel a little bit more confident going into those situations … we all know how to do CPR and those sorts of things, but sometimes when you're dealing with children, it's a little bit different and I'd like to see … more training in those areas …

Training in medical and technical skills was generally viewed as positive, however, firefighters identified a gap in cross-cultural training.

Cross-cultural skills

A gap identified by participants in training and preparation was around appropriate and respectful care and practice related to ethnicity and culture. There was a particular concern about the lack of processes or protocols for when a person has died that demonstrated respect for the deceased person and their family in a culturally appropriate way while also supporting the wellbeing of the firefighters attending the incident. This gap was especially significant when working with Māori. For Māori, applying spiritual practices at the scene of an incident and at debriefing times was acknowledged as important. This would typically involve a karakia (blessing) of the crew, the truck, the family and the site. Firefighters felt these protocols were not always addressed well.

… from a Māori perspective … we needed more of cultural approach around deaths … I think that's spiritual wellbeing … we don't do that very well … sometimes ritual and those sorts of things in and around things like death actually are part of helping cope …

Alongside cross-cultural skills training, another 'soft skill' identified by firefighters was around relational skills.

Relational skills

The role of firefighters attending a medical event was viewed as different to their role at a fire because it involved dealing with people and usually took place within someone's home. Firefighter participants noted that dealing with families and relatives, many of whom were highly distressed and upset, while attending incidents was a challenge they felt under-prepared for. Relationship skills training that improved a firefighter's ability to console and communicate with families and relatives while attending incidents was regarded as important. Also noted was the need for a balance between showing empathy towards the family while simultaneously protecting the firefighter crew from becoming so emotionally involved they then struggle to separate themselves from the scene.

… they're either in the lounge, in the hallway and very often in the bedroom, so these most sort of intimate places of a home … so, it's not like squirting water at

an inanimate building, or working with paramedics extricating somebody from a motor vehicle accident, it's tactile and more than that … we have to undress people, to do CPR … so it's very intimate in that sense as well … it's a huge contrast as I said with tackling a fire, there's just no comparison.

I think one of the challenges we face especially when we're going to suicides, purple calls, dealing with the deceased's whānau (family) and stuff like that is finding that balance of having that empathy and opening yourself up to it, and then closing off as well at the same time so that you don't go too deep and you don't get hurt too bad. But where's that balance? I never got told where that balance would be or how involved to get or how not involved to get or anything like that …

The second main theme identified by firefighters when responding to non-fire incidents was preparation for unfavourable outcomes.

Preparation for unfavourable outcomes

The medical calls attended by co-responder brigades usually involve cardiac arrests and respiratory arrests (purple calls). These are reported to have a high death rate. Being perceived as 'the good guys' who help and support the community can affect firefighters attending purple calls where both the community and firefighters may have unrealistic expectations of a good outcome. Preparing firefighters to deal with unfavourable outcomes is important to support mental health and resilience.

Reframing success

The view that firefighters need support to develop a realistic understanding of 'what success for a medical co-response looks like' was expressed. The experiences of firefighters attending purple calls and the low success rate associated with such callouts negatively affected their psyche compared with the positive feeling of success experienced after putting a fire out.

… we're geared up to go to an incident, like a house fire for example, to render assistance, so we walk away from that kind of incident with a feeling of, like, we did something, we put the fire out … so it's, like, a positive, whereas you walk away from a CPR job and most of the time you're not getting a positive result, so it affects your psyche … because you haven't been successful and we're so used to that; walking away and thinking, yeah, we did a great job, whereas we walk away from the CPR, it's not necessarily anything to do with what we did at the job, it's just the result that was always going to happen, and that's hard to deal with …

A key aspect of reframing success for firefighters identified by the participants was to recognise and accept purple calls as unlikely to have a positive (or successful) outcome in terms of lives saved. Reframing success then meant 'measuring' it in other ways such

as performing duties well and bringing comfort to people at incidents. The need to remove the negative connotations for firefighters associated with medical calls and replace them with positive affirmations and statements was also identified.

> *... I think the challenges are ... being regularly exposed to traumatic events that generally have a poor outcome ... but I'm trying to turn that into a positive by saying, 'well, you're well trained, you're effectively bringing a level of comfort, you're making a difference in a positive way' ...*

Reframing success was an important step in preparing firefighters to deal with unfavourable outcomes of non-fire incidents. Another aspect identified by the participants was to help them deal with unfavourable outcomes to enhance their psychological wellbeing.

Enhancing psychological wellbeing

While participants often reported attending fires as exciting and challenging, medical calls were seldom reported this way. Many firefighters reported that calls to attend medical events induced anxiety. A concern was the uncertainty about what they would find at the incident. Another difficulty reported was the outcomes of medical calls often remain unknown, leading to a lack of closure. Integrating regular mental health checks for firefighters to address these concerns was suggested. Also noted was the potential for greater psychological preparation at the recruitment level to facilitate realistic expectations of the role.

> *Personally, I don't see why the mind is any different from your physical being ... we have physical checks ... heart rate, blood pressure, sight, lung capacity ... and that's a yearly thing that's available for us to take up, but definitely nothing on a psychological side, and personally I think that that is needed.*

> *... I think there's a potential to sort of start the psychological health journey, at recruit level so giving them the awareness, giving them the conversations, talk to individuals in... how they cope with those type of incidents...*

Besides enhancing psychological wellbeing, participants also expressed the need for leadership to encourage help-seeking behaviours.

Encouraging help-seeking behaviours

Participants reported experiencing a gradual change in their brigade from a culture where help-seeking was historically viewed as a weakness to one with more open and supportive attitudes. Leadership modelling was essential to encouraging help-seeking. When brigade leaders (or senior crew members) started to be open about seeking help, this created space for others to discuss the effects of difficult medical callouts and allowed them to access help and support to cope with these challenging situations.

> *I think historically this organisation can be quite elitist and as such you know, any kind of weakness is really frowned upon ... and really like, you must be a loser if you need help... It's improving ... we're all tough, we don't really want to talk about it, but it takes one person really or a group of people to start the movement and the barriers come down and I can see that happening...*

> *... with the increase in medical responses... it's alright to feel this way when you come back from a call or even when you're at a call, it's not a sign of weakness... it's painting a more accurate image of who we are cos we are people at the end of the day, like everyone else, but we are also courageous, fit and strong as well...*

Discussion

Firefighting is a mentally and physically challenging occupation and firefighters are exposed to a range of stressors in their medical and non-medical roles. Career and volunteer firefighters are increasingly required to attend medical and other non-fire calls, including suicides, heart attacks and respiratory arrests. This research investigated firefighter views about attending non-fire calls and how they could be better prepared for these events. Firefighters in this study reported that attending non-fire incidents such as medical calls had negative impacts on them. A number of contributing causes were identified including the limited success of purple calls (due to those calls having a high death rate outcome), anxiety when attending medical calls, pressure to achieve positive outcomes, dealing with people and families (especially from different cultures) and a lack of closure. Consistent with the literature, these non-fire events can be highly demanding and stressful, and can be beyond a firefighter's ability to cope.

Some firefighters in this study reported experiencing personal growth and resilience as a result of attending non-fire, medical calls. While attending critical events was reported as causing stress reactions, many participants indicated that they were able to maintain their usual level of functioning and some perceived their role in non-fire calls as having a positive effect on their personal and family life. Participants reported valuing and appreciating these aspects more and considered they were better able to cope with emergencies in their personal lives.

Participants indicated that more medical and technical training would be beneficial to their preparedness and confidence when attending non-fire incidents and medical calls. Similar findings have been reported for firefighters elsewhere including the desirability of more training in severe and complex medical scenarios (Abelsson & Lundberg 2019).

A need for more training in relation to working cross-culturally was identified, particularly in relation to Māori, and cultural processes and protocols when a death occurs (Parkes, Laungani & Young 2015). With increasing ethnic diversity in modern societies, it is important to improve firefighter awareness of cross-cultural differences and their ability to provide respectful

care and practice to people across a range of ethnicities and cultures, as has been done in the healthcare sector (Luo 2019).

Another area where a need for extra training was indicated related to dealing with families at medical incidents. Participants suggested more training in relationship skills would improve their ability to console and communicate with families and relatives while attending incidents. Similar findings have been reported for firefighters elsewhere, including the desirability for more training in communication skills and how to provide the best care not only for the patient but also for the next of kin (Abelsson 2019, Jacobsson *et al.* 2015).

In Aotearoa-New Zealand, the medical calls attended by co-responder firefighters are for life-threatening emergencies, which are reported to have a high death rate. Being better prepared for unfavourable outcomes is to reframe the understanding of what success looks like when attending purple calls. A reframed outcome could be that the job was carried out well, including following the correct procedure and providing appropriate care.

A shift in brigade culture and mindset would enhance psychological wellbeing and encourage help-seeking behaviours. Participants expressed the need to change 'old school' attitudes that created barriers to seeking support. Good leadership was seen as key to building a culture of help-seeking. Seeking help and caring for one's psychological wellbeing should not be viewed as being weak or not coping, but rather as an extension of professional behaviour (Duran, Woodhams & Bishopp 2018; Van Hasselt, Bourke & Schuhmann 2022). Participants also expressed a desire to be informed of the outcomes of their medical calls. This would enable a sense of closure and enhance their psychological wellbeing.

Limitations

As is typically the case when conducting qualitative research, participant involvement was dependent on participants contacting the research team. To support this, the study was advertised and promoted extensively to ensure the self-selected sample was drawn from a wide pool of potential participants. This article reflects the views of the firefighters and key informants who were interviewed and does not account for the views of all firefighters.

Conclusion

Firefighters are increasingly required to attend medical and other non-fire callouts. The negative stress firefighters experience in non-fire incidents is a significant concern for firefighters and emergency services organisations. This study identified several areas for potential action to ensure firefighters are better prepared and supported for this vital role. Emergency services organisations could continually review their training and support programs to evaluate if they meet the needs of firefighters. Appropriate medical training, cross-cultural and relationship skills training relevant to firefighter needs should be available and its effectiveness evaluated. In addition, leaders and organisations should strive to normalise help-seeking practices and behaviour

and recruitment practices and support must accurately portray and keep abreast of the demands of the role.

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About the authors

En-Yi Lin is a research fellow at the SHORE & Whāriki Research Centre, Massey University. She has a interest in the health and wellbeing of ethnic groups and has experience in analysing and interpreting quantitative and qualitative data of social and public health projects.

Verne-Maree McManus (Ngā Puhi nui ki Whangaroa) is a research coordinator at the SHORE & Whāriki Research Centre, Massey University. She has worked with Māori organisations providing project planning and evaluation across health programs and initiatives.

Jeffery Adams is Associate Professor at the SHORE & Whāriki Research Centre, Massey University. He has led research and evaluation projects and contributed to public and community health and social service initiatives.