

## 2019 Emergency Services Foundation Scholarship Report



Research into mindfulness programs and how they can improve wellbeing and cognitive function for emergency service personnel

Senior Station Officer Dennis Smith  
Metropolitan Fire Brigade (currently seconded to Country Fire Authority)

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## Executive Summary

Emergency service workers throughout the globe are routinely, either directly or in-directly, exposed to critical incidents and traumatic events. These traumatic events and challenging situations can adversely affect their emotional, mental and physical health. Recent results of the Beyond Blue National Survey into the Mental Health and Wellbeing Study of Police and Emergency Services (2018) have confirmed these comments.

Not only are there negative impacts of these traumatic events to mental health, these individuals working in a range of roles from out in the field right up to senior leadership, are often expected to perform at the highest-level of excellence over long periods of time. The high-demand periods that these individuals often are involved require a high level of cognitive performance, including focus and decision making.

Evidence-based approaches to stress reduction and cognitive performance are sorely needed to address the complex needs and array of problems that emergency service personnel face. Viable interventions targeting these issues have been identified through mindfulness programs which have been contextualised for first responders.

To ensure agencies can operate at their best, it is recommended that the emergency management sector works collaboratively to implement a formal teacher-led mindfulness program contextualised for high stress, high demand roles within the emergency management sector, including those working within incident management team environments. It is recommended that a university is engaged to assist with the trial, capturing of data and provide evidence of results. Grant funding is also recommended as an option to assist with an initial pilot and to ensure longevity of the program.

## Acknowledgements

I would like to acknowledge with much appreciation the crucial role the following people have in regards to the sharing their knowledge, experience and networks relating to mindfulness and other wellbeing programs.

- Andrew Miles - Superintendent, Victoria Police
- Brendan Mott - Manager Health Promotion, NSW Fire Rescue
- Brian Austin, Captain, City of Madison Police Department
- Chad McGehee, Healthy Minds
- Deborah-Lee Griffiths - Leading Senior Constable, Victoria Police
- Dr Adrian Medhurst, Director Benny Button
- Dr Amishi Jha - Assoc. Prof. Director Contemplative Neuroscience, University of Mia
- Dr Dan Grupe - Associate Scientist, University of Wisconsin-Madison / Healthy Mind
- Dr Ekaterina Denkova - Research Asst. Prof., Dep. of Psychology, University of Miami
- Dr Megan Dobbie, Principal Psychologist, Ambulance Victoria
- Dr Michael Christopher – Professor & Director of Clinical Training, Pacific University
- Dr Richard Chambers - Clinical Psychologist & Mindfulness Consultant, Monash University
- Hannah MacDougall - Senior Advisor Community Programs & Campaigns, VICSES
- Joseph Glaser-Reich - Department of Homeland Security
- Matt Johnston - Mental Health Clinician & Professional Firefighter, First Responder Health
- Members of the First Responder Mindfulness Network (North America)
- Nicole Lisanti - Program Manager, Google
- Robin Martin - Deputy Fire Chief, Kitchener Fire Department, Ontario
- Sarah Easterbrook - Corrections Employee Wellness Unit, Ministry of the Solicitor General
- Scott Salvatore - Captain, Department of Homeland Security
- Vicente Gannam, Corrections Employee Wellness Unit, Ministry of the Solicitor General

Additionally, I would like to thank the following people for their support throughout the ESF scholarship process with their inspiration, direction, advice and guidance.

- Barry Gray, Assistant Chief Officer, Metropolitan Fire Brigade
- Darren Conlin, Assistant Chief Officer, Metropolitan Fire Brigade
- Geoff Kaandorp, Manager Research, Metropolitan Fire Brigade
- Jenny Davis, Executive Officer, Emergency Services Foundation
- Luke Heagerty, Manager Incident Management Systems, Country Fire Authority
- Mark Swiney, Assistant Chief Officer, Metropolitan Fire Brigade
- Scott Darcy, Senior Station Officer, Metropolitan Fire Brigade
- Siusan MacKenzie, CEO, Emergency Services Foundation
- Stuart Stuart, Senior Chaplain, Ambulance Victoria

## Introduction

Emergency service workers throughout the globe are routinely, either directly or in-directly, exposed to critical incidents and traumatic events. These traumatic events and challenging situations can significantly affect their emotional and mental health whilst dealing with these events (Harvey, et al., 2016).

At the time of writing this report Australia was experiencing one of its busiest and most destructive summers it has ever encountered, involving the response of thousands of emergency services personnel. The devastation not only included the destruction of vast amounts of properties, flora and fauna but also a number of deaths including both civilians and emergency service personnel. It is not hard to imagine the substantial impact of events such as these will have on emergency service personnel and agencies involved.

Working in an area of higher stress not only can increase the negative effect of emotional and mental health of individuals but can also inhibit information gathering, decision making and levels of attention. These elements are needed most during the fast paced, ever changing, emergency situations and affect many individuals working in a range of roles from out in the field to senior leadership.

To gain an understanding of best practice and research results of mindfulness programs for high stress roles, a review of existing literature was undertaken along with face to face meetings, telephone interviews and web interviews with a range of academics, first responders and other experts in their field in the US, Canada and Australia. This research was taken in November-December 2019 as part of the 2019 Emergency Services Foundation Scholarship program.

## Current Situation in Australia

Up until recently emergency service organisations have only had anecdotal evidence that their personnel are at greater risk of mental health conditions. There is now accurate data from the recent results of the Beyond Blue National Survey into the Mental Health and Wellbeing Study of Police and Emergency Services (2018), highlighting the importance of developing long-term interventions, to increase mindfulness and other wellbeing programs among first responders, to assist them to manage both chronic and acute stressors.

Key findings of the Beyond Blue National Survey include:

- One in three employees experience high or very high psychological distress.
- One in three volunteers and one in 2.5 employees have been diagnosed with a mental health condition in their life (compared to one in five adults in Australia)
- More than half of all employees indicated that they had experienced a traumatic event that had deeply affected them during the course of their work
- Poor workplace practices and culture were found to have a detrimental effect to their mental health as actual occupational trauma.
- Employees who had worked more than 10 years were twice as likely to experience psychological distress and were six times more likely to experience symptoms of PTSD.

- One in four former employees experience PTSD and one in five experience very high psychological distress.

As the findings suggest, working within the emergency management sector can result in an increase in exposure to stressful conditions. Each potential or actual threat triggers a cascade of stress hormones that produce well-orchestrated physiological changes. The production of stress hormones becomes detrimental when stress is a chronic feature of daily life.

Individuals working in the emergency management sector also need to operate in a dynamic environment whilst making important decisions in a timely fashion. Additionally, capacities such as self-reflection, self-care, mindful task management, relating to others and adapting to change are all important elements for not only the majority of the workforce, but importantly for self-directed leadership development (Rupprecht, et al., 2019).

Individuals in leadership roles such as the Victorian Emergency Management Level 3 Incident Controller, Regional Controller, State Response Controller are just some examples of roles that would require the capacities just mentioned, in addition to a mind that is focused on the task at hand and one that is not wandering, worrying about the past or catastrophising about the future, even if only for a short period of time, as this could have detrimental consequences. Mind wandering could impact the process of capturing and processing information, making and acting on a decision difficult and could even lead to disastrous consequences.

As an example, during deployments such as the latest 2019-20 devastating fire period in Australia, individuals from a variety of agencies working in a range of roles have been expected to perform at the highest-level of excellence over long periods of time. While a certain amount of stress is often good for performance, the sheer scale and complexity of these emergencies may have often tipped stress levels to a point that decreases levels of performance. Individuals in roles such as this could benefit from mindfulness training as a cognitive enhancement tool, as it has been successfully demonstrated through other parts of the world.

## Overview

The most widely used definition of mindfulness comes from Dr John Kabat-Zinn who has significant global recognition for his work on mindfulness-based stress reduction. This definition is “Mindfulness means paying attention in a particular way, on purpose, in the present moment and nonjudgmentally” (Kabat-Zinn, 1994).

Mindfulness is a therapeutic technique that teaches participants to focus entirely on the present moment, with an awareness of what is going on internally as well as externally. This technique has also shown the ability to cope with negative psychological symptoms and to sharpen focus, whilst building the ability to direct attention at will through a range of ever changing external stimulation (Jha, 2018).

One element of mindfulness training is focused-attention practices. This practice, which in this example is during a teacher led training session, is where a teacher guides the individual to focus on an anchor which is a specific sensation, such as their own breath, a part of the body or other senses such as vision or hearing. Trainers then encourage the individual to notice when his or her mind goes astray and simply return attention back to his or her chosen anchor. Over time with further practice, the task of noticing the mind wandering then bringing it back to the present moment becomes more regulated and controlled, which helps to build a state of awareness and focus.

Mindfulness programs are increasingly being adopted by private and public organisations, including the emergency management sector, as well as education, I.T. and health sectors to name a few. These organisations recognise the importance of reducing stress, cultivating resilience, as well as improving employees’ attention and performance.

Assisting the organisations in their decision to bring mindfulness into their workplace is the initial and ongoing research results which has shown mindfulness programs improve the health and wellbeing of individuals by decreasing stress, anxiety, depression and burnout for first responders (Kaplan, et al., 2017), whilst assisting in the prevention of PTSD (Smith, et al., 2011). Further evidence has also shown improvements in cognitive and academic performance for individuals during emergencies (Zanesco, et al., 2019).

In the course of conducting my research it was found that there are a range of mindfulness programs designed for organisations where the workforce is in high demand, high stress lines of work, such as emergency first responders. These programs are found to have been implemented by first responder agencies in countries including Canada, United Kingdom, United States, Australia and New Zealand along with others.

A number of these first responder mindfulness programs were made possible due to the partnership with universities which assisted with the development of training, logistics, mindfulness trainers and grants, whilst collating evidence and data relating to results of these

programs. Organisations that partnered with a university were able to see qualitative and quantitative data of the success and benefits associated with mindfulness programs. It must also be noted that not all organisations researched were partnered with universities, as some of implemented mindfulness programs whilst compiling their own research.

Most of the associated mindfulness programs implemented in the agencies researched have been developed based on principles of Mindfulness Based Stress Reduction (MBSR) which was founded by Dr. Jon Kabat-Zinn in 1979. Many of the programs have been updated and contextualised for individuals involved in high stress work and in particular first responders and other emergency service personnel.

### **Mindfulness Based Attention Training (MBAT)**

The University of Miami has developed a mindfulness program that is known as Mindfulness Based Attention Training (MBAT). This program is well researched and headed by neuroscientist Dr Amishi Jha and focuses on researching the benefits of mindfulness and how to best implement this training with time-constrained organisations. MBAT is designed to increase attention, focus and calm under pressure and has a strong focus on cognitive performance over high demand periods. Examples of high demand periods may include emergency deployments, campaign fires, large scale flood events, police and military operations where stress and fatigue are often an issue.

During high stress periods a person's attention may lapse and the mind can wander, being drawn away from the immediate task at hand. This can limit important information being received, dampen moods and makes us more susceptible to make errors (Jha, 2018). The fact that prolonged periods of stress can only increase the frequency of mind wandering, cannot be ignored. Research has found MBAT style programs can mitigate the issues of attention lapses and mind wandering.

MBAT was studied with both military and firefighters as participants using a number of primary and secondary outcome measures such as sustained attention, working memory, quality of sleep, emotional regulation and other mental health related scores. The 4-week course consists of 2-hour sessions delivered weekly and also includes out-of-class mindfulness practice consisting of 10-15 minutes per day, during the 4 weeks, as well as following the end of the course.

The out-of-class mindfulness practice is important during the program as individuals see even greater and ongoing benefits of mindfulness when practice is fulfilled throughout each week and kept up after the completion of the program. This means that simply participating in a program will show some key benefits of mindfulness but these benefits will greatly increase when the individual has incorporated mindfulness into their weekly or even daily schedule and this practice becomes part of their ongoing routine (Dr A. Jha, personal communication, November 20, 2019).



Dr Jha has also compared a compressed fast track 2-week version of the program to the 4-week version. The results have indicated that the 4-week program has shown the best results compared to the shorter version.

The individuals that completed MBAT showed an increase in their working memory and psychological resilience. Beyond Blue (2019) states that resilience is such an important part of an individual's wellbeing and is related to how a person bounces back after traumatic, challenging and stressful events.

Further discoveries were made during Dr Jha's research which relates to a train the trainer model. Data has shown positive results of mindfulness programs being facilitated by trainers who had extensive experience working with and/or knowledge of the organisation that the mindfulness training is being delivered. Interestingly though were these particular trainers had little to no experience in or delivering mindfulness programs. It was previously thought that to be a successful mindfulness trainer for first responder type agencies that the trainer not only have extensive knowledge and familiarity of the agency being trained but also be an experienced mindfulness trainer.

A train the trainer model opens up options for organisations interested in a long-term strategy for mindfulness programs. The train the trainer model could be used in a variety of ways, whether the final strategy is to have these newly skilled trainers to permanently take the training forward or be used to co-train with a main trainer, who has mindfulness experience. Both of these options allow for longevity and make it more financially viable to meet long-term goals.

## **Mindfulness Based Resilience Training (MBRT)**

Another type of mindfulness program that has emerged for emergency service organisations is Mindfulness Based Resilience Training (MBRT). Research has been collated and published relating to the training of both police officers and firefighters in the North West of the US by the Pacific University in Oregon.

MBRT has been tailored for first responder organisations, designed to increase the fitness of both the body and mind of its participants. During this 8-week program firefighters and police officers learnt skills and knowledge in how to enhance mental clarity, personal health, and mindful exercises covering a range of motion and injury prevention.

Part of the ethos of this training is to build resilience of the participants by teaching them practical skills to assist mitigation of stressors they may face with their day to day work, and even at home. Self-awareness and compassion is focus of this mindfulness program which has been of interest to police, corrections, law enforcement agencies as the often-required approach to handle threats in a responsive manner without unnecessary aggression.

Multilevel models were used to capture evidence of this specific 8-week version of mindfulness training for first responders. The results showed a significant improvement in:

- self-reported mindfulness

- resilience
- perceived stress
- burnout
- emotional intelligence
- difficulties with emotion regulation
- mental health
- physical health
- anger
- fatigue
- sleep disturbance

Madison Police Department in Wisconsin, US has partnered up with the University of Wisconsin-Madison to deliver and study the effects of mindfulness on first responders. These police officers have also been receiving mindfulness-based resilience training similar to the police and fire departments in the North West of the US.

The Madison police officers involved in the training showed a reduction in:

- post-training perceived stress
- sleep disturbances
- anxiety
- burnout
- PTSD symptoms

This research and training is still being undertaken and continued positive results are being captured (D. Grupe, C. McGehee Personal Communication, December 4, 2019).

There are other versions of Mindfulness Based Resilience Training, such as the one currently being coordinated by Homeland Security in the US, which consists of an intensive 3-day face to face session. According to J. Glaser-Reich (personal communication, February 2, 2020), one of the reasons the intensive version was chosen was due to the fact that individuals involved in each program were from a variety of locations and departments such as the US Customs Boarder Protection, Immigration and Customs Enforcement, US Secret Service and the US Coast Guard. This led to a logistical challenge as well as availability of personnel, hence the benefit to complete the training in one group of consecutive days.

On the east coast of Canada, the Ministry of the Solicitor General, which is responsible for law enforcement services in the province of Ontario, has implemented Mindfulness Based Wellness and Resilience programs where staff from range of correctional facilities and law enforcement have undertaken the training. In this case the train the trainer model has also been used to assist with the training requirements.

So far, the results captured by this organisation have shown:

- statistically significant decrease in the amount of stress staff take home with them
- increase in participants' emotional resilience, which assesses an individual's ability to bounce back from stress
- significant reduction in compassion burnout
- extremely high percentage of participants finding the program valuable and strongly agree that MBWR is a positive step towards improving work culture

## Associated tools / programs

The majority of first responder organisations that are using mindfulness as a tool to increase wellbeing and cognitive function are also using a range of other methods and tools to enhance these elements. Often mindfulness is part of a suite of programs or which form part of the agency's strategic approach to increase wellbeing and cognitive function for their people.

One of those tools is using heartrate variability to give the individual a deeper understanding of their body's recovery and ability to handle stress. Heartrate variability is a psychophysiological indicator of mental and physical health by measuring the variation in time between each heartbeat (Hye-Geum, et al., 2018). This variation is controlled by the autonomic nervous system. The autonomic nervous system is subdivided into two large components, the sympathetic and the parasympathetic nervous system, also known as the fight-or-flight mode and the relaxation response.

If a person's system is in more of a fight-or-flight mode, as it may be more regularly throughout the day for emergency service personnel, the variation between subsequent heartbeats is low. If one is in a more relaxed state, the variation between beats is high. In other words, the healthier the autonomic nervous system the faster you are able to switch gears, showing more resilience and flexibility. Over the past few decades, research has shown a relationship between low heartrate variability and worsening depression or anxiety and even an increased risk of death and cardiovascular disease (Chalmers, et al., 2014).

Ontario law enforcement and corrections staff as well as firefighters from Kitchener Fire Department, also in Ontario, Canada use heartrate variability to track how their nervous system is reacting to their environment and can give the individual an indication that they may need to take measures to counter-act the stressors by spending time improving their mental health and wellbeing. While monitoring heartrate variability obviously can't help these individuals avoid stress in their day to day work, according to Deputy Fire Chief Robin Martin (personal communication, November 12, 2019), it helps them to understand how to respond to stress in a healthy way, such as using mindfulness as a technique to counter the stress.

Another tool related to mindfulness that the Kitchener Fire Department is using is a domestic electroencephalogram (EEG). EEG devices are widely used by neuroscience researchers around the world and there are now domestic EEG available on the market. This easily worn headband uses signal processing to read the mental activity of the person wearing it, and in the case of Kitchener firefighters, is assisting them in honing their mindfulness techniques.

The way the headband works is while reading the brain activity, if it reads a calm and settled mind, peaceful weather sounds are heard through the headband. If the device picks up that the focus of the individual is drifting and the mind is wandering, stormy weather is heard, that cues the individual to bring their attention back to their breath. Data is captured on a smart phone and the individual can track their mindfulness session, showing how many times their mind wandered and they were able to bring it back to focus.

Although the data being captured out of Kitchener Fire Department is all anecdotal thus far, there has been an obvious increase in mindfulness practice, mental health self-awareness and resilience in the firefighters using tools such as the EEG headband, heartrate variability, as well as education in sleep, functional movement and trauma informed yoga as elements to sit alongside mindfulness practice (R. Martin, personal communication, November 12, 2019).

## Locally

NSW Ambulance, St Johns Ambulance N.T. and NSW Fire Rescue are currently using an e-learning version of mindfulness training known as Resilience At Work (RAW). Data was captured whilst being piloted with NSW Fire Rescue with positive results. The advantage of a program such as this is the ease of reaching a large number of participants that stretch over a large geographical area. For these reasons agencies such as Ambulance Victoria have been looking closely at this program to ascertain whether it is a viable option for them.

For a number of years Victoria Police have had internationally recognised speakers from Universities and wellbeing and performance specialists, invited to present on their senior leadership and promotional programs regarding mindfulness and leadership. These sessions are aimed at introducing and educating their members on the benefits of mindfulness and the science behind it. Some of the same presenters have also produced a free online mindfulness course aimed at reducing stress and improving performance at work for the wider community.

Both the Metropolitan Fire Brigade (MFB) and Country Fire Authority (CFA) have implemented a single session intervention program originally from Canada, where it is known as the Road to Mental Readiness (R2MR). Part of the program's mission is to increase mental health resilience of an organisation by improving mental health communication along with reducing the stigma associated with mental health problems. Although this program does not include formal mindfulness training, it does educate participants that mindfulness is a tool available to enhance resilience.

## Insights

During this research respondents have indicated that having an offsite permanent venue to complete mindfulness courses and other wellbeing programs would be beneficial for any face-to-face training. While learning the new mindfulness techniques, the regular feedback from participants has indicated that having a venue free from interruptions, such as loudspeaker voice overs and station alarms, is conducive to being able to fully immerse in the training without the distractions of regular workplace interruptions.

The overwhelming consensus was that this training should be considered part of workplace personal development rather than a voluntary course to complete in their own time, if a stand-alone program was to be introduced. It was perceived that the leadership had given the program greater credence if participants were remunerated for their time for attending, much like any other training program. This promotes further belief in the program from staff and creates a greater willingness to take part.

There is no evidence to suggest that compulsory attendance to these mindfulness programs have positive results in the acceptance of the programs across the organisation and in attendance. There has been some anecdotal evidence that having some introductory or education on mindfulness imbedded in other training programs, such as recruit, promotional and leadership courses, is beneficial with positive feedback from individuals that have completed these sessions within leadership programs.

The success of the programs is also linked to having advocates from a range of levels throughout the organisation. These influential individuals have assisted in engaging their peers to better understand the benefits of the program.

## Conclusion

The data available and research undertaken clearly shows that agencies within the Victorian emergency management sector would benefit from implementing a program that has evidence of increasing resilience, as well as cognitive performance for its people. Mindfulness training is likely to be seen more and more within organisations due to the current and ongoing research and studies which have identified the benefits of programs such as this.

It must be noted however, that mindfulness is not a silver bullet in resolving all the issues of mental health and cognitive performance, and results depend largely on the type and length of training, and the commitment level of the participants. Mindfulness programs would see best results when it sits alongside other wellbeing, performance and leadership programs.

Short courses and e-learning can be a great introduction to mindfulness and also a viable option where participants cover a large geographical area however, many practitioners agree that it takes between 4-8 weeks to form new habits and the best results are from teacher led training programs. There may be scope for some agency promotion programs that run more than 4 weeks to imbed formal mindfulness program into the timetable.

For emergency service organisations, evidence has shown that any form of teacher-led mindfulness programs would see benefits however, a mindfulness program that has been contextualised for first responders and those working in high stress roles would see greater benefits. To further enhance these benefits the program has to be futureproofed to ensure the ongoing interest and motivation of participants. This along with partnering up with other education programs relating to sleep and nutrition, functional movement such as yoga, heartrate variability tools and other associated technology will boost results.

To date, teacher led mindfulness programs have not yet been widely trialled or implemented in Victorian or Australian emergency service organisations. However, some leadership and wellbeing programs within the emergency management sector have introduced the concept of mindfulness with educated on the associated benefits. This would indicate the appetite for organisations to implement a formal, teacher led, mindfulness program into their wellbeing, performance and leadership programs. This would ensure each agency is not only getting the best out of their people but also building resilience towards the ongoing stresses that form part of their day to day role.

Together, the emergency management sector has a great opportunity to work collaboratively to implement an evidence based, progressive program which enhances the way we work, increases cogitative performance and helps address many of the mental health problems that the sector is currently facing.

## Recommendations

1. That the Victorian emergency management sector works collaboratively to implement a pilot teacher-led mindfulness program, contextualised for first responders. Ideally this program will target a cross range of individuals and groups from across the sector working in high stress, high demand positions including those in cross sector incident management team environments.
2. That the Victorian emergency management agencies, through ESF, seek funding to partner with a university to assist in the development and evaluation of a trial of the chosen/developed formal mindfulness program to build evidence before cross sector roll out.
3. That there is a suitable site/venue for mindfulness training provided which is conducive for immersion of mindfulness and other wellbeing programs.
4. Victoria agencies engage with other States and Territories to form an Australian First Responder Mindfulness Network, to collaborate and share information regarding mindfulness programs. This network to connect with the North American First Responder Mindfulness Network and any other international networks for information sharing purposes.

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