


Supporting the Mental Health and Well-Being of First Responders from Career to Retirement: A Scoping Review

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EMS: Emergency Medical Services
EMT: emergency medical technician
PTSD: posttraumatic stress disorder

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Abstract

Introduction: First responders are at greater risk of mental ill health and compromised well-being compared to the general population. It is important to identify strategies that will be effective in supporting mental health, both during and after the first responder's career.

Methods: A scoping review was conducted using the PubMed database (1966 to October 1, 2020) and the Google Scholar database (October 1, 2020) using relevant search terms, truncation symbols, and Boolean combination functions. The reference lists of all relevant publications were also reviewed to identify further publications.

Results: A total of 172 publications were retrieved by the combined search strategies. Of these, 56 met the inclusion criteria and informed the results of this overview paper. These publications identified that strategies supporting first responder mental health and well-being need to break down stigma and build resilience. Normalizing conversations around mental health is integral for increasing help-seeking behaviors, both during a first responder's career and in retirement. Organizations should consider the implementation of both pre-retirement and post-retirement support strategies to improve mental health and well-being.

Conclusion: Strategies for supporting mental health and well-being need to be implemented early in the first responder career and reinforced throughout and into retirement. They should utilize holistic approaches which encourage "reaching in" rather than placing an onus on first responders to "reach out" when they are in crisis.

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Introduction

There is a growing evidence-base suggesting that, compared to those in the general population, first responders (police, firefighters, and paramedics/emergency medical technicians [EMTs]) are at greater risk for mental ill health, suicide ideation, and suicide completion.^{1–5}

A nation-wide survey of Australian emergency services personnel identified that one-in-three experienced high or very high psychological distress compared to just over one-in-eight adults in Australia.⁶ Emergency services personnel had more than two-times the rate of suicidal thoughts and were more than three-times more likely to have a suicide plan compared to the general adult population. Employees who had worked for more than 10 years were almost twice as likely to experience psychological distress and were six-times more likely to experience symptoms of posttraumatic stress disorder (PTSD).⁶ In a study of Canadian first responders, nearly one-half (44.5%) screened positive for clinically significant clusters consistent with one or more mental disorders.⁷

The unpredictable nature, cumulative stress, and fast-paced tempo associated with front-line first response can result in an inability to appropriately debrief, and therefore process, work experiences. This was documented in one study which highlighted that around 70% of prehospital professionals never had enough time to effectively recover between traumatic events.⁸ As a result, first responders are at much higher risk than the general population of developing mental health injury and conditions such as depression, stress, and PTSD and suicidal ideation and completion.^{1,4,9–17}

The objective of this overview paper is to identify the state of evidence regarding first responder mental health and well-being, along with the current best practices for supporting well-being, throughout the first responder career and into retirement.

Methodology

The search followed the PRISMA extension for scoping reviews and the PRISMA-ScR checklist.¹⁸ Relevant search terms were identified and searches conducted according to the PICo model (Population, Intervention, Context).^{19,20}

A scoping literature review was undertaken using the PubMed (National Center for Biotechnology Information, National Institutes of Health; Bethesda, Maryland USA) database (1966 to October 1, 2020) using a combination of the following search terms: first responder; police; firefighter; paramedic; emergency medical technician; EMT; emergency medical services [EMS]; EMS; ambulance; mental health; wellbeing; well-being. Appropriate truncation and Boolean functions were utilized. An additional search was undertaken using the Google Scholar (Google Inc.; Mountain View, California USA) database (October 1, 2020). The reference lists of all relevant publications were reviewed to identify further publications of interest.

The results of the literature search were reviewed by two independent members of the research team using a data extraction form developed for the review. Inclusion criteria were any publication that reported on the mental health or well-being of first responders, or programs developed to support mental health and well-being. A data extraction form developed for this research project was utilized by two independent reviewers. Cohen's Kappa Value was calculated for the inter-rater reliability between the two researchers in identifying relevant publications. The kappa value for inter-rater reliability was 0.90, which indicated excellent agreement between reviewers.

Results

A total of 172 publications were retrieved by the combined search strategies and checking of reference lists. Of these, 56 met the inclusion criteria and informed the results of this scoping review.

The papers identified by this scoping review reported the use of a range of research methodologies. Thirty-six papers reported qualitative or descriptive methods, twelve utilized quantitative methods, five utilized mixed-methods, two papers were literature reviews, and one paper was a meta-analytic review. The papers were published from 2005 through 2020. Just under one-half (43%) of all publications were published between 2015-2020, highlighting the growing interest in this topic area. Six publications focused on firefighters (11%), fifteen on police officers (27%), one on ambulance paramedics (1%), and the remaining 61% of publications included a mix of first responder groups.

Depression

Depression has been commonly reported among first responders, with rates and severity varying across studies. One study of prehospital professionals reported that almost seven percent experienced depression,⁸ while another study found that volunteer firefighters reported markedly elevated levels of depression as compared to career firefighters.²¹ The researchers suggested that competing demands for volunteer firefighters, such as having a separate job, can create stress vulnerabilities that contribute to the development or exacerbation of behavioral health conditions.

Organizational factors, such as ineffective screening and training, may also contribute to the differences in mental health impact observed between volunteer and career responders. In another study, 22% of female career and 39% of female volunteer firefighters were at risk of depression.²² A study following police officers after the 9/11 attacks found that almost 25% of them went on

to develop depression and nearly 50% experienced both depression and anxiety.²³

Stress and PTSD

Previously, PTSD has been reported to affect between 15% and 30% of first responders.²⁴ In a study of prehospital professionals, stress was reported in nearly six percent of personnel.⁸ Paramedics who responded to the same traumatic event reported higher peri-traumatic dissociation compared with responding police.⁹

In a study following Hurricane Katrina (2005), PTSD was reported in between seven percent and 19% of a sample of police officers.²⁵ After the 9/11 attacks, PTSD was reported in 11% of police responders, with PTSD increasing as the level of social support decreased. The prevalence of PTSD prevalence was almost 35% in police officers unable to work because of ill health and almost 51% in those with unmet mental health needs. Prevalence of PTSD was higher in female officers (15.5%) compared to male officers (10.3%).²⁶ In a separate study, the prevalence of probable PTSD in police officers following 9/11 was almost 13%.²³

A study of US firefighters, while limited due to convenience sampling methods, reported markedly elevated levels of posttraumatic stress in volunteer firefighters while career firefighters reported higher levels of PTSD.²¹ It is important to note the link between firefighter PTSD and substance use disorder, with researchers noting that 20% of firefighters have both PTSD and substance use disorders when compared to the general public.²⁷

Suicide and Suicidal Ideation

A number of studies have attempted to report the rates of suicide and suicidal ideation among first responders, but there is still a question as to the accuracy of the rates reported given the way data have been collected in samples of convenience versus the use of random samples. Questions have also been raised as to the cohort of personnel included in these statistics. For example, suicides may be recorded for active responders but not retired or veteran staff. Heyman, et al²⁸ stated that only 40% of firefighter suicides are reported. Despite this limitation, reports have shown that more police officers have died by suicide in recent years in the US compared to those that have died in the line of duty, with 224 police officer suicides compared to 128 officer line-of-duty fatalities.²⁹

Research also suggests that prehospital personnel may be more likely than the general population to think about and attempt suicide. Suicidal thoughts and ideations in paramedics have been compared to the general population, with one study indicating a lifetime prevalence rate of 28% for feeling life is not worth living, 10% for serious suicidal ideation, and three percent for a past suicide attempt.⁴ Other reports have shown that prehospital personnel tend to think more about suicide and to attempt it more compared to the general population.¹⁷

Having both paramedic and firefighting duties has been associated with a six-fold increase in the likelihood of reporting a suicide attempt as compared to firefighting alone.⁴ In a separate study, 37% of paramedic and fire professionals had contemplated suicide, nearly ten-times the rate of the comparable general population. In addition, nearly seven percent had reported a suicide attempt compared with just 0.5 percent of the general population.¹³ These rates put first responders overall at a higher risk of suicide than the general public.²⁷

Evidence suggests that firefighters may be more likely to think about and attempt suicide than the general population; however, these studies are limited by their use of convenience sampling.⁴

In a convenience sample of 1,027 current and retired US firefighters, the prevalence of suicidal ideation was nearly 47%, suicide planning was 19%, and suicide attempts was nearly 16% as compared to lifetime rates of ideations, plans, and attempts (13.5%, 3.9%, and 4.6%, respectively) among the general US population.³⁰ In a national sample of firefighters, posttraumatic stress symptoms were associated with firefighters having a 5.2-times higher likelihood of attempting suicide compared to the general public.³¹

In a literature review of suicide and suicidal ideation among police officers, the lifetime prevalence of suicidal ideation was found to be 25% for female police officers and 23% in male officers, with suicide attempt rates ranging from less than one percent to 55% among different studies.⁴ Another study linked the strain associated with the first responder job to suicidal ideation, as well as depression and anger. Police officers with burnout showed significantly greater suicide risk with officers who reported burnout at work also reporting a 117% greater likelihood of suicidal thoughts.³² A further study found that more firefighters and police officers died by suicide than in the line of duty. The same study found that PTSD and depression can be almost five-times as high among firefighters and police officers than the general public.²⁸

Supporting Mental Health and Well-Being during the First Responder Career

Given this well-established evidence-base which highlights the increased risk first responders have for poor mental health and compromised well-being, it is important to understand the interventions that have been developed to support mental health for these groups. Furthermore, it is with urgency that there is a need to determine the evidence-base underpinning these programs so that evidence-informed decisions can be made when it comes to policy and practice.

However, the evidence-base remains under-developed. As Kleim and Westphal noted in their review of mental health in first responders:

... in contrast to the extensive knowledge base of risk factors known to predict onset of PTSD, there are relatively limited empirical data on factors that may serve [as] protective functions in this population ... Such information is vital for the development of evidence-based prevention programs targeted at first responders.^{3pp20}

There is a similar lack of knowledge about how best to teach these prevention skills to first responders.⁵

What is known about mental ill health prevention programs for first responders is that published evidence supporting interventions (such as what programs exist, the objectives of the programs, and what the programs actually include) is sparse. Additionally, if there are any interventions being implemented among first responder organizations, there have been limited objective evaluations conducted and published on their effectiveness.⁵ This lack of primary information results in a subsequent lack of high-level evidence syntheses, including systematic reviews and meta-analyses, on which to guide knowledge-implementation decisions.

There have been some individual peer-reviewed studies which suggest that, like research on general workplace mental health support programs, the programs devised for first responders have not been helpful at reducing symptoms of poor mental health.⁵ An intervention focused on primary prevention was developed to reduce the negative health impact of work-related stress amongst police by enhancing officer's sense of control over stress-provoking situations. Compared to a control group, the intervention group reported better overall levels of exhaustion and general well-being

following the intervention. However, there was no assessment of symptoms for any specific types of mental ill health (eg, depression or PTSD), so it is not known if this would be an effective support program for preventing mental ill health.³³

A randomized control trial of a sample of Australian firefighters examined the effectiveness of four one-hour training sessions on PTSD symptoms one year later. The experimental group received psychoeducation about PTSD and its impact on psychological health, as well as cognitive behavior therapy, support seeking, and self-soothing. The control group received regular training. The study findings indicated no beneficial effects of the intervention.³⁴

Addressing stigma remains an on-going barrier to supporting first responder mental health and well-being. Approximately 90% of respondents in one US-based study stated that stigma was a barrier to seeking treatment.³⁵ The stigma associated with help-seeking is not limited to the US, it has also been reported in Australia,³⁶ New Zealand,³⁷ and the United Kingdom.³⁸ While some research on stigma in first responder groups has been undertaken, more research and data are needed to fully understand its relationship with help-seeking, coping, and health outcomes.²⁷

Another approach to improving first responder mental health is the development of resiliency-building programs.³⁹ Organizations can contribute to the promotion of personal resiliency through the creation of environments in which leaders encourage their personnel to make resiliency practices part of their daily routines.^{40,41} Although limited in scope and depth, research on building resiliency and positive mental health with first responders has shown some promising results. The evidence suggests that training in resilience building can significantly benefit first responder organizations by improving judgment and decision making and decreasing the frequency of on-the-job accidents.⁴²

Preliminary evaluations of resilience training used in Australia and Canada – Road to Mental Readiness (R2MR) – have shown promising results, with participants stating that it helps to reduce stigma and to build resiliency. They also found that the training was applicable in both their work and their personal lives.⁴³ A further two US-based studies, although based on a small sample (n = 14 and n = 34), also found that resilience practices yielded positive results for first responders.^{44,45} An Australian study investigated 143 first responders who participated in a six-session mindfulness training program. The results suggested that mindfulness-based resilience training delivered in an online format can create improvements in adaptive resilience among first responders.⁴⁶

A recent program developed to build first responder resilience and mental health is the Warr;or21 program.⁴⁷ The program utilizes daily practices grounded in positive psychology and resilience over the course of 21 days. Each practice, including controlled breathing and gratitude, is evidence-based. A preliminary evaluation of the program (n = 61) revealed that program participants held very positive views of the program. Of the sample, 90% were very satisfied (60%) or satisfied (30%) with the program, and 95% of participants indicated that they would recommend the program to others in their profession.⁴⁷

Supporting Mental Health and Well-Being during the Retirement Transition

Specific training and support programs have been implemented by first responder organizations to help prepare new recruits for the risks associated with first responder careers.⁴⁸ Where many current support programs fall short is the absence of on-going support

throughout the career and into retirement transition. Managers and leaders play an integral role in creating safe environments where conversations around mental health are normalized and programs supporting well-being become routine elements of programs designed to maintain overall first responder health.

Providing opportunities for appropriate debriefing and support are integral to supporting first responder mental health and well-being as they affect how first responders interpret and process stress.⁴⁹ The key is to encourage supportive workplaces that routinely make opportunities for staff to have conversations with a range of support providers, preferably encouraging a holistic approach to well-being, so that these relationships become a trusted and normal part of debriefing on a routine basis, as well as when staff are in crisis. The importance of having someone in their organization that they built a rapport with throughout their career cannot be emphasized enough. Having these normalized well-being support structures in place prior to first responder staff transitioning into retirement will ultimately assist in keeping staff mentally healthy and happy throughout, and after, their career.⁴⁹

Self-care is also vital when transitioning to retirement. Self-care as a process should be taught during training, encouraged throughout the career, and emphasized during retirement.⁵⁰ An example of an organization providing on-going training that emphasizes the importance of self-care techniques is “Yoga for First Responders.” This course teaches first responders how to stay calm under pressure and stress and equips them with the tools needed to manage being exposed to personal triggers and for self-regulation of emotion. Another Australian example is “Blind Tiger Yoga” which serves the veteran and emergency services community by teaching functional recovery tools to improve mindset, personal growth, and well-being. These types of self-care programs can help first responders transition from the stress of their job to a “normal” life at home and could likely be implemented to help with the transition to retirement.⁵¹

Retirement can be a challenging transition from any career. For first responders, there can be additional emotional and physical stress due to attachment to the job, making the transition into retirement extra challenging.⁵² Police officers that had the smoothest transition to retirement viewed policing as “just a job,” their family system provided structure, and their organization provided the support they had become used to throughout their career.⁵³ This further highlights the importance of embedding well-being support into first responder organizations on a routine basis, so that conversations around mental health become normal and the support available becomes a predictable and trusted presence throughout career into retirement.

One way to ease the stress associated with retirement transition is through first responder organizations providing programs that prepare employees for retirement, even several years before they reach retirement age.⁵² These retirement preparation programs should be evidence-based and include information about what age they are required to retire by, if there is an option to extend their retirement, and promote retirement as a positive, exciting, and inevitable life transition.⁵⁴ Programs should also address the unique mental health and well-being challenges for first responders forced into early retirement, possibly due to ill health, and the needs of responders once they do retire.

Another way that first responder organizations can make the retirement transition smoother is by providing pre-retirement training to responders so that they can develop transferable skills that will aid them in finding other careers after they retire.⁵²

It would also be helpful if organizations offered services that help retired responders find a new job, if it is wanted, as well as a counselling program for themselves and their family members following retirement.⁵³ Paramedics in Ireland have a transitional phase of “pre-retirement” as they adjust from working full-time to retiring. This type of approach allows responders to slowly reduce their hours over time, making the transition to retirement a smooth one.⁵⁴ These kinds of initiatives can assist first responders to feel like they have not been “forgotten” once they turn in their uniforms.

When many first responders start their career, there is often a ceremony to recognize their recruitment and their commencement. Similar types of ceremonies to recognize retirement could be beneficial in supporting the on-going mental health and well-being of first responders exiting the workforce. Some responders may favor a more formal retirement ceremony while others may prefer a more informal recognition with close friends and family. Regardless of the style, this is one idea that can help ease the transition period and thank responders for many years of service.^{52,53}

For many responders, wearing a uniform and being part of an emergency response team will be intricately linked with their identity. Once that uniform is handed in and they do not routinely see the same teammates, responders can begin to question their identity and place in the post-first-responder world. Readjusting to civilian life can be challenging, an experience also had by many military veterans. Military service can be difficult, demanding, and dangerous. But returning to civilian life also poses challenges for the men and women who have served in the armed forces. A survey of 1,853 veterans found that while 72% had an easy time readjusting to civilian life, 27% reported that re-entry was difficult for them. This proportion swelled to 44% among veterans who served in the 10 years since the 9/11 terrorist attacks.⁵⁵

According to the study, veterans who had a clear understanding of their role and contributions while serving experienced fewer difficulties transitioning into civilian life compared to those who did not. In contrast, veterans who reported having an emotionally traumatic experience while serving or had suffered a serious service-related injury were significantly more likely to report problems with re-entry. The lingering consequences of experiencing psychological trauma while on the job are particularly striking. The probabilities of an easy re-entry for veterans dropped from 82% for those who did not experience a traumatic event to 56% for those who did.⁵⁵

Even small traumatic events can have a big impact. As first responders progress through their careers, each incident, each traumatic experience goes into their emotional backpacks as a rock. Over the years, they struggle to function wearing this heavy load, yet they continue to add rock after rock.⁵⁶ Over an extended period, stressors and traumatic experiences can take a toll. Mental and emotional fatigue was a factor in 28% of absenteeism within police organizations.⁴³

The only other people who will really understand the weight of these backpacks are other responders. Another important option for supporting first responders in retirement is through the formation of organizational groups specific to their career as first responders. These retirement groups can assist in ensuring that first responders do not feel isolated and alone upon their retirement, and they can provide on-going support and connection, both integral to protecting mental health and well-being of first responder retirees. These groups could offer voluntary welfare programs, social meetings, and gatherings to retired responders.^{53,54}

Heglund⁵⁶ writes about the importance of taking a holistic approach to mental health and well-being, advocating for the

use of retreat-based programs which utilize a range of skilled and experienced clinical and peer staff specifically trained in trauma recovery. Australian research provides further support for adopting this holistic, retreat-based approach to supporting mental health and well-being of first responders.⁵⁷

Advocating for early-intervention to assist in the prevention of mental ill health, this research highlighted that while clinical therapies seem to be useful in short-term treatment, they do not provide the tools or strategies required to make the lifestyle changes needed to sustain improved mental health and well-being in the long-term, including into retirement. Examples of holistic, retreat-based programs for first responders include the West Coast Post Trauma Retreat (WCPR) in the US,⁵⁸ which is a residential program providing an educational experience designed to help current and retired first responders recognize the signs and symptoms of work-related stress including PTSD; and the Badge of Life Canada Program in Canada, which includes a peer group of first responders with PTSD spending a week together engaging in discussion, physical activity yoga, and equine therapy.⁵⁹

Discussion

This scoping review identified 56 publications which discussed mental health and well-being support for first responders. By considering the key mental health issues experienced by this cohort and summarizing the wide range of support options that have been utilized across various emergency services, this review provides a broad picture of how the problem of supporting first responder mental health and well-being has been tackled to date and how it could be faced in the future.

Overall, the evidence encourages a holistic and integrated approach to supporting the mental health and well-being of first responders and offers an evidence-based framework to guide both preventative measures as well as supportive interventions for first responders.

The evidence emphasizes the need to utilize a positive approach to supporting mental health by encouraging emergency service organizations to actively promote well-being as a part of “core business,” highlighting the need to encourage first responders to both

“reach out” when in crisis as well as recognizing the need for organizations to “reach in” to responders, emphasizing the need for shared responsibility for well-being across both the individual responder and the emergency service organizations.

This scoping review has identified the need for a comprehensive set of holistic supportive actions across the first responder’s career, the implementation of which will assist each organization – and individual responder – to examine their approach to supporting mental health and well-being throughout the career and into retirement.

Limitations

This scoping review has some limitations. First, the methodological quality of the included studies was not evaluated. Second, restricting to certain academic databases may have excluded relevant publications. Third, it is possible that the review has missed evidence of possible interventions that may have never been reflected in the published or grey literature but are nevertheless used in practice and continue to be used.

Conclusion

First responders are at greater risk of mental ill health and compromised well-being compared to the general population. Strategies for supporting mental health and well-being need to be implemented early in the first responder career and then reinforced throughout and into retirement. These strategies need to be embedded across all first responder organizations, and made available to all responders, both career and volunteer. Early-intervention holistic-based approaches should be encouraged that harness the benefits of practices such as yoga, meditation, and mindfulness. The building of trusted relationships with support providers throughout the responder career helps to normalize conversations around mental health and are integral for increasing help-seeking behaviors during a crisis and in retirement. Organizations should consider the implementation of pre-retirement planning strategies and post-retirement support initiatives such as retirement-support groups and explore the mental health benefits of retirement ceremonies that acknowledge the important contributions of first responders throughout their careers.

References

- Mitchell JT. Collateral damage in disaster workers. *Int Emerg Ment Health*. 2011; 13(2):121–125.
- Berger W, Coutinho ESF, Figueira I, et al. Rescuers at risk: a systematic review and meta-regression analysis of the worldwide current prevalence and correlates of PTSD in rescue workers. *Soc Psychiatry Psychiatr Epidemiol*. 2012;47(6):1001–1011.
- Kleim B, Westphal M. Mental health in first responders: a review and recommendation for prevention and intervention strategies. *Traumatology*. 2011;17(4): 17–24.
- Stanley IH, Hom MA, Joiner TE. A systematic review of suicidal thoughts and behaviors among police officers, firefighters, EMTs, and paramedics. *Clin Psychol Rev*. 2016;44:25–44.
- McCreary DR. *Veteran and First Responder Mental Ill Health and Suicide Prevention: A Scoping Review of Prevention and Early Intervention Programs Used in Canada, Australia, New Zealand, Ireland, and the United Kingdom*. British Columbia, Canada: Donald McCreary Scientific Consulting; 2019.
- Answering the call national survey, National Mental Health and Wellbeing Study of Police and Emergency Services – Final Report. Beyond Blue Web site. <https://resources.beyondblue.org.au/prism/file?token=BL/1898>. Accessed October 2020.
- Mellow R. Ground breaking data collected on mental health of first responders. *JEMS*. 2017;42(11).
- Bentley MA, Crawford JM, Wilkins JR, Fernandez AR, Studnek JR. An assessment of depression, anxiety, and stress among nationally certified EMS professionals. *Prehosp Emerg Care*. 2013;17(3):330–338.
- Marmar CR, McCaslin SE, Metzler TJ, et al. Predictors of posttraumatic stress in police and other first responders. *Ann NY Acad Sci*. 2006;1071:1–18.
- Benedek DM, Fullerton C, Ursano RJ. First responders: mental health consequences of natural and human-made disasters for public health and public safety workers. *Annu Rev Public Health*. 2007;28:55–68.
- Asmundson GJ, Stapleton JA. Associations between dimensions of anxiety sensitivity and PTSD symptom clusters in active-duty police officers. *Cogn Behav Ther*. 2008; 37(2):66–75.
- Patterson PD, Weaver MD, Frank RC, et al. Association between poor sleep, fatigue, and safety outcomes in emergency medical services providers. *Prehosp Emerg Care*. 2012;16(1):86–97.
- Abbot C, Barber E, Burke B, et al. What’s killing our medics? Ambulance Service Manager Program. Conifer, Colorado USA: Reviving Responders. <http://www.revivingresponders.com/originalpaper>. Accessed October 2020.
- Botha E, Gwin T, Purpora C. The effectiveness of mindfulness-based programs in reducing stress experienced by nurses in adult hospital settings: a systematic review of quantitative evidence protocol. *JBIR Database System Rev Implement Rep*. 2015; 13(10):21–29.
- A study of police suicide 2008–2016. Badge of Life Website. <http://www.policesuicidestudy.com>. Accessed October 2020.
- Quevillon RP, Gray BL, Erickson SE, Gonzalez ED, Jacobs GA. Helping the helpers: assisting staff and volunteer workers before, during, and after disaster relief operations. *J Clin Psychol*. 2016;72(12):1348–1363.
- Substance Abuse and Mental Health Services Administration. First responders: behavioral health concerns, emergency response, and trauma. Disaster Technical Assistance Center Supplemental Research Bulletin. <https://www.samhsa.gov/sites/default/files/dtac/supplementalresearchbulletin-firstresponders-may2018.pdf>. Accessed October 2020.

18. Tricco AC, Lillie E, Zarin W, et al. Preferred reporting items for systematic reviews and meta-analyses extension for scoping reviews (PRISMA-ScR) checklist. *Ann Intern Med.* 2018;169(7):467–473.
19. Danish Ministry of Health. Model for Development of National Clinical Guidelines. Copenhagen, Denmark; 2014.
20. Joanna Briggs Institute. *Joanna Briggs Institute Reviewers' Manual: 2014.* South Australia: University of Adelaide; 2014.
21. Stanley IH, Boffa JW, Hom MA, Kimbrel NA, Joiner TE. Differences in psychiatric symptoms and barriers to mental health care between volunteer and career firefighters. *Psychiatry Research.* 2017;247:236–242.
22. Haddock CK, Poston WSC, Jahnke SA, Jitnarin N. Alcohol use and problem drinking among women firefighters. *Women's Health Issues.* 2017;27(6):632–638.
23. Bowler RM, Kornblith ES, Li J, et al. Police officers who responded to 9/11: comorbidity of PTSD, depression, and anxiety 10–11 years later. *Am J Ind Med.* 2016;59(6):425–436.
24. van Dam D, Ehring T, Vedel E, Emmelkamp PM. Validation of the primary care posttraumatic stress disorder screening questionnaire (PC-PTSD) in civilian substance use disorder patients. *J Subst Abuse Treat.* 2010;39(2):105–113.
25. McCanlies EC, Mnatsakanova A, Andrew ME, Burchfiel CM, Violanti JM. Positive psychological factors are associated with lower PTSD symptoms among police officers: Post Hurricane Katrina. *Stress Health.* 2014;30(5):405–415.
26. Cone JE, Li J, Kornblith E, et al. Chronic probable PTSD in police responders in the World Trade Center health registry ten to eleven years after 9/11. *Am J Ind Med.* 2015;58(5):483–493.
27. Henderson SN, van Hasselt VB, LeDuc TJ, Couwels J. Firefighter suicide: understanding cultural challenges for mental health professionals. *Prof Psychol Res Pract.* 2016;47:224–230.
28. Heyman M, Dill J, Douglas R. The Ruderman White Paper on mental health and suicide of first responders. Ruderman Foundation. https://rudermanfoundation.org/white_papers/police-officers-and-firefighters-are-more-likely-to-die-by-suicide-than-in-line-of-duty/. Accessed October 2020.
29. Blue Help. 2019. <https://bluehelp.org/>. Accessed September 2020.
30. Stanley IH, Hom MA, Hagan CR, Joiner TE. Career prevalence and correlates of suicidal thoughts and behaviors among firefighters. *J Affect Disord.* 2015;187:163–171.
31. Boffa JW, Stanley IH, Hom MA, Norr AM, Joiner TE, Schmidt NB. PTSD symptoms and suicidal thoughts and behaviors among firefighters. *J Psych Res.* 2017;84:277–283.
32. Bishopp SA, Boots DP. General strain theory, exposure to violence, and suicide ideation among police officers: a gendered approach. *J Crim Justice.* 2014;42(6):538–548.
33. Arnetz BB, Arble E, Backman L, Lynch A, Lublin A. Assessment of a prevention program for work-related stress among urban police officers. *Int Arch Environ Occup Health.* 2013;86(1):79–88.
34. Skeffington PM, Rees CS, Mazzuchelli, TG, Kane RT. The primary prevention of PTSD in firefighters: preliminary results of an RCT with 12-month follow-up. *PLoS ONE.* 2016;11(7):e0155873.
35. Fraternal Order of Police. Report on FOP/NBC survey of police officer mental and behavioral health. <https://fop.net/CmsDocument/Doc/OfficerWellnessSurvey.pdf>. Accessed October 2020.
36. Australian Federal Police. Annual report 2018–2019. <https://www.afp.gov.au/annual-report-2018-19>. Accessed September 2020.
37. Peach AS. The perspectives and experiences of paramedics using employer funded counselling. Master's Thesis. 2019. New Zealand: Auckland University of Technology.
38. Stuart H. Mental illness stigma expressed by police to police. *Isr J Psychiatry Relat Sci.* 2017;54(1):18–23.
39. Spence D. Improving law enforcement resilience: lessons and recommendations. Officer Safety and Wellness Group Meeting Summary. Washington, DC USA: Office of Community Oriented Policing Services. 2017.
40. Hesketh I. Co-producing an emergency services well-being strategy in the UK. *CSWB.* 2018;3:88–90.
41. Hesketh I. Leading the asset: resilience training efficacy in UK policing. https://eprints.lancs.ac.uk/id/eprint/123782/1/Resilience_Training_The_Police_Journal_Theory_Practice_and_Principles.pdf. Accessed September 2020.
42. McCarty R, Atkinson M. Resilience training program reduces physiological and psychological stress in police officers. *Glob Adv Health Med.* 2012;1(5):44–66.
43. Mental Health Commission of Canada. The road to mental readiness (R2MR): Reduce stigma and increase resiliency in police employees. 2014. https://www.mentalhealthcommission.ca/sites/default/files/1%252520PG%252520R2MR%252520Police%252520Backgrounder%252520ENG_0_0.PDF. Accessed October 2020.
44. Weltman G, Lamon J, Freedy E, Chartrand D. Police department personnel stress resilience training: an institutional case study. *Glob Adv Health Med.* 2014;3(2):72–79.
45. Ramey SL, Perkhounkova Y, Hein M, Bohr NL, Anderson AA. Testing a resilience training program in police recruits: a pilot study. *Biol Res Nurs.* 2017;19(4):440–449.
46. Joyce S, Shand F, Lal TJ, Mott B, Bryant RA, Harvey SB. Resilience@Work mindfulness program: results from a cluster randomized controlled trial with first responders. *J Med Internet Res.* 2019;21(2):e12894.
47. Thompson J, Drew JM. Warr;or21: a 21-day program to enhance first responder resilience and mental health. *Front Psychol.* 2020;11:2078.
48. Sansbury BS, Graves K, Scott W. Managing traumatic stress responses among clinicians: individual and organizational tools for self-care. *Trauma.* 2015;17(2):114–122.
49. Prati G, Pietrantonio L. The relation of perceived and received social support to mental health among first responders: a meta-analytic review. *J Community Psychol.* 2010;38(3):403–417.
50. Knight C. Indirect trauma: implications for self-care, supervision, the organization, and the academic institution. *Clin Superv.* 2013;32(2):224–243.
51. Kvitne O. Now this. Yoga for First Responders. <http://yogafirstresponders.org/>. Accessed October 2020.
52. Kragt D, Jorritsma K, Dunlop P, Parker S. Firefighters' transition into retirement: issues, challenges, and support program design. Western Australia: Centre for Transformative Work Design; University of Western Australia; 2017.
53. Ruiz J, Morrow E. Retiring the old centurion: life after a career in policing—an exploratory study. *Int J Public Admin.* 2005;28(13–14):1151–1186.
54. Bracken-Scally M, McGilloway S, Mitchell JT. Retirement policies and support for emergency service personnel: the transition to retirement. *Can J Aging.* 2016;35(2):161–174.
55. Pew Research Center. The Difficult Transition from Military to Civilian Life. <https://www.pewsocialtrends.org/2011/12/08/the-difficult-transition-from-military-to-civilian-life/#:~:text=While%20more%20than%20seven%2Din,11%2C%202001%2C%20terrorist%20attacks>. Accessed October 2020.
56. Heglund J. Helping First Responders Withstand Traumatic Experiences. *FBI Law Enforcement Bulletin.* 2009;78:9.
57. Dean G. A holistic early intervention for emergency service workers at risk of developing a mental illness. https://esf.com.au/wpcontent/uploads/2020/04/2019_Greg_Dean_VicPol.pdf. Accessed October 2020.
58. The West Coast Post Trauma Retreat. <https://www.frsn.org/west-coast-post-trauma-retreat.html>. Accessed October 2020.
59. Badge of Life Canada. PTSD retreat for first responders. Shift Cognitive Therapy and Assessment. <https://shiftct.com/badge-of-life-canada-ptsd-retreat-for-first-responders/>. Accessed October 2020.