Exploring the types, functions and impacts of formal and informal supports used by ambulance personnel at St John

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Table of Contents

List of Figures

List of Tables

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Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

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Abstract

Background: Ambulance personnel experience significant stress in their day-to-day work as they respond to medical emergencies that are often traumatic and challenging. Cumulative events and ongoing stressors have been linked to increased mental health issues among emergency responders, especially ambulance personnel. Social support has been identified as a coping strategy that positively affects the prevention and treatment of mental health conditions. However, there is limited research within the New Zealand emergency medical response area regarding what formal and informal social support ambulance personnel use to cope.

Aim: This study aims to document the use of formal and informal social support of ambulance personnel at St John in New Zealand. There are ten different types of formal support within the St John organisation. Informal support includes nine types of support that ambulance personnel may access external to St John. This study also aims to examine the characteristics of ambulance personnel related to the social supports they utilise, and their perceptions regarding the effectiveness of the available functions of support. These functions look at, but are not limited to, ease of job, emotional and financial support, inclusion, and guidance.

Method: Ambulance personnel were recruited through emails from the St John employee weekly bulletin. The participants answered an online questionnaire gathering personal demographic information, level of perceived stress, and individual perception of formal and informal supports available and utilised. A total of 89 participants were included in the study.

Results: The perceived stress scale (PSS) was found to have high reliability for the study. The average PSS score showed high levels of stress. Informal support of spouse/partner, family, and friends showed more emotional support. Spouse/partner and family provided more financial support; overall, spouse/partner showed more social support. Colleagues showed more support than most other formal supports, followed by peer support in certain support functions.

Conclusion: New Zealand ambulance personnel experience high perceived stress as part of their work. They utilise mostly informal social supports from spouses/partners, and family, while colleagues are often the go-to support in the workplace. Implications of this study were discussed, along with recommendations for future research.

Introduction and Literature Review

Since the COVID-19 pandemic, the importance of healthcare professionals and their crucial role in society's health has been increasingly recognised worldwide (Dicker et al., 2020). Though many health workers find their jobs rewarding and satisfactory (Brooks et al., 2018; Granter et al., 2018), it is widely known that the occupation of any health worker is physically, mentally, and emotionally strenuous (Beyond Blue Ltd, 2018; Boland et al., 2019; Donnelly et al., 2016; Lawn et al., 2020). Individuals who work in health service professions are exposed to constant and excessive stress as part of their jobs, and are thus vulnerable to psychological distress and the development of mental health disorders, such as anxiety, depression, burnout, and other stress-related disorders (Boland et al., 2019; Selye, 1956).

Emergency medical response care is undertaken by multiple job roles within the ambulance service. The occupations of ambulance personnel are an example of a healthcare service that must deal with additional stressors. Ambulance personnel require special consideration for their mental health and, therefore, it is essential to understand the occupational stress unique to their profession, the outcomes of this ongoing and inevitable stress, and the formal and informal support often used to mitigate the negative impact of stressors (Boland et al., 2019; Donnelly et al., 2016). This dissertation explores the current literature that is relevant to ambulance personnel and how the work they perform may have an impact on their mental health. Examining literature regarding coping strategies, such as social support, is of interest. Additionally, this New Zealand study explicitly investigates the informal and formal social support St John ambulance personnel use to cope with work stressors.

Ambulance Personnel

Internationally, frontline emergency medical responders have many different titles. In New Zealand, 'paramedic' is the most common term for an emergency medical first responder and will be used in this dissertation when discussing this specific profession. However, other terms synonymous with paramedic are Emergency Medical Technician (EMT), ambulance attendant, medical assistant, medical technician, first responder, paramedical, and paraprofessional, to name a few (Bentley et al., 2013; Lawn et al., 2020; Williams et al., 2021). 'Paramedic' is only one role within a more comprehensive network of emergency medical responders. 'Ambulance personnel' is an umbrella term for the multitude of jobs required to deliver first-respondent care in the community (Petrie et al., 2018). Some of the key roles that exist within ambulance personnel in

New Zealand include field operations (e.g., paramedics), event health services, patient transfer services, ambulance communications, corporate operations, community health and iwi engagement, customers and supporters, finance and business insights, area committees, and other clinical roles (e.g., clinical improvement, clinical education; Petrie et al., 2018; St John, 2022). There is an abundance of literature explicitly focused on paramedics and the tasks included in their role. However, there is limited research on the other ambulance personnels' specific tasks and the psychological demands of their occupations (Boland et al., 2019; Drewitz-Chesney, 2019; Halpern et al., 2009; Jones, 2017).

Ambulance personnel sit within two of the most critical workforces in most countries worldwide (Beyond Blue Ltd, 2018). They are considered first responders alongside police and fire services, and they are also considered part of the healthcare workforce (Mildenhall, 2012; Varker et al., 2017). Therefore, they are often part of research regarding both groups, depending on the research aim and question. In 2018, a large Australian study of over 21,000 ambulance, police, fire, and state emergency services employees found that one in three first responders frequently experience "high or very high psychological distress" (Beyond Blue Ltd, 2018, p. 17). The study compares this to the general Australian adult population (Australian Bureau of Statistics, 2015, as cited in Beyond Blue Ltd, 2018), whereby one in eight individuals experience high psychological distress, reflecting a significant increase of distress in emergency responders simply as a result of their profession (Boland et al., 2019). A comprehensive systematic review of 27 studies regarding the mental health of first responders in over 11 countries found that the prevalence of psychological distress exceeded those of general populations (Jones, 2017).

Ambulance personnel play an essential role in the public health sector and are more susceptible to work-related mental distress and psychological injury than other healthcare workers (Lawn et al., 2020; Mildenhall, 2012; Sterud et al., 2006). A systematic literature review by Lawn et al. (2020) found that in 27 international studies of over 30,000 ambulance personnel, 15% had been diagnosed with depression, 15% had anxiety, 27% had general psychological distress, and 11% had post-traumatic stress disorder (PTSD). Research has consistently shown that PTSD is more prevalent among first responders than the general population, (Jones, 2017). Of concern, studies have also shown that healthcare workers generally underreport symptoms of psychological distress, meaning that these prevalence rates are likely considerably higher (Lewis-Schroeder et al., 2018).

Paramedics

Paramedics are trained registered health professionals that provide emergency medical care in and about the community. As they do not provide care within a medical centre, their tasks are unique to their profession (Claringbold et al., 2022). Everyday work for paramedics involves using ambulances to respond to emergency calls (call-outs), the provision of urgent medical assessment and treatment for people who are seriously unwell or injured, and transporting those people to a medical facility (Courtney et al., 2012; Donnelly et al., 2016; Regehr & Millar, 2007). Being a frontline paramedic is associated with greater exposure to life-threatening incidents which can then induce trauma-related symptoms (Jones, 2017; Weiss et al., 2010).

Research indicates that ambulance personnel have elevated levels of PTSD and psychological reactions such as anxiety, depression, burnout, hyper-vigilance, intrusive thoughts, grief, flashbacks and suicidal ideation (Blevins et al., 2015; Lawn et al., 2020). In 1980, the American Psychiatric Association (2013) added PTSD to the third edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM)*, describing trauma as a stressor that was abnormal to general human experiences and exceeded one's own ability to cope (Carmassi et al., 2016; McBride et al., 2018). Since then the concept of trauma has been modified throughout the DSM editions. The updated criteria of PTSD in the DSM fifth edition (DSM-5) states that a stressor can be "repeated or extreme indirect exposure to aversive details of the event(s), usually in the course of professional duties (e.g., first responders, collecting body parts; professionals repeatedly exposed to details of child abuse"; American Psychiatric Association, 2022, p. 306). Recently, a Canadian study found that the prevalence of anxiety among paramedics was 22%, and depression and suicidal ideation was 10% (Carleton et al., 2017). In New Zealand, a recent study found that two thirds of paramedics exhibited psychiatric morbidity and 20-30% received high to very high scores of distress using the Kessler Psychological Distress Scale (Kessler et al., 2002; Surgenor et al., 2020).

Ambulance personnel are exposed to a large variety of severe stressors in the line of duty. Traumatic incidents (e.g., gruesome injuries, mutilations, death and suffering) and a variety of stressors (e.g., taking emergency calls, intense emotional reactions from patients and families, speeding to the incident or hospital, and workplace conflict) are part of their standard day-to-day work (Jones, 2017; Netczuk-Gwoździewicz, 2017). While dealing with these intense stressors,

ambulance personnel must also respond appropriately and professionally, showing care and empathy for others above themselves (Netczuk-Gwoździewicz, 2017).

These inevitable traumatic and critical incidents mean that any given workday could feel uncontrollable, unpredictable, and distressing (Scully, 2011). An accumulation of these stressors can result in psychologically adverse outcomes (Donnelly & Siebert, 2009), with continuous and repeated exposure to these stressors being related to hypervigilance and PTSD (Donnelly et al., 2016). Additionally, as well as psychological effects, physical side-effects such as headaches, fatigue, sleep disruption, musculoskeletal injuries, and dietary issues also exist amongst ambulance personnel due to continued exposure to occupational stressors (Donnelly & Siebert, 2009).

Stress

Stress is a typical response, by an individual, to a situation perceived as challenging or threatening (Selye, 1956). Lazarus and Folkman (1984) define *stress* as, "constantly changing cognitive and behavioural efforts to manage specific external and internal demands that are appraised as taxing or exceeding the resources of a person" (p. 141). This definition emphasises the individual's understanding of a stressor, their unique self-appraisal of their coping abilities, and thus the different ways in which they cope. In addition, it highlights the significant impact an environment can have on the development of one's stress response. The stress response occurs when the environmental demands on a person challenge their psychological self-appraisals; if the person feels ill-equipped to cope it then triggers biological changes (Salleh, 2008). This response can occur at different times and in different situations and is unique to each individual. Short-term stress has been shown to improve the immune response in order to deal with an acute stressor. However, long-term (i.e., chronic) stress has been shown to cause the immune system to falter, as it cannot distinguish between what is an immediate, genuine, life-threatening response, as opposed to what is an everyday, or perceived stressor (Salleh, 2008).

The body's systemic response to life-threatening stress follows the same course of action as it would to an everyday stressor. Biological responses such as increased heart rate, elevated blood pressure, quickened breathing, and tensing muscles prepare the body for survival. Persistent, prolonged, or repeated exposure beyond the requirement of survival leads to overactivity of the hypothalamic-pituitary-adrenal (HPA) axis, as well as the sympathetic nervous system and the adrenomedullary system. The activity of the HPA axis is often reflected by the increase in cortisol levels (Salleh, 2008), the bodies stress hormone. Constant, ongoing or persistent stress causes

cortisol to be consistently produced, leading to significant health issues such as heart disease, cancer, respiratory disorders, stomach ulcers, and more (Donnelly & Siebert, 2009; Salleh, 2008). Multiple studies have shown increased cortisol levels in paramedics, stating that this increase was simply due to work-related events (Backé et al., 2009; LeBlanc et al., 2012). It should be noted that these studies included paramedics with existing health issues.

A recent study found that stress related to emergency response situations was linked to increased psychosocial stress and negative mood, and reduced work fulfilment. Emotional irritation was also an observed by-product of work-related stress (Peifer et al., 2021). Despite evidence of an increase in heart rate, cortisol, and proinflammatory cytokines, the paramedics tended to deny feeling stressed. This small study found that depersonalisation is common among paramedics as a way of coping with occupational stress (Peifer et al., 2021).

Types of stressors

A large body of knowledge has grown from studies investigating the different types of stressors that paramedics face. There are three main 'categories' of stressors that emerge from the research: critical incident stressors, operational stressors, and organisational stressors (Donnelly et al., 2016; Reti et al., 2022). While there is evidence that all three types correlate with the risk of developing PTSD, it is important to differentiate between them to understand them in depth (Donnelly et al., 2016). A 'critical incident' was originally described as, ''any situation faced by emergency personnel that causes them to experience powerful emotional reactions, which have the potential to interfere with their ability to function either at the scene or later'' (Mitchell, 1983, p. 36). More recently, they have been specified to involve any stressors similar to the previous definition but are related to direct patient care (Halpern et al., 2009). Some examples of these situations include attending to the death of a baby or child, responding to suicide, vehicle-related accidents, providing care to friends, family or those known to the respondent, treating burn patients, dealing with violence or mental health patients, and treating acutely ill or seriously injured people (Donnelly et al., 2016; Halpern et al., 2009; Jones, 2017). Two qualitative studies found that these types of critical incidents are more widely accepted within ambulance personnel work culture as distressing compared to other, more routine callouts, and that debriefing of these types of events was necessary and common (Drewitz-Chesney, 2019; Halpern et al., 2009).

Organisational stressors are stressors associated with the specific workplace's culture, such as workload, managers, supervisors, colleagues, shift work demands, limited downtime, lack of

debriefs, poor communication, supervision hierarchy and lack of recognition (Donnelly et al., 2020; Hart et al., 1993). These organisational stressors have been shown to have a significant impact on mental distress and well-being that is equal to, if not sometimes higher than, the critical incident stressors themselves (Lawn et al., 2020). Organisational culture also has the potential to impact how safely a paramedic can execute the tasks of their job (Donnelly et al., 2020).

Operational stressors are those associated with the structural elements of working in the field of emergency care and practising as a paramedic (Donnelly et al., 2016). Exposure to emergency situations, shift work, driving, high workload, and responding appropriately to victims and families are considered operational stressors (Donnelly et al., 2016; Hart et al., 1993). Another example of an operational stressor is the physical component of the job. The operational stressors specific to emergency response work are risk factors for psychological distress (Armstrong et al., 2014).

Both organisational and operational stressors contribute to psychological distress (Reti et al., 2022). Within ambulance personnel, it is especially important to distinguish between additional organisation stress impacting on psychological well-being, compared to operational traumatic stress (Wagner et al., 2020).

Types of coping

Stress is an inevitable and normal part of life, but as already mentioned, for ambulance personnel specifically, additional stress from work-related activities can be expected (Lawn et al., 2020; van der Ploeg, 2003). There is an inter-relational effect that mental health, stress and physical health have on each other, both positively and negatively (Lawn et al., 2020). Therefore, it is imperative to understand different coping strategies, and how they can significantly impact an individual's ability to deal with stress.

Emotion-focused coping and problem-focused coping are the two most effective types of coping mechanisms utilised. Emotion-focused coping is utilised when an individual aims to reduce the emotional response induced by a stressor. Any technique that reduces feelings such as anxiety, fear, irritation, and sadness, is considered an emotion-focused coping technique. Some of these include medication, journaling, dissociating, suppression, mindfulness, alcohol, drug use and many more (Arble & Arnetz, 2017). Even though these techniques are effective in reducing stress in the short-term, emotion-focused coping is considered less helpful as it does not deal with the root cause of stress and often accumulates over time (Pinks et al., 2021).

The most effective type of coping is problem-focused, as it attempts to deal with the cause of stress (LeBlanc et al., 2011). Social support is considered an effective technique of problem-focused coping. Due to critical incidents, work is an inevitable source of stress for emergency responders, and cannot be removed; social support aims to reduce the feeling of stress and subsequent disempowering feelings, such as isolation. It is recognised that talking about a challenging experience can reduce stress and help to deal with subsequent emotions (Boland et al., 2019; Donnelly et al., 2016).

Social support

Social support is the provision of resources or assistance received by others to cope with stressors (Cohen & Syme, 1985). Social support has previously been linked to positive mental health among first responders as it has the ability to provide a buffer for adverse psychological distress symptoms after a traumatic event (Prati & Pietrantoni, 2010). According to the Crises and Personal Growth Model, social support can positively influence coping behaviours and responses to stressors, thereby promoting personal growth (Schaefer & Moos, 1998). A lack of social support in the workplace has been linked to chronic stress, and the need to provide access to social support has been suggested throughout literature as a healthy coping strategy (Prati & Pietrantoni, 2010; van der Ploeg, 2003).

Perceived support and received support are the two types of social support. *Perceived support* is a cognition an individual has and refers to how much an individual believes that people are truly available for support if needed (Barrera, 1986). Feeling assured that there are people to turn to for support provides security and reduces loneliness and isolation. *Received support* is the behavioural component of support. It is an actual source of support already received (Dunkel-Schetter & Bennett, 1990).

Research on social support in first responders has shown that while received support is beneficial in promoting health and well-being, perceived support is believed to be a stronger protective factor against mental health issues (Prati & Pietrantoni, 2009). Additionally, receiving support reduces unpleasant feelings following stressful events and improves social resources (Prati & Pietrantoni, 2009), whereas the perception that support is available *during* times of need provides a sense of resilience (Dunkel-Schetter & Bennett, 1990). When this is applied to paramedics, it would appear that feeling safe to debrief work incidents with close work colleagues implies perceived social support (i.e., knowing their partner is safe to talk to). Individuals who had

experienced positive previous discussions (received support) with trusted staff members following call-outs, meant they now anticipated open discussions with those staff members following future incidents (perceived support). Consequently, paramedics feel supported by their colleagues even when a discussion is not being had. Knowing their colleagues would accept their emotions and thoughts, and care about them made all the difference (Drewitz-Chesney, 2019).

Types of social support

Social support is one of the most researched and used coping strategies for first responders (Reti et al., 2022). Among first responders, social support has been found to have moderate to strong protective effects against psychological distress, such as anxiety, depression, PTSD, and burnout (Arble & Arnetz, 2017). In general adult populations worldwide, and specifically among first responders, a lack of social support is a predictor for PTSD, depression and anxiety (Beyond Blue Ltd, 2018; Donnelly et al., 2016; Petrie et al., 2018; Shakespeare-Finch et al., 2015). Multiple studies have found that when dealing with workplace stressors, social support is a protective factor against the development of psychopathologies and considered an effective intervention (Shakespeare-Finch et al., 2015; Skeffington et al., 2017).

Within ambulance personnel specifically, psychopathological repercussions of critical incidents are buffered by high levels of social support (Donnelly et al., 2014; Regehr & Millar, 2007). Furthermore, social isolation and a lack of social support have proven to increase the risk of and predict mental health issues (Köhler et al., 2018). As social support is frequently used and is a beneficial coping method, it is important to understand what types of social support ambulance personnel are currently receiving, what they have received in the past, and what they believe they will use or need in the future, either formally or informally. *Formal supports* are social supports predominantly provided by a professional or within a professional organisation. These supports are often organised and have policies regarding engagement and execution. *Informal support* is the social support provided outside of a professional context. Some examples of informal support include friends, family, and romantic partners (Marsack & Samuel, 2017).

Though emergency response work is challenging, ambulance personnel report that they derive satisfaction from their chosen type of work (Bowron & Todd, 1999; Drewitz-Chesney, 2019; Sterud et al., 2011). Greater job-related stress has been related to job dissatisfaction (Boudreaux et al., 1997; Eiche et al., 2021). The work itself will not change as accidents and incidents are a part of daily life, and removing all stress inducers is impossible, however, discovering how ambulance

personnel cope, and how to enhance current coping strategies in order to make them more effective, is imperative to maintaining their mental health. Although particular services or supports required for change were not specifically named, previous international research has suggested that in order to support ambulance personnel, improvements regarding social support within the organisational culture and operational systems need to be made. Only then can the physical and mental strains of the job be truly addressed (Donnelly et al., 2020).

St John Ambulance of New Zealand

St John Ambulance of New Zealand (*hereon* St John) is a charitable trust that provides emergency and non-emergency ambulance medical care to most of the New Zealand population. It is one of New Zealand ‘s major healthcare providers, covering more than 90% of the country's ambulance care (excluding only the Greater Wellington Region). Every year in New Zealand, St John responds to nearly 390,000 emergency incidents and provides treatment or transportation to over 460,000 people (St John, 2022).

The St John ambulance service comprises:

- Ambulance and first responders (provides emergency services)
- Primary Response in Medical Emergencies programme (PRIME; rural emergencies)
- Health Shuttles and Patient Transfer Service (transporting patients)
- Westpac rescue helicopter (coordination of staff, flights, and connections)
- Clinical education.

St John as an organisation is composed of multiple services and programmes. As well as being a first-responding service to medical emergencies, St John provides first-aid training, first aid at events, a support helpline for the elderly, patient transportation, and a youth programme that teaches first aid, healthcare, leadership, and life skills. St John has a medical alarm system for rapid alerts to those at risk in their homes and caring callers who check in with an individual in times of need. During emergencies St John staff also provides non-clinical support to patients, their friends and family, and witnesses. Funding of St John consists of 80% from the Ministry of Health, New Zealand’s Accident Compensation Scheme, and district health boards, with the last 20% funded by community and corporate donations, fund-raising, and service costs (St John, 2022). St John comprises full-time, part-time and volunteer employees. It relies especially on volunteer staff to service the rural areas of New Zealand (O’Meara & Duthie, 2018).

Those who work at St John have access to formal social support in their work environment, and informal social support in their home environment. St John offers several formal support services for ambulance personnel. Those relevant to the study include:

- Member assistance programme (MAP) - a 'first-aid' mental health intervention. MAP provides a confidential space for employees of St John to seek advice and assistance or share concerns. MAP includes counsellors and psychologists.
- Chaplain - Chaplains provide pastoral care via emotional and spiritual support.
- Health and Safety - Health and safety officers manage risk, and monitor health and safety procedures and practices.
- Bullying/harassment support - A bullying/harassment support person provides support, advice and manages a situation where an employee feels that they are being bullied or harassed in the workplace.
- Peer support - Peer support is facilitated by a trained senior employee or leader. Usually executed in a set format, it is carried out within a group setting, consisting of multiple individuals of the same or similar profession to support employees following a stressful event, or to discuss clinical and practice issues.
- Colleagues - A colleague is an associate or co-worker, typically in a profession of similar description, rank or status.
- Wellbeing Hub - An online resource centre which provides courses, information, and advice on physical, mental and emotional wellbeing.
- Manager - A person of higher rank in a work setting that is responsible for supervising, controlling, and administering a group of people or organisation.

Present Study

The current research study aims to expand on the literature currently available regarding the types of social support that ambulance personnel use to cope with stress. Different types of social support have shown to be beneficial for a multitude of reasons. While there is plenty of research on trauma experiences, coping mechanisms/strategies, and resilience in frontline paramedics, including the beneficial role that social support plays in helping frontline paramedics deal with stress and trauma, there is limited research within New Zealand about the specific types of social support that ambulance personnel utilise. It is essential to have a range of social support

networks, as different supports allow for a range of content to be discussed (Cydulka et al., 1989; Reti et al., 2022).

The current research within New Zealand regarding ambulance personnel focuses mainly on the service provisions, service issues, patient experience, and patient access to the service (Al-Shaqsi, 2010; Balasubramaniam & Civil, 2022; Lilley et al., 2019; Todd et al., 2022). Only two studies regarding ambulance personnel and social support within New Zealand were found. One focused on investigating the effect that social support can have on psychological distress, focusing on organisational stressors, gender and trauma (Reti et al., 2022). The other, a literature review, was aimed at developing an understanding of psychological distress risk factors for ambulance personnel (Reti, 2021).

To begin to expand on this broad topic, this dissertation will explore the types, functions, and impacts of formal and informal supports used by ambulance personnel within St John, New Zealand. This study also aims to examine the characteristics of ambulance personnel related to the level of perceived stress they currently experience.

Support types will include the eight formal supports provided by St John mentioned above, as well as eight informal supports; private psychology, spouse/partner, immediate family, extended family, friends, religious/spiritual groups, cultural groups and social media groups. Support functions will focus on eight different functions of social support that ambulance personnel could receive from each social type of support. Further questions regarding the effectiveness of each support, and intention to use in the future, will then explore the impact of the supports that were engaged with.

This exploratory study aims to find evidence that highlights the need for further research in the area of stress, social support and improvement of mental health for ambulance personnel in New Zealand.

Specifically, the research questions aimed to be explored and answered are:

- What is the current level of perceived stress in New Zealand ambulance personnel?
- What types of formal and informal social support do ambulance personnel use?
- What characteristics of ambulance personnel relate to the use of social support?
- What are ambulance personnel's perceptions regarding each support type, function and impact?

Methods

All processes and procedures completed in this research project were approved by the Auckland University of Technology's Ethics Committee (AUTEC: 21/342). Data for this study was gathered through the use of a survey via Qualtrics. The survey was available to be completed during a two week period. With internet and work email, participants were able to access the survey link and website in their own time within this timeframe. Once on the website, participants were presented a "Participant Information Sheet" (see Appendix A), providing information regarding the purpose and implications of the study, as well as guidelines to complete the survey. Participants were then able to decide whether or not they wanted to take part in the survey, and were informed they could opt out at any time prior to submission.

Participants

The eligibility criteria for participation in this study were that participants must be residing in New Zealand, be over the age of 18, and currently working at St John in a paid or volunteer role. A total of 89 ambulance personnel volunteered to participate in this study. Of these, 52 participants identified as female (58%) and the remaining 37 participants identified as male (42%). The mean age of participants in this study was 46.3 years old (SD = 12.3), with the youngest being 22 years old and the oldest being 71 years old.

In relation to ethnicity, 80 participants identified as European, six participants as Māori, two participants Pasifika, and one participant identified as Asian. Nine participants had completed their education up to a secondary level, eight participants had a technical college qualification, and 66 participants had completed a university degree. The remaining six participants had completed some other type of educational qualification. The data surrounding relationship status of participants indicated that most participants were married (n = 51, 57%), with 19 participants being single, 14 participants were living together in a relationship, and five participants were in a relationship but living independent from their partner.

The majority of participants were full-time staff, with the remaining working in part-time roles or volunteer roles. The job of 'Field Operations' made up the significant majority of the participants with the remaining participants in 'Event Health Services', 'Corporate Operations', or 'Other' roles. Further information regarding demographic data is presented in Table 1.

Table 1

Descriptive information of the sample (n=89)

Demographic category	*n*	Participant total (%)
Gender		
Male	37	42
Female	52	58
Age		
<29	10	11
30-39	17	20
40-49	20	23
50-59	28	32
60-69	10	11
70+	2	2.3
Ethnicity		
European	80	90
Māori	6	6
Pasifika	2	2
Asian	1	1
Level of Education		
Secondary school	9	10
Technical college	8	9
University degree	66	74
Other	6	7
Relationship Status		
Single/solo parent	19	21
Married	51	57
Not married, living in relationship	14	16
In relationship, living independently	5	6
Job status		
Full time	66	74
Part time	13	15
Volunteer	10	11
Years with St John		
0-5	20	23
6-10	22	25
11-15	22	25
16-20	11	12
20+	13	15
Role at St John		
Field operations	76	85
Event health services	3	3
Corporate operations	4	4
Other	6	7

Instruments

Demographic Questions

This study used an anonymous cross-sectional questionnaire (see Appendix B) through Qualtrics, an online survey software platform. The questionnaire included three sections. Section 1 (see Appendix B1) included demographic questions about the participant including gender, age, ethnicity, highest level of education, marital status and how long the participant has been employed by St John New Zealand ambulance service, and their job title/category.

Perceived Stress Scale

Section 2 (see Appendix B2) utilised the Perceived Stress Scale (PSS-10). The PSS-10 was developed by Cohen et al. (1983) and has been used throughout various areas of research to assess stress levels in individuals 12 years and older. The scale assesses stress levels in the last month and measures how unpredictable, uncontrollable, and overloaded life has felt (Cohen et al., 1983). The scale has proven to have good reliability and validity in previous studies, and has also shown to be useful in comparisons across cultures (Kechter et al., 2019; Lee, 2012). The PSS-10 is to be used solely as an observation tool of stress and not to be used as a diagnostic tool, or to inform intervention choices (Cohen et al., 1983).

The PSS-10 consists of ten items on a 5-point Likert scale directed at rating levels of stress. Participants were asked about the frequency of certain feelings and thoughts (that are similar to stress) in the past 12 months. The items asked for a rating between zero and four (zero being never, one being almost never, two being sometimes, three being fairly often and four being very often). Total scores of the scale ranging from 0-13 would be considered low stress, scores 14-26 would be considered moderate stress, and scores ranging from 27-40 would be considered high perceived stress (Cohen et al., 1983).

Types, Impacts and Functions of Supports

Section 3 (see Appendix B3) focused on types, impacts and functions of social supports used. These were split into two categories; formal support (supported provided from within St John), and informal support (i.e., external to St John).

Formal supports included the St John Member Assistance Programme (MAP), Chaplin, Peer Support Programme, supports from colleagues, online support through St John's Wellbeing Hub, support from a manager or supervisor, Health & Safety Team, Family Violence Support (FVS) advisors, and support from a manager regarding bullying and/or harassment. For each formal support, participants were asked if they had engaged with it for any reason in the last 12 months. If participants selected "yes", they were asked how many times in the last 12 months the support had been used. They were then presented with a series of eight seven-point Likert scales ranging from 1 *(strongly disagree)*, to 7 *(strongly agree).* This Likert scale consisted of questions about eight different functions of social support:

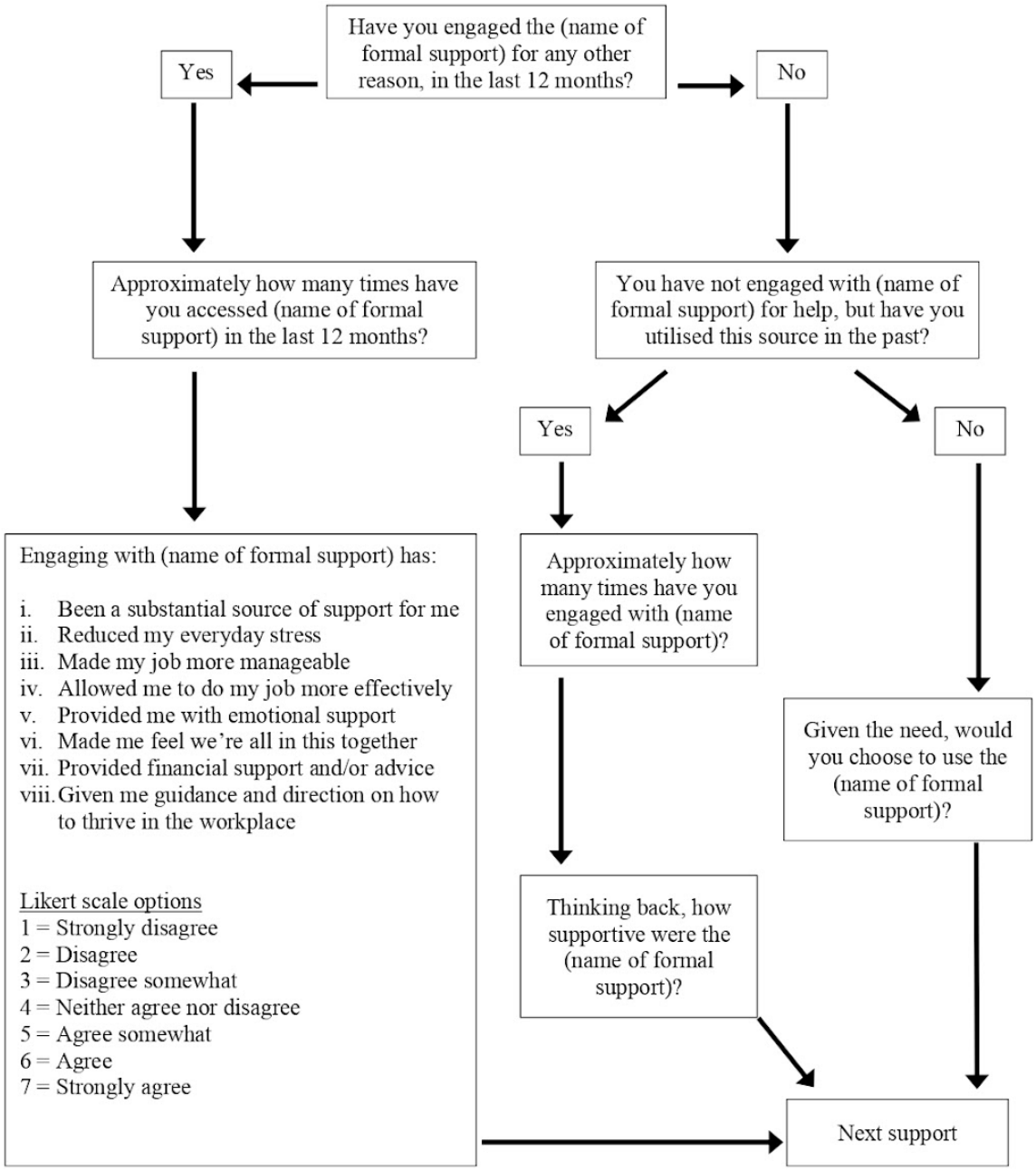
Engaging with (name of support) has:

i) Been a substantial source of support for me (substantial support)
ii) Reduced my everyday stress (reduced stress)
iii) Made my job more manageable (job more manageable)
iv) Allowed me to do my job more effectively (work more effectively)
v) Provided me with emotional support (emotional support)
vi) Made me feel we're all in this together (inclusion)
vii) Provided financial support and/or advice (financial support)
viii) Given me guidance and direction on how to thrive in the workplace (guidance)

All participants were asked if they had used that service at all in the past and if the need arose would they choose to be supported by that service in the future. See Figure 1 for a flow diagram on how the formal support questions were presented.

Figure 1

Flowchart of support questions



Informal supports consisted of support networks outside of St John that were used in the last 12 months. Participants were asked about privately arranged psychologists or counsellors outside of the Member Assistance Programme, and support from people or groups around them such as a spouse/romantic partner, immediate family, extended family, close friends, cultural groups, spiritual/religious groups, social media groups, and any other group/person not listed that they wanted to acknowledge. A private psychologist was included as an informal support source as it constitutes a personal engagement outside of the St John organisation. When asked about seeing a private psychologist, participants were asked how many times in the past 12 months they had engaged in this support. If they had used that service in the past, they were then asked if a need arose again, would they choose to be supported by that same service in the future.

Lastly, participants were invited to provide any further comments/feedback and were also provided a place to contact if they felt they needed to talk to a support service at the end of the survey.

Procedure

Potential participants were invited to complete the survey through email correspondence from their employer, St John, who advertised the survey in their weekly email bulletin. The bulletin included relevant but broad information regarding the researcher's information, the purpose of the study, and details about what type of questions were included in the survey.

The survey was accessible through a Qualtrics link. Once on the website, individuals were first given detailed information regarding the research project (see Appendix A). This information section explicitly outlined that participation was voluntary and that consent was given (by virtue) when the individual clicked "submit" upon completing the survey. It was also explained that withdrawal was possible any time before survey submission, with no consequences for withdrawal. However, after submission, due to the anonymous nature of the study, specific datasets were unable to be identified and thus removed. Participants were given two weeks to complete the survey and data collection occurred during the end of July and the start of August of 2022.

It is important to consider that during data collection the participant responses may have been biased by the significant rise in COVID-19 cases in the community throughout New Zealand.

Statistical Analysis

The data collected via Qualtrics was transferred into Microsoft Excel for data cleaning, particularly the removal of unrequired information such as date and time of response. Furthermore,

cases containing errors or corruption, or cases that were only partially completed were also removed. Once conditioning was completed, the data was exported to the statistical software SPSS (v.24) for data analysis.

Five participants identified themselves as English, British and Australian, these data sets were recoded as European. Any education achievements that were specified by participants were categorised into one of the four options (university degree, secondary school, technical college, other). Four participants who were previously divorced also checked the box for another (current) relationship status, therefore, as 'previously divorced' was not their current relationship status they were recoded, and the 'previously divorced' category was deleted. The PSS was summed (i.e., total scores created) after Items four, five, seven and eight were reverse coded.

Prior to the survey St John had advised of the multiple occupations currently in their service (Field operations, Event health services, Patient transfer services, Ambulance communications, corporate operations, Community health and iwi, Customers and supports, Finance and Business, Area Committees, and other Clinical roles). Participants were given the option to tick one of these.

Due to low response frequencies the data from four institutional supports of formal supports were collapsed into one category. This new category, named 'Institutional Supports', consisted of MAP, Chaplin, Health & Safety Wellbeing Team, bullying and/or harassment contact. The Wellbeing Hub remained its own entity as it is a service available online. Peer support also remained as it is a group/colleague supportive service. The category for Family Violence Support was also removed as no participants were engaging with this support at the time of completing the questionnaire.

In the informal support section, the questionnaire originally asked about immediate family and extended family/whanau support separately, however, due to limited numbers of the latter, these were combined for analysis. Cultural and spiritual data were also merged to form a new category of 'community support'. The survey originally contained a question asking about other supports used outside of the ones prompted. Other supports utilised were Counsellor (x5), Psychologist (x7), Accident Compensation Corporation (ACC), Psychiatrist, General Practitioner (x3), AUT Lecturer, Human Resources, Flo-presso, Coach, Professional Development Coach, Mothers and Babies Unit, MH101 Blueprint webinar course, Callum, Employee Assistance Programme. These were removed from the survey data as they were in the form of qualitative results.

Data analysis initially consisted of descriptive analyses, including tabulating frequencies for nominal-level data and the calculation of means where appropriate. Inferential analyses was undertaken for each of the formal and informal support types. Here, comparisons were made across each support type and their ability to provide different types of support. These variables are as follows: a) be a substantial source of support, b) reduce everyday stress, c) make work more manageable, d) allow job to be done more effectively, e) provide emotional support, f) make participants feel they weren't alone, g) provide financial support, h) give guidance and direction on how to thrive in the workplace. This was undertaken using a one-way analysis of variance (ANOVA) rather than a repeated-measures ANOVA, as not all participants had utilised all support types. As such, a conservative testing regime was adopted. All statistical tests were undertaken following confirmation that the data adhered to the assumptions of a one-way ANOVA, and Bonferroni *post hoc* tests were performed subsequent to a statistically significant *F*-value.

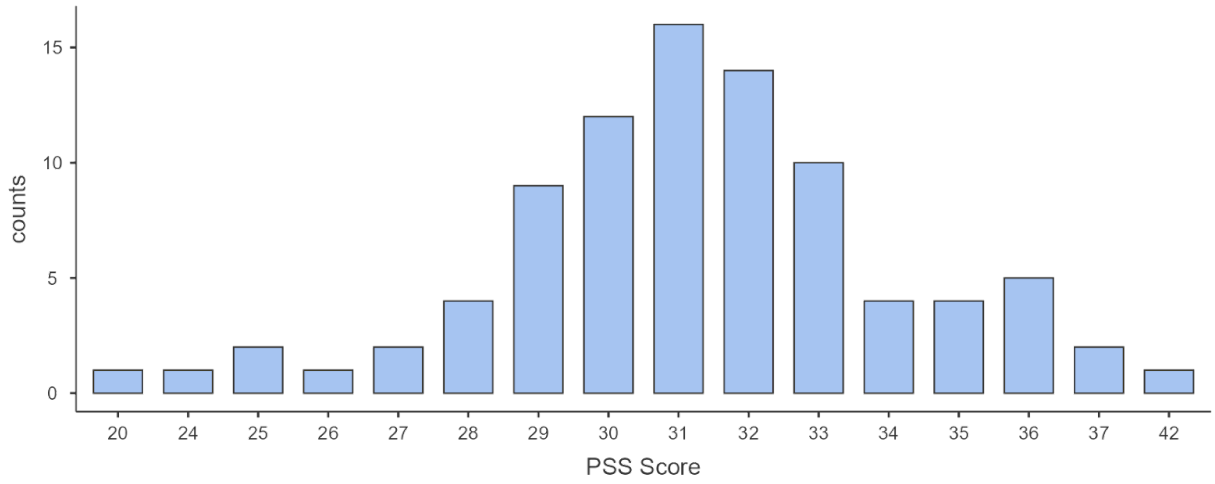
Results

Perceived Stress Scale

The PSS-10 consisted of ten items and was found to be highly reliable with a Cronbach's alpha of α_c = .866. Overall, in this survey, with the 89 observations, the total scores of the PSS-10 ranged from 20 to 42, with a mean of 31.3 (*SD* = 3.1). Figure 2 displays the frequency of PSS-10 scores. Five participants received a moderate stress score, while the majority (*n* = 83) received a high perceived stress score. Table 2 presents the total scores of the perceived stress scale, categorised demographically. Of the 89 participants who completed the PSS-10, those in field operations (*n*=75; *M*=25.9, *SD*=6.0), had lower total scores than the other professions within St John who completed the survey. Event health services (*n*=3) had a mean of 31.3 (*SD*=4.7), Corporate Operations (*n*=4) had a mean of 27.5 (*SD*=8.6), and 'other' (*n*=6) had a mean of 29.3 (*SD*=4.2).

Figure 2

Frequencies of Perceived Stress Scale scores



Note. PSS Score are total scores of Ambulance Personnel from St John

Table 2

Mean and Standard Deviation of demographics total scores of the Perceived Stress Scale

Demographic category	Mean	Standard Deviation
Gender		
Male	30.5	3.5
Female	31.8	2.7
Age		
<29	31.3	3.6
30-39	32.2	2.4
40-49	31.9	3.0
50-59	31.3	2.8
60-69	29.4	2.1
70+	22.5	3.5
Ethnicity		
European	31.2	3.2
Māori	31.8	2.6
Pasifika	34.0	0.00
Asian	32.0	NaN
Level of Education		
Secondary School	29.8	3.9
Technical College	31.8	2.7
University Degree	31.5	3.0
Other	30.7	4.2
Relationship Status		
Single/solo parent	32.4	2.2
Married	31.5	3.2
Not married, living in relationship	30.3	2.6
In relationship, living independently	29.2	5.2
Job status		
Full time	31.8	2.8
Part time	30.1	3.0
Volunteer	29.4	4.3
Years with St John		
0-5	31.4	2.8
6-10	31.0	2.3
11-15	31.4	2.3
16-20	32.3	2.9
20+	30.5	5.6
Role at St John		
Field Operations	25.9	6.0
Event Health Services	31.3	4.7
Corporate Operations	27.5	8.6
Other	29.3	4.2

Informal Supports

A one-way between subjects ANOVA was conducted to compare the effect of different types of informal supports on their ability to reduce stress across the eight different functions.

Table 3 displays the number of participants that accessed each informal support. Across informal support, spouse/partner was the most accessed support, with 68 participants (76%) reporting its use in the past month. Family was ranked as the second most accessed (58.43%), followed closely by friends (55%), and then private psychology (26%), community support (21%) and lastly, social media (15%).

The mean ratings for the eight functions of stress measures, with superscript letters indicating significant differences across the support types, are also shown in Table 3. As such, the superscript letters should be interpreted across a row. For example, the means for the 'substantially supported' question were significantly less for social media than for private psychologist, spouse/partner, friends, and community support. It should be noted that the difference in means simply indicates a significant difference between supports, with the higher mean indicating a higher score of support. The difference in means does not suggest any cause or effect. Results show that no significant mean differences were found across informal supports for the functions of 'reduced stress,' 'job more manageable,' 'work more effectively,' 'inclusion,' and 'guidance.'

Using a private psychologist outside of St John was the only informal support that asked participants to specify the amount of use in the last 12 months, and intention to use in the future. 23 participants indicated that a private psychologist in the last 12 months was utilised between two and 21 times ($M = 7.5$, $SD = 7.1$). Of these, past engagement (more than 12 months ago) of a private psychologist was used 22 times and was between 1 and 7 years ($M = 2.5$, $SD = 1.8$). Participants rated the level of support they felt from the psychologist as an average of 7.7 ($SD = 1.1$). Out of all participants, 36 reported the intention to use a private psychologist in the future if the need arose.

The ability to provide emotional support for participants indicated a significant difference between the higher means of spouse/partner, family, and friends support, compared to the mean of social media, which again, was significantly lower. In terms of financial support, results indicated the mean of spouses/partners was significantly greater than all other types of informal support. Additionally, the mean of family providing financial support was significantly greater than that of private psychologists and friends. Finally, in regards to overall support, the mean of spouse/partner was significantly higher than social media.

Table 3

Means and Standard Deviations for Informal supports

	a) Private Psych	b) Spouse/Partner	c) Family	d) Friends	e) Community Support$^{\lambda}$	f) Social Media	*F*-value
Current users (*n*)	23	68	52	49	19	13	
Substantial support	6.22^{f} (0.95)	6.28^{f} (1.06)	5.90 (1.07)	6.10^{f} (0.77)	6.20^{f} (0.77)	5.08^{a,b,d,e} (0.86)	3.81*
Reduced stress	6.09 (0.67)	5.65 (1.35)	5.78 (1.06)	5.61 (1.08)	5.33 (1.35)	5.38 (.77)	1.17
Job more manageable	5.35 (1.30)	5.41 (1.31)	5.38 (1.24)	5.22 (1.16)	5.00 (1.31)	5.00 (.71)	.53
Work more effectively	5.17 (1.37)	5.40 (1.43)	5.16 (1.31)	4.90 (1.29)	5.87 (.92)	4.69 (1.03)	1.28
Emotional support	6.09 (.90)	6.37^{f} (1.06)	6.10^{f} (.86)	6.29^{f} (.71)	5.93 (.80)	5.23^{b,c,d,} (1.17)	3.78*
Inclusion	4.65 (1.53)	5.59 (1.43)	5.04 (1.43)	5.06 (1.30)	5.00 (.93)	5.23 (.83)	2.17
Financial support	2.78^{b,c} (1.54)	5.18^{a,c,d,e,f} (1.71)	4.14^{a,b,d} (1.98)	2.88^{b,c} (1.84)	3.00^{b} (1.85)	2.92^{b} (1.71)	13.44**
Guidance	5.09 (1.41)	4.34 (1.80)	4.56 (1.55)	4.43 (1.47)	3.87 (1.55)	4.38 (1.66)	1.23
Overall	41.43 (6.88)	44.21^{f} (8.31)	42.08 (7.74)	40.49 (6.37)	39.30 (4.87)	37. 92^{b} (5.60)	2.94*

λ (Religious/cultural groups)

*** p < .01, ** p < .001 (two-tailed)**

Note. Superscript letters indicate significance across support categories; (a) private psych, (b) spouse/partner, (c) family, (d) friends, (e) community support, (f) social media, and should be interpreted within a single row.

Formal Supports

Table 4 displays the number of participants that accessed each formal support. Across formal support, the support of colleagues was the most accessed support, with 73 participants (82%) reporting its use in the past month. Manager was used significantly less in the past month, yet ranked as the second most accessed (45%). Manager was followed closely by internal services (39%), and then peer support (31%) and lastly, the wellbeing hub (15%).

A one-way between subjects ANOVA was conducted to compare the effect of different types of formal supports on their ability to reduce stress, using the eight measures of stress reduction. Table 4 indicates notable relationships between these groups. Note that no significant mean differences were found across informal supports for the function of 'financial support.'

Across formal support, colleagues showed the greatest number of significant relationships across the types of formal support and between the different measures of stress reduction. Colleagues showed significantly higher means than all other formal support for the questions 'made my job more manageable', and, 'allowed me to work my work more effectively'.

Colleagues showed significantly greater means compared to the means of internal services, peer support and manager for the support functions of, 'provided a substantial source of support,' 'reduction of stress,' 'inclusion' and 'overall.' The mean for colleagues was significantly higher than for internal services and managers in terms of 'emotional support.' Lastly, regarding colleagues, the mean of colleagues was also greater than that of internal services for the question pertaining to 'guidance'.

Only two significant mean comparisons were found between the other formal services that excluded colleagues. Peer support showed a significantly higher mean than manager in terms of 'emotional support.' Peer support also showed a significantly higher mean than internal services and manager for the support function of 'inclusion.'

Table 4

Means and Standard Deviations for Formal supports

	a) Internal Services $^{\lambda}$	b) Peer support	c) Colleagues	d) Wellbeing Hub	e) Manager	*F*-value
Current users (n)	35	28	73	13	40	-
Amount of use (mean)	2.6 (0.6)	3.3 (1.4)	8.6 (6.8)	4.0 (2.2)	5.1 (4.6)	-
Amount of use (min)	2	2	2	2	2	-
Amount of use (max)	8	7	21	9	21	-
Substantial support	4.46^{c} (1.99)	4.32^{c} (1.81)	6.07^{a,b,e} (1.08)	4.77 (1.36)	4.25^{c} (1.93)	12.53**
Reduced stress	4.03^{c} (1.74)	3.82^{c} (1.59)	5.59^{a,b,e} (1.09)	4.69 (1.38)	3.85^{c} (1.79)	13.92**
Job more manageable	3.89^{c} (1.71)	4.07^{c} (1.63)	5.66 ^{a,b,d,e}(1.19)	4.23^{c} (1.59)	4.30^{c} (1.70)	12.20**
Work more effectively	3.77^{c} (1.77)	3.82^{c} (1.47)	5.74^{a,b,d,e} (1.67)	4.00^{c} (1.58)	4.33^{c} (1.70)	16.19**
Emotional support	4.20^{c} (2.14)	4.86^{c} (1.69)	5.71^{a,e} (1.29)	4.69 (1.84)	3.65^{b,c} (1.83)	11.11**
Inclusion	3.34^{b,c} (1.66)	4.68^{a,c,e} (1.49)	5.91^{a,b,e} (1.15)	4.69 (1.49)	3.63^{b,c} (1.79)	25.08**
Financial support	2.06 (1.28)	2.32 (1.28)	2.30 (1.42)	2.46 (1.51)	2.28 (1.41)	.29
Guidance	3.34^{c} (1.47)	3.50 (1.91)	4.56^{a}(1.66)	4.46 (1.56)	3.73 (1.81)	4.44*
Overall	29.09^{c} (11.12)	31.39^{c} (10.86)	41.55^{a,b,e} (6.71)	34.00 (10.13)	30.00^{c} (11.52)	15.46**
Previous User (n)	31	17	5	8	19	-
Years engaged (mean)	2.8 (1.3)	2.3 (2.0)	1.5 (1.0)	3.00 (0.9)	3.60 (1.3)	-
Years engaged (min)	1	1	1	2	2	-
Years engaged (max)	7	7	3	4	6	-
Support	4.29 (1.79)	4.94 (1.34)	4.60 (1.67)	4.50 (0.76)	3.63 (1.67)	-
Intention to use (n)	25	17	4	34	15	-

λ (MAP, Chaplin, Health & Safety Wellbeing Team, bullying and/or harassment contact)

*** p < .01, ** p < .001 (two-tailed)**

Note. Superscript letters indicate significance across categories; (a) private psych, (b) spouse/partner, (c) immediate family, (d) friends, (e) cultural group, (f) social media

Discussion

The aim of this study was to identify the use of formal and informal social support that ambulance personnel use to cope with stress. By first identifying the level of stress New Zealand ambulance personnel are currently experiencing, the types, functions, and impacts of formal and informal supports used were then examined regarding the characteristics of participants. These findings will be discussed further.

Perceived stress score

The PSS-10 scores indicated that the majority of ambulance personnel within this study experienced high levels of stress. In accordance with these results, high scores of the PSS-10 have previously been associated with elevated biomarkers of autonomic dysfunction (Cohen & Janicki-Deverts, 2012). Moreover, an abundance of previous research has shown that persistent and chronic stress can lead to adverse health effects and a higher risk of biomarkers related to inflammatory responses and lowered immunity, poorer mood, elevated cortisol levels, impaired cardio-vascular-metabolic function, and increased vulnerability to disease (Chandola et al., 2010; Corthésy-Blondin et al., 2021; Wong et al., 2012; Zafar, 2020). Consistent with previous research, it is therefore not surprising that this population group of ambulance personnel exhibit high PSS scores (Behnke et al., 2020).

Baykal and Koç Tütüncü. (2021), using an adapted version of the PSS-10, reported that paramedics and paramedic students in Istanbul experienced very high-stress levels. In contrast, multiple international studies have found ambulance personnel to report moderate stress (Braun et al., 2021; McLaren et al., 1998; Portero de la Cruz et al., 2020). Additionally, a small cross-sectional survey investigating the experience and stress among international, postgraduate nursing health science students working in New Zealand during the first COVID-19 lockdown found that these first responders had a PSS-10 total mean of 21.7 (*SD*=7.1). Their data did, however, result in a similar finding: those who performed non-essential work scored higher in the PSS-10 than those who did (Jagroop-Dearing et al., 2022).

Prior to the COVID-19 pandemic, a New Zealand study was done aiming to enhance the precision of the PSS-10. Three samples were included, one from the general New Zealand population, one from New Zealand university students and lastly, university students from the United States of America (US; Medvedev et al., 2017). Although the published research article did not document the untransformed, single factor mean scores for each sample, these were provided

via email from an author of the study (see Appendix D). The New Zealand general population showed a PSS-10 mean score of 25.16 (*SD*=6.34); the New Zealand university students showed a mean score of 30.67 (*SD*=7.35); and the US students had a mean score of 29.40 (*SD*=7.12). The mean score over all three samples was 28.42 (*SD*=7.33; Medvedev et al., 2017).

In comparison to these three studies, the current study displays higher mean PSS-10 scores (*M* = 31.3). Additionally, the mean PSS-10 scores of the ambulance personnel within this study are significantly higher than that of the general New Zealand population (Medvedev et al., 2017). A UK study of ambulance personnel found that higher perceived stress scores significantly impacted mental health (Hutchinson et al., 2022). Research dating back over twenty years has shown that the experience of stress has been consistently heightened for ambulance personnel (McLaren et al., 1998). Despite increased research in the field of work stress, especially regarding paramedics, EMS responders, and trainees, the evidence suggests similar patterns regarding stress and ambulance personnel with little change over time (Fjeldheim et al., 2014; Hutchinson et al., 2022). These findings could indicate that those who go into this profession are destined to experience higher stress levels, especially within New Zealand, and so providing them effective supports is important.

Types of Social Supports

Ambulance personnel are likely to experience incidents at work that are challenging and traumatic. As previously mentioned, these types of events induce a significant amount of perceived stress that can lead to adverse health risks (Behnke et al., 2020). Social support has been established as a protective factor against the development of mental health issues, so it is essential to identify the most effective types of social support (Kshtriya et al., 2020; Prati & Pietrantoni, 2010). In addition to the exploration of types of support used, the impacts of these supports along with the functions of the eight different functions of support was also explored.

Informal Supports

Previous literature has shown that ambulance personnel prefer to seek support for stress from informal supports (Mildenhall, 2012). Within this study, private psychologists, spouse/partner, family, friends, community support and social media were the different types of informal support enquired about. Due to only a few significant differences found, informal support is best understood across the functions of support. Of these functions, only four were found to have significant differences across informal support. These were, ‘been a substantial source of support

for me' (substantial support),' 'provided me with emotional support (emotional support),' 'provided financial support and/or advice (financial support),' and 'overall.'

Substantial Support and Emotional Support

The current study indicates that spouses/partners, private psychologists, community groups, and friends provide more substantial support than social media. This finding is expected, as face-to-face support would be more adaptable and responsive than online support, and similar results from previous studies have been found to support this. Donnelly et al. (2016) found that, in a sample of 162 paramedics in Canada, over 80% of participants would prefer to seek support from a family member, friend, or spouse/partner, than other types of social supports. More locally, a recent New Zealand study of ambulance personnel found that support from spouses/partners was rated as the most helpful type of support, followed by family and then friends (Reti et al., 2022).

The current study found that a spouse/partner, family, and friends provide more emotional support than social media. In accordance with this function of support (emotional support), Reti et al. (2022) found that emotional support was endorsed as the most effective type of support received, with spouse/partner, and family as the most supportive. This aligns with another study of 167 ambulance personnel, who found that the rate of social isolation increased while the prevalence of burnout increased (Boland et al., 2019). Individuals who were identified as socially integrated had decreased rates of burnout compared to those who experienced social isolation. Additionally, religion (included in this study within 'community groups') was found to be a source of emotional support and frequently decreased the risk of burnout compared to individuals who did not have a faith (Boland et al., 2019). Being socially integrated was dependent on a score of how often participants engaged with different types of support. These include spouse/partner, close friends, relatives, recreational groups such as religious groups, volunteer groups, fitness groups, or other community groups (Boland et al., 2019). Cowman et al. (2004) also found that a strong connection to the community can counteract stress in emergency responders.

In relation to emergency responders, Gulliver et al. (2019) reported that even though formal services and programmes were accessible within the fire service, firefighters were more likely to seek support from those external to the organisation. Over 50% of participants reported they would likely go to spouse/partners and family or private psychology/mental health services before seeking support within the organisation (Gulliver et al., 2019). This could be due to organisational culture

of stigma about mental health perceived as non-accepting (Mackinnon et al., 2020; Petrie et al., 2018).

In contrast, multiple studies have also found that a large portion of ambulance personnel or emergency care responders do not like to talk to their family or spouse/partner about their work. Some workers feel the need to protect their spouse/partner and family due to fear they would burden their loved ones and cause them to worry if they shared details of traumatic work events (Jones et al., 2019). Although this information was not present within the data of this study, some additional interesting comments from participants were made. One participant wrote about compartmentalising his life, ensuring he kept work and home separate in order to prioritise his family (see Appendix C). His quote follows:

"I compartmentalise my life, work and home are very separate, and I work hard to keep it this way. I feel this provides me with the space away from work pressure that I need. I love my job, but it is purely my job, first and foremost my family are my priority; and I work hard to keep them separate so work stressors or pressure does not affect my role as a husband and father."

Social media was found to be less effective than other informal supports, across multiple functions of support. Although perceived social support from social media has been shown to improve self-efficacy, health, and well-being (De Choudhury & Kiciman, 2017), there are no studies to date regarding the use of social media as a coping strategy with ambulance personnel. In addition, no research was found on the use of social media as a social support type for healthcare professionals in general. Most research regarding social media and healthcare pertains to providing healthcare to patients rather than the healthcare workers receiving online support themselves (Khan et al., 2022; Ventola, 2014). One study in 2017 did, however, raise concerns regarding patient privacy issues when paramedics used social media (Baron & Townsend, 2017). This highlights a consideration of whether social media should be, or will ever be, a practical way to receive support for health professionals. A Finnish study with finance, telecommunications, personnel services, publishing, and retail professionals found that social media support improved work engagement, and participants felt more connected to their organisation (Oksa et al., 2020). However, confidentiality is an ethical obligation for healthcare professionals and ambulance personnel. This ethical obligation inevitably reduces the amount of information or details health professionals can disclose online; thus, online discussions may not be sufficient for paramedics to debrief and receive adequate support (Baron & Townsend, 2017).

Financial Support

This study found that spouses/partners provided more financial support/advice than all other types of informal support. Secondly, family was found to provide more financial support than private psychologists and friends. Regarding financial support, Blau and Chapman (2016) found that paramedics in the US often left their jobs due to a desire for increased pay and better benefits. The literature search undertaken as part of the current study outlined the high emotional demands required of the profession of ambulance personnel and the detrimental mental and physical side effects that are likely to occur from working in such an environment.

In New Zealand, while there is no academic evidence regarding wages as a cause of concern for ambulance personnel, a somewhat recent news article reported that New Zealand ambulance personnel wages are significantly lower per hour than ambulance personnel in Australia and the UK (Stock, 2019). This may have contributed to the multiple nationwide strikes within St John supporting salary increases in 2019-2020 (Stock, 2019). Financial concerns would likely not incentivise ambulance personnel to reach out to formal services within the organisation for support in this area. This same response could be suggested to be found within the absence of significant statistical relationships for financial support from formal support within this current study. Therefore, it is unsurprising that financial support was only found to be statistically significant across support types for informal support. Here, spouses/partners provided more financial support than all other types of informal support. Family has also been shown to provide more financial support than friends and private psychologists (Dew et al., 2018). Again, this is not an unexpected finding, and it is common for people to receive financial support mainly from their spouse, partner, and family (Dew et al., 2018). Although no specific research regarding ambulance personnel and financial support was found, a systematic review of qualitative research suggests that policies should be established that are orientated to providing ambulance personnel and their families with financial support to seek their own psychological support or counselling outside of the organisation (Lawn et al., 2020).

Overall Support

This study found that spouses/partners provided more overall support than social media. In all of the measures of functions of stress that were found to be significant (substantial support, emotional support, financial support, overall), spouses/partners provided more support than all other informal supports in each one.

Formal supports

Previous studies have found that supportive workplace environments positively impact the emotional processing of traumatic incidents in EMS services (Donnelly et al., 2016; Lawn et al., 2020; Mildenhall, 2012). Additional research and increased implementation of organisational support that is designed to accept, recognise, and improve mental health of ambulance personnel has been previously suggested by a multitude of researchers (Petrie et al., 2018; Reti, 2021; Reti et al., 2022). Formal supports include internal services, peer support, colleagues, wellbeing hub, and manager. Across these types of support, this study found that seven out of the eight functions of stress found significant differences. Instead of viewing these significant differences across functions, these results are best understood across supports.

Colleagues

Colleagues were found to provide the most effective formal support overall. In support of this finding, previous research has demonstrated that colleagues are by far the most commonly utilised method of support for ambulance personnel, especially paramedics, across the world (Alexander & Klein, 2001; Boland et al., 2019; Brais et al., 2022; Donnelly et al., 2016; Drewitz-Chesney, 2019). Studies have also found that colleagues are particularly helpful in debriefing critical incidents directly after they occur (Drewitz-Chesney, 2019). The findings of Donnelly et al. (2016) indicated that more than 70% of paramedics would seek support from a colleague they worked with regularly, and would rarely seek help from managers, colleagues they were not familiar with, or other work-related sources. Their study found that paramedics would prefer to seek help in the following order; firstly, a friend, family or *close* colleague; secondly, a less-known colleague, employee assistance program or other therapists; thirdly, a manager or supervisor; and lastly, another type of educator (Donnelly et al., 2016).

Additionally, a qualitative study found that paramedics preferred to privately debriefing events with *regular* crewmates/colleagues. Drewitz-Chesney (2019) found that some participants would avoid sharing their thoughts and feelings back at base for fear they may be overheard and judged, and would often have these discussions in the ambulance with a trusted colleague. Trusting each other, and sharing similar experiences in a private setting, facilitated participants to open up with close colleagues, with these qualities often not felt with managers or other staff members of different job descriptions (Drewitz-Chesney, 2019).

Those who do not feel supported by their co-workers have been shown to experience increased stress-related symptoms (Feldman et al., 2021; Guilaran et al., 2018). This however, does not entirely support the current findings, as most participants within the current study showed high perceived stress despite indicating they preferred to utilise colleague support. The literature consistently shows that having time to debrief after emotional incidents significantly impacts mental health and feeling supported (Cheng et al., 2018; Lawn et al., 2020). However, many studies also report that ambulance personnel do not feel they are given enough time to debrief (Lawn et al., 2020; Mildenhall, 2012). The lack of time to effectively debrief is then shown to negatively affect their mental health, perhaps explaining the preferred use of colleagues yet high PSS scores.

Peer support

Peer support is a non-clinical mental health intervention provided in a group setting for people of similar jobs or experiences (Pinks et al., 2021). The current study found that peer support was more useful for emotional support than managers, and more helpful for inclusion than internal services and managers. However, peer support was found to be less supportive than colleagues in these areas. Previous research somewhat supports this comparison. Oliveira et al. (2020) found that although support from colleagues was the most common and preferred way of receiving support by first responders, peer support was also a valuable aid for emotional processing. When implemented correctly, peer support has been shown to have a positive impact on first responders (Donnelly et al., 2016; Scully, 2011). A recent Australian study found that emotional expression and emotion-focused coping were improved after paramedic students attended peer support groups. Moreover, participation in the same peer support group resulted in feeling supported by the organisation and, subsequently paramedic students relying less on external social support (Pinks et al., 2021).

A successful peer support group should provide a space of listening that offers empathy, genuine care and facilitates open communication (Pinks et al., 2021). Conversely, peer support has previously been underutilised due to fear of judgement, limited privacy, apprehension about sharing details of traumatic events, and fear of newcomers to the group (Carvello et al., 2019; Shakespeare-Finch & Scully, 2005). Within the additional comments from participants there are mixed views on peer support (see Appendix C). A participant in the current study stated, "*I have no interest in Peer Support and do not trust the system."* These fears could indicate why colleague

support is preferred to peer support, as familiar colleagues may provide trust, security, privacy and better-individualised responses. In support of this a participant stated:

"*...there is a lot of support available but there remains some fear surrounding accessing these services and the anonymity around it…the strongest support networks are definitely the informal ones with colleagues who attended the same challenging jobs."*

Managers

The support from a manager/leader was found to be less than colleagues in almost every type of domain regarding stress reduction. Furthermore, for two functions of support, manager/leader was reported to be less helpful in providing emotional support and inclusion than peer support. Past research has found that managers play a crucial role in causing or preventing workplace stress (Fernandes & Tewari, 2012). Additionally, first responders often do not seek support from within the organisation due to poor managerial support and perceived stigma, with concerns it would negatively affect their career (Barratt et al., 2018).

A 2017 study of 813 ambulance personnel from multiple countries, including New Zealand, found that participants received more support from colleagues than management, with almost half disagreeing with the statement that management provided support following critical incidents. Results also found that distress levels were decreased when perceived support from management increased (Gouweloos-Trines et al., 2017). Additionally, a large Australian study of 1622 ambulance personnel found that manager support can influence ambulance personnel mental health (Petrie et al., 2018). Interestingly, perceived support and an accepting culture of mental health has shown to have more positive influence on well-being and common mental disorders compared to actual support from managers (Petrie et al., 2018).

Multiple comments from participants explain how their complaints, feelings and struggles are not taken seriously enough by managers, with trust and confidentiality raised as a significant issue (see Appendix C). Due to the outpatient and community aspect of providing ambulance services, it could be that participants' discontent with the support received from managers could be due to a lack of face-to-face connection (Mildenhall, 2012).

Internal Services

Though the category 'internal services' was made up of multiple formal services (i.e., Member Assistance Programme, Chaplin, Wellbeing Hub, Health and Safety Wellbeing Team, family violence support (FVS) advisors, bullying and harassment contact), it also was utilised less

than colleagues in general, and less than peer support for inclusion. It would be impossible to distinguish between what services of this group mainly contributed to the lack of engagement with support, nevertheless it can be assumed that these internal services would include support concerning critical incident debriefing and risk management, and fronted by a senior colleague. A literature review of 11 research papers focusing on the coping strategies that ambulance personnel used to cope with stressors found that paramedics felt that senior colleagues were critical and unsupportive (Mildenhall, 2012). These results are similar to that of Lawn et al. (2020), whereby the organisation environment significantly contributed to workplace stress. Including a lack of crisis support, there was ambiguity regarding the usefulness of the types of formal support available to ambulance personnel and scepticism about the legitimacy of confidentiality of these services (Lawn et al., 2020). These factors regarding usefulness and confidentiality may have influenced the lack of internal service use, however, further research in the New Zealand context needs to be done in this area for conclusive results.

Limitations

There are several limitations present within this study that need to be considered. Firstly, The results of this study cannot be compared to other New Zealand findings as there is limited research in this area in New Zealand.

Moreover, this study follows an extended phase of COVID-19 lockdowns and restrictions occurring periodically over the past two years in New Zealand. For healthcare workers and ambulance personnel especially, this time has increased workload and stress levels, likely resulting in increased perceived stress, burnout, and emotional exhaustion (Mausz et al., 2022; Vagni et al., 2022).

The overall sample size of this participant group was relatively small. St John has approximately 12,444 paid and volunteer staff, thus, a large sample size could have generated more accurate average values (St John, 2020). While it is understandable that both informal and formal support were rated only by those who had used them, the number of participants per support was often much smaller than the total number of participants in the study, consequently affecting the mean scores for each type of support.

Additionally, response bias may also be present. It has already been discussed that ambulance personnel may experience adverse mental health effects from their work; in consideration of this, participants who may have been experiencing significant psychological

distress at the time of the survey may be underrepresented within this study. New Zealand research indicates that ambulance personnel have limited time to debrief critical incidents (Reti, 2021; Reti et al., 2022). With the pressure faced by emergency responders, there is little surprise as to the low number of responses received for the current study.

The measures chosen also have their limitations. As well as numerous understandings of what social support actually is, there is no well-documented 'gold standard' tool to measure social support (Reti et al., 2022). Further research and development of a social support definition and measurement tool would be beneficial for this area of research.

One potential limitation is the level of self-awareness that each participant has whilst answering the questionnaire. Following this, any measure regarding stress is influenced by the individual's mood state at the time of answering the questions, possibly providing inaccurate responses (Portero de la Cruz et al., 2020). A self-report bias may also be present in the PSS-10 as it relies on one's own self-appraisal of coping style, ability and level of resilience (Cohen et al., 1983). Clinical assessments regarding mental health issues are evidence-based and more robust (Reti et al., 2022), but ultimately are self-referential and vulnerable to bias.

Lastly, although this study has discussed what types of informal and formal services are utilised more within ambulance personnel of St John, this study has not investigated why certain types of support are utilised more than others. Further research is needed to explore why certain types of supports are utilised more than others, and how interventions may employ such supports to assist ambulance personnel in reducing stress and improving psychological distress following traumatic events.

Conclusion

In conclusion, findings from this cross-sectional study present evidence of how ambulance personnel perceive formal and informal support, and how they help them cope with the stressors of their day-to-day work. A key finding from this study is that a spouse/partner typically provides the most influential informal support for paramedics. Ambulance personnel mainly seek social support from close colleagues when engaging in formal support. Finally, when emergency response workers (including police officers and firefighters) feel adequately supported by informal and formal sources, the experience of stress is significantly ameliorated (Corneil et al., 1999; Ebright et al., 2003). Therefore, future research must focus on how services that are currently working well (e.g., colleagues) could be enhanced and how those that are underutilised could be improved for

additional engagement. Ultimately, ambulance personnel play a crucial role in society, improving these social support services would reduce workplace stress for ambulance personnel and enhance their physical and mental health.

References

Alexander, D. A., & Klein, S. (2001). Ambulance personnel and critical incidents. *British Journal of Psychiatry*, *178*(1), 76–81. https://doi.org/10.1192/bjp.178.1.76

Al-Shaqsi, S. (2010). Current challenges in the provision of ambulance services in New Zealand. *International Journal of Emergency Medicine*, *3*(4), 213–217. https://doi.org/10.1007/s12245-010-0239-z

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (3rd ed.). https://doi.org/10.1176/appi.books.9780890425596

American Psychiatric Association. (2022). Trauma- and stressor-related disorders. In *Diagnostic and Statistical Manual of Mental Disorders* (5th ed., text rev.). https://doi.org/10.1176/appi.books.9780890425787.x07_Trauma_and_Stressor_Related_Disorders

Arble, E., & Arnetz, B. B. (2017). A model of first-responder coping: An approach/avoidance bifurcation. *Stress and Health*, *33*(3), 223–232. https://doi.org/10.1002/smi.2692

Armstrong, D., Shakespeare-finch, J., & Shochet, I. (2014). Predicting post-traumatic growth and post-traumatic stress in firefighters. *Australian Journal of Psychology*, *66*(1), 38–46. https://doi.org/10.1111/ajpy.12032

Backé, E. M., Kaul, G., Klußmann, A., Liebers, F., Thim, C., Maßbeck, P., & Steinberg, U. (2009). Assessment of salivary cortisol as stress marker in ambulance service personnel: Comparison between shifts working on mobile intensive care unit and patient transport ambulance. *International Archives of Occupational and Environmental Health*, *82*(9), 1057–1064. https://doi.org/10.1007/s00420-009-0428-3

Balasubramaniam, S., & Civil, I. (2022). Trauma system in New Zealand. *Emergency and Critical Care Medicine*, *2*(2), 80–82. https://doi.org/10.1097/ec9.0000000000000044

Baron, A., & Townsend, R. (2017). Live tweeting by ambulance services: A growing concern. *Journal of Paramedic Practice*, *9*(7), 282–286. https://doi.org/10.12968/jpar.2017.9.7.282

Barratt, P., Stephens, L., & Palmer, M. (2018). *When helping hurts: PTSD in first responders*. Australia21. https://apo.org.au/sites/default/files/resource-files/2018-06/apo-nid180066.pdf

Barrera, M. (1986). Distinctions between social support concepts, measures, and models. *American Journal of Community Psychology*, *14*(4), 413–445. https://doi.org/10.1007/bf00922627

Baykal, D., & Koç Tütüncü, S. (2021). The perceived stress of paramedics and paramedic students on their stress coping behaviors during COVID. *Journal of General Health Sciences, Necmettin Erbakan University*, *3*(2), 90–101. https://doi.org/10.51123/jgehes.2021.20

Behnke, A., Karabatsiakis, A., Krumbholz, A., Karrasch, S., Schelling, G., Kolassa, I. T., & Rojas, R. (2020). Associating emergency medical services personnel's workload, trauma exposure, and health with the cortisol, endocannabinoid, and n-acylethanolamine concentrations in their hair. *Scientific Reports*, *10*(1). https://doi.org/10.1038/s41598-020-79859-x

Bentley, M. A., Crawford, J. M., Wilkins, J. R., Fernandez, A. R., & Studnek, J. R. (2013). An assessment of depression, anxiety, and stress among nationally certified EMS professionals. *Prehospital Emergency Care*, *17*(3), 330–338. https://doi.org/10.3109/10903127.2012.761307

Beyond Blue Ltd. (2018). Answering the call: National survey. In *National Mental Health and Wellbeing Study of Police and Emergency Services – Final Report*. https://www.beyondblue.org.au/docs/default-source/resources/bl1898-pes-full-report_final.pdf

Blau, G., & Chapman, S. A. (2016). Why do emergency medical services (EMS) professionals leave EMS? *Prehospital and Disaster Medicine*, *31*(S1), S105–S111. https://doi.org/10.1017/s1049023x16001114

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for *DSM-5* (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress*, *28*(6), 489–498. https://doi.org/10.1002/jts.22059

Boland, L. L., Mink, P. J., Kamrud, J. W., Jeruzal, J. N., & Stevens, A. C. (2019). Social support outside the workplace, coping styles, and burnout in a cohort of EMS providers from Minnesota. *Workplace Health &Amp; Safety*, *67*(8), 414–422. https://doi.org/10.1177/2165079919829154

Boudreaux, E., Mandry, C., & Brantley, P. J. (1997). Stress, job satisfaction, coping, and psychological distress among emergency medical technicians. *Prehospital and Disaster Medicine*, *12*(4), 9–16. https://doi.org/10.1017/s1049023x00037742

Bowron, J. S., & Todd, K. H. (1999). Job stressors and job satisfaction in a major metropolitan public EMS service. *Prehospital and Disaster Medicine*, *14*(4), 32–35. https://doi.org/10.1017/s1049023x00027692

Brais, N., Setlack, J., Keough, M. T., & Johnson, E. A. (2022). Perceived coworker social support: A protective factor against workplace violence and psychopathologies in paramedics and firefighters. *Journal of Aggression, Maltreatment &Amp; Trauma*, 1–19. https://doi.org/10.1080/10926771.2022.2082905

Braun, D., Theiler, L., Brähler, E., & Petrowski, K. (2021). Hormonal and subjectively perceived stress of the emergency physicians of the airborne rescue service. *Journal of Clinical Psychology in Medical Settings*, *28*(4), 771–780. https://doi.org/10.1007/s10880-021-09767-3

Brooks, S., Amlôt, R., Rubin, G. J., & Greenberg, N. (2018). Psychological resilience and post-traumatic growth in disaster-exposed organisations: Overview of the literature. *BMJ Military Health*, *166*(1), 52–56. https://doi.org/10.1136/jramc-2017-000876

Carleton, R. N., Afifi, T. O., Turner, S., Taillieu, T., Duranceau, S., LeBouthillier, D. M., Sareen, J., Ricciardelli, R., MacPhee, R. S., Groll, D., Hozempa, K., Brunet, A., Weekes, J. R., Griffiths, C. T., Abrams, K. J., Jones, N. A., Beshai, S., Cramm, H. A., Dobson, K. S., . . . Asmundson, G. J. G. (2017). Mental disorder symptoms among public safety personnel in Canada. *The Canadian Journal of Psychiatry*, *63*(1), 54–64. https://doi.org/10.1177/0706743717723825

Carmassi, C., Gesi, C., Simoncini, M., Favilla, L., Massimetti, G., Olivieri, M. C., Conversano, C., Santini, M., & Dell'Osso, L. (2016). DSM-5 PTSD and posttraumatic stress spectrum in Italian emergency personnel: Correlations with work and social adjustment. *Neuropsychiatric Disease and Treatment*, 375. https://doi.org/10.2147/ndt.s97171

Carvello, M., Zanotti, F., Rubbi, I., Bacchetti, S., Artioli, G., & Bonacaro, A. (2019). Peer-support: A coping strategy for nurses working at the emergency ambulance service. *Acta Biomedica*, *90*(11), 29–37. https://doi.org/10.23750/abm.v90i11-s.8923

Chandola, T., Heraclides, A., & Kumari, M. (2010). Psychophysiological biomarkers of workplace stressors. *Neuroscience & Amp; Biobehavioral Reviews*, *35*(1), 51–57. https://doi.org/10.1016/j.neubiorev.2009.11.005

Cheng, M. K. F., Joseph, J., & Ferguson, D. (2018). A cognitive behavioral model of first responder posttraumatic stress disorder. *Journal of Cognitive Psychotherapy*, *32*(3), 184–191. https://doi.org/10.1891/0889-8391.32.3.184

Claringbold, G., Robinson, N., Anglim, J., Kavadas, V., Walker, A., & Forsyth, L. (2022). A systematic review of well-being interventions and initiatives for Australian and New Zealand emergency service workers. *Australian Journal of Psychology*, *74*(1). https://doi.org/10.1080/00049530.2022.2123282

Cohen, S., & Janicki-Deverts, D. (2012). Who's stressed? Distributions of psychological stress in the United States in probability samples from 1983, 2006, and 2009. *Journal of Applied Social Psychology*, *42*(6), 1320–1334. https://doi.org/10.1111/j.1559-1816.2012.00900.x

Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, *24*(4), 385. https://doi.org/10.2307/2136404

Cohen, S., & Syme, S. L. (1985). *Social support and health* (Eds.). Academic Press.

Corneil, W., Beaton, R., Murphy, S., Johnson, C., & Pike, K. (1999). Exposure to traumatic incidents and prevalence of posttraumatic stress symptomatology in urban firefighters in two countries. *Journal of Occupational Health Psychology*, *4*(2), 131–141. https://doi.org/10.1037/1076-8998.4.2.131

Corthésy-Blondin, L., Genest, C., Dargis, L., Bardon, C., & Mishara, B. L. (2021). Supplemental material for reducing the impacts of exposure to potentially traumatic events on the mental health of public safety personnel: A rapid systematic scoping review. *Psychological Services*, *19*(S2), 80–94. https://doi.org/10.1037/ser0000572.supp

Courtney, J. A., Francis, A. J. P., & Paxton, S. J. (2012). Caring for the country: Fatigue, sleep and mental health in Australian rural paramedic shiftworkers. *Journal of Community Health*, *38*(1), 178–186. https://doi.org/10.1007/s10900-012-9599-z

Cowman, S. E., Ferrari, J. R., & Liao-Troth, M. (2004). Mediating effects of social support on firefighters' sense of community and perceptions of care. *Journal of Community Psychology*, *32*(2), 121–126. https://doi.org/10.1002/jcop.10089

Cydulka, R. K., Lyons, J., Moy, A., Shay, K., Hammer, J., & Mathews, J. (1989). A follow-up report of occupational stress in urban EMT-paramedics. *Annals of Emergency Medicine*, *18*(11), 1151–1156. https://doi.org/10.1016/s0196-0644(89)80050-2

De Choudhury, M., & Kiciman, E. (2017). The language of social support in social media and its effect on suicidal ideation risk. *International Conference on Weblogs and Social Media*, *2017*, 32–41. https://pubmed.ncbi.nlm.nih.gov/28840079/

Dew, J., LeBaron, A., & Allsop, D. (2018). Can stress build relationships? Predictors of increased marital commitment resulting from the 2007–2009 recession. *Journal of Family and Economic Issues*, *39*(3), 405–421. https://doi.org/10.1007/s10834-018-9566-7

Dicker, B., Swain, A., Todd, V. F., Tunnage, B., McConachy, E., Drake, H., Brett, M., Spearing, D., & Howie, G. J. (2020). Changes in demand for emergency ambulances during a nationwide lockdown that resulted in elimination of COVID-19: An observational study from New Zealand. *BMJ Open*, *10*(12), e044726. https://doi.org/10.1136/bmjopen-2020-044726

Donnelly, E. A., Bradford, P., Davis, M., Hedges, C., & Klingel, M. (2016). Predictors of posttraumatic stress and preferred sources of social support among Canadian paramedics. *CJEM*, *18*(3), 205–212. https://doi.org/10.1017/cem.2015.92

Donnelly, E. A., Bradford, P., Davis, M., Hedges, C., Socha, D., Morassutti, P., & Pichika, S. C. (2020). What influences safety in paramedicine? Understanding the impact of stress and fatigue on safety outcomes. *Journal of the American College of Emergency Physicians Open*, *1*(4), 460–473. https://doi.org/10.1002/emp2.12123

Donnelly, E. A., Chonody, J., & Campbell, D. (2014). Measuring chronic stress in the emergency medical services. *Journal of Workplace Behavioral Health*, *29*(4), 333–353. https://doi.org/10.1080/15555240.2014.965824

Donnelly, E., & Siebert, D. (2009). Occupational risk factors in the emergency medical services. *Prehospital and Disaster Medicine*, *24*(5), 422–429. https://doi.org/10.1017/s1049023x00007251

Drewitz-Chesney, C. (2019). Exploring paramedic communication and emotional expression in the workplace after responding to emergency calls. *Australasian Journal of Paramedicine*, *16*, 1–11. https://doi.org/10.33151/ajp.16.714

Dunkel-Schetter, C., & Bennett, T. (1990). Differentiating the cognitive and behavioral aspects of social support. In B. R. Sarason, I. G. Sarason, & G. R. Pierce (Eds.), *Social Support: An Interactional View* (pp. 267–296). New York: Wiley.

Ebright, P. R., Patterson, E. S., Chalko, B. A., & Render, M. L. (2003). Understanding the complexity of registered nurse work in acute care settings. *JONA: The Journal of Nursing Administration*, *33*(12), 630–638. https://doi.org/10.1097/00005110-200312000-00004

Eiche, C., Birkholz, T., Konrad, F., Golditz, T., Keunecke, J. G., & Prottengeier, J. (2021). Job satisfaction and performance orientation of paramedics in German emergency medical services—A nationwide survey. *International Journal of Environmental Research and Public Health*, *18*(23), 12459. https://doi.org/10.3390/ijerph182312459

Feldman, T. R., Carlson, C. L., Rice, L. K., Kruse, M. I., Beevers, C. G., Telch, M. J., & Josephs, R. A. (2021). Factors predicting the development of psychopathology among first responders: A prospective, longitudinal study. *Psychological Trauma: Theory, Research, Practice, and Policy*, *13*(1), 75–83. https://doi.org/10.1037/tra0000957

Fernandes, F. V., & Tewari, k. (2012). Organizational role stress: Impact of manager and peer support. *Journal of Knowledge Globalization*, *5*(1), 1–28. http://www.journal.kglobal.org/index.php/jkg/article/view/146

Fjeldheim, C. B., Nöthling, J., Pretorius, K., Basson, M., Ganasen, K., Heneke, R., Cloete, K. J., & Seedat, S. (2014). Trauma exposure, posttraumatic stress disorder and the effect of explanatory variables in paramedic trainees. *BMC Emergency Medicine*, *14*(1). https://doi.org/10.1186/1471-227x-14-11

Gouweloos-Trines, J., Tyler, M. P., Giummarra, M. J., Kassam-Adams, N., Landolt, M. A., Kleber, R. J., & Alisic, E. (2017). Perceived support at work after critical incidents and its relation to psychological distress: A survey among prehospital providers. *Emergency Medicine Journal*, *34*(12), 816–822. https://doi.org/10.1136/emermed-2017-206584

Granter, E., Wankhade, P., McCann, L., Hassard, J., & Hyde, P. (2018). Multiple dimensions of work intensity: Ambulance work as edgework. *Work, Employment and Society*, *33*(2), 280–297. https://doi.org/10.1177/0950017018759207

Guilaran, J., de Terte, I., Kaniasty, K., & Stephens, C. (2018). Psychological outcomes in disaster responders: A systematic review and meta-analysis on the effect of social support. *International Journal of Disaster Risk Science*, *9*(3), 344–358. https://doi.org/10.1007/s13753-018-0184-7

Gulliver, S. B., Pennington, M. L., Torres, V. A., Steffen, L. E., Mardikar, A., Leto, F., Ostiguy, W., Zimering, R. T., & Kimbrel, N. A. (2019). Behavioral health programs in fire service:

Surveying access and preferences. *Psychological Services*, *16*(2), 340–345. https://doi.org/10.1037/ser0000222
Halpern, J., Gurevich, M., Schwartz, B., & Brazeau, P. (2009). Interventions for critical incident stress in emergency medical services: A qualitative study. *Stress and Health*, *25*(2), 139–149. https://doi.org/10.1002/smi.1230
Hart, P. M., Wearing, A. J., & Headey, B. (1993). Assessing police work experiences: Development of the police daily hassles and uplifts scales. *Journal of Criminal Justice*, *21*(6), 553–572. https://doi.org/10.1016/0047-2352(93)90043-m
Hutchinson, L. C., Forshaw, M. J., & Poole, H. (2022). The role of individual factors in the mental health of NHS ambulance personnel. *Journal of Paramedic Practice*, *14*(8), 314–320. https://doi.org/10.12968/jpar.2022.14.8.314
Jagroop-Dearing, A., Leonard, G., Shahid, S. M., & van Dulm, O. (2022). COVID-19 lockdown in New Zealand: Perceived stress and wellbeing among international health students who were essential frontline workers. *International Journal of Environmental Research and Public Health*, *19*(15), 9688. https://doi.org/10.3390/ijerph19159688
Jones, S. (2017). Describing the mental health profile of first responders: A systematic review. *Journal of the American Psychiatric Nurses Association*, *23*(3), 200–214. https://doi.org/10.1177/1078390317695266
Jones, S., Agud, K., & McSweeney, J. (2019). Barriers and facilitators to seeking mental health care among first responders: "Removing the darkness". *Journal of the American Psychiatric Nurses Association*, *26*(1), 43–54. https://doi.org/10.1177/1078390319871997
Kechter, A., Black, D. S., Riggs, N. R., Warren, C. M., Ritt-Olson, A., Chou, C. P., & Pentz, M. A. (2019). Factors in the Perceived Stress Scale differentially associate with mindfulness disposition and executive function among early adolescents. *Journal of Child and Family Studies*, *28*(3), 814–821. https://doi.org/10.1007/s10826-018-01313-4
Kessler, R., Andrews, G., Colpe, L., Hiripi, E., Mroczek, D., Normand, S. L., Walters, E., & Zaslavsky, A. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological Medicine*, *32*(6), 959–976. https://doi.org/10.1017/s0033291702006074
Khan, M. I., Rahman, Z. U., Saleh, M. A., & Khan, S. U. Z. (2022). Social media and social support: A framework for patient satisfaction in healthcare. *Informatics*, *9*(1), 22. https://doi.org/10.3390/informatics9010022
Köhler, M., Schäfer, H., Goebel, S., & Pedersen, A. (2018). The role of disclosure attitudes in the relationship between posttraumatic stress disorder symptom severity and perceived social support among emergency service workers. *Psychiatry Research*, *270*, 602–610. https://doi.org/10.1016/j.psychres.2018.10.049
Kshtriya, S., Kobezak, H. M., Popok, P., Lawrence, J., & Lowe, S. R. (2020). Social support as a mediator of occupational stressors and mental health outcomes in first responders. *Journal of Community Psychology*, *48*(7), 2252–2263. https://doi.org/10.1002/jcop.22403
Lawn, S., Roberts, L., Willis, E., Couzner, L., Mohammadi, L., & Goble, E. (2020). The effects of emergency medical service work on the psychological, physical, and social well-being of ambulance personnel: A systematic review of qualitative research. *BMC Psychiatry*, *20*(1). https://doi.org/10.1186/s12888-020-02752-4
Lazarus, R., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York: Springer.
LeBlanc, V. R., Regehr, C., Birze, A., King, K., Scott, A. K., MacDonald, R., & Tavares, W. (2011). The association between posttraumatic stress, coping, and acute stress responses in paramedics. *Traumatology*, *17*(4), 10–16. https://doi.org/10.1177/1534765611429078

LeBlanc, V. R., Regehr, C., Tavares, W., Scott, A. K., MacDonald, R., & King, K. (2012). The impact of stress on paramedic performance during simulated critical events. *Prehospital and Disaster Medicine*, *27*(4), 369–374. https://doi.org/10.1017/s1049023x12001021

Lee, E. H. (2012). Review of the psychometric evidence of the Perceived Stress Scale. *Asian Nursing Research*, *6*(4), 121–127. https://doi.org/10.1016/j.anr.2012.08.004

Lewis-Schroeder, N. F., Kieran, K., Murphy, B. L., Wolff, J. D., Robinson, M. A., & Kaufman, M. L. (2018). Conceptualization, assessment, and treatment of traumatic stress in first responders: A review of critical issues. *Harvard Review of Psychiatry*, *26*(4), 216–227. https://doi.org/10.1097/hrp.0000000000000176

Lilley, R., de Graaf, B., Kool, B., Davie, G., Reid, P., Dicker, B., Civil, I., Ameratunga, S., & Branas, C. (2019). Geographical and population disparities in timely access to prehospital and advanced level emergency care in New Zealand: A cross-sectional study. *BMJ Open*, *9*(7), e026026. https://doi.org/10.1136/bmjopen-2018-026026

Mackinnon, K., Everett, T., Holmes, L., Smith, E., & Mills, B. (2020). Risk of psychological distress, pervasiveness of stigma and utilisation of support services: Exploring paramedic perceptions. *Australasian Journal of Paramedicine*, *17*. https://doi.org/10.33151/ajp.17.764

Marsack, C. N., & Samuel, P. S. (2017). Mediating effects of social support on quality of life for parents of adults with autism. *Journal of Autism and Developmental Disorders*, *47*(8), 2378–2389. https://doi.org/10.1007/s10803-017-3157-6

Mausz, J., Donnelly, E. A., Moll, S., Harms, S., & McConnell, M. (2022). Mental disorder symptoms and the relationship with resilience among paramedics in a single Canadian site. *International Journal of Environmental Research and Public Health*, *19*(8), 4879. https://doi.org/10.3390/ijerph19084879

McBride, D., Porter, N., Lovelock, K., Shepherd, D., Zubizaretta, M., & Burch, J. (2018). Risk and protective factors for the course of post-traumatic stress disorder in frontline workers after the Christchurch, New Zealand earthquake. *Disaster Prevention and Management: An International Journal*, *27*(2), 193–206. https://doi.org/10.1108/dpm-09-2017-0226

McLaren, S., Gollan, W., & Horwell, C. (1998). Perceived stress as a function of occupation. *Psychological Reports*, *82*(3), 794–794. https://doi.org/10.2466/pr0.1998.82.3.794

Medvedev, O. N., Krägeloh, C. U., Hill, E. M., Billington, R., Siegert, R. J., Webster, C. S., Booth, R. J., & Henning, M. A. (2017). Rasch analysis of the Perceived Stress Scale: Transformation from an ordinal to a linear measure. *Journal of Health Psychology*, *24*(8), 1070–1081. https://doi.org/10.1177/1359105316689603

Mildenhall, J. (2012). Occupational stress, paramedic informal coping strategies: A review of the literature. *Journal of Paramedic Practice*, *4*(6), 318–328. https://doi.org/10.12968/jpar.2012.4.6.318

Mitchell, J. T. (1983). When disaster strikes. . .the critical incident stress debriefing process. *JEMS*, *8*(1), 36–39. https://pubmed.ncbi.nlm.nih.gov/10258348/

Netczuk-Gwoździewicz, M. (2017). Personal resources in coping with stress among paramedics. *Journal of Science of the Gen. Tadeusz Kosciuszko Military Academy of Land Forces*, *186*(4), 138–155. https://doi.org/10.5604/01.3001.0010.7224

Oksa, R., Kaakinen, M., Savela, N., Ellonen, N., & Oksanen, A. (2020). Professional social media usage: Work engagement perspective. *New Media &Amp; Society*, *23*(8), 2303–2326. https://doi.org/10.1177/1461444820921938

Oliveira, A., Teixeira, F., Neto, F., & Maia, N. (2020). Peer support in prehospital emergency: the first responders' point of view. *International Journal of Emergency Services*, *10*(1), 131–146. https://doi.org/10.1108/ijes-07-2020-0035

O'Meara, P., & Duthie, S. (2018). Paramedicine in Australia and New Zealand: A comparative overview. *Australian Journal of Rural Health*, *26*(5), 363–368. https://doi.org/10.1111/ajr.12464

Peifer, C., Hagemann, V., Claus, M., Larra, M. F., Aust, F., Kühn, M., Owczarek, M., Broede, P., Pacharra, M., Steffens, H., Watzl, C., Wascher, E., & Capellino, S. (2021). Low self-reported stress despite immune-physiological changes in paramedics during rescue operations. *Excli Journal*, *20*, 792–811. https://doi.org/10.17179/excli2021-3617

Petrie, K., Milligan-Saville, J., Gayed, A., Deady, M., Phelps, A., Dell, L., Forbes, D., Bryant, R. A., Calvo, R. A., Glozier, N., & Harvey, S. B. (2018). Prevalence of PTSD and common mental disorders amongst ambulance personnel: a systematic review and meta-analysis. *Social Psychiatry and Psychiatric Epidemiology*, *53*(9), 897–909. https://doi.org/10.1007/s00127-018-1539-5

Pinks, D., Warren-James, M., & Katsikitis, M. (2021). Does a peer social support group intervention using the cares skills framework improve emotional expression and emotion-focused coping in paramedic students? *Australasian Emergency Care*, *24*(4), 308–313. https://doi.org/10.1016/j.auec.2021.03.005

Portero de la Cruz, S., Cebrino, J., Herruzo, J., & Vaquero-Abellán, M. (2020). A multicenter study into burnout, perceived stress, job satisfaction, coping strategies, and general health among emergency department nursing staff. *Journal of Clinical Medicine*, *9*(4), 1007. https://doi.org/10.3390/jcm9041007

Prati, G., & Pietrantoni, L. (2009). optimism, social support, and coping strategies as factors contributing to posttraumatic growth: A meta-analysis. *Journal of Loss and Trauma*, *14*(5), 364–388. https://doi.org/10.1080/15325020902724271

Prati, G., & Pietrantoni, L. (2010). The relation of perceived and received social support to mental health among first responders: A meta-analytic review. *Journal of Community Psychology*, *38*(3), 403–417. https://doi.org/10.1002/jcop.20371

Regehr, C., & Millar, D. (2007). Situation critical: High demand, low control, and low support in paramedic organizations. *Traumatology*, *13*(1), 49–58. https://doi.org/10.1177/1534765607299912

Reti, T. (2021). *Risk factors, work-related stressors and social support for ambulance personnel in New Zealand: An exploration of organisational and operational stressors and the importance of perceived social support* [Doctor of Clinical Psychology Thesis]. Massey University, Wellington, New Zealand.

Reti, T., de Terte, I., & Stephens, C. (2022). Traumatic exposure, work-related stressors and gender as risk factors in the development of psychological distress for ambulance personnel. *Traumatology*, *28*(1), 46–55. https://doi.org/10.1037/trm0000315

Salleh, M. R. (2008). Life event, stress and illness. *The Malaysian Journal of Medical Sciences*, *15*(4), 9–18. https://pubmed.ncbi.nlm.nih.gov/22589633/

Schaefer, J. A., & Moos, R. H. (1998). The context for posttraumatic growth: Life crises, individual and social resources, and coping. In R. G. Tedeschi, C. L. Park, & L. G. Calhoun (Eds.), *Posttraumatic growth: Positive changes in the aftermath of crisis* (pp. 99–125). Lawrence Erlbaum Associates Publishers.

Scully, P. J. (2011). Taking care of staff: A comprehensive model of support for paramedics and emergency medical dispatchers. *Traumatology*, *17*(4), 35–42. https://doi.org/10.1177/1534765611430129

Selye, H. (1956). *The stress of life*. McGraw-Hill.

Shakespeare-Finch, J., Rees, A., & Armstrong, D. (2015). Social support, self-efficacy, trauma and well-being in emergency medical dispatchers. *Social Indicators Research*, *123*(2), 549–565. https://doi.org/10.1007/s11205-014-0749-9

Shakespeare-Finch, J., & Scully, P. (2005). A multi-method evaluation of an Australian emergency service employee assistance program. *Employee Assistance Quarterly*, *19*(4), 71–91. https://doi.org/10.1300/j022v19n04_06

Skeffington, P. M., Rees, C. S., & Mazzucchelli, T. (2017). Trauma exposure and post-traumatic stress disorder within fire and emergency services in Western Australia. *Australian Journal of Psychology*, *69*(1), 20–28. https://doi.org/10.1111/ajpy.12120

St John. (2020). *Facts and figures about St John*. https://www.stjohn.org.nz/about-st-john/about-st-john-at-a-glance/fact-sheet/

St John. (2022, November). *Here for life: What we do*. Hato Hone St John. https://www.stjohn.org.nz

Sterud, T., Ekeberg, I., & Hem, E. (2006). Health status in the ambulance services: A systematic review. *BMC Health Services Research*, *6*(1). https://doi.org/10.1186/1472-6963-6-82

Sterud, T., Hem, E., Lau, B., & Ekeberg, I. (2011). A comparison of general and ambulance specific stressors: predictors of job satisfaction and health problems in a nationwide one-year follow-up study of Norwegian ambulance personnel. *Journal of Occupational Medicine and Toxicology*, *6*(1), 10. https://doi.org/10.1186/1745-6673-6-10

Stock, R. (2019, March 27). Paramedics call on government to give them a fair wage. *Stuff*. https://www.stuff.co.nz/business/111575303/paramedics-call-on-government-to-give-them-a-fair-wage

Surgenor, L. J., Snell, D. L., & Dorahy, M. (2020). Factors associated with psychiatric morbidity, post-traumatic stress disorder and post-traumatic growth in paramedic first responders: the role of core beliefs. *Australasian Journal of Paramedicine*, *17*. https://doi.org/10.33151/ajp.17.727

Todd, V. F., Moylan, M., Howie, G., Swain, A., Brett, A., Smith, T., & Dicker, B. (2022). Predictive value of the New Zealand Early Warning Score for early mortality in low-acuity patients discharged at scene by paramedics: An observational study. *BMJ Open*, *12*(7), e058462. https://doi.org/10.1136/bmjopen-2021-058462

Vagni, M., Maiorano, T., Giostra, V., Pajardi, D., & Bartone, P. (2022). Emergency stress, hardiness, coping strategies and burnout in health care and emergency response workers during the COVID-19 pandemic. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.918788

van der Ploeg, E. (2003). Acute and chronic job stressors among ambulance personnel: Predictors of health symptoms. *Occupational and Environmental Medicine*, *60*(>90001), 40i–446. https://doi.org/10.1136/oem.60.suppl_1.i40

Varker, T., Metcalf, O., Forbes, D., Chisolm, K., Harvey, S., Van Hooff, M., McFarlane, A., Bryant, R., & Phelps, A. J. (2017). Research into Australian emergency services personnel mental health and wellbeing: An evidence map. *Australian &Amp; New Zealand Journal of Psychiatry*, *52*(2), 129–148. https://doi.org/10.1177/0004867417738054

Ventola, C. L. (2014). Social media and health care professionals: Benefits, risks, and best practices. *P & T : A Peer-Reviewed Journal for Formulary Management*, *39*(7), 491–520. https://pubmed.ncbi.nlm.nih.gov/25083128/

Wagner, S. L., White, N., Regehr, C., White, M., Alden, L. E., Buys, N., Carey, M. G., Corneil, W., Fyfe, T., Matthews, L. R., Randall, C., Krutop, E., & Fraess-Phillips, A. (2020). Ambulance personnel: Systematic review of mental health symptoms. *Traumatology*, *26*(4), 370–387. https://doi.org/10.1037/trm0000251

Weiss, D. S., Brunet, A., Best, S. R., Metzler, T. J., Liberman, A., Pole, N., Fagan, J. A., & Marmar, C. R. (2010). Frequency and severity approaches to indexing exposure to trauma: The Critical Incident History Questionnaire for police officers. *Journal of Traumatic Stress*, *23*(6), 734–743. https://doi.org/10.1002/jts.20576

Williams, B., Beovich, B., & Olaussen, A. (2021). The definition of paramedicine: An international Delphi study. *Journal of Multidisciplinary Healthcare*, *Volume 14*, 3561–3570. https://doi.org/10.2147/jmdh.s347811

Wong, I. S., Ostry, A. S., Demers, P. A., & Davies, H. W. (2012). Job strain and shift work influences on biomarkers and subclinical heart disease indicators: A pilot study. *Journal of Occupational and Environmental Hygiene*, *9*(8), 467–477. https://doi.org/10.1080/15459624.2012.693831

Zafar, T. (2020). Potential biomarkers of emotional stress induced neurodegeneration. *ENeurologicalSci*, *21*, 100292. https://doi.org/10.1016/j.ensci.2020.100292

Appendices

Appendix A

Participant Information Sheet

Hello, Kia ora, Kia orana, Fakaalofa lahi atu, Talofa lava, Gude tru olgeta, Talohani, Malo e lelei, Talofa, Ni sa bula vinaka, Bonjour, Guten Tag, Nǐ hǎo.

On the front line with St. John: How are you being supported?

If you work for St. John on the front line as a paramedic and you're over 18 years of age then we invite you to participate in this research investigating your work experience and social support use.

This survey is designed to be easy to complete and should take around 15 minutes of your time.

Upon completing the questionnaire, you are expressing your consent to participate in this study.

Thank you for participating.

Daniel Shepherd and Olivia Pilbrow
Auckland University of Technology

This survey takes around 15 minutes to complete, and is in four parts:

1) Participant Information Sheet
2) Information about you
3) A bit about how you're doing
4) A bit about who is supporting you

Please click the lower right-hand arrow to continue...

Kia ora, my name is Olivia Pilbrow, and I am currently a student at Auckland University of Technology (AUT), completing an Honours Dissertation in Health Science - Psychology. I invite you to participate in a research study on the formal and informal supports used by frontline paramedics in New Zealand. Associate Professor Daniel Shepherd will supervise my research.

You must know that participation in this research study is entirely voluntary, and all answers will be kept anonymous. If you decide to participate, you can withdraw at any time before submitting your questionnaire. As your questionnaire is anonymous, I will not be able to identify your data to remove it after this point. Withdrawal has no negative consequences. If you do not wish to participate, you are not obligated to give a reason, and this won't affect you in any way.

Completing the questionnaire will be taken as consent if you agree to participate in this study. Your participation would be greatly appreciated.

What is the purpose of this research?

Due to the nature of the type of work that frontline paramedics do, it is important to understand the types of social supports paramedics use. The purpose of this research is to document your experiences as a paramedic, and your colleagues. Specifically, the types and functions of supports (formal and informal) you use as a paramedic. This research will result in a dissertation for the Honours Psychology programme at AUT.

How was I identified and why am I being invited to participate in this research?

As an individual employed by St. John New Zealand, you are invited to participate in this study. St. John New Zealand support this study and agreed to send invitations to its employees.

How do I agree to participate in this research?

Your participation in this research is voluntary and whether or not you choose to participate will neither advantage nor disadvantage you. If you do decide to participate, you can withdraw from the study at any time prior to submitting your questionnaire. As your questionnaire is anonymous, I will not be able to identify your data to remove it after this point. Submission of completed questionnaires will be taken as consent and agreement to participate.

What will happen in this research?

The study involves completing an online questionnaire. It will take approximately 15-20 minutes to complete. The questionnaire will only be available online to complete.

The questionnaire will include questions about your experiences of being a paramedic. The answers from this questionnaire will be used to look into which types of formal and informal supports are used by paramedics and why.

What are the benefits?

Benefits for participants: Participating in the research and the research findings can increase knowledge of the effectiveness of support systems and help guide coping strategies for paramedics in the future.

Benefits for the researcher: Participation in this research process will help me complete the research requirements for my dissertation. This will contribute to my completion of my Honours degree of Health Science in Psychology. I will also be conducting research in an area that I am interested in.

Benefits for the community: This research project may contribute to greater knowledge of the experiences of paramedics, what social supports they use and require, and how the community can help in reducing the burden for paramedics.

How will my privacy be protected?

The survey will be anonymous. You will not be identifiable in any report from the study. The data collected will be held in secure storage at Auckland University of Technology (AUT) that only my supervisors and I will have access to, in accordance with the New Zealand Privacy Act (1993).

What are the costs of participating in this research?

The survey will take approximately 15-20 minutes of your time to complete.

Is there support available?

Should you require support services following answering these questions you can call or text 'Need to Talk' on 1737 or alternatively see the support services available at St John https://stjohnnz.sharepoint.com/sites/Wellbeing-Hub/SitePages/Your-Support-Services.aspx

Will I receive feedback on the results of this research?

As the research is anonymous, there will not be individual feedback. Group data in the form of a one-to-two-page summary of the findings will be made available upon request by contacting the researcher. A summary will be posted in the St John's organisational bulletin, and you will not be identifiable in this summary.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor,
Daniel Shepherd, daniel.shepherd@aut.ac.nz, 921 9999 ext. 7238.
Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEC, ethics@aut.ac.nz , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:
Olivia Pilbrow, zwr5329@autuni.ac.nz, or I can be reached through the project supervisor Dr Daniel Shepherd
Project Supervisor Contact Details:
Daniel Shepherd, daniel.shepherd@aut.ac.nz, 921 9999 ext. 7238

Approved by the Auckland University of Technology Ethics Committee on type the date final ethics approval was granted, AUTEC Reference number 21/342.

Appendix B1

Section 1 – Demographic Questions

First, tell us a bit about yourself...

What is your gender (please tick)?

- Male
- Female
- Other

What is your age in years?

- Options 18+

Which ethnic group do you feel you most identify with?

- European
- Maori
- Pasifika
- Asian
- Other (please specify):

What is the highest level of education you have completed?

- Primary School
- Secondary School
- Technical College
- University Degree
- Other (please specify):

Are you currently (tick all that apply):

- Single / a solo parent
- Married
- Previously divorced
- Not married but living in a relationship
- In a relationship but living independently

Which option best represents your role at St John?

- Full time (paid)
- Part time (paid)
- Volunteer

Approximately how many years have you worked with St John?

- Options 1+

Which category best describes your role at St John?

- Field Operations
- Event Health Services
- Patient Transfer Services
- Ambulance Communications
- Corporate Operations
- Community health and iwi engagement
- Customers and supporters
- Finance and business insights
- Area Committees
- Other Clinical Role (e.g. Clinical Improvement, Clinical Education, etc)

Appendix B2

Section 2 – Perceived Stress Scale Questions

Rate your Stress

These questions ask you about your feelings and thoughts in the last 12 months. In each case, you will be asked to indicate how often you felt or thought a certain way.

Thinking about the last year, how often have you felt…

0 = Never

1 = Almost Never

2 = Sometimes 2

3 = Fairly Often

4 = Very Often

1. … upset because of something that happened unexpectedly?
2. … unable to control the important things in your life?
3. … either nervous or stressed?
4. … confident about your ability to handle your personal problems?
5. ... that things were going your way?
6. ...found that you could not cope with all the things that you had to do?
7. ...been able to control irritations in your life?
8. ...felt that you were on top of things?
9. … been angered because of things that were outside of your control?
10. ... felt difficulties were piling up so high that you could not overcome them?

Appendix B3

Section 3 – Formal & Informal Support Questions

We are interested who/what is supporting you and how. Please indicate which of the following sources of professional support you are using to assist with the stressors you may encounter as part of your job.

Have you engaged with this support for any reason in the last 12 months?	Yes	No
Member Assistance Programme (MAP)	☐	☐
St John's Chaplin	☐	☐
St John's Peer Support Programme	☐	☐
Front-line colleagues	☐	☐
St John's Wellbeing Hub	☐	☐
St John Managers or Leaders	☐	☐
St John Safety Wellbeing Team	☐	☐
Family violence support (FVS)	☐	☐
St John contact regarding bullying and/or harassment	☐	☐
Support from some other professional or professional organisation not listed?	☐	☐

If yes,

a. Approximately how many times have you accessed this support in the last 12 months?

b. Engaging with this has:

i. Been a substantial source of support for me
ii. Reduced my everyday stress
iii. Made my job more manageable
iv. Allowed me to do my job more effectively
v. Provided me with emotional support
vi. Made me feel we're all in this together
vii. Provided financial support and/or advice
viii. Given me guidance and direction on how to thrive in the workplace

Likert Scale Options
1 = Strongly disagree
2 = Disagree
3 = Disagree somewhat
4 = Neither agree nor disagree
5 = Agree somewhat
6 = Agree
7 = Strongly agree

If no,

a. You have not engaged with this for help, but have you utilised this source in the past?

If yes,

a. Approximately how many times have you engaged with this support?
b. Thinking back, how supportive was this support?

If no,

a. Given the need, would you choose to use this support in the future?

We are interested in the informal support networks outside of St John that you have used in the last 12 months. Please indicate which of the following support networks you are using to cope with work stressors.

Have you engaged with this support for any reason in the last 12 months?	Yes	No
Privately arranged psychologist or counsellor outside of the MAP	☐	☐

If yes,

a. Approximately how many times have you had sessions with psychologists or counsellors in the last 12 months?

b. Engaging with a private psychologist or counsellor has:

i.	Been a substantial source of support for me	**Likert Scale Options**
ii.	Reduced my everyday stress	1 = Strongly disagree
iii.	Made my job more manageable	2 = Disagree
iv.	Allowed me to do my job more effectively	3 = Disagree somewhat
v.	Provided me with emotional support	4 = Neither agree nor disagree
vi.	Made me feel we're all in this together	5 = Agree somewhat
vii.	Provided financial support and/or advice	6 = Agree
viii.	Given me guidance and direction on how to thrive in the workplace	7 = Strongly agree

If no,

a. You have not engaged with this for help, but have you utilised this source in the past?

If yes,

a. Approximately how many times have you engaged with this support?

b. Thinking back, how supportive was this support?

If no,

a. Given the need, would you choose to use this support in the future?

We are interested in the informal support networks outside of St John that you have used in the last 12 months. Please indicate which of the following support networks you are using to cope with work stressors.

Have you engaged with this support for any reason in the last 12 months?	Yes	No
Spouse / romantic partner	☐	☐
Immediate family (e.g., parent/s or sibling/s)	☐	☐
Larger family (e.g., grandparent/s, cousin/s, uncle/s. aunt/s)	☐	☐
Close friends / mates	☐	☐
Cultural Groups	☐	☐
Spiritual/religious groups	☐	☐
Social Media Groups (e.g., Facebook)	☐	☐
Family violence support (FVS)	☐	☐
St John contact regarding bullying and/or harassment	☐	☐
Support from some other person or group not listed?	☐	☐

If yes,

a. Approximately how many times have you had sessions with psychologists or counsellors in the last 12 months?

b. Engaging with a private psychologist or counsellor has:

i. Been a substantial source of support for me
ii. Reduced my everyday stress
iii. Made my job more manageable
iv. Allowed me to do my job more effectively
v. Provided me with emotional support
vi. Made me feel we're all in this together
vii. Provided financial support and/or advice
viii. Given me guidance and direction on how to thrive in the workplace

Likert Scale Options

1 = Strongly disagree
2 = Disagree
3 = Disagree somewhat
4 = Neither agree nor disagree
5 = Agree somewhat
6 = Agree
7 = Strongly agree

This is the end! Thank you for sharing your experiences with us.

a. If you have any further comments relating to the support you receive as a St John worker, or about this survey in general, then we'd be interested to hear them:

Are you needing support?
Should you require support services following answering these questions you can call or text 'Need to Talk' on 1737 or alternatively see the support services available at St John https://stjohnnz.sharepoint.com/sites/Wellbeing-Hub/SitePages/Your-Support-Services.aspx

Appendix C

Participant's Comments

1	*"I don't feel there is enough done to support front-line workers at St John. Some managers are open to support, most of the older ones seem to pay 'lip service' to the idea, it's almost like they have the idea; "Well, I coped, why can't you?" It's changing, but slowly."*
2	*"I have been contacted a couple of times via peer support after jobs, majority of the time they are really good but sometimes it feels like they can't wait to get off the phone with you which is a little bit disheartening."*
3	*"There are lots of typos in this survey"*
4	*"No parental return to work support or family friendly work hours for young families"*
5	*"Self-motivation and exercise"*
6	*"The support from line colleagues question groups them all into one. perhaps a question which suggests trust as an issue / concern. Do we trust our management team to help us / to disclose our concerns to etc. This is a huge issue across the board. "*
7	*"You have a question related to seeking support for bullying, but nothing further about how it affects the job. The combining of 'financial/advice' together is not helpful. Two very different things. There are services you list such a Family Violence something...didn't know it existed. You could has asked how easy or difficult do we find accessing the services.....when stressed/burned out sifting through multiple web pages/hubs, making contact with map etc is extremely difficult. I wish you asked how long we intend staying in the organization.... the IMPACT the stresses have....ie. resignation, sick leave, injury, mental health. One last thing...it's St John not St Johns"*
8	*"The peer support leader in ChCh has gone to great lengths for me in the past to ensure I could get the support I required at the time. I appreciate what a good job he does above and beyond his role."*
9	*"The peer support I have received has been in the form of a phone call following a particular job, arranged by management. There is a lot of support available but there remains some fear surrounding accessing these services and the anonymity around it. No one wants to be seen to be not coping and the thought that a manager may be able to access information around our mental health prevents many of us from seeking this support. The strongest support networks are definitely the informal ones with colleagues who attended the same challenging jobs. I have been lucky in my career to have access to a strong mentor who has provided emotional and clinical support for many years. This has been an invaluable source of support."*
10	*"There is always much more support for Paid Staff than Volunteer Staff"*
11	*"The questions should have an option for other as I would be able to expand on the yes or no option"*
12	*"STJ is really awesome at talking the talk, but they are a corporate machine none the less."*
13	*"I don't feel we are supported by St John managers. Their priority is $$$. I was never contacted when I put in a bullying complaint, from a senior manager, through Peakon."*
14	*"Hadn't heard of many of the services you asked about"*

15	*"A program for staff when they leave or go part time to assist with dealing with normal life. Also mandatory sessions for staff annually to keep on top of issues not identified"*
16	*"Previously I reached out for the support of my manager. A week later my colleagues were discussing my very personal business in the lunch room. I had only shared with my manager. I will never share with a St John Manager again"*
17	*"Our mental and physical wellbeing along with fatigue is not currently supported by management at an employee level, even though there are great looking policies, these are not followed and staff are not looked after and at times are even negativity interacted with when asking for support around fatigue, mental or physical well-being"*
18	*"I compartmentalize my life, work and home are very separate, and I work hard to keep it this way. I feel this provides me with the space away from work pressure that I need. I love my job, but it is purely my job, first and foremost my family are my priority; and I work hard to keep them separate so work stressors or pressure does not affect my role as a husband and father."*
19	*"More support is needed that's for sure"*
20	*"About the survey...there appears to be no "back" option, I needed to change an answer and was not able to go back to do this."*
21	*"I have no interest in Peer Support and do not trust the system."*
22	*"Was interesting to consider the bullying aspect, an internal person for this is not trusted. Was interesting to consider Wellbeing within St John, this is not trusted. Interesting to consider Chaplain, never see them. Interesting to consider manager... bullying and use information against you, would not approach"*
23	*"I haven't fully explored the online resources due to other study commitments but the quick look I had was really interesting. I signed up for the mindfulness course but ironically was too busy (I defer things because of my perceived lack of time thanks to study...). Peer support has been immensely helpful, but I only use a specific peer supporter who I know is awesome so I'm not sure about the rest... When I burnt out I utilised the MAP program with a psychologists support, this got me through a very hard time and helped me build resilience and self-confidence. The supports in the past, when utilised, have been very beneficial. The past 12 months I've had less big stressors or things that got on top of me so have just employed previously learnt coping strategies and continued with spiritual and collegial support. Picking the right person to speak to at work is also extremely important... Thank you for doing this study, it's so important that our workforce has these topics normalised and the fear of discussion around them removed, we need very robust support structures to help reduce PTSD and other things and help us all build resilience, as you say, it not only affects us but it affects our patients and communities as well. All the best with it!"*

Appendix D

Email chain with Chris Krageloh for article data

Olivia Pilbrow <oliviapilbrow@gmail.com>
to chris.krageloh

Fri, Nov 4, 11:03 AM (5 days ago)

Kia Ora Chris,

Thankyou so much for your assistance with our dissertations this year. Your explanations and help is always so valuable!

I am almost finished with mine but have a question about a paper that you were a part of writing.
Daniel Shepherd is my supervisor, and we were reading your article and hoping to use it within my discussion. We just couldn't see the means or standard deviation for the total scores of the PSS for each group.

I was wondering if you possibly still had this data and if you did if you would be able to please send it to us? We are after the mean PSS total scores and standard deviations for each group. And just hoping we can compare them to the scores of my study!

Hope you're able to have a good weekend!

Ngā mihi,
Olivia

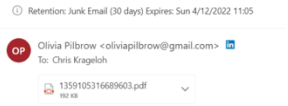
One attachment • Scanned by Gmail

Chris Krageloh
to Daniel, me

Tue, Nov 8, 12:33 PM (1 day ago)

Hi both

It's good that you are following up, Daniel, because both of Olivia's emails ended up in my junk mail folder!



Not sure why...

Re your question: I presume you are after the ordinal total scores and not the Rasch transformed ones? And are you after the scores from a simple unidimensional solution? As you know, some authors interpret it as a two-factor solution.

All the best
Chris

Chris Krageloh
to me

Tue, Nov 8, 1:36 PM (1 day ago)

Here you are 🙂

Descriptive Statistics

Dependent Variable: PSSsum

sample	Mean	Std. Deviation	N
nzgeneral	25.1561	6.33616	294
nzstudents	30.6722	7.34707	299
usstudents	29.4007	7.11518	292
Total	28.4202	7.33109	885

The numbers don't add up to 300 because some people had missing data.

Good luck with the submission of the dissertation!

Cheers
-c