Mapping the Health and Wellbeing Across the Firefighting Career and Assessing the Current Demands

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Details

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Thank you

We would like to thank all those who have taken part in this programme of work, the participants, the organisations, the steering group and the research team.

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Foreword

National Fire Chiefs Council Foreword

The changing nature of society and of fire and rescue service activity has impacted on the roles and responsibilities, and the associated pressures of those working in services. These changes have redefined the physical and psychological challenges faced by our workforce.

To support colleagues to meet these challenges the NFCC are absolutely clear that the health and wellbeing of employees is a top priority. We are committed to working with services and subject matter experts to provide leadership and support to ensure that every member of the service feels confident that:

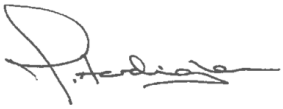
- their wellbeing is actively supported by their service throughout their career
- a supportive health and wellbeing culture is embedded in every service
- the prevention of illness and the promotion of health and wellbeing is paramount, and
- all staff have early access to the appropriate intervention when they need it

This report was commissioned by the People Programme of the National Fire Chief's Council and The Fire Fighters Charity. The findings are based on an in-depth literature review; responses to a national survey which was designed specifically for this research; and engagement with health and wellbeing related stakeholders. The unique nature of the team compiled to complete this work includes a multi-disciplinary academic team and practitioners from across the UK fire and rescue service.

The report provides a synthesised evidence base that establishes the health and wellbeing of fire service career trajectories, plotting out the more typical pathways and pressure points within the service. The

report reviews the current health and wellbeing framework within the fire and rescue service, identifies gaps in evidence-based practice and suggests areas for future work.

Looking forward, the resulting recommendations form the foundation for the development of a national framework to inform evidence-based strategies to support employee wellbeing including positive physical, psychological, and social health.



Mark Hardingham

Chair, National Fire Chief Council

Ian Hayton

Chair, National Fire Chiefs Council Health and Wellbeing Board

NFCC
National Fire Chiefs Council

Fire Fighters Charity Foreword

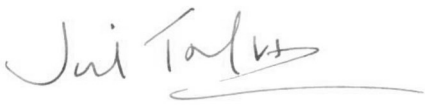
This report is comprehensive, and the authors know what they are talking about, having extensively reviewed a wide range of literature, and undertaken in depth study of 4 different workstreams to support the recommendations being made.

The recommendations are evidence-based and are focused on improving the lives of individuals within fire, for those leaving or who have left the workforce and the families that support them. The report highlights that whilst large scale incidents have an impact, the challenges of everyday life and the organisational structures within the

work environment have a greater impact. The career diagrams highlight effectively key stressor points, and the effective management of personal and occupational transition points is critical in empowering active partnership in wellbeing.

The UK Fire and Rescue Service is operating within a changed political and economic environment. With the advent of a global pandemic and high-profile incidents, the needs and expectations of the workforce and associated communities have also changed, most especially in relation to health and wellbeing. UK fire has considerable expertise in protecting the community, this expertise needs to be translated internally to enable these ordinary people, who do such extraordinary things, to develop the health and emotional literacy needed to make informed decisions about their health and wellbeing.

The only constant is change, so it is imperative that all sectors within and across the fire community work together to ensure that those who provide for our safety are as well-equipped as possible to live safely and successfully with the occupational impact of their role, and cope with the day-to-day challenges of life in the 21st century. This report provides the evidence for the way forward.



Dr Jill Tolfrey, MSC MCSP
Chief Executive, Fire Fighters Charity

The Fire Fighters Charity

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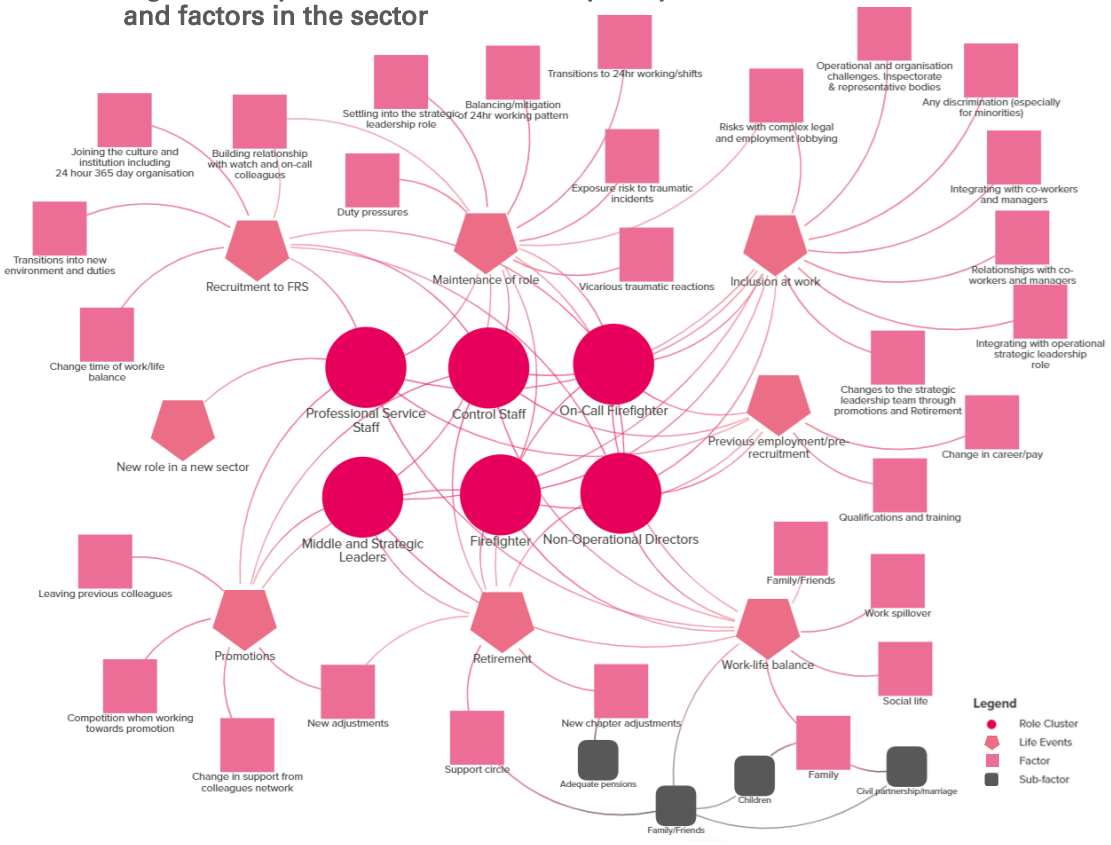
1. Executive Summary

There have been multiple changes to the firefighting occupation over the last twenty years that have been mapped by recent inspectorate bodies reports. These reports show how changes have had impacts on the career progression, tensions, opportunities and demands for the typical firefighting career development pathways, ranging from firefighter to chief fire officer (CFO) and for professional services staff, both grey and green book. The changing nature of society and of fire and rescue service activity over this time period has had an impact on the roles, responsibilities, and pressures experienced in the careers within the fire service employment. Currently the health and wellbeing framework built around this sector is without a synthesised evidence-base and is informed by the firefighting sector and research literature. Basing decisions about support with limited understanding of how the career trajectories might need different preventions or interventions at different time points (be that age, level of seniority or different exposures in role to physical or emotional harms) could be ineffective. Given this current situation, a sector wide project was commissioned that was cognisant of all key stakeholders resulting in increased knowledge exchange and development of a sector wide strategy across all employment types. This report and related materials are the outcome of that project. It aims to provide the starting point for development of an evidence-informed strategy for the health and wellbeing needs of all fire and rescue staff across the United Kingdom.

The common approach in the sector is to address an employee's work-related stressor, most typically focussing on operational staff rather than a broader more inclusive understanding across many different roles in the fire sector. This report promotes and highlights the transition from a view and response of addressing a single issue, to an interconnected, holistic and health promotion focused approach for health and wellbeing in the UK fire sector. To illustrate the breadth of this need, the image below illustrates the complex network of related factors between an employee's role and life events.

Figure 1. Representation of the complexity between role clusters, life events and factors in the sector



To understand and develop a response to this interconnected world this project synthesised findings from across four work streams to establish the health and wellbeing of typical career trajectories over the course of time, plotting out the most typical pathways and pressure points within the UK Fire and Rescue Sector (FRS). In addition to this, we are aware that since March 2020 there have been unpredicted demands on the UK FRS through the additional roles performed to support the national response to the Covid-19 pandemic, such as mutual aid to health and public health, contributions to demands such as the vaccination programmes, as well as sustaining business as usual. This report has established what the current demands are on the workforce of the FRS through literature review finding, analysis of survey data, and analysis of focus groups with key stakeholder groups. To find out more about what the synthesised findings are of the analysis of these three evidence bases, please see section 6 of the report.

The literature review was completed using key search terms to scope the breadth of published literature surrounding holistic psychological, social and physical wellbeing. This included wider critical occupations such as police, ambulance, military and other risk occupations. For professional services staff relevant occupations and sectors were drawn on (for example profession-focussed studies on HR, finance etc) to ensure relevance to the profession, rather than drawing across the general population. It also included literature from other countries. The review team then recorded the details of the papers in a tracking system and any questions about relevance or applicability were triaged by the wider team. To find out more detail of the approach taken please see section 4.1 of the report.

The survey was created using a selection of pre-validated scales (details of which can be found in the appendix) to ensure that the scales were measuring factors that the literature review identified, in a stable way over time (reliability and validity and other psychometric properties). The survey was available to every employee in the fire and rescue services across the UK. The survey results were then analysed and put through relevant statistical tests to explore patterns and relationships across the answers to indicate the relationships between the factors identified through the literature review. To find out more detail of the approach taken please see section 4.2 of the report. To see the findings from the analysis of the data please see section 5.3 of the report.

The focus groups informed the initial findings and also highlighted good and leading practice of wellbeing frameworks. The stakeholder groups were broadly clustered as a group with responsibility for strategic direction, a group with responsibility for implementation, and a group with the design of wellbeing frameworks in their portfolios. For more detail on the design of the stakeholder groups please see section 4.3 of the report.

Recommendations for stakeholders across the sector have been developed on the basis of these findings and a document containing

key strategic principles to consider when developing the next strategy gives the sector a way forward to design a holistic and integrated health and wellbeing offer for the sector. Alongside this prioritise document there are a suite of summary documents to guide different audiences through the report to sections and key findings for their context. These include summaries for:

- Staff and volunteers
- His Majesty's Inspectorate of Constabulary and Fire & Rescue Services
- The Home Office
- The Local Government Association and employers
- Fire and rescue services

These are listed in detail at the end of section two.

This bid is supported by both the National Fire Chiefs Council (NFCC) and the Fire Fighters Charity. Both organisations plan to use the outcomes from this research in their strategic plans to develop national firefighter wellbeing strategies. The project was also facilitated by grant funding by the Home Office to support the delivery of this research.

31 recommendations have been developed from the analysis of the literature review and the survey data, to inform the next stages of the work stream. These recommendations are set within the context of the report and gathered below for review. They have been listed in an order that reflects both the priority and necessary sequencing within a broader theme clustering on governance, review, data, implementation of leading practice and necessary enhancement which have been created to discuss the gap analysis discussed at the end of the report. Each recommendation contains an indicative (but not exhaustive) target stakeholders and has also been anchored to a section of the report where the most evidence to support that recommendation is placed. The evidence does span sections of the report, so the recommendations are placed where the main contributing sectors are.

Understanding the health and wellbeing needs of the sector is of critical importance to support those working in it and for those designing and delivering projects, programmes and services that support and enhance health and wellbeing. This project highlights that an evidence based, holistic and integrated approach to health and wellbeing will support the sector and all those who are connected to it to live fulfilling and supported lives. It is hoped that this report and associated materials will support the sector to develop a strategic and integrated approach that benefits all.

Recommendations

Governance

Recommendation 1: The fire sector, with support from the National Fire Chiefs Council (NFCC), should consider implementing the recommendations contained within this report by recognising and supporting health and wellbeing within each Fire Standard.

Recommendation 2: The NFCC and Fire Fighters Charity should develop a health and wellbeing strategy for the sector, with a holistic approach including physical, psychological and social health. The framework and associated policy should be designed to support the staff's ability to engage positively both inside and outside the workplace. This can be supported by the associated 'recommended key priorities' document which synthesises the findings of this report into actionable future delivery and evaluation mechanisms, addition to this report.

Recommendation 3: The design of workplace support and policies within fire services and the Fire Fighters Charity should be built as a mixed ecology of provision, the design should use this evidence base in their creation and to ensure staff have pathways to support for a range of stressors/transitions/challenges that they may face in their adult lives.

Recommendation 4: The strategy and framework developed for the

sector should prioritise a holistic offer for all staff and volunteers that includes a health promotion approach.

Recommendation 5: The NFCC, Fire Fighters Charity and other stakeholder governance structures within the health and wellbeing strategy should establish and maintain a two-way communication process with all staff to capture what is and what is not working in the strategy and framework. This should include an annual wellbeing survey built from the one used in this report alongside reporting channels through services or engagement approaches.

Recommendation 6: To reflect the nature of all wellbeing needs of different groups within the fire sector, and the need to embed wellbeing approaches through all areas of policy development, a review should be undertaken across the existing documentation of key stakeholders (including the NFCC, the Fire Fighters Charity and all fire services) to ensure wellbeing and inclusion are woven through all areas of activity.

Recommendation 7: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to review, identify and quality assure good or leading practice to help services build psychological resources such as job satisfaction, connectedness and belonging into their policy and practices. This should be in the form of guidance, or a compendium of resources.

Recommendation 8: Fire services, the Fire Fighters Charity and other stakeholders should ensure that any support incorporated in their offers which were originally designed for the general population are reviewed by an appropriately qualified and experienced practitioner, in consultation with external support and evaluation, to ensure its appropriateness for the fire community. Where changes are necessary these should be recorded appropriately on risk registers or policy audits.

Recommendation 9: Any national stakeholders (NFCC, Fire Fighters Charity, Home Office and others) should ensure that current and future developments across the health and wellbeing of the fire sector

recognise the key differences between the bluelight services and ensure that any shared work responds to the needs of the fire sector.

Recommendation 10: The NFCC should ensure there is a mechanism to update the knowledge across the sector relating to health and wellbeing such as an annual survey. Through this the understanding of health and wellbeing needs should be updated annually. In due course this would also create a longitudinal evidence base to inform strategic priorities and highlight where support offers or structures need reviewing.

Review

Recommendation 11: The NFCC, Fire Fighters Charity and fire services should complete a mapping exercise to capture the offers of support available from the local to national levels for those working or volunteering in the fire sector. This would be for each cluster of jobs detailed in this report to ensure both individuals and services are easily able to find and access support for the wellbeing of their people. This would then feed into a strategy for health and wellbeing in the Fire and Rescue Sector.

Recommendation 12: Fire services and the Fire Fighters Charity should consult the analysis in this report to complete a review of the support offer for their staff within each organisation. This should be completed alongside an evidence base of identified good or leading practice and co-produced with staff groups to develop future support offers.

Recommendation 13: Fire services and any other stakeholder groups who include external support providers in their offer should keep an open dialogue and regular review, to ensure the offer continues to be a good fit with the needs of the sector and its workforce. Transparent quality assurance mechanisms should be built into this.

Recommendation 14: Fire services and the Fire Fighters Charity should review their development, design, threshold triggers for access, and targeting/communicating of wellbeing support offers to ensure that increased length of service (not age) is considered appropriately in policies and practices.

Recommendation 15: Fire services and the NFCC should review their guidance, policies and practices of supervisor induction and training. This review should ensure that supervision training and delivery incorporates and promotes the health and wellbeing of all staff as a consistent approach throughout. Training delivery needs to review in the context of the 'recommended key priorities' document and include effective support of supervisors.

Recommendation 16: Fire services and the Fire Fighters Charity should implement the recommendations from the 'Understanding the transition to retirement for Firefighters: A social identity approach' report completed on the UK fire sector in 2020.

Data

Recommendation 17: The strategy that implements the findings and recommendations should be flexible and fit into existing systems and practices. It should also have mechanisms to ensure that it keeps current and is updated to reflect the changing social and political context. This should include a bi-annual mapping exercise against the academic literature base or good or leading practice as defined by national or international health bodies such as the World Health Organisation. This should also ensure it continues to develop evidence for changed approaches to wellbeing support.

Recommendation 18: A structure and process should be developed for recording, sharing and aggregating health data (physical, psychological, and social) so that role, service, and national health profiles can be understood across time. Fire and rescue services, Fire Fighters Charity and other providers should contribute and use this data to inform their own health and wellbeing offer, identify changes in need, evaluate and guide policy development.

Recommendation 19: Following recommendation 18, the key stakeholders should identify direct or proxy measures of impacts on wellbeing to evaluate support and interventions across services and the sector. These should be incorporated into the data and digital

future planning of Fire and Rescue Sector.

Recommendation 20: Future research commissions (such as from the Home Office, Fire Fighters Charity and NFCC) should seek a deeper understanding of the complex indirect relationship between staff awareness of support pathways available and their wellbeing. There is a need to understand this relationship across all job roles as their needs, support and awareness, as reported in this report, is nuanced and different.

Implementation of leading practice

Recommendation 21: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to create a resource pack and compendium of practice for services to implement a positive resource ecology that facilitates work engagement and enhances shared psychological resources across organisations (for example drawing on mutual aid arrangements). This should be captured and supported through the development of a strategy, framework and future national workstreams, directed by the 'recommended key priorities' document developed alongside this report.

Recommendation 22: Fire services, the Fire Fighters Charity, and sector specific recruitment websites should include resources and information packs for the family to increase their knowledge of the role and the stressors within them. Clear communication on transition points across Fire and Rescue Sector roles and pathways to appropriate support should support family members to recognise needs and proactively engage with support if required. Similar material should also be developed for trainee firefighters, new starters in professional services, those who move on to a flexi-duty rota and those who come into the fire sector through the direct entry schemes.

Recommendation 23: Fire services should provide a formal peer support offer which is accredited, peer-led and has a robust governance framework, within which onward referrals to professional support are signposted and supported with clear triggers and

thresholds for onward referral.

Recommendation 24: The NFCC, Fire Fighters Charity and Home Office should come together with other key stakeholders across the fire sector to create a work stream to address the lack of evidence regarding the risk and support available to those transitioning into a flexi-duty rota.

Recommendation 25: The NFCC should work across the sector with all stakeholders to create policies and processes for the provision of mutual aid to provide capability and capacity to meet surge demand for health and wellbeing support for a high number of staff after a significant major incident.

Necessary enhancement

Recommendation 26: Fire services, the Fire Fighters Charity and the NFCC should work with staff groups to ensure the needs of different clusters of job roles are included in the offers of support, including nuanced communication methods to enhance engagement with support services for different groups.

Recommendation 27: The support offered by providers to alleviate potentially traumatic reactions should ensure a mixed ecology of support is offered. This support offer should be provided to all staff following potentially traumatic experiences to meet their needs regardless of role and whether the experience occurred in or out of work and should reflect the needs of both individuals and groups.

Recommendation 28: Fire services should consider the inclusion of the family of staff members in their practices and education/health promotion activities through the Fire Fighters Charity and/or themselves.

Recommendation 29: Fire services and NFCC guidance should advocate for the provision of clear feedback to all unsuccessful promotion candidates to help them understand the decision and to engage in meaningful goal setting and professional development to

increase their chances of succeeding in the future.

Recommendation 30: Fire services should facilitate access for all their staff to the NFCC coaching programme Home - NFCC Coaching (https://nfcccoaching.mye-coach.com/).

Recommendation 31: Fire services and the NFCC should consider the recommendations of the Levin (2020) report with a view to revising onboarding and training practices to include virtual methods (where possible) and include health promotion education. This should ease the transition into the service for new starters, and promote knowledge of the role to them and their family. This also increases the accessibility and inclusion for all staff, recognising diverse needs such as ethnicity and neurodiversity.

2. Scope

Each individual has a unique career journey through the fire sector in the UK, but there are typical pathways or significant overlaps and clusters of similarities across some of them. The career journey starts pre-recruitment and continues post-retirement or when they change to another sector. The past few years have seen significant reform and transformation across the UK FRS as a result of the Government's 2005 (UK Government, 2005) and 2022 (UK Government, 2022) fire reform programme, impacts from financial Austerity, the development and implementation of His Majesty's Inspectorate of Constabulary and Fire & Rescue Service (HMICFRS) inspection regime. Also having a significant impact are the consequences of, and response to, the outcomes of public inquiries identifying lessons to learn from the fire at Grenfell Tower, the Manchester Arena attack, and the Westminster Bridge attack. In addition, the Covid-19 pandemic tested the capacity and resilience of the FRS and other public sector services to protect the public from the impacts of the pandemic, particularly those most vulnerable and isolated. The NFCC and the Fire Fighters Charity and stakeholder groups of the fire sector have endeavoured to prioritise the physical, psychological, and social health, safety and welfare of all staff.

This project comes after the global Covid-19 pandemic. This has highlighted the potential changing role and nature of the UK FRS and how future challenges could be demanding both physically and psychologically. In response to these challenges, the NFCC recognises that the health and wellbeing of all employees is a clear priority to employers, and having healthy employees is key to delivering the objectives; priorities; and service delivery activities to reduce harm and make communities safer and healthier. This project will directly feed into the new national strategy to inform evidence-based approaches to support employee wellbeing including physical, psychological, and societal elements.

The strategy is predicated on the premise that the health and wellbeing of everyone working within the FRS is a clear priority, to achieve a healthy and well fire and rescue staff:

- For fire sector individuals and their families,
    - because it impacts on the quality and length of life people lead, affecting their capacity to work and provide for their family;
- for FRS employers and leaders,
    - because a healthier workforce is a more productive workforce; having healthier workers also provides an incentive to invest in their training and development, as such investment will yield a higher return; and
- for society as a whole,
    - because the consequences of ill-health lead to social exclusion, lower output and reduced tax revenues. Higher costs in terms of healthcare and general social benefits requirements.

The National Fire and Rescue Service Sickness Absence Report is collated each quarter by Cleveland Fire Brigade. The return analysed by the researchers reported on the 39 services which provided evidence in the April 2021 to March 2022 period. Over 384,331 duty days were lost to sickness absence through 37,708 separate occurrences (approx. 11.42 days per member of staff). Self-reported returns state musculo-skeletal and mental health were reported as the primary reasons for the absence accounting for 31% and 22% respectively (cost to the fire sector approx. £77m per year). Investing in the health and wellbeing of FRS staff in a coordinated national strategy will save effort and align potentially competing priorities as well as reinforcing the principles and ethical values of a committed employer to facilitate healthier working practices and lifestyle choices for FRS staff and their families.

Given the recent changes to the sector and the experiences of the pandemic, EU transition, a period of austerity, and a cost-of-living crisis, it is currently unknown how these individual or accumulation of experiences are impacting on the members of the fire sector. There is also limited access by practitioners in the fire sector to access the literature relevant to build evidence-based approaches. Consequently,

the project had eleven main questions which informed four strategic objectives to create an evidence-based, research-informed strategy for the sector.

The eleven key questions were:

1. What is the current prevalence of different health and wellbeing issues within the fire sector?
2. What does the current wellbeing profile look like across the fire sector?
3. Across the typical career trajectories in the fire sector, what is common and what nuanced between different careers and roles?
4. What does the evidence suggest are the main pressure and transition points across the fire sector?
5. What does the evidence suggest are the common approaches to support those pressure and transition points?
6. What does the evidence suggest are the most effective approaches to support those pressure and transition points?
7. How effective is the health and wellbeing support provided by FRS?
8. What is the evidence base that can be used for national co-ordination?
9. What does research specification suggest for responding to mental health in FRSs, including trauma?
10. What does the stakeholder mapping of wellbeing providers look like in the fire sector?
11. What does the evidence from key questions, points 1-8 suggest should inform a fire sector strategy for mental/psychological health and wellbeing?

In order to address these eleven key questions, four main objectives were developed which then defined associated activity to deliver them.

Objective 1 was to complete a review of the academic literature to understand the typical fire sector career trajectories from pre-recruitment to post-exiting from the occupation (through retirement or career change). This comprised of a review of the academic and grey

literature including international learning and learning from other emergency service occupations.

Objective 2 was to complete a review of the academic literature to understand the most effective support at each transition point throughout the typical FRS career pathways. As with objective one above, this included a review of the academic and grey literature including international learning and learning from other emergency service occupations.

Objective 3 was to conduct a national survey to establish the current demands on FRS personnel, their current health and wellbeing levels, their understanding of the provision of support available to them, and the perceived impacts of the Covid-19 pandemic. It comprised of several pre-validated scales to assess emotional wellbeing and psychological health sent out to all staff across all services of the UK. A statistically reliable number of returns would be approximately 650.

Objective 4 was to synthesise the above work streams to be sense-checked, reviewed, and shaped into a strategy in consultation with key stakeholder groups. Focus groups and knowledge exchange events were used to ensure a robust and usable strategy is developed to underpin the wider health and wellbeing initiatives at sector and organisational levels. It comprised of 3 sets of focus groups using members of the FRS key stakeholder groups.

This project seeks to support the NFCC Health and Wellbeing project through the delivery of our objectives. For reference, we have mapped these questions against the Health and Wellbeing projects' outputs and outcomes, which can be found below.

Outputs:

- An evaluation of health and wellbeing support provision in FRS – *this output was beyond the scope of our objectives but Objectives 1 and 2 provide insights that will support the Board to progress this output*

- Undertake a National Health & Wellbeing Survey to develop evidence base for national co-ordination – O*bjective 3* Researching the requirements for responding to mental health in the FRS, including trauma – *Objective 1 and 2*
- Scope an annual literature review (undertaken via an academic institution) to ensure that guidance remains relevant and good practice – *Objective 1 and 2*
- Assess impact of Covid-19 on health and wellbeing of FRS staff – *Not covered directly but Objective 3 will assess health and wellbeing across all FRS staff and provide limited insights. We recommend an annual/bi-annual survey across the sector which can then chart the Health and Wellbeing changes across the sector over time.*

Outcomes:

- An understanding of the state of health and wellbeing support being provided by FRSs – *Objective 3 alongside aspects of Objective 4*
- Evidence to support the development of a National Health and Wellbeing Strategy – *Objectives 1-4*
- Report to His Majesties Inspectorates outlining the main findings
- Report to the Home Office outlining the main findings
- Report for the employers
- An academic output and conference submissions
- Reports and summary reports available to the National Fire Chief's Council and the Fire Fighters Charity practitioners' networks
- Report to services to facilitate a gap analysis
- Output for individual employee use
- Comparison report of the current content with Oscar Kilo: National Police Wellbeing Service (NPWS)
- An article submitted to Emergency Services Times
- An article submitted to Fire Magazine
- An article submitted to Shout Magazine

3. Context and approach

In the early stages of the project, a definition of wellbeing was established, and a theoretical understanding was mapped to that understanding. The UK Government published a policy briefing on wellbeing in 2014 (UK Government, 2014) which defined:
"Wellbeing is about feeling good and functioning well and comprises an individual's experience of their life; and a comparison of life circumstances with social norms and values."

The What Works Wellbeing initiative defines wellbeing as:

> "personal and subjective, but also universally relevant. Wellbeing encompasses the environmental factors that affect us and the experiences we have throughout our lives. These can fall into traditional policy areas of economy, health, education and so on. But wellbeing also crucially recognises the aspects of our lives that we determine ourselves: through our own capabilities as individuals; how we feel about ourselves; the quality of the relationships that we have with other people; and our sense of purpose. These psychological needs are an important part of what makes us human, along with our ability to feel positive and negative emotions. It matters how often, and for how long, we experience positive emotions – such as pleasure and a sense of purpose – or potentially negative emotions, like anxiety."

These definitions of wellbeing encompass the holistic sense of a person's ability to function happily in their life. This is different to mental health, which everyone has, and is on a scale of good mental health and mental ill health. The World Health Organisation defines mental health as:

> "Mental health is more than the absence of mental disorders. Mental health is an integral part of health; indeed, there is no health without mental health. Mental health is determined by a range of socioeconomic, biological and environmental factors. Cost-effective public health and intersectoral strategies and interventions exist

to promote, protect and restore mental health."

In order to support and help employees within the fire sector maintain good mental health, the leadership, strategies, policies, initiatives and interventions should therefore focus on supporting wellbeing as well as providing appropriate interventions for mental ill health in the fire sector. The most widely used and theoretically informed conceptual understanding of wellbeing through policy and research work is the Warwick-Edinburgh Mental Wellbeing understanding. This approach is the most conceptually and theoretically well supported, and for this reason other working definitions and approaches to wellbeing were discarded.

The definition provided by the Warwick-Edinburgh Mental Wellbeing scale (WEMWBS) is that mental wellbeing is the "positive aspect of mental health" that promotes personal happiness and good function. It is considered to be part of a spectrum of mental health, with poor mental health and mental illness representing just one end of a spectrum. The definition is clear that mental wellbeing and mental illness are not exclusive states and that an individual can still experience mental wellbeing if they struggle with mental illness. To account for all aspects of this definition the WEMWBS covers both psychological functioning and personal contentment in a more philosophical context. As the authors of the scale also perceive mental wellbeing as holistically connected to other types of wellbeing, like social or physical, these relational links are also represented within the scales.

3.1. Health promotion and its link to wellbeing and mental health

Since the 'Heath for All' health promotion conference in 1986 (WHO, 1986), the Ottawa charter laid the foundations for the definition of good health and its components and ushered in a more encompassing approach to health promotion (Pollett, 2007; Pelletier et al., 2009).

Good health transcends the absence of diseases and illness, it instead covers complete physical, mental, and social wellbeing. This definition introduced a broadened approach to good health and altered the traditional approaches of the reductionist biomedical model of illness, treatment and recovery and instead included societal concepts relating to physical, psychological, and social health and wellbeing. In this, mental health is used to reflect that quality of health is not simply limited to the presence or absence of illness (Koseves et al., 2001). This changed our approach from detecting ill health to the promotion and maintenance of good health and wellbeing.

Owing to the risks associated with emergency response, the significance of health promotion in the day-to-day activities of fire service personnel has been a focus of many researchers over the years, and this has been well discussed under three broad areas namely, physical health, mental health, and social wellbeing (Soteriades et al., 2011). Working within the fire service (especially in operational roles) has been described as an inherently hazardous job (Jamesdaniel et al., 2019), where unpredictable job dynamics can challenge the employees (Griffin et al., 2016; Yoon et al., 2016). These include different forms of hazards, occupational risk factors and traumatic emergency situations. Consequently, a level of psychological, physical, and social fitness must be sustained for good service delivery to the public and for personal employee health and wellbeing (Heydari et al., 2022).

This approach differs from others we have seen embedded in policy and practice across service and sector-level documents. Using the same underlying premise of prevention of risks in community risk profiles can be applied to the health promotion framework. In this report, responding to ill health when it occurs should not be the focus – instead, investment (be that of priorities, energy, and policy re-design, not just of finance) should also be in health and wellbeing promotion. This includes:

- education about achieving and maintaining holistic health
- good physical

- psychological
- social health
- personal resilience
- increasing access to support for issues when and as they occur for individuals

All these aspects are necessary to prevent issues accumulating and increasing in complexity. Lastly, it also includes increasing emotional awareness of self and emotional literacy of individuals across the sector.

Emotional literacy is providing (through education or role modelling) the language and communication skills to talk about how we are feeling, our emotions, and the impact they are having on us. This is different to emotional intelligence; the ability to read and respond to other people's emotions. Increasing emotional literacy and self-awareness in individuals across organisations can be done through policy re-design (support structures and procedures that are designed, implemented, and audited on the premise of opt-out rather than opt-in). In addition, there is a need for practices that mainstream or role model recognition of mood states versus longer-term changes in happiness or ability to function. In other sectors, alongside health literacy, emotional literacy has been celebrated as important due to its ability to recognise, label, and communicate access to relevant support. In the sectors dealing with secure settings, it is sometimes framed as 'soft skills for hard work' (Knight, 2012).

3.2. The link between improved individual psychological, physical, and social health with organisational fitness, safety and risk reduction

The roles within the fire service (especially operational roles) are physically demanding and over the years, there have been frequent reports of occupational accidents (Cornall et al., 2017), high rate of on-

duty injuries (Taylor et al., 2015), and work-related deaths (Smith et al., 2018a). In a study by Soteriades et al. (2011), it was established that cardiovascular disease (CVD) peaks the aetiology of on-duty related deaths in the United States (with estimated 45% of on-duty fatalities), and major cause of morbidity. However, it is important to note that this may not be universal and can vary between countries (Thomas et al., 2020). Owing to the few numbers of health promotion programs within the fire services at an international level, firefighters have been reported to suffer from high prevalence of physical and clinical conditions that are not limited to obesity, substandard fitness, and cardiovascular-related deaths (Poston et al., 2013). The factors identified for these fatalities have been suggested to include limited psychological health, weak safety attitudes, limited technical know-how, and emergency treatment, but these do not exclude poor physical fitness (Li et al., 2014; Heydari et al., 2022). The approach of the fire service to enhancing safety through physical, technical, and procedural improvements has been clear. One example is the re-design of guidance, procedure, and protocols in call management; and training for high-rise buildings and large commercial centres, with some research calling for this to address the associated increase in physical fitness and health risks to emergency responders (Mamen et al., 2013; Smith, 2011; Mamen et al., 2021; Antolini et al., 2015; Sell and Livingston, 2012). Some studies have also identified some clinically significant health complications that have been reported to be more prevalent amongst the firefighter population, and these include pregnancy complications in female firefighters (Jahnke et al., 2018) and cancer (Stec et al., 2018). The job role of an occupational firefighter has raised greater attention on the health consequences. Recent work by Demers et al. (2020) has presented that occupational exposure as a firefighter was labelled as carcinogenic through the evaluation of evidence. Hence, some specific tasks or job roles have a sufficient relation to carcinogenicity.

Psychological and physical health have been consistently and thoroughly demonstrated as interconnected across literature focussing on specific sectors and the general population alike (Sevild et al., 2020;

Soteriades et al., 2011). As such, it should be considered a crucial component of health throughout the sector's policy and practices relating to health and wellbeing and given appropriate priority and sponsorship. Psychological health plays a significant role in the quality of one's life, influencing the outcomes of day-to-day challenges (Pollett, 2007). Good mental health is where an individual can cope with the stresses of life (Herrman and Jane-Llopis, 2012). In an extensive review by Pollett (2007), it was established that there is a complex interrelationship that exists between an individual, their community, the structural levels in their society, and their mental health. To sustain good mental health, they suggested that each sector should be committed to understanding the factors that significantly influence mental health, in order to ensure their organisational policies and practices are designed cognisant of this understanding.

This aims to ensure that service delivery by staff does not come at the expense of good mental health. Moodie and Jenkins (2005) also established the protective nature of good mental health against poor mental health, especially in risk-taking behaviours.
The clear dependency between psychological and physical health is recognised in the information available in the national electronic library for mental health (NeLMH, 2004), and it also offers a guide on mental health management within an organisation.

This can also be accompanied by the organisational and public health resources developed by the WHO which suggest that people with good mental health have their own abilities to cope with the day-to-day stress related to their activities and still work productively (WHO, 2001). Mental health positively correlates to resilience, a concept referring to the relative resistance to experiencing environmental risks or the ability to overcome stress and adversities (Blaney, 2021; Herrman and Jane-Llopis, 2012). Positive mental health is also important in mental development outcomes, resilience, and coping with adversity. These are essential in the roles of the fire service (Herrman and Jane-Llopis, 2012). There is, therefore, a need for organisational and sector wide leadership to support, enhance, and sustain good mental health within

both, primarily through bringing the importance of mental health promotion to the fore (Pollett, 2007; Blaney and Brunsden, 2015). Mental health promotion is aimed at creating a good environment, where the challenges to good mental health can be significantly reduced. To achieve this, it focuses on the positive sides of health (strength and assets), with less attention to deficits and needs. That is not to imply the provision of support for ill health is not there, but it is part of a suite of support which aims to maintain good health in the first instance, and support challenges as they arise at a lower level of impact on the individual, through to supporting complex needs. This also recognises the need to provide support for a range of challenges, and not just traumatic exposure on which the literature heavily focuses. Instead, a support ecology that can support both operational and non-operational grey book staff, professional services green book staff and through a range of issues such as bereavement; the end of a significant relationship; fertility challenges and decisions; financial hardship and organisational strain.

Health includes physical, mental, and social wellbeing, and one of the most frequently identified protective factors to maintain good health is through social connectedness. The extent to which an individual feels a sense of belonging and connections with groups of others has been consistently demonstrated. In their work with the fire sector, McNamara et al (2021, page 4) define social connectedness as important because:

> "Research has highlighted the importance of social connectedness for health, especially connections with groups of others. According to the Social Identity Approach to Health (SIAH; S. A. Haslam, 2004), belonging to social groups (e.g., being part of a team, an occupational group, a family, a neighbourhood) provides people with a sense of who they are (as a member of the Green watch, the Taylor family). The social identities derived from these group memberships provide a range of benefits that are important for health and well-being. These include such things as support and validation, meaning and purpose, but

> also connection and belonging. These psychological resources that flow from social groups provide the basis for what has been referred to as a social cure — supporting people's health and well-being through connectedness to others, particularly during periods of challenge and adversity (for an overview, see C.Haslam, Jetten, et al., 2018; Jetten et al., 2017)."

Belongingness and connectedness can protect against many challenges in the fire sector (Stanley et al., 2019). This becomes an important consideration in the design of health promotion and the development of health and wellbeing approaches, strategies, and the nature of interventions.

One important example of effective health promotion is to address workplace stress and create a work-life balance (Pollett, 2007). There are currently a number of leading approaches to mental health promotion, but the factor in common in the discussions to implementing them is to monitor the effectiveness by tracking indicators (Barry, 2005; Barry et al., 2005; Palmer and Yoos, 2019; McDonough et al., 2015); for example, the indicators of mental health stressors within the fire sector such as depression and anxiety over the period of introducing and implementing the health promotion approach. The condition of work and employment are significant contributors to the mental health and wellbeing of adults. Effective interventions such as strain reduction and counselling (to manage coping strategies), work and social skills for job returnees and new recruits, should be implemented to reduce work-related strain and in turn support the maintenance of good mental health (WHO, 2001; Keleher and Armstrong, 2005). As fire sector employees typically spend a significant proportion of their waking hours at work, the expressions of poor mental health could manifest in form of stress, burnout, depression and workplace bullying, impacting the overall health of the individual, their organisational contribution, and their social relationship with colleagues (Keleher and Armstrong, 2005; Pollett, 2007; Herrman and JaneLlopis, 2012). The importance of their

relationship with colleagues, is elaborated further with peer support which is discussed in section 5 of this report.

The identification of areas of mental health improvement for staff, and the introduction of health promotion policies that are available and designed to support all staff should be a necessity for every organisation. Within that health promotion approach, interventions and support structures, as well as the surrounding and related policies and practices, should be aimed at building a supportive environment at work. These could include training in stress management and relaxation techniques, work to increase role clarity, conflict management, work to design processes and policies which increase a sense of control distributed across the organisation as much as possible (there are obvious limits to this in operational incidents), and traumatic experience defusion (Keleher and Armstrong, 2005). For some areas of support in the sector (namely the Fire Fighters Charity), this also includes support and health promotion to those who have transitioned out of the service. In an extensive study by Kragt et al., (2017), some fire personnel who sustained an injury while on duty intentionally delayed their retirement due to the fear of the realities of being outside of the service. Significant levels of difference were also reported in the pre-retirees' expectations about retirement when compared to the actual experience of retirees. This was reflected in the large-scale study on transitions out of the fire sector into retirement by McNamara et al. (2021) and the systematic review completed by Sharp et al. (2020). These types of uncertainty have a significant impact on the mental health of employees, highlighting the need to include thorough education on retirement as part of mental health and health and wellbeing promotion.

3.3. Leading practice to effectively implement health promotion

When organisations are looking to develop their approach, they should note the original WHO Ottawa Charter for health promotion as a

benchmark for other approaches they are considering. The five distinct areas for action in mental health promotion were described by Pollett, (2007). The adapted versions created for the fire sector through this report are:

1. Building health policies to ensure that policymaking and implementations are not detrimental to the mental health of staff.
2. Complete a policy review to ensure all policies and procedures support good psychological, physical and social health.
3. Create a supportive environment to support health, including social connectedness, belonging and the facilitation and protection of health and wellbeing resources and resilience.
4. Appropriation of resources (funding, energy, senior leadership prioritisation, and other types of resources) to enable a commitment to health promotion and participation.
5. Provision of health information to allow people to learn, cope and communicate with mental health challenges they encounter without experiencing or perpetuating prejudice.
6. Organisations should be aware and use the support provided by sector-wide coordinated key structures (such as the Fire Fighters Charity) to widen tiered support and include health promotion and ecology of wide-ranging evidence-based support and interventions, designed from low-level interventions (e.g. to offer advice for financial difficulty) through to provision of clinical and curative services (e.g. for complex or cumulative presentations of issues).

Health promotion in the fire service is confronted by many administrative challenges or implementation issues (Kragt et al., 2017), as well as the impact of budget constraints. Some literature, such as Guidotti (2016) or McKinnon et al., (2010), has explored possible ways to address these challenges of implementation whilst managing health risks. However, designing health promotion against well-recognised and frequently used guidance such as that by the WHO should address most issues for implementing health promotion in the fire sector. The next section of this report will detail the approach and methods used to deliver these four objectives in order to inform the key questions.

4. Method

The research team at Nottingham Trent University (NTU) undertook a research project to deliver an evidence-based strategy, supported by a survey of the fire sector and literature reviews. These produced an evidence base of pressure or transition points, effective support interventions, and stakeholder engagement through focus groups. All these sources of information shaped the strategy, which was designed to underpin wellbeing policies and activity within the sector and coordinate providers.

4.1 Approach taken to complete the literature reviews

A thorough literature review was conducted by a research team from NTU, which comprised four researchers, who carried out an explicit review, identifying over 200 relevant sources of literature. These were used as literature references and subsequently archived for future sector use. The review aimed to collect literature related to both the stressors experienced by FRS staff and the potential support offerings that could alleviate them.

Relevant key words were identified and utilised within a series of searches of multiple academic databases. From these searches, a range of peer-reviewed literature was identified, mainly primary research articles and systematic reviews. Each piece of literature was reviewed by a member of the team based on pre-agreed review criteria to evaluate the potential relevance of the content to the topics covered within the review. The details of literature deemed suitable for the project were retained for use. A search of the wider grey literature was also conducted using similar search terms, and the results were reviewed for relevance. As above, details of relevant literature were retained for use within the report; primarily evaluative reports were retained here. The evidence and findings collated by this literature review contributed to the development of recommendations for future work, mentioned throughout.

Indicative key search terms used in the literature searches:

- "fire service OR firefighter OR fire officer OR control room OR administrative" AND "stress OR trauma OR pressure OR challenge"
- "management OR supervisor" AND "stress OR challenge"
- "Stress management OR stress defusion OR emotional defusion"
- "Support OR peer support OR social support"
- "Networking OR interaction OR coping strategy"
- "Life events OR lifecycle OR developmental processes"
- "Length of service OR career progression OR length of career OR promotion OR career progress"

The literature review team split into two teams and sub-divided the full list of keyword search terms by focus. One team focused on the stressors and transition points and one team focused on the support structures available. Both teams used the keywords from the full lists which mapped on to their area of focus. This was then recorded in an excel file to reduce duplication of effort and audit trail the search results. The teams then cross-mapped the results of this literature review to ensure they were understanding the contours of where each literature team was operating so as to reduce any replication of results. The teams recorded an entry for each literature source on an excel file with pre-agreed annotated information about the source to compile and compare the literature findings.

It should be noted that due to the large number of sources reviewed, not all of them are cited in this report, but we have compiled a bibliography at the end of this document of the most influential in the development of the literature findings in this report. In this document, we use exemplar sources to illustrate the findings of the wider literature.

This review focussed on national level literature. This excludes service level reports and audits unless they have academic publications developed from their work. Consequently, whilst the authors

acknowledge the recommendations of the Afzal (2022) report, this publications fell outside of the inclusion criteria.

4.2 Survey

The empirical data collection consisted of an online survey. This national cross-sectional survey of FRS employees was designed to assess aspects of their mental wellbeing, lifestyle, and perceptions of their working environment. The survey was designed to predominantly collect quantitative data, alongside two open-ended questions to provide additional depth of responses.

4.2.1. Participants

The survey was distributed across the UK and was open to all employees of the FRS such as firefighters and control room staff as well as professional service staff and managers. These were recruited through online media campaigns and individual letters of invitation to the CFOs and chief executive officers (CEO) across the UK to ensure a broad and representative sample was gathered. It recruited a total of 3,084 participants before data cleaning and analysis. For this study, G-power, a software founded by Erdfelder et al. (1996), was used to show a power of .999* with an effect size of 1.703.

To ensure statistical integrity of the survey and to create confidence in the results, a minimum effect size threshold of 0.2 was used against the sector population. This meant the survey needed at least 652 responses to reduce the likelihood of a statistical relationship being detected, which is actually due to chance. The power analysis of our minimum threshold produced a high power of .950 even with a low effect size. Our power analysis indicates the statistical analysis presented throughout this report can be reported with confidence and does not need to be taken with caution. However, we also wanted to try and attain a greater number of participants to ensure that the findings represented different career trajectories across the sector. To try and reduce sampling and response bias in the participants who

completed the survey, the participation target was increased to 10% of the total employed in the fire sector. This increased threshold opened up the opportunity to share more detailed service level results. This target was met in eight of the 53 fire and rescue services across the UK. The power analysis undertaken on the survey is robust. All surveys attempt to secure the largest possible sample size. The analysis of our responses should give confidence in the findings of this report. The data collection design has reduced the potential bias as much as can be reasonably expected.

4.2.2. Measures

The survey comprised a series of demographic questions followed by 11 validated psychometric instruments and one set of questions which aimed to understand an individual's perception of organisational support. A full description and reference for these 11 validated instruments is available in the technical appendix. Not all protected characteristics data was collected in this survey to reduce the length of the survey based on stakeholder feedback and a review of the literature but recording all characteristics would be recommended for future surveys.

4.2.3. Procedure

The study's survey was approved for research by NTU's Schools of Business, Law and Social Sciences Research Ethics committee. It was built online using Qualtrics (a freely available digital surveying tool), enabling it to be more easily distributed nationally. The finalised survey was published online and was accessible to respondents through either a web link or a QR code along with a promotional digital leaflet. Advertisement of the survey for study recruitment was primarily through email and social media channels with a sole inclusion criterion of being an employee of a fire and rescue service.

Anonymity was completely protected at all times and no personal or geographical identification were collected including names, emails, IP or geographic tagging. Instead, a user-created unique identifier was

requested in every survey for any potential withdrawal requests. Individuals voluntarily participated in the study with no financial compensation or incentives offered. Data collected was kept on password-secured computers and on a private Microsoft Teams shared channel where standard BPS online ethical practices were abided by thoroughly.

An initial pilot survey ran for two weeks in June 2022 to test appropriate survey length and wording before the final survey was released. The final survey ran for two months, closing at the end of August 2022. The length of time inviting individuals to participate was extended from an initial three-week run to two months in response to demands to the sector, such as extreme heat in August 2022 alongside a changing political context. This was done following consultation with our advisory group.

4.3 Stakeholder engagement

To further quality assure and sense check the findings of the survey and literature review, and to consult across the fire sector and beyond a network of stakeholders was engaged to inform the developing strategy. These project stakeholders were engaged through a series of virtual focus groups held on Microsoft Teams. Stakeholders were grouped into three clusters: external wellbeing experts, implementation and use leads, and strategic stakeholders. The intention was for participants in each cluster to participate in two linked focus groups. The sessions were originally scheduled to take place in mid-September, over the course of two weeks. However, due to the passing of Her Majesty the Queen this model had to be adapted. The sessions scheduled for the first two clusters, with wellbeing strategy leads outside of the fire sector and implementation leads within the fire sector were delayed but still ran as two separate sessions. Due to scheduling conflicts, the fire sector strategic stakeholders cluster only had a single session which covered the core content of both sessions. A recording of the presentation from session one (excluding participant discussion) was made available to this

group prior to the session to increase the level and detail of discussion in the single session. All sessions were recorded for accuracy. Participant information sheets and consent forms were distributed and completed by participants. The focus of session one was to present the general findings of both the survey and the literature review. Participants were presented with a series of questions and asked to contribute their answers to an open discussion with the other members of the focus group. The questions asked were as follows:

- *"What surprises you within these findings?",*
- *"What fits with your assumptions and beliefs across the sector and wellbeing work generally?",*
- *"Where do these findings align with current wellbeing work and your own work?",*
- *"How do these findings challenge the sector and your own assumptions and ways of working?"*

The focus of session two was to engage participants to consider the future health and wellbeing strategy. This session was set as a an imagined post-mortem of a strategy delivery failure. Participants were asked to imagine what the potential causes could be if the strategy were to fail in a year's time. This was divided into three stages; initially, an anonymised online platform (Padlet) was used to allow participants to submit the top three reasons they predicted the strategy could fail. This was followed by an open discussion on three possible aspects of failure: opportunities missed, gaps within the strategy, and major or minor barriers that may derail the strategy over time. The final stage was an open discussion surrounding potential support mechanisms that could be engaged to avoid these potential failings.

5. Analysis

To make the evidence base accessible to a wider audience, the presentation of this section has been divided into discussion topics drawn from learning points taken from the general population and slowly narrowing down to fire or role-specific issues. We have integrated the findings from the review of stressors and interventions and combined these for ease of access to the findings throughout this section. This way, it becomes more specific to the fire community and roles within that community as the section develops. We then end this section with a summary of the recommendations that we have developed from the published evidence base.

5.1 Analysis of the literature review

This section of the report analyses each aspect of the research and draws together interconnected findings. Firstly, it reviews the evidence base looking at population-wide stressors before narrowing it to explore specific FRS career roles and the impact of health and wellbeing stressors on them. Next, the analysis explores the literature on prevention and interventions to shed light on approaches to support FRS staff and their organisations. This completes the analysis of the literature review.

Throughout this analysis section, the results of this project's national survey of FRS staff will be shared to provide insights from a range of analysis that informs our recommendations.

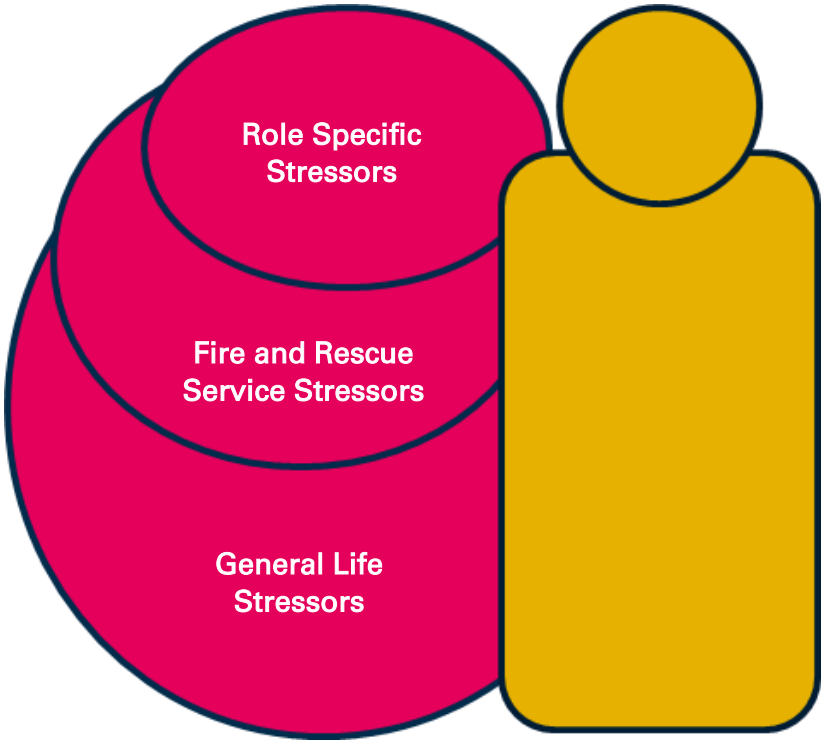
Following this, the section explores the feedback from the team's stakeholder engagement through an analysis of the focus groups hosted in September and October of 2022.

5.1.1 Life event and transition stressors across the general population

To help understand the way life events and transition stressors impact on staff and volunteers across the FRS stressors we have reviewed general life stressors visualised below as the largest circle. More specific sector level events and transition stressors are then explored

and stacked on top of general life events before more specific role focused events and stressors are described in this section.

Figure 2. Visual representation of the distribution of stressors experienced by FRS staff reviewed in this report



Just like the rest of the population, firefighters and those in the fire sector have the same personal life commitments in comparison to those working in other sectors of society, ranging from balancing their work and home life domains to transitioning out of the role through promotion, retirement, or a change of career. However, there are many direct and indirect factors which are unique to those working in the fire sector, mostly stemming from their working practices. Thus, literature on the workforce can be generalised to the fire community, but they do not address the differences faced by working for an emergency service.

Life events experienced across the general population

Literature from across a range of occupations, ages, countries, genders, and contexts has established a range of commonly experienced stressors across a life course. There is no definitive list of

stressful life events in the literature due to the subjective and contextual nature of stressors and their impact on each individual and their resilience (Cohen et al., 2016). There are, however, clusters, which are common at certain stages of life, but an individual's prolonged exposure to stressors is to be avoided due to the possibility of long-term complications, such as mental ill health, physical ill health, and disease.

In a following publication, Cohen et al. (2019) lists a series of stressful general life events that can be threats to one's social status, self-esteem, identity, or physical well-being, such as divorce, the death of a loved one, the loss of a job, being arrested, retirement, or being diagnosed with a serious illness. These all are transitions that most individuals face in some expression, and for some they act as stressors because there is a demand to adjust, influencing their mental health. Wheaton (1990) highlights that there is a variance with life transitions based on the characteristics of the transition itself, but also the access to the support structures that facilitate coping resources, otherwise issues such as chronic stress can arise. The family support, colleague support, personal resilience and emotional literacy of individuals all contribute to their experience of that stressor(s).

Life events are experienced by everyone even before they enter the workplace. For example, the transitions in Western structured regulated education are common life events that transition individuals from childhood, adolescence, to adulthood. Miller (2010) reiterates a similar analysis but suggests that transitions can lead to stress. The key message in common is that stressful life events can be points of transition, ranging from a new job, a new financial situation or entering into marriage or civil partnership. Although Miller (2010) states that the spectrum of life transitions is in abundance, many of the events are faced by a majority and therefore make them prominent stressful events to focus on. Some of the identified events include those listed below, which can be in relation to self or a significant other:

- change to physical well-being,

- divorce/significant relationship breakdown,
- death of a loved one,
- retirement,
- diagnosis of a serious illness,
- deciding or processing parental or fertility choices and challenges,
- promotion or other types of job change,
- financial changes (both increase and decrease in financial freedom),
- moving houses

Relating to the fire service, this brings additional context. As discussed elsewhere in this report, family life can be more complicated for individuals who have an emergency responder role, and hence places pressures on significant relationships which can lead to relationship breakdowns (Pennington et al, 2022). In about 31% of cases of the death of a loved one, their family members (in general population samples) have traumatic reactions to that stressor, and it is understood this is particularly relevant to the sudden or unexpected death of a loved one (Van Ameringen et al., 2008; Fraess-Phillips, 2017). As an emergency responder there is arguably a greater perceived exposure due to their roles frequency of exposure (Beaton, 1998) which has the potential to increase the impact on relationships outside of work.

Ill health can happen to anyone, however, those working shift work have a higher association with ill health and shortness of life expectancy, and firefighters specifically have a higher association with heat-related illnesses (Kim et al., 2019) with 74.8% of their 674 sample of duty officers having experienced symptoms of heat-related illness and a generally higher physical demand for their role (Airila, 2015). Watkins et al. (2019) conducted a survey in the UK with fire service instructors which showed that a large fraction was experiencing new symptoms of illness after they began their career, attributed predominantly to a lack of universally following guidelines for exposure and hydration. Another example of a lifecycle stressor is

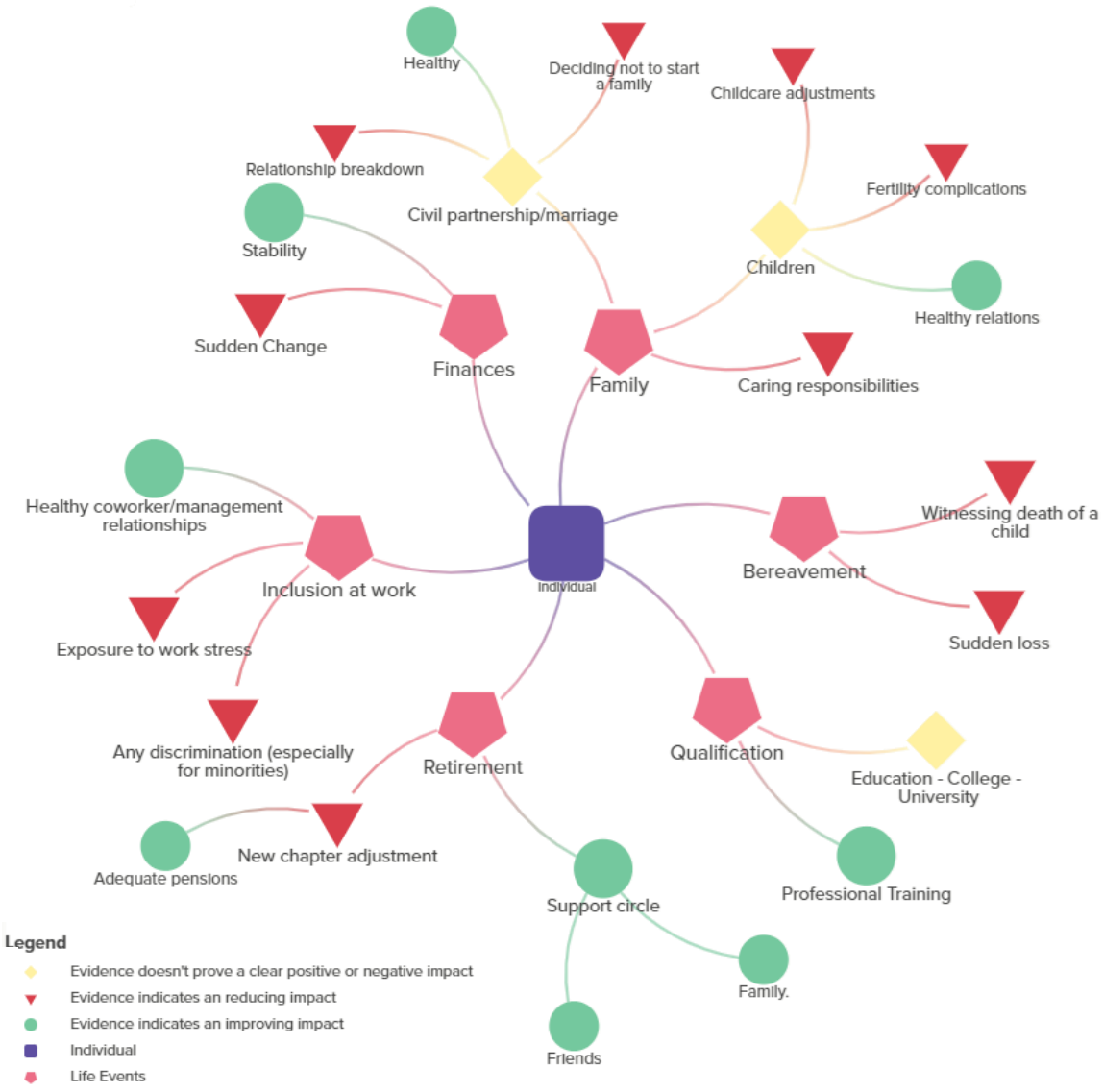
the transition into retirement as the change is not only routine but also reflects changes to psychological and social health (McNamara et al., 2001; Kragt, 2017).

This review has highlighted that fire sector members are exposed to general life events like the wider population, but on occasion, due to the job design, practices and necessary structures in the sector, their associated risks of impacts on their mental health or social health might be higher than others.

The figure below demonstrates the likely transition points that could generate strain for employees in the fire sector. Figure 3 outlines the transition points that typically occur in a predicted time frame throughout the life course such as child rearing and retirement alongside those not associated with a sequence or time frame across life and can happen at any time. This figures is colour coded to the type of outcome that is associated with that transition or stressor within the literature. Likely outcomes on the mental health and wellbeing of the individual are detailed here to provide a visual map of the typical impacts. The literature indicates that those nodes marked in green generally support positive wellbeing, red nodes are likely to have a distressing or negative impact on health and wellbeing and yellow nodes are likely to have an impact on an individual but either the evidence is unclear or they provide aspects of positive and negative impact.

It is essential to acknowledge that these impacts do not happen in isolation, in their presentation or their impact. Frequently they are clustered and interconnected in how they unfold in an individual's life. Their clustering also can have an accumulative effect or an aggregating effect on an individual. These visuals are simply to try and convey the range and nature of the frequently experienced life transitions across the general population for any strategy or approaches to consider that breadth.

Figure 3. Stressors that can occur at any time throughout the life course



Both life events relating to family and retirement often have a specific temporal focus for staff.

The relationship between work and family experienced across the wider general population and the fire sector

In recent decades, the literature focussing on the general population (wider than the fire sector) has increasingly included a focus on the relationship between family and work (Greenhaus, 2008; Sahibzada et al., 2005; Williams et al., 2006). This is due to the importance of these two factors. Outside of their work environment the most influential factor most people report as impacting their wellbeing is their family, which can include parents, partners, or children. The transition

between the work and home domain happens twice a day for most days in a week and is not limited to just a transition between environments; it is also a transition of role identity, mood, status, and energy (Hill et al., 2020). In the literature reviewed showing the balance between the work-home domains, the predominant focus is found to be how stressors in each domain impact the employee in the other domain, including impacts on family members. Stressors experienced at work at any job provide a high chance that such information and the experience of the emotional response is shared with partners, either explicitly, or through energy and mood, known as emotional contagion. This is shown to be expressed in two ways, firstly in a positive manner, where there is understanding and connectedness (Lantz et al., 2022), or with a negative impact on mood and energy.

Ryff and Singer (2008) presented research about wellbeing which catered to socioeconomic and life factors and showcased that when preoccupations existed with personal growth, it harmed basic social institutions such as family. For the majority of the population, a significant fraction of the life course is spent working; work lifestyle also plays a role in some socioeconomic factors as well, thus heavily linking the variables of Ryff and Singer (2008) to the working place or those who work. The link is necessary to establish that with any occupation, there is a work and family connection, which collectively can influence one's wellbeing, all of which reflect in purpose and meaning, growth, and quality of life (Garg and Rastogi, 2009).

The relationship between family and work is bi-lateral in nature, where the work domain can influence the family domain and the family domain can influence the work domain. However, parallel to this, the family can increase an employee’s resilience, acting as a buffer. Hence, a positive family relationship can help increase an employee’s wellbeing, assisting engagement with work and working activities. This is evidenced through numerous studies, where the positive impact from the family domain is principally through support (Huffman et al., 2015; Ibrahim and Aida, 2012; Usman et al., 2021). Kalliath et al., (2019)

amongst others, have illustrated that employees can also face stress due to balancing work and family demands. However, a growing body of evidence in the psychological literature also shows that the home and work domains can provide enrichment to the other domain, and from an individual having both roles, through positively influencing job well-being and job satisfaction. In the review of the literature seeking to understand the work-home domains, this report concludes that family support is a moderating factor in the work-family relationship (Leung et al., 2020) for any individual, across a variety of occupations.

Focussing on the research on employees in the emergency sector, it has demonstrated they are perceived to be at greater risk of occupational hazards, be those through the organisational structures needed to provide a 24-hour service or the focus of the roles. This also has consequences for their families, in their home life. These perceived risks can act as a stressor in the home environment, where families worry when an incident occurs. Menendez et al. (2006) presented the effects of external large-scale events where despite a firefighter not being at the incident, their family can be negatively impacted by news updates, through a significant influence on their families' emotional states. Menendez et al., carried out this research to showcase that the effects of the September 11, 2001, terrorist attacks were still current for New York firefighters and their families. These findings suggest that as national media outlets report the impacts of recent incidents in the UK such as state or non-state actor threats, environmental impacts and adverse weather (for example “Heatwave led to London firefighters’ busiest day since second world war”, Guardian, 2022), this could have consequences for the support structures in place for the fire sector and their family units, as this directly and indirectly, links to the fire sector’s wellbeing. Similar to health and health promotion which exist alongside illness, it is important to look at not only the deficits and risks experienced by firefighters but at the strengths, capacities and resilience inherent in human beings and to learn and build from those (Ellis and Del Giudice, 2014; Ungar, 2021).

Focussing on those with operational roles, a systematic analysis by

Casas and Benuto (2022) captured the impact of traumatic stress on families by assessing support, stressors, and resources mentioned in 16 studies. Findings showed that first responders would exhibit different behavioural and emotional responses to trauma such as anxiety, avoidance, low self-esteem, and mood changes. To be supportive of these changes, spouses reported that they had to pay with their own comfort and wellbeing. This can be further seen in a study by Landers et al. (2020) which showed that spouses found events involving children, suicide, and first responder death the most impactful out of the traumatic events that were shared, hence showing an example of the effects of secondary trauma. Secondary trauma is when the family members share the emotional burden of processing stressors with their spouse from the fire sector and are sometimes the recipient of the fire employees' reactions to work stressors. The family start to have symptoms to the traumatic reactions, or hearing about traumatic events, within the firefighters' experience. Despite these findings, Casas and Benuto (2022) also acknowledged a gap in the literature within the first responder's role in the family such as parenting and chores. There is also a lack of information linking risk factors such as substance use, as this is associated in the research as being a way some individuals deal with stressors by self-medicating.

Looking into lessons from occupations other than the fire sector, there is a clear association that to encourage a healthy family and family lifestyle, it is necessary that time is given to the family. For example, the findings of Barnett et al., (1999) on work hours and burnout can provide an understanding of how work patterns can impact the relationships and family of an individual, during the active period of their career. The results showed that the number of work hours is not the only factor which influences burnout from work employees experience. Other factors also include the extent to which the work schedule meets the need of the worker, their partner, and their children. Completed on health workers and their spouses, it shows that perceived burnout can be mitigated if the family context is acknowledged and highlighted to those offering support structures, and that different factors have different strengths of impact over the

life course of those in the fire sector.

Despite the growing body of literature which demonstrates that home and work life can have a beneficial relationship for an individual, literature has also clearly demonstrated that stressors in either the work or home domain increase the chances of more serious impacts. In summary it is a similar bilateral association to the enrichment relationship between work and home life. That is not to say that the enrichment and stressor transitions between the domains are binary, one employee may have both, but understanding the range of how these domains may interact in both positive and negative ways is the essential message.

A personal stressor that may impact on an individual's job performance and job satisfaction is the health of their relationship with their spouse (be that heterosexual, homosexual, civil partnership, marriage, cohabitation, or significant relationship). Studies indicate the high levels of relationship stress associated with the firefighting occupation (Majani, 2022; Oosthuizen, 2004; Morman et al., 2020). These studies report that the occupational-related consequences of the firefighting occupation can negatively impact levels of relationship satisfaction (Morman et al.,2020).

Consequently, there is often a higher divorce/separation/relationship breakdown rate reported for those employed by the fire and rescue services. Some studies suggest that those who get married/enter a civil partnership after employment with the fire and rescue service are less likely to experience relationship breakdown than those who were in the relationship before entering the service (Pennington et al., 2022). This specific finding suggests that understanding the demands of the service and specific roles (especially operational or control roles) is crucial. It indicates that these changing job demands can put relationships under immense strain, and that openly sharing the expectations and demands of roles with family members would positively change these outcomes.

Considering some of the specifics of the control or operational roles, the transition of emotion can be shared with families as they are exposed to, and have to process, incidents at work. These exposures to incidents do not need to be described to family members; the spouses recognise differences in their mood and emotional state and they sometimes consequently experience secondary trauma (Watkins et al., 2021; Gawrych, 2010; Sharp et al., 2022) or compassion fatigue (Watkins et al., 2021; Morman et al., 2020; Adamson, 2013). It is important to note here that the exact event is not the most important part of these scenarios, it is how the individual interprets and reacts to it; developing resilience is essential for successfully coping with any potential events that could occur both at home or at work (Bonanno, 2021; Fletcher and Sarkar, 2016). This is when the family members share the emotional burden of processing stressors with their spouse from the fire sector and are sometimes the recipient of the fire employees' reactions to work stressors. This is an important aspect for services and support structures to note as functioning support from the family is repeatedly found to be a key factor of positive wellbeing for the general working population, but specifically for emergency responders and for firefighter roles (Hill et al., 2020; Regehr et al., 2005).

To understand that cost further, qualitative research has provided insight into how family members are affected by firefighters' work. Porter and Henriksen (2016), found that first responder partners experience a lot of stress from the role, as they feel responsible to alleviate the adverse emotional effects of work stressors that their first responder spouse is experiencing. In addition, policing studies (for example see Landers et al., 2020) have shown that spouses had to embrace their partners' worries and insecurities, labelling it as the “ripple effects”. Such studies on the psychological impact on family members suggest that impacts can be both positive and negative for families and then in times of significant change, such as injury, the family should be considered as part of a wider support system around the employee (Flannery, 2015).

5.1.2. Organisational culture

When considering the factors that influence wellbeing in the fire sector, the culture of the fire sector is an important context to explore. This is because it is good practice to understand the cultural context of wellbeing from a theoretical perspective, but also the role of organisational culture within the UK FRS is often referred to and included in wellbeing interferences noted throughout the literature. There are some studies which attempt to capture culture and associate this with the wellbeing of firefighters (Carey et al., 2011).

The organisational culture within the fire and rescue service, specifically the codes and values that exist, is often described as male-dominated, creating internal stressors (Thurnell-Read and Parker, 2008) through marginalisation and victimisation of members of minority groups within the service (Perrott, 2016). A systematic review by Igboanugo et al., (2021) on the firefighter work environment reported that there is a relationship between gendered discrimination and harassment in the service and reported rates of depression. Pietrantoni and Prati (2008) looked at this in more detail with operational roles and suggested that firefighters who identify as females and of increased age are prone to burnout and compassion fatigue, where age can explain the higher exposure to critical incidents and burnout. They also suggest that female firefighters were linked to a lower sense of community, due to the male-dominated culture in this profession. Further evidence to support this can be seen in Wright (2008) where experiences of female firefighters in the UK showed that women struggled to be accepted in the “watch culture” as they did not possess the “masculinity” for a smooth transition within the culture. Literature suggests that lesbian firefighters are often accepted more readily than heterosexual women as they are perceived as more able, 'one of the lads' and not sexually available. These studies collectively show that females are not accepted the same as their counterparts because of the male-dominated workplace and this can be one of the explanations that there are higher reported rates of mental health concerns in this minority within the fire sector (Hom et al., 2018).

Gender differences are hard to measure and analyse as multiple variables are included which are usually subjective, especially when evaluating an association with general wellbeing. For example, the study by Wright (2008), was able to capture gender differences but also had a variation of sexuality included providing evidence for a male-dominated workplace culture but it does not showcase the difference in wellbeing for females versus males. Batz-Barbarich et al., (2018) conducted an international meta-analysis to assess if there are gender differences in subjective wellbeing. The findings showed that there were no significant gender differences between genders for subjective wellbeing, and whilst women have significantly lower job satisfaction, they do not have lower life satisfaction. This study shows the importance of valuing women in the workforce as gender differences lead to them having lower job satisfaction.

An international study (Emily et al., 2019) investigating the health and wellbeing of female firefighters identified specific health and wellbeing issues that women firefighters are prone to experiencing because of gender differences. Watkins et al., (2019) obtained the results of 840 women firefighters from 14 separate countries where there was a higher prevalence of lower back injuries amongst women firefighters in North America. However, prevalent differences showed that 39% thought the menstrual cycle or menopause affected their work, and 36% were concerned about meeting their jobs demand in the future. A prominent problem identified was that only 16% felt confident to complete their role after the age of 60. One of the reasons for this could stem from how half the sample claimed that they felt a lack of strength and conditioning support. Collectively, these figures presented by Watkins et al. (2019) explain why women have lower job satisfaction. It should be noted that the UK is reported to have the greatest availability of female-specific personal protective equipment, however, this is still only 66% of the UK participants, identifying a variance across the UK of catering for females in operational roles.

Watkins et al. (2019) conducted a study that included open-ended questions where the answers highlighted a culture of sexism, as well

as reports of a lack of consideration for female needs and an unhealthy attitude towards female firefighters. Due to the male-dominated sector and the gender norms that are associated with firefighters, it is harder for women to be accepted in their teams and roles, which results in lower job satisfaction and effects on their wellbeing. This factor is out of their personal control but becomes an issue that they learn to adjust to, in addition to the other challenges of the roles mentioned throughout this report.

Gender, sexual orientation and race are factors which stem from being a minority in a white heterosexual male-dominated workplace. Williams et al., (2018) identified through a systematic analysis that race -related stressors can affect mental health. It highlighted that there is a significant amount of evidence which interlinks physical and mental health risks, among racial minorities. Differences such as economic disparity cannot be generalised amongst firefighters however feeling distressed from their work life, and lack of support shows an association with unhealthy behaviours. This can lead to a greater chance of racial minorities using alcohol and tobacco to facilitate coping (Jackson et al., 2010). Studies reviewed in the US (Griffith et al., 2016) have suggested that strained co-worker relationships can occur because of attitudes towards gender, race, and sexual orientation, where differences in perceptions resulted in unfair treatment. The impact of social support is beneficial suggesting that fire service leaders should be trained to effectively address fair treatment for their employees. The top-down approach can prevent individuals from facing negative emotions or struggles that stem from their workplace.

The watch culture for both operational and control staff has been evidenced to be both beneficial to the social/peer support between colleagues, as well as being a negative impact when inappropriate behaviours are displayed and not managed. This is predominantly due to the close co-worker networks and peer support that the firefighters have between each other (Tamrakar et al., 2020), and can be compounded by the impacts of the on-call rotas and shift systems.

5.1.3. Specific considerations for operational and control staff

When looking specifically at the literature completed on the role of the firefighter, literature has evidenced that the nature of stressors may change through the length of service (Stanley et al., 2015; Gulliver et al., 2021). For example, Regehr et al., (2003) suggest depression rates increase with years of service and higher levels of self-efficacy (one's belief in their own ability) and social support. These levels then reduce over time and consequently may explain why years of service are associated with an increase in psychosocial issues. It remains unclear how different such a correlation within the FRS is from the wider population's emotional states and ageing through the lifecycle. Some studies have found that changes associated with the firefighting occupation still change through the length of service, even when age is controlled (Hill et al., 2020). This suggests that offers of support for operational firefighters and control staff may need to be cognisant of their length of service in order to meet their needs.

Another explanation for the lower levels of wellbeing among firefighters could be explained by the accumulation of psychological risk in their role (such as occupational stress, moral injury, burnout, and exposure to traumatic incidents) as well as sleep disturbances. Sleep disturbances and exhaustion are common in shift workers in the firefighting service (Carey et al., 2011). These sleep disturbances have been found to have been an explanatory factor for depression symptoms in firefighters due to an increased difficulty to regulate emotions. Sleep disturbances have also been linked to decreased alertness, poor quality of life and an increased risk of physical difficulties such as cardiovascular issues and decreased immune system efficacy (Smith et al., 2018b; Elliot, 2007). As the length of service increases, it can be associated with an increase in emotional exhaustion, a decrease in job satisfaction, and an increase in burnout (Smith et al., 2019c). While this has a negative impact on the emotional wellbeing of the firefighter, research has also shown that safety concerns are not effectively raised, and safety procedures are not

effectively followed by those experiencing burnout. Some studies have reported an increased rate of thoughts about suicide and suicidal ideation in firefighters than that of the general public (Martin et al., 2016; Boffa et al., 2018) these are not universally reported across the literature. However, it is important to be aware that often studies focused on certain clinical pathologies will primarily recruit individuals who meet, or are close to, fitting the diagnostic criteria rather than the general population. The wider literature indicates that it is far more common for individuals who have experienced traumatic events, including emergency service staff, to become more resilient as a result of their experiences (Bonanno, 2021; Feingold et al., 2022; Joseph, 2011). Supporting the development of this resilience is something that should be extremely beneficial to the wellbeing of fire service employees.

Those on shift systems and on-call across the sector are typically operational or control staff. These groups arguably have more of a challenge in managing their work-life balance than other role types across fire sector groups discussed previously in this report. Their ability to balance their home-work balance is in part due to a more disrupted home life due to the nature of the commitment to work not being at the same time and days of the working week. This makes social and family life challenging for those on these working patterns and has both a direct and indirect impact on the health of individuals (Gisler et al., 2018). In a study done in the United Kingdom, more than 50% of the firefighters interviewed reported not having enough time to spend with their immediate family, leading to difficulties in their ability to balance their work and home domains (Duran et al., 2018).

5.1.4. Specific or unique considerations for clusters of career pathways

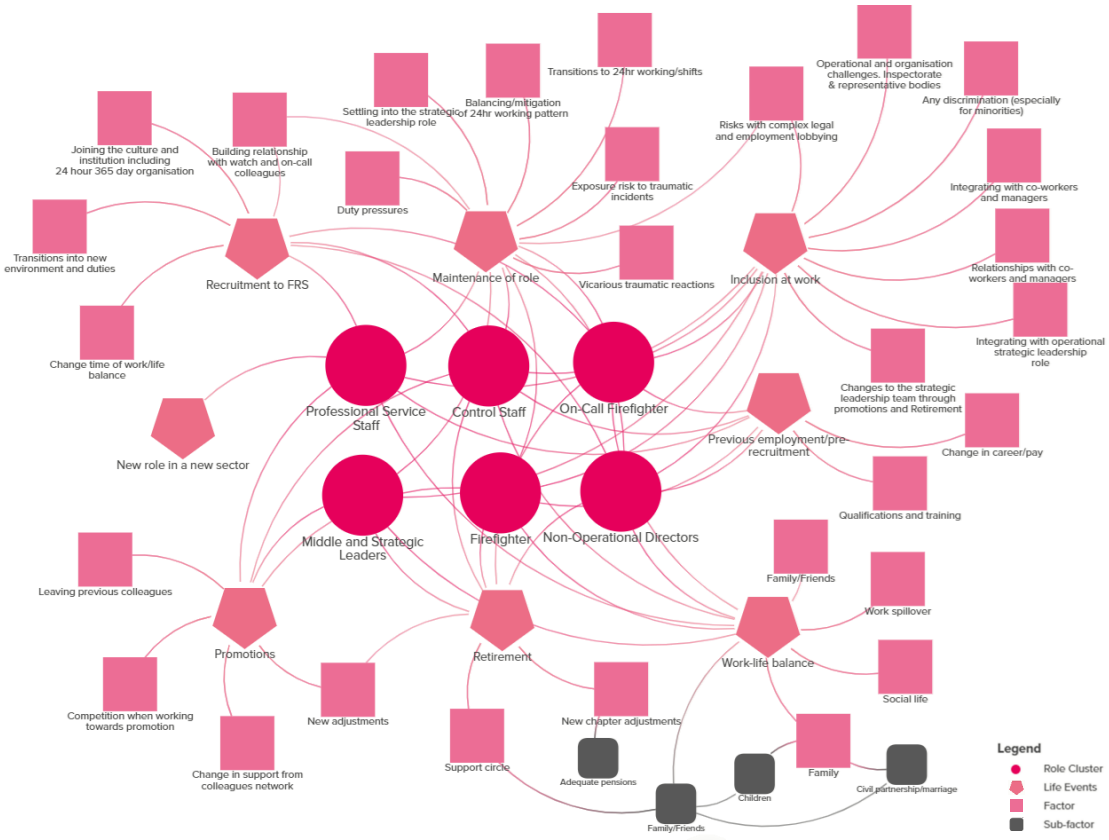
There is a wide range of job opportunities available within the UK FRS. This report has identified six main clusters of careers, and where appropriate, has grouped multiple job roles as they are likely to

experience similar working conditions and therefore similar stressors and support structures. Within these career clusters, key transition points have been identified. The career clusters are presented in this section of the report based on how similar they, and the stressors they encounter within their role, are to the wider general population in other sectors, through to the more bespoke roles and their experiences within the fire sector. This report mapped similar experiences within the roles to form these cluster of careers, these include:

- Non-operational senior managers/directors
- Professional services staff
- Control staff
- Middle and senior leaders
- On-call operational firefighters
- Full-time operational firefighters

An overview will be presented here alongside their role-specific transitions and stressors that may be experienced by members of the fire and rescue service at several key transition points throughout their careers. It is important to understand that there is significant cross over relating to life events and stressors within these roles. The figure below provides an indication of the interconnected nature of these roles and their stressors. A full representation of each set of stressors is shown when discussing each career cluster below. The key point from the figure below is not in the text, but the connectivity between home and work life stressors, transitions, resources and their presence across domains. This provides support for a holistic approach that recognises the positive and negative influences across all domains of an individual's life.

Figure 4. Fire and Rescue Service Stressors



Non-operational senior managers/directors

Staff within this first career cluster are non-operational, so do not attend fire incidents, and are senior leaders within a fire service. This area primarily includes the directors of business activities and professional services for the service, for example, a director of finance or human resources (HR), alongside CEOs); this cluster might include CFOs depending on whether the CFO is operational or not, as per the governance model of the organisation. With the exception of CFOs, most of these individuals will not have an operational fire and rescue service background. Many of the CEOs will have a background in a different frontline service area, including health or the military. This career area was split into eight main home and work transition points: pre-recruitment, fire and rescue service recruitment, integrating into the leadership team, role maintenance, promotion, internal/ organisational challenges, changes to leadership team through promotions/retirement, and leaving the role.

The mental health and wellbeing of strategic leaders is vital; according to Hobfoll's Conservation of Resource Theory (2012), leaders act as one source of support in a wider variety of resources. This is based on the assumption that if the leader has good wellbeing and leadership, they can stimulate better team performance. Based on this theory, Geibel et al., (2022) studied the association between leader health and wellbeing and team performance in a sample of 276 leaders. They identified that there was a significant positive correlation between their wellbeing and the performance of their team, supporting Hobfoll's Conservation of Resources theory. However, they also noted that over time leader wellbeing is at risk of diminishing as a consequence. This could in turn lead to reduced team performance, something that is detrimental for the organisation. In a study on ethical leadership by Lin et al., (2016) it was identified that consistently acting as a positive role model for employees can lead to mental fatigue in leaders; this in turn made them more likely to later engage in harmful behaviours against their direct reports. These studies provide an indication of how the wellbeing of leaders can influence others and why it is important that their wellbeing is also supported, particularly as leaders are often overlooked in wellbeing research as they are usually perceived to be mentally healthy (Barling and Cloutier, 2017) or are reduced to being considered as a mechanism with which to deliver interventions for their direct reports.

Barling and Cloutier (2017) highlight that changes in mental health of leaders, effects their leadership behaviours, and the nature of their role means that there also an emotional toll that stems from constant high quality leadership. Collectively, a more focused approach is need to cater to these job roles because their needs are different to other roles, and more importantly they are a vital resource to the organisation.

Despite a thorough review of the literature, very little formal literature has been identified that focusses on stressor points specific to this role in the FRS. The group appears to be largely under-researched. To mitigate the absence in the literature for this group, stressors impacting directors or managing executives from other sectors have

been reviewed to apply relevant learning from non-operational directors outside the fire and rescue service.

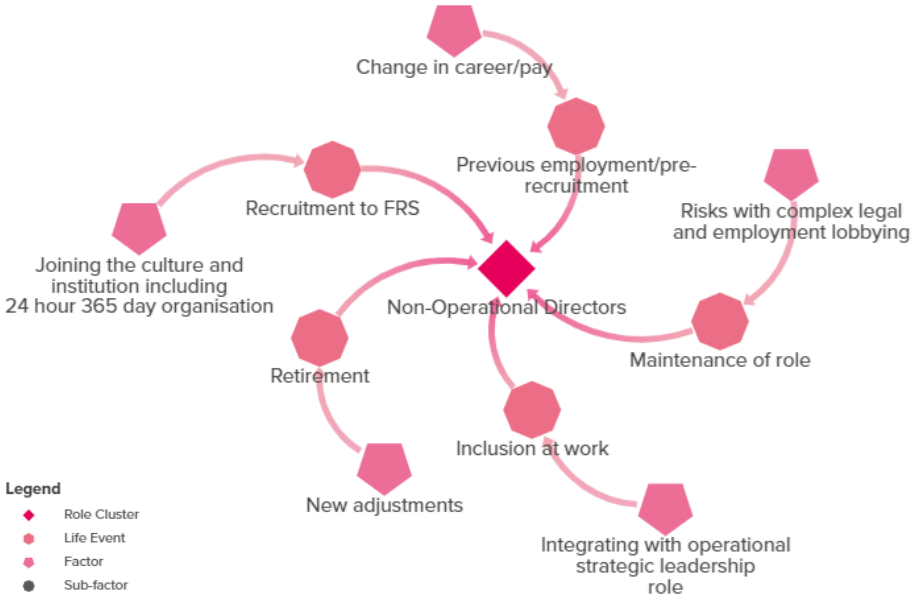
Given the nature of this role, it seems unlikely that there are almost no specific stressors present. However, it can be assumed that individuals within this role would not typically be exposed to incident-related stressors as they are not typically directly involved in incident response. Those with a background in operational work may have some exposure to trauma from earlier in their career. Therefore, most role-specific stressors experienced by this cluster are likely to be organisational stressors. Directors are generally held responsible for the actions of their companies, despite the fact that in the modern age they are rarely directly responsible for the day-to-day activity (Fairfax, 2012). In recent years the role of the fire and rescue service has been responsive to the needs of the community for bespoke social challenges, including responding to the pandemic alongside health, water-based rescues, and increased community awareness programmes (Local Government Association, 2018). The wider landscape of progressively reducing budgets for public services increases the challenges for senior leaders. The recent Covid-19 pandemic has increased adversity across society, but a study by Venz and Boettcher (2021) highlighted that leaders in particular felt their workloads intensified during the pandemic; in particular this was related to increased email demand. The perceived overload was found to be linked to increasing reports of exhaustion by leaders, highlighting another stressor that is likely impacting managers within the fire service. A study conducted by Wallis et al., (2021) into differences in wellbeing between leaders and non-leaders across over a dozen organisations found that leaders reported being more dissatisfied with their work-life balance, as well as experiencing increased work demands and reduced peer support. This indicates that there are clearly stressors specific to leadership roles that detrimentally impact wellbeing, suggesting interventions for leaders should have specific considerations drawing from this evidence base although it does not tell us precisely what.

The small amount of literature published on senior roles in the fire and rescue service has focussed on aspects relating to maintaining the role, specifically to CFOs. Responding to the Covid-19 pandemic understandably led to the introduction of new stressors for this group, particularly related to the agreement to extend increased capability to the health economy, to resilience structures and to community hubs. Though its introduction was welcomed in theory, in practice many CFOs ultimately found it unhelpfully detailed and noted that it ended up partially restricting what support they were able to offer on a local level (; HMICFRS, 2021; Levin et al., 2020). They also mentioned difficulties related to communication and data sharing which gradually became more of a stressor over time; not only were they struggling to receive and understand the data they needed in order to make informed decisions, but they were also receiving almost daily requests for data which some reported distracted them from dealing with more important issues (Levin et al., 2020). CFOs are also being faced with progressively increasing austerity measures that are making it exceedingly difficult for them to ensure that the service continues to fulfil all of its duties. If a situation occurs where this cannot be achieved, it is likely they will also be the figureheads of responsibility despite the impossible situation they are faced with.

There are some potential explanations as to why there is so little literature in this role area. It could be argued that individuals who reach this level of seniority will have been exposed to a wide range of stressors throughout their careers and developed their own effective approaches to personal resilience allowing them to function with the threat of burnout or emotional stress to some degree. Amongst company executives the development of political skill, defined in Ahearn et al., (2004) as "the ability to effectively understand others at work, and to use such knowledge to influence others to act in ways that enhance one's personal and/or organizational objectives" (p. 311), has been noted to be helpful to executives. Political skill allows executives to successfully tolerate stressors that would potentially be overwhelming to those less experienced including dealing with organisational and local government politics, as well as managing an

ever-changing workload (Perrewé et al., 2000). It stands to reason that those non-operational directors serving within the fire and rescue service would have developed a similar ability. This resilience may be a contributing factor to the lack of research drivers to explore this role cluster further; there may also be issues securing funding to research such a small group of individuals. This does not mean that the stressors do not exist, but it may be that they are being dealt with in such a way that their impacts on the non-operational directors are minimised, or they are not prioritised against the larger groups. It should also be considered that this is a very senior position and a key public service area, dealing with complex and potentially sensitive matters. Consequently, it is possible that details for role-specific stressors experienced by these individuals cannot be documented in widely published literature due to their sensitive or confidential nature. This again does not necessarily mean that they do not exist, but it does mean that recommendations for appropriately supporting non-operational directors will be more difficult for external groups than for other roles within the service. Whilst future research into the stressors specific to this role area is the only way to increase confidence that their wellbeing needs are met, provision of general health promotion interventions would likely go a long way in supporting this group (Geibel et al., 2022; Knight et al., 2016).

Figure 5. Common transition points experienced by Non-Operational Directors



Professional services staff

This area encompasses the non-director level staff working in areas not directly relating to operational fire and rescue service work, fulfilling roles in areas such as HR, payroll, fleet, maintenance, and project management. As of 2021, there were 8219 support staff employed in England (7386 full-time equivalent). Their day-to-day responsibilities are wide-ranging and include process and system management, training, data management, project management and bespoke activities relating to their profession. This also includes the many prevention teams within service who work to reduce risks within communities and increase safety, and also includes those on secondment to the NFCC. This career area was split into five main transition points: pre-recruitment, fire and rescue service recruitment, role maintenance, promotion, and leaving the role.

Within the fire-related literature, there is no clear research focused on stressors specific to these roles in the fire and rescue service. As these roles are typically non-operational, it can be assumed that individuals would not be directly, but possibly indirectly, exposed to any incident-related stressors as part of their working lives. So although they do not experience the same nature of work-related traumatic stressors directly, they might have exposure to traumatic material such as reports or other outputs. It is possible that the stressors they do experience are specific to the roles in this cluster, as well as operating within the culture of the fire and rescue service as previously discussed in this report. However, there will be some stressors that are experienced by individuals in similar roles across multiple sectors. With this in mind some evidence in this section is drawn from a short scoping review (<20 papers) exploring potential stressors outside of the fire and rescue service to provide some examples of what individuals within this role area may be experiencing.

There are limited pieces of literature relevant to the first two transition points of pre-recruitment and fire and rescue service recruitment. Regarding the role maintenance transition point, a singular study conducted by Turner et al. (2018) covered the wellbeing of

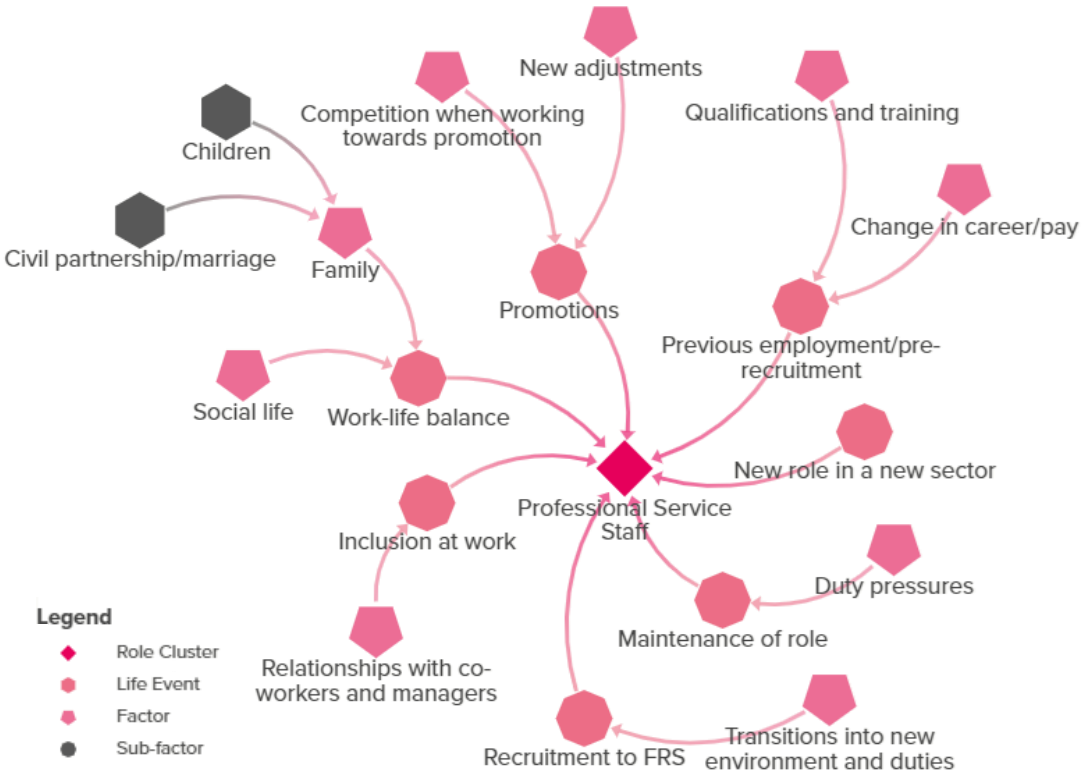
administrative staff across the UK FRS. The study identified that administrative staff reported a lower quality of sleep than operational firefighters, and 39% of them reported alcohol intake levels which were deemed a risk factor for wellbeing. Despite these findings, no links were drawn to indicate whether these wellbeing issues were connected to any work-related stressors. Outside of the fire and rescue service, a study by O'Brien and Lineham (2014) on HR staff across a range of industries reported that the pressure to maintain a neutral yet friendly professional manner regardless of what they hear at work was emotionally difficult for staff to maintain. As this finding was consistent for HR staff across a range of industries it is reasonable to assume that HR staff in the fire and rescue service would also need clear signposting to evidence based support for this bespoke challenge to their cohort. Adapting to the digital age is also something that could manifest as a stressor for administrative staff, as it requires company-wide adaptations to systems, processes and working practices which they would likely be expected to lead, support, and troubleshoot (Larkin, 2017).

There is very little fire-sector-related literature focused on the promotion or retirement of professional services staff. However, there is some general literature existing on the impacts of role promotions on employees that are likely applicable to most individuals. An example study conducted in Germany by Rigotti et al., (2014) identified that upward career transitions, like promotion, were associated with higher levels of both career satisfaction and strain. They noted that promotions come with both positive and negative repercussions which likely explains why individuals are more satisfied despite experiencing higher strain; promotions often come with increased salary and respect, but also more responsibility which can disrupt work-life balance. Furthermore, they mentioned that the social support that an individual may have relied on to cope with stress previously may not be adequate within their new role; this could be due to the increased pressure of their new role meaning they need more support or due to them being promoted above other colleagues that they previously

relied on. It is reasonable to suggest that the increasing strain associated with promotion could be a detriment to the wellbeing of FRS staff if left unaddressed. It is also important to consider the effect of not successfully securing a promotion. A study conducted by Fine et al., (2016) on non-operational military staff noted that being rejected for promotion can lead to negative emotional repercussions and engagement in counterproductive work behaviours, including using verbal aggression and refusal to follow orders. They recommended that employers give clear feedback to unsuccessful candidates to help them understand the decision, and where possible help them to engage in goal setting and professional development to increase their chances of succeeding in the future.

A report from the National Audit Office (2015) stated that the number of support staff within the FRS had been reduced by 18% since 2010-11. This could indicate a degree of perceived job instability which could be a stressor point for professional services staff. The expectation of staff who remain within their roles to complete the same level and standard of work with less support could also be stressor for these employees, along with any others in roles facing staffing reductions. More research into the transitions, stressors and role-related support needs experienced by professional services staff within the fire and rescue service is recommended to ensure they are given the support that they need to maintain good wellbeing and continue to deliver their roles effectively. This may include support for stressors generated by working alongside colleagues who deal with traumatic events; supporting the impacts of a reduction of staff and working in a 24-hour service when their role is not 24 hours; as well as working within the culture of the fire and rescue service.

Figure 6. Common transition points experienced by Professional Services Staff



Control Staff

The next career area identified was control or call handler staff. The primary role of these individuals is to respond to emergency calls, manage the requests for resources to the incident ground, manage and relay appropriate communications relating to incidents and use their judgement and the information provided to them to ensure that an appropriate response is mobilised to deal with incidents. These incidents can range from house fires, flooding, animal rescues, wildfires, lift rescues, through to road traffic collisions. As of 2021, there were 1169 fire control staff employed in England (1096 full-time equivalent). This career area was split into six transition points: pre-recruitment, training, adapting to the shift pattern, role maintenance, promotion, and leaving the role.

Given their importance to response of the service to incidents, there is

limited research into role specific stressors for this group. No clear fire-related literature has been identified to inform the first two transition points. There is very limited literature exploring stressors relevant to adapting to shift patterns. For example, Litchfield and Hinckley (2016) confirmed that control room staff work similar shift patterns to the full-time operational firefighters, meaning that their shifts are approximately 10 to 12 hours long. A study on wellbeing including control room staff by Turner et al., (2018) found that they reported a higher level of sleep disturbance and worse quality of sleep than operational firefighters, which they attributed at least partially to disruption of their natural sleep cycles by their shift patterns. Though this review did not identify any more literature relevant to shift pattern stressors in UK control staff, some literature relevant to shift patterns in operational firefighters that could be broadly applicable is mentioned below, further down in this section of the report, exploring transition points of Full-Time Operational Firefighters.

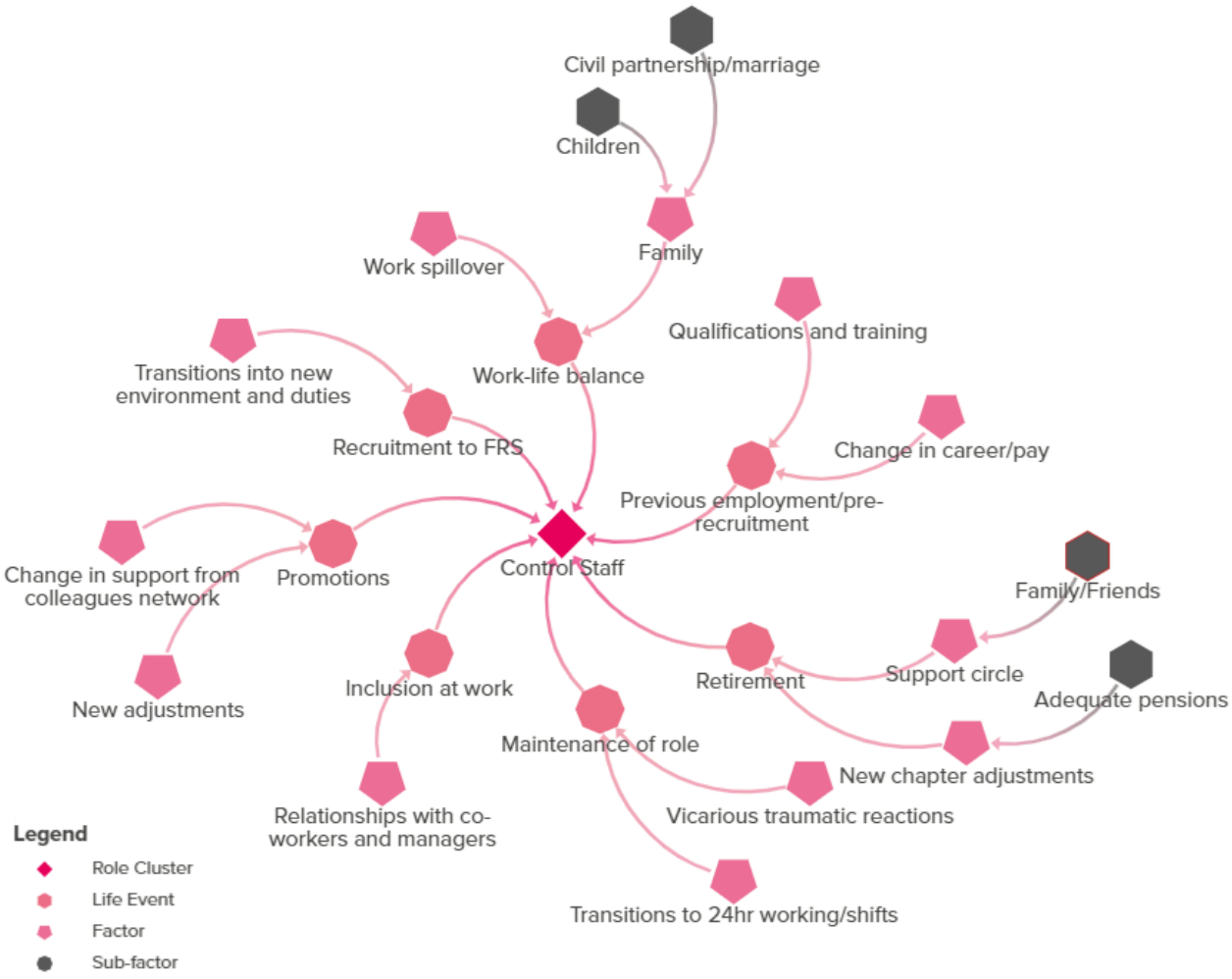
No clear literature was identified specifically exploring potential stressors relevant to role maintenance of control and call handling roles. Negative psychological health has been found by the research which has focussed on these roles. Golding et al., (2017) suggests this includes exposure to calls classed as traumatic, a lack of control and high workload, high level of cognitive load (Chakraborty et al., 2010) and pressurised, under-resourced working environments. Similar to operational firefighters and on-call firefighters, control staff reported using peer support and social support from friends and family to manage these stressors. Smith et al. (2019a) identified challenges to both physical and psychological health of control staff across the emergency services. This includes shift-work resulting in lack of physical activity, poor nutrition, and obesity; poor equipment leading to poor posture and associated impacts, physically restrictive work environments leading to physical injuries; poor management of breaks increasing fatigue; increased noise levels and decreased lighting contributing to increased stress. Mental health challenges from the role included support for the findings of the literature above, as well as inadequate support, inappropriate training for mental-health-related

calls, and exposure to verbal abuse, and lack of support from leaders. Related to call content, verbal abuse is also evidenced in research on other emergency service call centres to be a stressor (Blushtein et al., 2020). Sprigg et al., (2007) have associated verbal abuse with poorer mental health of control staff in healthcare settings as well as intention to leave.

Consistent secondary exposure to traumatic events, as is experienced by control room staff when responding to calls, is commonly identified in individuals working in "helping professions" (O'Malley et al., 2019). Within recent years the service has seen the gradual introduction of new technologies that allows control staff to receive images of an incident as part of an emergency call (HMICFRS, 2019). Whilst this may alleviate some stress of the role by making it easier to ensure that an adequate incident response is sent, it also means that control staff are now being visually exposed to traumatic events. Currently, it is difficult to assert the degree to which these things act as stressors for control staff, but research into them would be strongly recommended to ensure successful running of the service in future. There is a further need to see if this possible explanation is associated with the increasing incidence of mental health sickness absence in the Cleveland managed National Fire and Rescue Service Sickness Absence Report fire data.

Focussing on the transition points of promotion or leaving the role, no clear fire specific literature has been identified by this review. Some literature focused on the impact of promotions on employees outside of the FRS which may be relevant has been discussed in the professional services staff section of the report. The only potential FRS-specific stressor identified by this review is perceived job instability as control staff numbers in 2015 were reduced by 6.5% compared to 2010-11, in part due to the merging of some control room functions across the country in response to budget cuts (National Audit Office, 2015). It is clear that more research into the experiences of control staff is required, as adequate support provision cannot be guaranteed whilst stressors of these roles remain undefined.

Figure 7. Common transition points experienced by Control Staff



Middle and Senior Leaders

The next career area identified was middle and senior leaders. This area encompasses roles including station managers, area managers and group managers as well as Assistant CFOs and Deputy CFOs. Individuals within these roles mainly undertake non-operational management and running of sections of the service, although they are also expected to respond in an operational capacity should a large scale or complex incident occur. This career area was split into five transition points: promotion to role, adapting to leadership, flexi-duty system or PO rota, internal/organisational challenges, changes to leadership team through promotions/retirement, and retirement or leaving role.

Individuals within this cluster of roles are likely to experience primarily organisation-related stressors rather than incident-related, although some incident-related stressors would still be expected as they do respond to a limited number of high-risk incidents. Some organisation -related stressors have been previously mentioned in the Non-Operational Directors section of this report which would also be broadly applicable to individuals within this role cluster.

The main potential stressor for this group is a consequence of the promotion into this role. Typically, until promotion to station manager, most individuals have been operational firefighters, crew managers or watch managers, where the most effective reported mechanism to help navigate transitions through stressors are peer support from co-workers, namely the watch. However, once this promotion is achieved the shift system typically changes to the flexi duty system and therefore the flexi duty managers are without their group co-worker network and peer support in the same way (Hill et al., 2020). The literature offers very little about this transition and is a future focus for research.

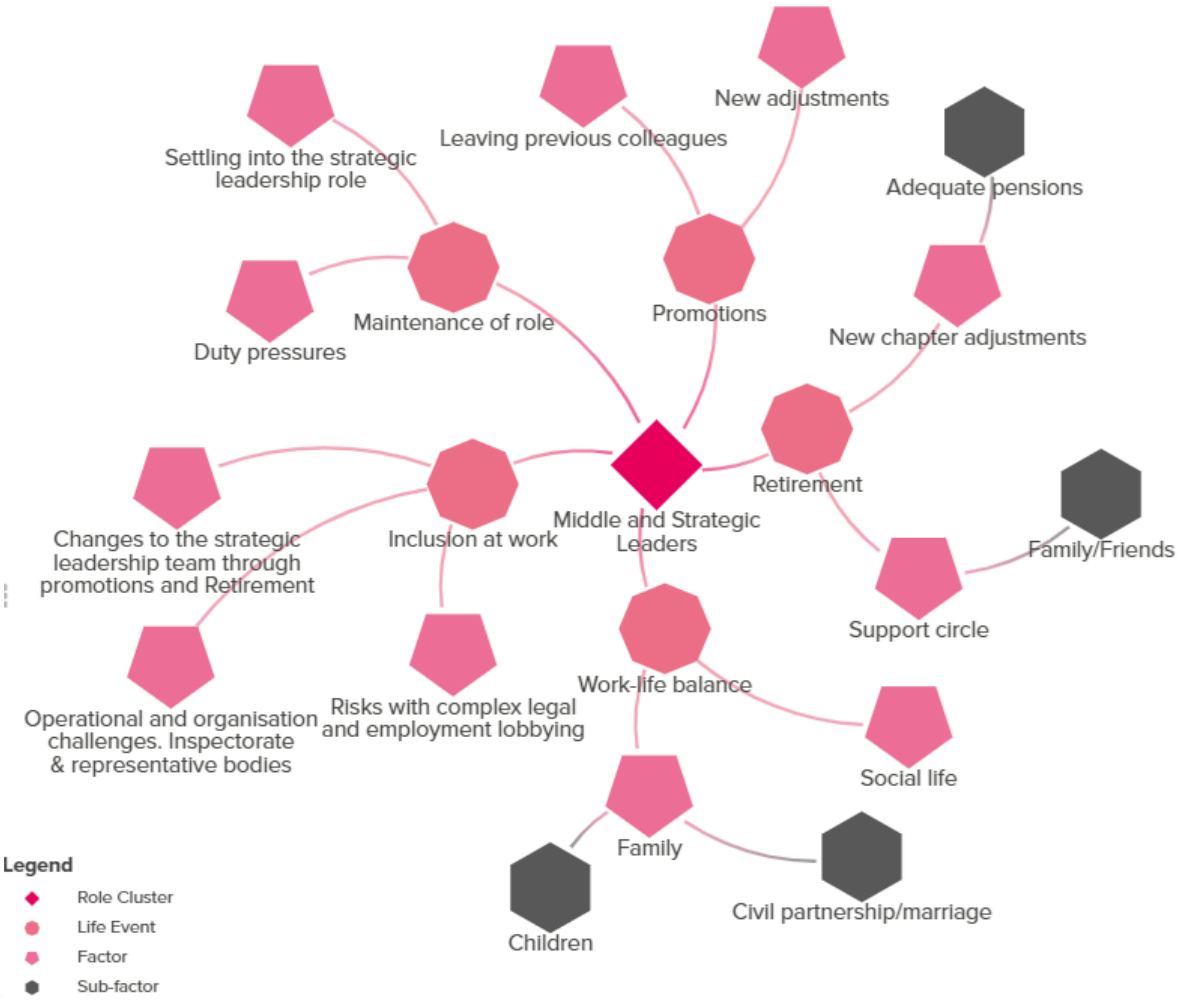
This transition also requires adapting to a leadership role and integrating into a leadership team. There are other routes into leadership positions such as direct entry, particularly the recent developments to recruit new station and area managers without previous experience in the FRS to be launched early in 2023 (NFCC, 2022). This could act as a transition point for the incoming cohorts as well as existing principal officers. A review of direct entry schemes in other critical occupations, including the police, by Hill and Myers (2020) indicated that leaders joining through direct entry may be perceived as operationally inexperienced or lacking in credibility as they have not progressed within the organisation to their role. This could mean they will have to work harder to earn the respect of both their peers and staff under their management, something that could develop into a unique source of strain for these cohorts in addition to the other stressors within these role profiles.

Gaining and retaining reliable social support from colleagues has been identified as important for a smooth transition into management roles, so direct entry candidates may struggle to adapt if they do not form these new relationships successfully (Jonczyk et al., 2016; Rigotti et al., 2014). For existing officers, the strain could stem from both concerns around the ability of direct entry officers to make the right choices when faced with a crisis and the potential perceived devaluation of their role and career trajectory if direct entry officers are not present in their organisation currently (Hill and Myers, 2020). It is recommended that the service prepares to mitigate these potential stressors by providing direct-entry candidates with extra training and information to ensure they are adapted to the role responsibilities. It may also be prudent for them to undertake some of this training with the existing officers present, both to form social connections and to reassure existing officers that they are prepared and capable of the role.

Literature exploring the potential internal or organisational challenges as a source of strain was primarily focused on organisation-related stress. Haslam and Mallon (2003) surveyed 39 senior managers to identify the stressors they felt were most impactful for them; the senior managers group consisted of station managers, group managers, and area managers. They reported experiencing pressure from senior colleagues, increased workload due to staff shortages, and a lack of communication as the most prevalent organisation-related stressors. In comparison to operational staff, they reported far fewer incident-related stressors, although they did report that incidents involving the death of a child were the most stressful. Having to adapt their management style depending on whether they are working with full-time or on-call staff is another stressor area identified by West and Murphy (2016). The managers they questioned within the service expressed that engaging with on-call staff required greater flexibility, and that they often felt that they had to take a "lighter" approach to managerial interactions. They also expressed concern that on-call staff are more likely to leave the role than someone who worked full time as a firefighter. Isaac and Buchanan (2021) noted that most individuals

who have reached these roles will have spent a significant portion of their career exposed to the traditionally hyper-masculine organisational culture within the fire and rescue service. They suggested that this is at least partially responsible for senior managers' reluctance to be seen seeking help, as it challenges their internalised identity as an experienced firefighter. This could detrimentally impact their mental health over time, although it is possible that they may be receiving help outside of the service, they are just not comfortable discussing at work.

Figure 8. Common transition points experienced by Middle and Senior Leaders



Apart from the Fire Fighters Charity commissioned report on transitions/retirement, (McNamara et al., 2021) which will be explored in more detail later in this report, the literature review uncovered a limited literature base

exploring transitioning out of the service, through retirement or a new career, for senior staff although there is literature that looks at transitioning out of other levels of the organisation.

In summary, middle and senior leaders have many responsibilities that likely come with more nuanced stressor points than the literature currently acknowledges; these are overviewed in Figure 8. In order to offer adequate support to these individuals a better understanding of the stressors they experience must be achieved.

On-call operational firefighters

On-call operational firefighters undertake the operational role but not on a full-time basis. They will usually have a different primary occupation and undertake the firefighter role when they receive a callout, or if there is a mandatory training session. As of 2021, there were 12,559 (Home Office, 2021) on-call firefighters employed in England (8,960 full-time equivalent). This career area was split into five transition points: pre-recruitment, recruitment and training, role maintenance, promotion, and retirement or leaving role. Publicly available data on FRS staff numbers are shared in full in the appendix for completeness.

Identification of literature specific to on-call service members was difficult, so where appropriate evidence from full-time or volunteer firefighters has been used to mitigate this absence. Very limited literature explored stressors relevant to the first two transition points, pre-recruitment and recruitment and training, most stressors were connected to role maintenance. The majority of the literature relevant to role maintenance links to incident-related stressors experienced whilst responding to an emergency call. A study on 31 UK firefighters, both full-time and on-call, by Haslam and Mallon (2003) assessed participants for symptoms of PTSD and their possible trigger events using both the Post-traumatic Diagnostic Scale (PDS) and individual interviews. Incidents involving children were widely reported as stressful by participants, with 31% noting incidents involving child fatalities as the most traumatic. When asked to elaborate on why

these incidents were the most traumatic, the most common responses were that participants had children of their own or that they considered the potential loss of younger life was distressing. This finding is corroborated by Boxer and Wild (1993) who surveyed 145 US firefighters, 58% of whom also had jobs outside of the fire department. They reported that responding to incidents in which children were involved in incidents of fire was the highest ranked stressor and was linked to increased emotional distress in firefighters. Regehr and Hill (2001) surveyed a combination of both full-time and volunteer firefighters in Australia to identify common stressors experienced and evaluate the efficiency of crisis debriefing groups. Amongst these stressors they reported that 18% of participants experienced interpersonal violence at work, 23% experienced violence against others, and 32% had lost a casualty when responding to an emergency.

As mentioned above, identifying literature specific to on-call firefighters detailing these stressors was challenging. However, the identification of literature focused on full-time firefighters, volunteers, or that did not differentiate between the different firefighter populations was more successful. Within this literature many incident-related stressors were identified which would likely be applicable to the on-call population, as they also respond to emergency calls. It is predominantly their working/shift patterns that are different between on-call and full-time firefighters. To avoid excess repetition, the incident-related stressor literature identified in full-time firefighters has been discussed in the Full-Time Operational Firefighters section of this review (below).

Managing a consistent work/life balance can be difficult for on-call firefighters and is considered a stressor specific to this role. A study conducted in Australia by Paterson et al., (2016) reported that experiencing difficulties with work/life balance was a frequent stressor mentioned by on-call firefighters. Having to manage their commitment between primary employment and booking on to the on-call rota. Balancing their home life was an issue for many, as well as losing time

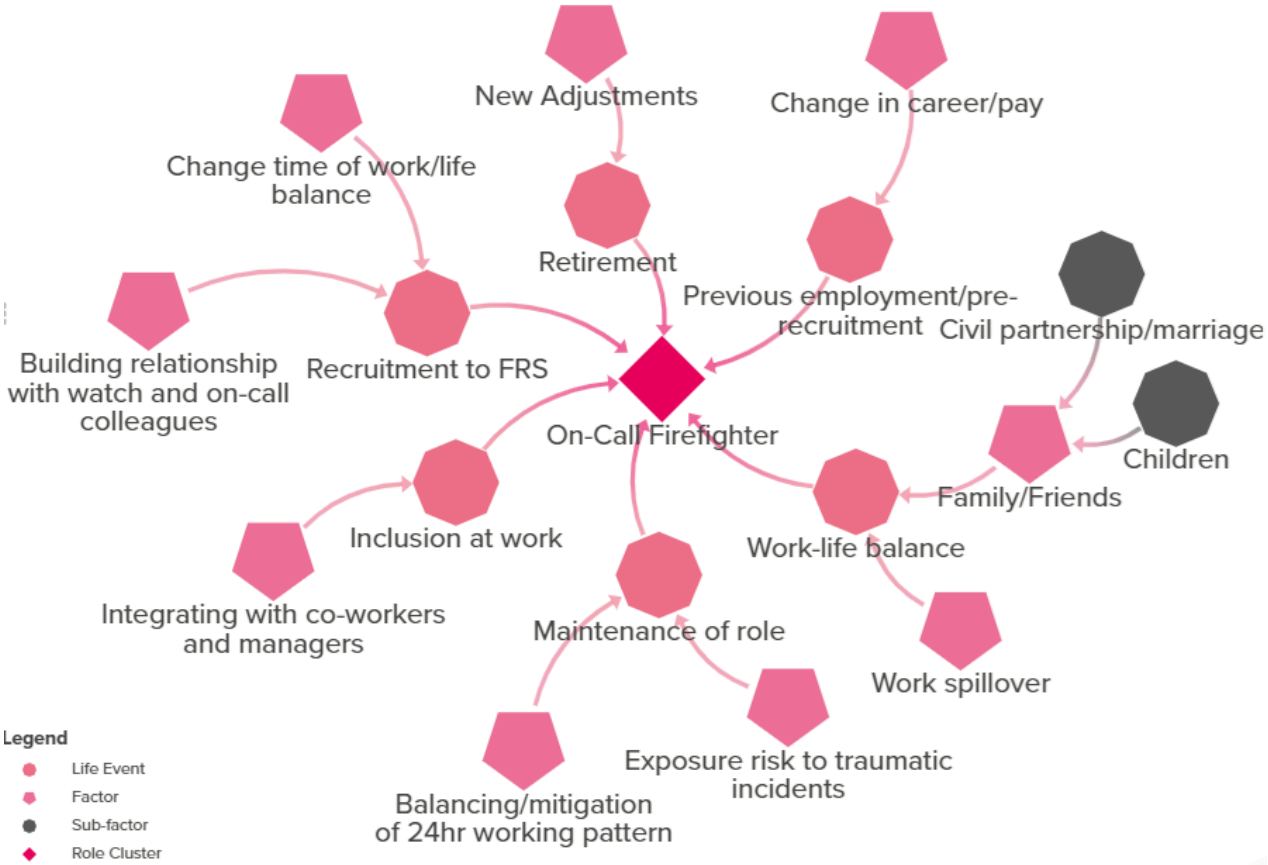
with their families and an inability to relax due to apprehension over whether their pager would sound. As the retained firefighter system in Australia is relatively comparable to that in the UK, it is reasonable to expect that these work/life balance issues would also be a tension for on-call firefighters in the UK. In support of this, exit surveys conducted on Australian volunteer firefighters revealed that 51% of them cited difficulty with work/family commitments as a reason for their resignation (McLennan et al., 2009).

West and Murphy (2016) conducted a thorough study into the divide between on-call and full-time firefighters in the UK, the results of which are relevant to successful role maintenance. Surveying a range of on-call, full-time, and managerial staff indicated that there is still a divide between the groups, which could manifest into a stressor for on-call firefighters as it could reduce their perceived social support during and after difficult incidents. However, they noted that the divide is reducing over time; this was attributed to a range of factors including hiring new unbiased full-time firefighters and an increased awareness of the demand placed on on-call staff to maintain competence. Difficulty communicating and bonding with the management was also noted as a potential strain for on-call firefighters, as they only really interacted when something was wrong. Many of those interviewed reported feeling that their managers had little empathy for their challenges. These factors could lead to them being slow to seek help if they needed it after a challenging incident. It is recommended that some form of intervention is introduced here to help both groups develop a better understanding of their respective challenges to mitigate these issues.

Although promotion is possible for on-call firefighters, no literature indicating stressors specific to this transition point has been identified by this review. Some literature focused on the impact of promotions on employees outside of the FRS which could be relevant and has been discussed in the Professional Services Staff section of this report (above). However, none of this literature was on operational emergency response staff so it may not be entirely applicable. There is

relatively little literature focused on the retirement or leaving role transition. Exit interviews reviewed by West and Murphy (2016) indicated that the most common reason cited for on-call firefighters leaving the role was changes to their personal life or primary job role, suggesting that maintaining the work/life balance was too challenging in these circumstances. However, interviewing management and current employees about these reasons revealed that many of them believed a large portion of on-call firefighters who leave do so because they were not prepared for the requirements of the role. Either way this indicates that on-call firefighters likely need better support dealing with the stress of adapting to and maintaining the role, if the system is to continue successfully. It also highlights a difficult divide within the culture of the service (relationships with managers in these circumstances) that any future strategies will need to be cognisant of.

Figure 9. Common transition points experienced by On-Call Firefighters



Full-time operational firefighters

The next career area identified was full-time operational firefighters. Although the exact parameters of the role can vary day-to-day, their main responsibilities include response, prevention, and protection activities. Response includes a range of incidents, including fires, animal rescues, flooding, wildfires, road traffic collisions, and natural disasters. Prevention includes delivering community-based safety and risk identification and reduction work. Protection includes the safety work associated with buildings and organisations. As of 2021, there were 22,720 full-time firefighters employed in England (22,587 full-time equivalent, Home Office, 2021). This career area was split into five transition points: pre-recruitment, recruitment and training, role maintenance, promotion, and retirement or leaving role.

A large portion of the literature on role-specific stressors identified within this review was focused on the full-time operational firefighter role. Despite this, no clear UK-based literature has been identified which explores the recruitment phase. A study on new trainees in the Canadian Fire Department by Regehr et al., (2003) could be considered applicable to both the pre-recruitment and recruitment and training transition points. They assessed symptoms of trauma and depression in new trainees in their first and tenth weeks of training, predicting that symptom levels would increase. On the contrary, they found that there was no increase in symptom levels by the end of the ten weeks. They concluded that this was likely due to the fact several new trainees had previously worked in other emergency or military services. There were comparative rates of exposure to violence against self and near-death experiences between new trainees and experienced firefighters (average of 11.69 years of service). However, new recruits were found to be significantly less exposed to multiple casualties, death of a child or violence against others. As the experienced firefighters studies were found to have higher trauma and depression symptom levels, it could be inferred that these three critical events are areas in which more support is required for early career firefighters.

The literature identified that the most common stressors associated to

the maintenance of the full-time firefighter role are incident-related. In fitting with the pattern noted in the On-Call operational firefighters' section of this review (above), incidents involving children were commonly reported amongst the most stressful. Baker and Williams (2001) surveyed full-time UK firefighters and senior managers across three geographical areas of an unnamed fire service in order to identify significant stressors and assess problem-solving capabilities. Incidents involving children were reported by full-time firefighters as the most stressful to respond to. As covered above in the On-Call operational firefighters' section of this report, Haslam and Mallon (2003) also found that incidents involving children were reported as the most stressful to respond to in their UK firefighter-based study, with the rationale of having children of their own offered as an explanation.

Involvement of children as an incident-related stressor has been observed in several other studies on full-time firefighters conducted across multiple countries. 34% of full-time US firefighters surveyed by Del Ben et al., (2006) reported responding to the death of a child as the single worst event they had experienced within their careers.

The involvement of children in an incident was ranked by full-time firefighters in Australia as the fourth most stressful scenario to experience when responding to an emergency, listed behind road traffic collisions, deaths, and fires (Moran and Colless, 1995). With as many as 60% of firefighters reporting exposure to incidents involving children, it is clear that this is an important incident-related stressor that may need to be addressed within intervention strategies to improve welfare (Regehr and Hill, 2001).

Haslam and Mallon (2003) reported that larger incidents with particularly high casualty tolls were the ranked as the second most stressful incident for UK firefighters to respond to, after those involving children. Baker and Williams (2001) further supported this as they reported the handling of the deceased as one of the greatest incident-related stressors experienced by UK firefighters. Literature identified

from multiple other countries also supports this assertion. A study of 180 Swedish firefighters by Jacobsson et al., (2015) reported large traffic collisions and fires as particularly stressful incidents. The firefighters surveyed specified that these kinds of incident were particularly stressful as they often felt underprepared to deal with the sheer scale, which in turn led to feelings of inadequacy. They also reported drownings and suicide attempts as particularly stressful events, in particular noting that they felt unprepared for the emotional burden of communicating with individuals in crisis. It is plausible that UK firefighters are also affected by these feelings after exposure to similar stressors. A survey of 173 US firefighters by Beaton et al., (1998) also identified multiple high casualty incidents as particularly troubling incident stressors, including multiple-casualty vehicle collisions, multiple burn victims in a fire, and responding to any death by suicide. Responding to road traffic collisions, incidents involving death, and fires were the three highest incident-related stressors perceived by Australian firefighters surveyed by Moran and Colless (2007), with burns and multiple victims also being reported in the top ten stressors. As most of these studies did not include a qualitative aspect to clarify what the nature of these specific stressful incidents is, it may be difficult for suitable support to be offered. It is possible that some of the stress related to these high stressor incidents is linked to a concern for both their own safety and the safety of their colleagues (Baker and Williams, 2001).

Regehr and Hill (2001) reported that 18% of firefighters had experienced violence against themselves when responding to an incident, and 23% had experienced violence against others. Jacobsson et al., (2015) elaborated on this, with the firefighters they surveyed reporting that they had experienced violence from intoxicated individuals whom they were trying to rescue as well as verbal or physical threats when in public. They described struggling with how to approach or negotiate with violent individuals during rescue operations, as well as feeling unsupported by senior staff members when dealing with these concerns. As there is little UK based literature on this it is difficult to assert the similarities, however,

Brunsden et al, (2012) suggests that firefighters can distinguish the complex nature of altercations, diagnosing quickly whether abuse is as a result of an emotional response to the incident that the member of the public is experiencing, or if they seek to purposely abuse the firefighter. The consequences of intentional abuse were reported to have lasting complex impacts on firefighters, similar to those experienced with coroner or legal processes where their judgement or conduct is being considered (Hill, 2015). As the amount of literature in this area is limited, it is important to explore the implications and possible needs of those experiencing these situations.

Beyond these incident-related stressors are other, more organisation-related stressors relevant to full-time firefighters. One such stressor that has been identified in a larger number of literatures is the reducing number of firefighters being deployed to respond to emergencies. Egdell et al., (2021) interviewed 99 UK firefighters who expressed concern over their ability to safely respond to callouts with reduced availability of both staff and equipment. These interviews also revealed a degree of animosity towards on-call firefighters as they believed that continued budget cuts would eventually lead to on-call services 'taking over' and replacing the full-time staff. Baker and Williams (2001) also reported that not having enough personnel to appropriately respond to incidents was a key stressor. Statistics from the National Audit Office (2015) confirmed that 57.1% of local authorities had reduced the number of in-use pumps and aerial appliances between 2010-11 and 2014-15, a figure which is likely to have increased further since 2015. They also reported that full-time firefighter numbers had been reduced by 13.5% but that because they represent such a large portion of the service this reduction accounted for 56.6% of the total staffing reductions seen. These figures support the concerns expressed by firefighters that they are being given more to do and less to work with. Jacobsson et al., (2015) reported a similar trend in Swedish firefighters, who expressed concern and frustration that they were not able to successfully do their jobs due to reduced staffing availability.

Coping with the shift patterns was also mentioned as a more

organisation-related stressor for this transition point. Full-time firefighters typically work in a pattern of four days on four days off, covering two-day shifts (10 hours) and two-night shifts (14 hours) within those four days on (Litchfield and Hinckley, 2016; Paterson et al., 2016). Haslam and Mallon (2003) did note that issues with shift patterns were reported as a stressor by UK firefighters but did not express any further detail. A study of 112 full-time US firefighters by Carey et al., (2011) identified that 59% of participants were suffering from sleep deprivation, and that there were notable correlations between sleep problems, depressive symptoms, and alcohol consumption. These issues were attributed at least in part to the continuous disruption of the natural sleep cycle, as the human body expects to be resting at night. As the firefighters within this study were working ~10-hour shifts, like the UK shift pattern, it is plausible to suggest that shift patterns may be negatively impacting the wellbeing and abilities of UK firefighters. When working a night shift, firefighters are allowed to rest between 10pm and 6am, although they still must respond to emergency calls if they come through within that time. Full-time firefighters interviewed by Paterson et al., (2016) reported very light sleep when working night shifts due to their apprehension of an alarm sounding, with most of them reporting even more difficulty getting to sleep after returning from a call because of 'the adrenaline factor'. Firefighters mentioned concerns around driving so soon after waking up, both because they felt they were too fatigued to be completely safe and because they did not get the opportunity to mentally prepare for the incident they were heading to as they needed to focus on the road.

The literature identified as potentially relevant to the transition of promotion was also broadly applicable to the transition through retirement/leaving, so the two will be discussed together here. Older firefighters have reported concerns over whether they will be physically capable of staying in the role until retirement, but a reluctance to leave due to issues surrounding pensions if they retired early (Egdell et al., 2021). Given that the UK state pension age rose to 65 in 2018, with it projected to reach 67 by 2028, these concerns are

only going to grow if not addressed (Age UK, 2022). Though these worries are in part fuelled by concern for their own health, reports from Australian firefighters who were either near to or had already reached retirement revealed that there is also a degree of concern that by staying on they would become a burden to other members of their watch team (Kragt et al., 2017). 92.5% of Australian firefighters surveyed by Kragt (2019) stated that having some non-operational roles to transfer into as a kind of gradual retirement would be useful for them, as they did not want to be forced into retirement by sustaining injuries late in their careers.

The number of non-operational roles available within the UK FRS have been reduced due to budget cuts over time so this may not be a viable option for UK firefighters (National Audit Office, 2015). The limited availability of roles to be promoted into means that there will likely always be more individuals losing out on promotions than achieving them. It is possible that not achieving a promotion may have as significant an impact on an individual as achieving one, something that would likely be detrimental to their wellbeing (Sullivan and Akriss, 2021). Specific stressors related to retirement that were reported by firefighters included worrying about the loss of camaraderie and routine that they have experienced daily for potentially decades of their lives (Kragt, 2019). Evidence from retired Australian firefighters indicated that post-retirement mental health could deteriorate, particularly if traumatic events experienced within their careers were not dealt with properly (Kragt, 2019; Kragt et al., 2017). This implies that inability to access adequate support within the role maintenance stage of a firefighter's career can lead to increased issues further down the line; this should be factored into future support offers across the fire and rescue service.

The Fire Fighters Charity commissioned a large national study (McNamara et al., 2021) to explore the transition into retirement for operational firefighters. This programme of work has established clear findings that operational firefighters value social connectedness, but the role often disrupted their family and social life. Those working

shifts had fewer social groups than non-shift workers. The coping strategy often reported by firefighters suggest a mixture of these issues means that some prioritise their family in retirement. They also report that they would like to help others in need as this was reported to provide retired firefighters with a sense of meaning and purpose. In response, retired firefighters in this study reported providing support to more groups than they reported receiving support from in order to fulfil that need. Firefighters identify very closely with their role. This study also established that retirement causes firefighters to experience a loss of this valued group. To cope with this many firefighters try maintaining a sense of identity and continuity with their former role (e.g., volunteering to help others, using skills in volunteer, joining retired firefighter clubs to seek camaraderie). Relatedly, findings indicated that as length of service increased, the number of firefighter-related groups they belonged to in retirement increased.

The ability to maintain good health in retirement was identified as paramount for this group compared to other occupational groups. This is because firefighters are less socially connected than other retirees from other occupations; they report less social support from others and reported feeling 'sometimes' or 'often' lonely, as well as reporting less satisfaction with life and some traumatic reactions. To maintain good health in retirement the research found evidence that belonging to multiple groups promoted health in retirement. This is because multiple group membership made firefighters more resilient to the negative effects of retirement over time by enabling retirees to maintain meaningful connections to others which in turn improves loneliness, traumatic reactions, physical health, and satisfaction with life. Maintaining group memberships was a more effective strategy than restoring or gaining new groups, however the research was completed during the Covid-19 pandemic, which impeded new group formation. To promote good health in retirement, planning before retirement was reported as influential. Both active and retired firefighters reported that the support they have received is more focused on financial than social planning. Those just about to retire reported that their hopes and fears of their transition into retirement

centred on social aspects of retired life, and retired firefighters felt their prior social planning had been insufficient. The report provided recommendations for both the charity and services. Focusing on what fire and rescue services can do a series of those recommendations are re-produced here for ease of access. The missing recommendations are not aimed and developed at services, but can be found in the full report to the Fire Fighters Charity (this report is available by request from the Fire Fighters Charity):

- **Recommendation B:** Health education and advocacy work identifying and highlighting these indirect consequences of their high commitment to the firefighting role will allow serving firefighters, their occupational health staff, their managers, and their national body (the NFCC) to use this knowledge in planning and priority setting, from the individual personal goal setting to strategic planning of the sector.

- **Recommendation C:** Developing the provision of retirement support across all individual FRSs. This is to ensure that the retirement planning support is informed by the research findings and appropriately aligns with the service provision of the charity, including the intervention as a planning and transition management tool for the individual firefighters.

- **Recommendation I:** Social planning and management of identity change should be embedded in any interventions including pre-retirement training through individual FRSs.

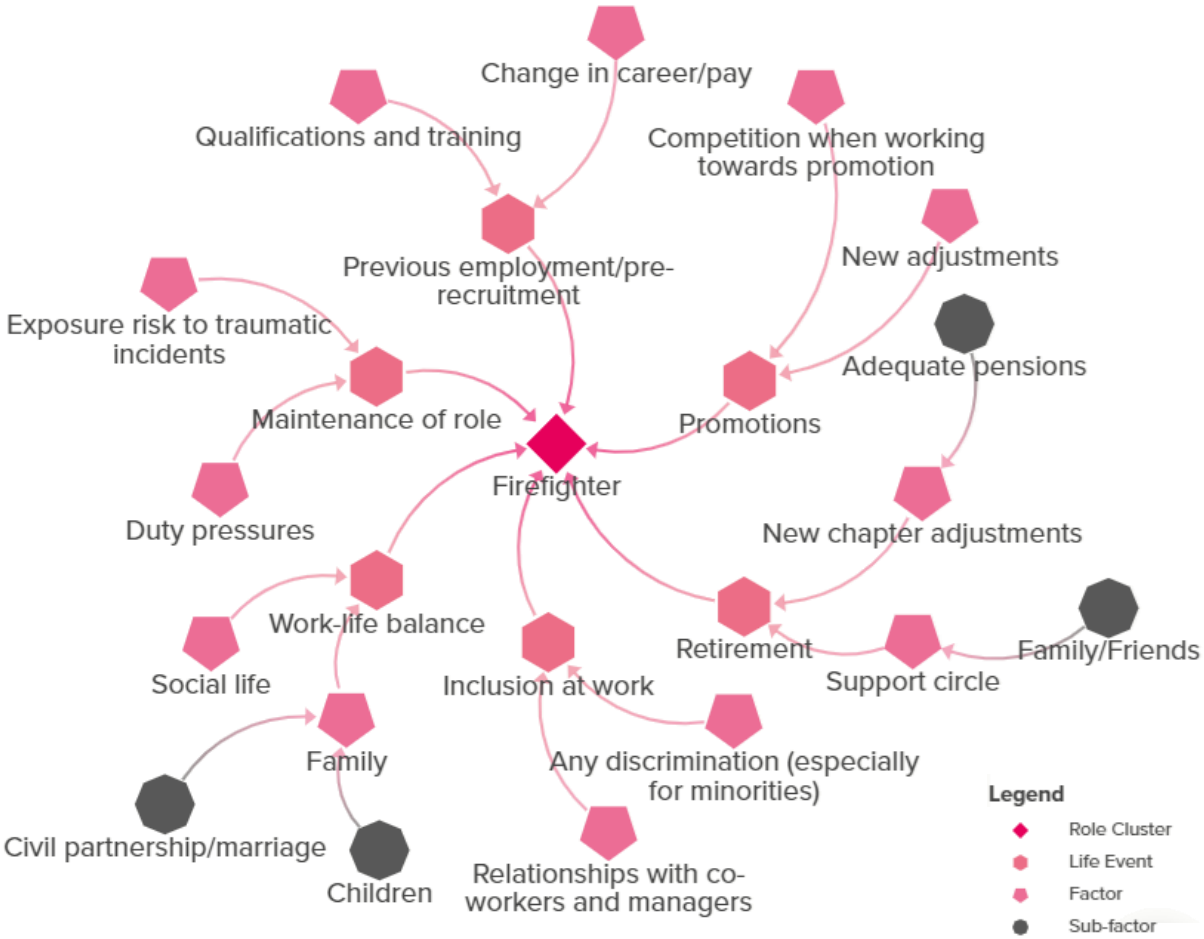
- **Recommendation J:** Identifying the benefit gained from multiple group memberships before firefighters retire, and through the transition into retirement. Encouraging a healthy range of memberships of different social groups before retirement should be prioritised in any pre-retirement training.

- **Recommendation K:** Sector coordination of pre-retirement planning, ensuring wherever possible that social planning and multiple group memberships are considered by those retiring

before the transition phase begins. Our findings indicate that reflecting back on missed opportunities and loss of groups through that transition is emotionally very difficult for retired firefighters.

This section of the report has provided an overview of the possible areas of strain and challenge for those employed across the fire sector. An overview of these can be seen in Figure 10 (below) that summarises the general clusters of work-related transition points for firefighters.

Figure 10. Common transition points experienced by Firefighters



Summary

This section has identified the range of job clusters across the fire

sector in the UK. It has identified the common and unique aspects to each of these roles, informed by the evidence base. The most common potential areas of challenge to good mental health and wellbeing across the general population were also identified including work home life balance, promotion, stressors or transitions over the life course and aspects of organisational culture, also apply to the operational firefighters and control staff. This mapping of these typical points within a career will be useful to the key stakeholder groups to ensure their offers of support are broad enough to accommodate the mapped need and targeted to particular groups based on their typical mapped need.

5.1.5. Findings from the literature to inform the future resource investment at national level

As can be seen from the table below, there are gaps in our current knowledge regarding the different transition points and strain aligned to typical clusters of career pathways within the fire sector. The table visualises the most frequently identified role-specific stressors as well as support methods identified that may be most effective across the transition points. The table shows the breadth of the research and evidence base. The first column details the clusters of career pathways and the rows show the level of evidence for each of these career pathways and correspond to the transition points detailed in the second column. The blank, shaded cells indicate gaps or areas of least information of an evidence base in the literature that is specific to the fire sector.

Table 1. Levels of evidence from the literature review against career pathways and transitions/interventions detailed in the literature

Role in Fire service	Transition points	Stressor points	Prevention and support points
Non-Operational Directors	Pre-recruitment		Retirement planning
	FRS Recruitment	Direct entry to the role	Personal development
	Integrating with Leadership Team		Health promotion
	Role Maintenance		
	Retirement/Leaving role		

Role in Fire service (continued)	Transition points	Stressor points	Prevention and support points
On-Call/ Operational	Pre-recruitment	Existing trauma experiences e.g. violence/death of others	
	Recruitment/Training		
	Role Maintenance	Death of a child Violence against self Near death experience Concerns about maintaining physical fitness throughout career Concerns that fewer firefighters responding to incidents will limit their ability to do their jobs Disrupted sleep due to shift patterns	Training/recruitment Management of double payment (Fire service volunteer payment and furlough payment in primary organization) Management of Shift rift with full time staff Social support Peer led CISM Health promotion
	Promotions	Limited opportunities	
	Pre-retirement/ Retirement/ Leaving role	Loss of camaraderie after retirement	
Middle and Senior Leaders	Promotion to role		Peer support/Mentoring (CFOs)
	Adapting to leadership role	Isolation from family due to work demands	Colleague network/ Reengagement
	Internal organisational challenges/inspections	CFO - Lack of clear communication or consultation (exacerbated by Covid-19) Station managers – exposure to incidents with severe casualties/children involved	Colleague network/ Intelligence Sharing (EFOs)
	Changes to leadership team via promotions/ retirement	Direct entry to the role	Health promotion
	Retirement/Leaving role		
Control Staff	Pre-recruitment		
	Training		Resilience Management (Covid-19)
	Adapting to shift pattern		Social support/Trade union
	Role Maintenance	Disrupted sleep due to shift patterns Vicarious trauma from taking 999 calls Introduction of 999eye means control staff may be visually exposed to traumatic incidents	Health promotion
	Promotion		
	Retirement/Leaving role		
Administrative Assistant in Professional Support Staff	Pre-recruitment		Virtual training (Covid-19)
	FRS Recruitment		Working from home (Covid-19)
	Role Maintenance		Health promotion
	Promotion		
	Leaving role		

As can be seen from Table 1 there are clear areas for future research commissions to focus their ask for more evidence.

5.2. Prevention and interventions

The table above introduces the interventions and support structures typically available in the fire sector. This does not include the Fire Fighters Charity 's offer which is detailed later in this section.

The literature offered reviews of a range of interventions and evidence bases within the fire and rescue context. As with the stressors, strains, and transitions the primary focus in this report was on UK fire service-related literature, but when necessary to gain further insight, evidence was sought from other countries and contexts. An increasing amount of work is being put in to developing a better understanding of mental wellbeing and support within the emergency services. Presently, the bulk of this work has been focused on the police and ambulance sectors. This piece of work is instead focused on staff within the fire and rescue service. Previous works have concluded that, generally speaking, sustaining employment is beneficial for an individual's mental wellbeing, with unemployment being associated with declining wellbeing (Hann and Sibbald, 2011; Waddell and Burton, 2006). There is evidence that those who find themselves out of work due to illness can struggle with returning to work, which can take a toll on their physical and mental wellbeing over time (Black and Frost, 2011). Combined, this evidence indicates a clear need for mechanisms to support the wellbeing of FRS staff to ensure they as individuals remain healthy, but also to ensure that the FRS can continue to fulfil its role and responsibilities within the community.

Both the role of the FRS and the climate in which they are operating have changed considerably over time, with instances such as the global pandemic and the increasing occurrence of extreme events linked to climate change highlighting how crucial fire service personnel are to our communities (Local Government Association, 2018; Local

Government Association, 2020). It is important to acknowledge the potential impact of working under these increasingly stressful conditions on the physical and mental wellbeing of FRS staff, both operational and non-operational.

A review of the wellbeing interventions within the healthcare sector by the Institute of Employment, (2018) identified that they could be split into two key areas: interventions which are focused on prevention of potential wellbeing issues and those focused on treatment of identified wellbeing issues. Several different interventions were identified, ranging from virtual wellbeing courses to group-based sessions to discuss role-specific challenges. The review noted that there is not a one size fits all intervention that will work for everyone, and that it would likely be more successful to adopt a 'whole-systems' approach in which multiple schemes are offered to address a range of potential wellbeing concerns that staff can then engage with depending on what they need personally. As the healthcare sector and FRS are both essential frontline services dealing with highly stressful scenarios daily, it is plausible that a similar approach to wellbeing interventions may be successful within the FRS.

As societal trends and experiences change over time, and with the progression of climate change, the risk profiles that the fire sector could be exposed to necessitates the need to keep physical, psychological, and social health under review so that interventions can keep pace with the needs of those working in the fire sector (Arnell and Freeman, 2022).

Occupational Health in Scotland

Although it is likely that many FRS staff will experience stressors which may lead to them needing support during their careers, the exact support offerings available can vary depending on their services offer. These differences are most noticeable within the English fire and rescue services are not amalgamated and the support offer varies between local health and council areas. On the contrary, in 2013 the Scottish FRS (SFRS) combined into one single authority meaning they

do not experience the same degree of variation (Murphy et al., 2019). This allows them to provide the same support resources to all their staff regardless of location, an approach that is beneficial to the wellbeing of all staff.

One of the key wellbeing initiatives active only in Scotland is the Lifelines project, which supports past and current emergency service staff as well as their families across the geography at any time. A recently published report by Moreton et al., (2022) lays out Lifelines' guiding principles, current support offerings, and future aims; it also includes survey results indicating how well these offerings are being received by staff in each service area. This project is also supported by the Fire Fighters Charity. In late 2020 Lifelines launched bespoke webpages for each emergency service to help individuals to identify the most relevant information to them with ease; within a year the UK-wide Bluelight Together website was released and specifically directs Scottish users to the Lifelines pages for specialised support. Analytics data from the report revealed that visits to the Lifelines FRS-specific page accounted for 13% of all website page views between November 2020 and July 2022, indicating that SFRS staff are definitely engaging with the content.

Lifelines also provide a series of training courses focused around maintaining personal wellbeing, supporting colleagues, and psychological first aid. Due to the Covid-19 pandemic most of these courses have been provided virtually. Just under half of all course attendees were members of the fire service, and the results of surveys completed pre-and-post session by a number of these individuals revealed statistically significant increases in knowledge of the topics and materials covered in the sessions. This indicates that not only are these types of training well-received by fire staff, but they are also effective in passing on important information. Of particular interest within the participation statistics provided by the report is the fact that over half of all course attendees from the fire service were management; having such high engagement from senior staff may increase the uptake and acceptance of wellbeing support by the rest of the service.

All of Lifelines' ongoing work is contributing to their future aim of promoting prevention and intervention strategies to build resilience; amongst other things they have begun to deliver training with new SFRS recruits, which aims to build their resilience and normalise open discussions about wellbeing and psychological injury. It is recommended that steps are taken to ascertain whether a similar support structure could be offered to staff and their families throughout the rest of UK FRS. Engagement with the team behind the Lifelines project would be a vital part of this process, as their knowledge and experience would likely prove invaluable and potentially save a significant amount of time and money. It could also support the development of ongoing health and wellbeing strategies, such as the UK-wide innovation planned for 2025 and beyond by the Fire Fighters Charity (Fire Fighters Charity, 2020).

It is evident from the literature that there are some consistencies in the support structures that have been developed or made available for the fire sector. Understanding the nature, dimensions, and effectiveness of these supports would not only reveal the ecology and stakeholder mapping of the support system available, but it will also expose the existing gaps and barriers that could be remodelled or restructured to achieve better outcomes across the sector.

5.2.1. Employee assistance programs

Employee assistance programs (EAP) are a common first step for organisations wishing to offer accessible resources to their employees.; they are typically set up so that a dedicated avenue directs the employee to an appropriate intervention for their need. The services are typically evaluated well across the literature (for example see Paul and Thompson, 2006). EAPs are used in some fire and rescue services as an effective solution following the austerity period in the early 2000s which resulted in the loss of a lot of in-house provision. The benefit of EAPs is that their outsourced nature typically offers a wider, tiered ecology of support structures for a broader range of experiences across the staff base rather than just the operational

firefighter role. The challenges mapped out in the earlier section of this report such as life course transitions, are all usually included in EAPs. Their aim is the betterment of employees across different organisations. Whilst they have their strengths, they have been critiqued for not being able to effectively accommodate for operational roles due to the complex or vivid descriptions discussed in the interventions, particularly relating to traumatic reactions (Brunsden et al. 2012). However, in their uptake in the US after the World Trade Centre Attacks they were found to handle the complex nature sufficiently well (Attridge, 2008; Jacobson, 2015). This may be attributable to the population having experienced the same traumatic event in very similar ways resulting in similar trauma presentations.

Research evaluating EAP use in the police sector suggests that there are challenges to ensure that employees are aware of how to access EAP, and that accessing rates were low (Donnelly et al., 2015). This demonstrates the requirement for effective signposting and a regular method of referencing/promotion. Ensuring all employees have access to good quality EAPs that are tiered and triaged effectively with the ability to refer more complex presentations to more relevant services is important. Studies such as Spoons (2018) shows that whilst these programs are effective for individuals who used them, engagement was low citing concerns of the perceived stigma of seeking assistance as well concern that peers might find out. Consequently, providing health information and promoting health seeking behaviour needs to be carried out in parallel to introducing any new support alongside organisational/service level promotion.

5.2.2. Peer support

As described in earlier sections of this report, the literature is heavily populated with a focus on traumatic reactions in operational firefighters. However, the employees across the fire sector are broader in profile and more varied in their needs than this one group. As mentioned earlier in this report, one highly reported effective intervention for many forms of stressors is peer or social support.

Talking to colleagues and defusing or articulating challenges has a processing quality that can alleviate the perceived strain. Based on this, the need to promote psychological wellness across employees could also be modelled and shared through peer and social support if the right messaging and education is provided. These have also been found to have some effect in buffering both broader levels of life course transitions, as well as more specific role stressors such as traumatic reactions, but not in isolation (Armstrong et al., 2016; Meyer et al., 2012).

Social support can be divided up into support from family and friends but also support from co-workers, which is frequently reported by those in the fire sector as an effective defusing technique. Peer support most commonly refers to a system of support embedded within the organisation where a trained or developed peer is made available to those who have either requested support or who have been in a work context which is deemed higher risk. These methods are traditionally more focused on operational or control staff who are involved in fatalities or complex/protracted incidents. The nature of operational emergency responders and control staff makes their job role quite different from many others as they are exposed to events that most of the population do not witness on a regular basis, if at all. This is where peer support can ensure a sense of relatability and connectedness.

Literature has suggested that a proportion of operational or control staff are reporting that they have challenges to their mental ill health or personal lives due to the nature of their job (Jones, 2017; Wolkow et al., 2019; Haris et al., 2002). One contributing factor is that they often do not identify with help-seeking attitudes. To try and mitigate this, the aim of peer support is to create an uplifting work culture to invoke help -seeking behaviours so that colleagues can receive the help they need to flourish in their life. Studies have captured that support from staff can be more powerful than family or friends in mitigating the onset of traumatic reactions amongst other sector specific stressors. Stanley et al. (2019) clearly identifies this by identifying social support from supervisors, co-workers and family or friends with supervisors having

the greatest statistical significance, followed by co-workers and lastly family/friends. When formed into a single model, only supervisor support was significantly associated with low traumatic reactions, indicating the importance of supervisor support.

It is good practice to have multiple support avenues and methods in place for all staff to access. The literature appears to indicate that support provided by a peer group can be more effective than other methods. Dangermond et al. (2021) captured the importance and effectiveness of informal peer support within the fire service as a way to begin processing critical incidents. The collective sharing of memories promoting cohesion between colleagues started as soon as staff were back in the vehicle creating a wider picture for everyone to process the situation together and not individually. This is also reflective of other research where shared coping strategies are evident amongst operational staff (Hill and Brunsden, 2009). This raises significant questions about the increased effect of risk exposure when operational firefighters on a watch shift system transition through promotion to a flexi duty rota where they do not have their tight co-worker network to process, defuse, and share with.

The literature highlights the importance of informal peer support in both the fire and rescue service and in other employment settings, for those involved in incidents and those who are not. It also relates to a discussion later in this section which suggests that peer led stress debriefing has greater effectiveness than the standard formal debriefs. Specific to potentially traumatic reactions, Orner et al. (2003) concluded that amongst firefighters there was a variation in preference for the kind of support received against a timeline from an incident. They preferred immediate interaction with a peer they felt close with, followed by a consultation with a professional for an early intervention. This demonstrates that across the whole staff population, and across their different challenges and issues, one size does not fit all and a tiered offer of different types of support at all times is good practice; however there is a clear desire for peer support.

Peers are particularly valuable compared to any other source of support as they understand the nature of the work and the pressures within a given situation better than a family member or friend who does not work in the same sector. This is because they have shared employment related knowledge and personal experience. Circular NJC/1/18 by the National Joint Council for Local Authority FRSs (2018) notes that representative bodies are important in uplifting peer support in the fire sector, through their collective nature and by extending help in delivering new strategies and increasing inclusion. Literature has shown that creating harmony in the workplace through such strategies can also aid wellbeing of employees (Joo and Lee, 2017).

When reviewing the literature, it was identified that Tyne and Wear FRS has a widely celebrated Trauma Support Team, where both accredited peer-led and professional support is available through a robust governance framework. This has been externally reviewed and is seen as leading practice (Brunsden et al., 2013). There is also good evidence surrounding the trained and accredited mental health first aider scheme.

A tiered offer of peer support

Different organisations adopt a variety of methods to help their employees, including EAPs, peer support, critical incident stress management (CISM), critical incident stress debriefing (CISD), trauma risk management (TRiM), and others. The literature advocates for a mixed approach developed from well-regarded evidence bases to ensure that there is a system in place to triage needs from any staff member regarding their experience, be it operational or not, to an evidence-based intervention. Different interventions are needed to accommodate for the potential different types of needs across green and grey book staff. Consequently, a mixed approach of interventions with avenues to professional support for more complex presentations is required. Promoting health seeking behaviour through role modelling or through peer led initiatives both reduces stigma and contributes to an increase in emotional literacy of individuals and the organisation.

When considering employee led interventions, it is essential to consider inclusion of deep diversity; diversity within visible and non-visible characteristics such as attitudes, values, and religious beliefs. In the work on traumatic reactions and supervisor support, Stanley et al. (2018) included a study on female firefighters which concluded that perceived social support from supervisors, co-workers, and friends or family were each associated with reduced traumatic reactions. This contrasted with the findings of another study reported within the paper which was made up of both male and female firefighters (majority male), where only supervisor support showed less prevalence of traumatic reactions. Amongst the literature, UK fire related research with female samples is rare, so these findings from 200 women help frame some considerations to help the wellbeing of female firefighters by facilitating their access and support from a range of different groups. Collectively this shows that perceived belonging and support from supervisors can significantly impact on the mental health and wellbeing of the employee. This important foundation of perceived support by supervisors can have a positive effect through their interactions with staff. The effectiveness of supervisor support on staff wellbeing has a significant evidence base outside the fire sector.

Recommendation 6: To reflect the nature of all wellbeing needs of different groups within the fire sector, and the need to embed wellbeing approaches through all areas of policy development, a review should be undertaken across the existing documentation of key stakeholders (including the NFCC, the Fire Fighters Charity and all fire services) to ensure wellbeing and inclusion are woven through all areas of activity.

Recommendation 15: Fire services and the NFCC should review their guidance, policies and practices of supervisor induction and training. This review should ensure that supervision training and delivery incorporates and promotes the health and wellbeing of all staff as a consistent approach throughout. Training delivery needs to review in the context of the 'recommended key priorities' document and include effective support of supervisors.

Recommendation 23: Fire services should provide a formal peer support offer which is accredited, peer-led and has a robust governance framework, within which onward referrals to professional support are signposted and supported with clear triggers and thresholds for onward referral.

Recommendation 24: The NFCC, Fire Fighters Charity and Home Office should come together with other key stakeholders across the fire sector to create a work stream to address the lack of evidence regarding the risk and support available to those transitioning into a flexi-duty rota.

Recommendation 29: Fire services and NFCC guidance should advocate for the provision of clear feedback to all unsuccessful promotion candidates to help them understand the decision and to engage in meaningful goal setting and professional development to increase their chances of succeeding in the future.

5.2.3. Social support

As highlighted in the section above (5.2.3), social support is seen as a protective and a supportive factor. It is protective against developing mental ill health as it positively contributes to maintaining good mental health and wellbeing. It is also a valuable source of support during times of decreased mental health. Social support is associated with reducing the impact of such factors as burnout, stress, traumatic reactions, emotional exhaustion, and can support the management of stress in the fire sector (Mitani et al., 2005; Prag, 2003). It has also been associated with aiding individuals dealing with prolonged exposure to stress as well as traumatic exposure (Newell and MacNeil, 2010; Paton, 2006), and can mitigate the consequences of both occupational or chronic stress and traumatic reactions (Butler et al, 2017; Kessler et al., 2017; Jin et al., 2012; Carpenter et al., 2015).

Within the occupational firefighter population, hostility has been associated with exacerbating mental health challenges, implying that reducing hostility in firefighters may be beneficial for overall mental health (Wagner et al., 2016). This also has the benefit of increasing connectedness with others as mentioned in previous sections of this report. Associated with social support and informal peer support dynamics is humour. Use of humour has been documented in the literature in the wider emergency responder groups (Sharp et al., 2020) as well as humour within the fire and rescue service. Humour is a buffer or a short-term group coping strategy rather than a debriefing or

defusing process between colleagues (Haslam and Mallon, 2003; Rowe and Regehr, 2010; Charman, 2013; Healy and McKay, 2000; Sliter et al., 2014) as humour is used as a way of gaining control and a form of communication (Henman, 2001). Some literature suggests humour can be used as an avoidance technique (Kupier et al., 1993). which may not be helpful for firefighters in the long-term. Avoidance behaviours and barriers to help-seeking in the fire sector have started to gain some consistent findings in the literature, however the findings based on fire sector studies alone are too limited to provide specific sector related recommendations. Instead aggregating these findings into wider national reviews and summaries of barriers to help seeking as well as stigma can be adopted to create positive support pathways within the fire sector (Tamrakar et al., 2020).

Focusing on operational and control staff, the exposure to incidents relating to personal loss can threaten their health and wellbeing (Fraess-Philips et al. 2017). The provision of social support either by a partner, relatives, colleagues, or friends has been shown to be effective in reducing the impact of these incidents (Dangermond et al., 2022; Stanley et al., 2019). Operational firefighters were found to prefer informal peer support or social support as it promotes interaction, communication, and team cohesion. Evaluations of the impact of social support as a mediator of psychological distress in firefighters by Regher (2009) suggest that social support is a strong mediator of distress, but it is lower in experienced firefighters than those new to the sector. A possible reduction of social support as the length of service increases necessitates increased attention to support firefighters and their families in order to help ensure optimal health, wellbeing, and functioning throughout their career. It also suggests that interventions and support may need to be designed differently for those longer in service, than for those new to the role.

5.2.4. Support for transitioning into the sector during recruitment and training

From the findings in the sections above, it can be inferred that the fire

sector needs to pay close attention to the messaging they provide when recruiting across all role profiles within the service. Resource packs can be offered at the point of the recruitment and training of those who will be in contact with operational incidents such as volunteer, on-call, full-time, control, direct entrants, and within the flexi -duty promotion system. The resource packs will include:

- health promotion messaging to the staff and their families educating them about the typical transition points
- possible areas of strain (for example the transition to new rota/ shift systems,
- different experiences and ways of coping with incident exposure,
- different challenges of managing home and work life balance due to shifts/rota);
- and providing clear pathways to support, which could be as simple as highlighting the service and charities pathways.

Resources should also be utilised to provide an information pack for the family, including a link to the family hub at the Fire Fighters Charity to ensure they too are made aware of the possible indirect consequences of transitioning into these roles Fire Fighters Charity Family Hub.

By acknowledging this transition point in any health promotion and education frameworks both the staff member and their family will have the best chance of maintaining their wellbeing throughout their career.

Recommendation 22: Fire services, the Fire Fighters Charity, and sector specific recruitment websites should include resources and information packs for the family to increase their knowledge of the role and the stressors within them. Clear communication on transition points across Fire and Rescue Sector roles and pathways to appropriate support should support family members to recognise needs and proactively engage with support if required. Similar material should also be developed for trainee firefighters, new starters in professional services, those who move on to a flexi-duty rota and those who come into the fire sector through the direct entry schemes.

5.2.5. Support for transition into retirement and retirement planning

The need for retirement planning and appropriate support to transition into retirement has been highlighted in a number of sources (Wong and Earl, 2009; Sharp et al., 2020; Kragt et al., 2017). The Fire Fighters Charity commissioned McNamara et al. (2021) to complete longitudinal work with transitioning fire service personnel (this was limited in phase one to grey book staff) to track and trial an intervention to support their experiences of transition into retirement. This Fire Fighters Charity commission had three key aims:

1. What are the key challenges for firefighters after retiring from the FRS and how do they cope with them?
2. How can retired (and retiring) firefighters maintain good health in retirement?
3. How can we build resilience in firefighters and better prepare them for retirement?

The work was commissioned on the premise that retirement is a major life change that can be a source of significant stress, partly due to the loss of, and change, in important social groups. These changes can facilitate a loss of a sense of personal identity; this is particularly problematic as the loss of important identities during times of change increases depression and reduces life satisfaction (Praharso et al., 2017). Addressing and planning for these changes are not typically part of retirement preparation, despite the significant health consequences. As previously discussed throughout this report, the literature consistently highlights the importance of social connectedness for firefighters and the fire service culture. However, most of the literature focuses on the working life. Bracken-Scally et al. (2014) documented poorer health outcomes for emergency service retirees compared to those in the general workforce who were retiring. Given these profession-specific issues (e.g., strong team cohesion, the group as a source of occupational and emotional support, the high public service commitment, the role being a core part of identity), not supporting those transitioning into retirement risks impoverishing social networks

and increases the risk of isolation and loneliness.

Given that the wider literature surrounding retirement has illustrated that support in social planning and management of identity change in retirement has a positive impact, the research by McNamara and colleagues trialled an approach through a longitudinal design. This was based on the premise of the 'Social Cure' in addressing identity change. The Social Cure focuses on protecting the three aspects of group life that can protect health and well-being during times of change:

1. Belonging to multiple social groups that are psychologically important to individuals
2. Maintaining important group memberships to provide a sense of identity continuity
3. Joining new groups that are compatible with existing groups

These three processes have been evidenced to reduce the risk of premature death in retirement; they serve as a basis for social support, facilitate feeling a sense of purpose and help retirees cope with identity change. The key findings are summarised and mapped to the research aims below.

Table 2.The main challenges and coping strategies associated to retired firefighters. (McNamara, 2021)

Key challenges faced by retired firefighters and main coping strategies
Firefighters are less socially connected than other retirees:
Report less social support from others
Many reported feeling 'sometimes' or 'often' lonely
Less satisfaction with life and some PTSD symptoms
Belonging to multiple groups promotes health in retirement:
Makes firefighters more resilient to the negative effects of retirement over time
Works by enabling retirees to maintain meaningful connections to others which in turn improves: loneliness, PTSD, physical health, satisfaction with life
Maintaining group memberships was a more effective strategy than restoring or gaining new groups, but Covid-19 did impede new group formation
Without pandemic restrictions, these other strategies are also likely to have an effect

Key challenges faced by retired firefighters and main coping strategies (continued)
Promoting good health in retirement, planning among firefighters:
Both active and retired firefighters reported more focus on financial than social planning
However, active firefighters' hopes and fears centred on social aspects of retired life
Retired firefighters felt their prior social planning had been insufficient

How can we build resilience in those coming up to retirement and support them effectively through the transition into retirement?

A suite of targeted recommendations were developed (contact R. Hill, the lead author of this report for a copy of McNamara et al., 2021) The suite included recommendations for the Fire Fighters Charity , for fire services and for the sector. The recommendations aimed at the services are detailed elsewhere in this report, but the recommendations for the Fire Fighters Charity include:

- Using the bespoke evidence base generated from the project and findings from the bespoke trial to inform support offered to the Fire Community, specifically facilitating social connectedness
- Increase their health education offer and advocacy work for those transitioning into retirement
- Work alongside services to implement evidence-based retirement planning support
- To further develop the bespoke evidence-based intervention in line with the ethos and approach of the Charity but also recognise need for holistic packages of support
- Potential leadership role for the Fire Fighters Charity in this area across the sector

Table 3. Challenges and strategies used by retired firefighters

Maintaining Good Health in Retirement
Key challenge: The firefighting role, firefighters value social connectedness. But the role often disrupted their family and social life. Those working shifts had fewer social groups than non-shift workers. **Coping strategy:** A mixture of these issues means that some prioritise their family in retirement.
Key challenge: Helping others in need provides firefighters with a sense of meaning and purpose. **Coping strategy**: Retired firefighters provided support to more groups than they reported receiving support from.

Maintaining Good Health in Retirement (continued)

Key challenge: Firefighters identify very closely with their role. Retirement causes firefighters to experience a loss of this valued group.

Coping strategy: Many firefighters try maintaining a sense of identity continuity with their former role (e.g., volunteering to help others, using skills in bridgework, or joining retired firefighter clubs to seek camaraderie). Relatedly, findings indicted that as length of service increased, the number of firefighter-related groups they belonged to in retirement increased.

Recommendation 16: Fire services and the Fire Fighters Charity should implement the recommendations from the 'Understanding the transition to retirement for Firefighters: A social identity approach' report completed on the UK fire sector in 2020.

5.2.6. Support for personal development and role maintenance

As a result of reflecting the public they serve, and keeping pace with local and national priorities, the fire sector has undergone remarkable changes in the last twenty years placing new demands on the workforce and their working practices. Some fire services are supporting the changes to these roles by introducing coaching approaches (such as West Midlands FRS) and these are taking an increasingly important role in the organisation's learning and development for both operational and professional services staff. The coaches typically focus on building confidence and building an action plan for employees personal development as well as increasing effective communication skills. This might be an approach to consider at national level with the aim of quality assuring options with coaching providers.

Recommendation 30: Fire services should facilitate access for all their staff to the NFCC coaching programme Home - NFCC Coaching (https://nfcccoaching.mye-coach.com/).

5.2.7. Learning from alterations to training and development through the Covid-19 pandemic

The extensive report submitted by Levin et al., (2020) to the NFCC

Covid committee documented some of the ways the service was transitioning from the traditional approach to training of fire staff during the pandemic. The transitions cut across roles, and it included the adoption of virtual training systems which were more flexible in accommodating pandemic safety protocols. These safety protocols were rolled out and disseminated by the NFCC to enforce safety among operational and non-operational fire service spaces including fire stations, control rooms, training centres, general offices, fire service premises and fire engines (NFCC Covid Guideline, 2020). Levin et al., (2020) reported that in a collaborative effort led by the CFOs) and the Local Resilience Forums (LRF), satisfactory emergency arrangements were put in place to sustain effective local responses while also maintaining safety protocols, and this was complemented by the establishment of Strategic Coordinating Groups. These adaptations increased the FRSs resilience and contribution to the response to the pandemic.

Similarly, some services adopted virtual training models for staff (especially new trainees) using Microsoft Teams or similar virtual systems. Some of the areas that were covered during this period include remote assessment, training, and exercises for incident command. Some services continued with onsite training through physical distancing, others used a hybrid model, initiating the training online and completing them onsite. Leveraging these approaches of training and development going forward could create more flexible, inclusive, and resilient models of training to support the progression pipeline and development of individuals across the sector. This may address some of the challenges outlined in the section of this report reviewing literature focussing on the culture of the fire sector.

Levin et al. (2020), also established that the integration of on-call staff in to the service response during the pandemic enhanced wellbeing by boosting capacity and reducing stress and workload of full-time staff. While this is beneficial in relieving the workload of existing full-time staff, the report highlighted that it reduced the chances of securing overtime duties, leading to tensions between on-call staff and full-time

staff. Creating a supportive atmosphere for work is a good way to complement the recruited on-call staff but this should be done with well-organized work distribution pattern.

Recommendation 31: Fire services and the NFCC should consider the recommendations of the Levin (2020) report with a view to revising onboarding and training practices to include virtual methods (where possible) and include health promotion education. This should ease the transition into the service for new starters, and promote knowledge of the role to them and their family. This also increases the accessibility and inclusion for all staff, recognising diverse needs such as ethnicity and neurodiversity.

5.2.8. Support for traumatic reactions

Throughout this report the literature has highlighted the risk of traumatic exposure to those who deal with incidents. This includes on-call and full-time firefighters, flexi-duty officers, principal and senior leaders and control staff. These roles are highlighted by the literature as being particularly at risk to different levels of hazards and stressors in their day-to-day activities (Black, 1996; Larsson et al., 2016). Within the literature there are varying levels of symptom severity of traumatic reactions. Traumatic reactions are experienced along a continuum from common and expected reactions that are part of the human stress response to acute traumatic stress reactions to the more complex clinical symptoms of post-traumatic stress disorder. These reactions should continuously be regarded as a normal reaction to an abnormal situation, not an abnormal reaction to a normal situation which can evolve through critical occupations where the profession contains exposure to traumatic events. The concept of 'professional trauma' has been developed by Paton (2006) where traditional approaches designed as an intervention for a general population with exposure to a traumatic event may need significant revising to provide trauma interventions for a group with multiple traumatic exposures, such as the roles mentioned at the top of this paragraph. This section of the report seeks to establish the main areas of discussion within the fire-related evidence base. McCreary (2019) noted that for Canadian first responders, there is an overly restrictive focus on potentially traumatic

events and PTSD in the research; McCreary's recommendations are to move beyond the focus on traumatic events and PTSD, and to focus more on health, health promotion, strengths, and capacities of firefighters. It is critically important to note that the most common outcome to adversity is resilience (Bonanno, 2004), and that much can be learned from those who do not manifest traumatic reactions.

Traumatic reactions are well documented within the fire related literature (Kehl et al., 2014; Norwood and Rascati, 2012) highlighting the need for support systems for operational and non-operational staff as some life stressors can also lead to traumatic reactions. Beyond operational and service efficiency, effective trauma support across the sector directly impacts on serving and retired (McNamara et al., 2021 mental health and general wellbeing (Mitani et al. 2005; Kragt et al. 2017).

The strong positive correlation between the exposure to traumatic events and the risk of developing post-traumatic stress disorder (PTSD) has been reported widely in the literature relating to operational and control staff in the fire service (Haslam and Mallon, 2003; Norwood and Rascati, 2012; Duran et al., 2018) as well as the literature exploring other occupations or other types of potentially traumatic event. Operational and control staff are confronted with the realities of work-related psychological stressors such as operational exposure to events (Beaton et al., 1999; Chamberlin and Green, 2010, Smith et al., 2019b) and post-traumatic stress symptoms that could offset their operational efficiencies and wellbeing (Dean et al., 2003; Beaton et al. 2004; Kehl et al., 2014; Harvey et al., 2016). Associated with traumatic stress symptoms are suicidal ideation (Hom et al., 2016; Norwood and Rascati, 2012), ruminations, and sleep disturbances (Haslam and Mallon, 2003; Vargas et al., 2013).

As a result of these traumatic exposures, implementing an effective support pathway for traumatic reactions, in addition to the formal peer support structures and EAPs detailed above, is important.

Critical Incident Stress Debriefing (CISD) and Critical Incident Stress Management (CISM)

One suite of approaches typically used by fire and rescue services to support staff who have had exposure to a traumatic event is CISM. In essence, CISM is an intervention in the form of debriefing or defusing steps which are carried out after a traumatic incident (Varvel et al. 2007). CISM has evolved significantly with time, and now it fits into broader organisational wellness plans. CISM is a comprehensive, integrated stress management programme of prevention (organisational policy, pre-incident education), intervention (1-1 support, defusing, occasionally debriefings), and post-intervention (family education, referrals, programme evaluation) services - the one important concept for all CISM providers is education - that while CISM is indisputably an effective series of crisis intervention techniques, at its heart is the provision of information – information that other people who have experienced similar events and reactions (peers), have found helpful. No matter what component of CISM is being delivered, at its heart is the delivery of information.

The literature reviewing CISM and CISD is large and well provisioned so the full range will not cover here, just those aspects that are specific to the fire sector, or contentious issues in the literature. CISM has shown significant impact to help facilitate coping and has become a widely used practice for fire services in places such as Canada, Australia, US, and Ireland.

Within the suite of CISM interventions is a specific approach called CISD (Mitchell 1988; 2000). This was developed using a psychoeducational approach for post-incident debriefing (British Psychological Society, 2002), with a belief that it will help avoid the development of traumatic reactions, and specifically PTSD, in emergency responders (Lohr et al., 2003). CISD relies on the notion that traumatic stressors will result in psychological issues in the majority of individuals. However, if a psychological intervention is provided soon after traumatic exposure, it will reduce the chances of traumatic stress symptoms developing and even if symptoms do

develop, CISD will still aid recovery (Lohr et al., 2003).

The CISD approach only requires a trained facilitator and is usually carried out in groups, where a facilitated discussion of the event in question explores feelings and thoughts. As this intervention was directly developed for emergency responders it is appropriate to use within the fire sector including control or professional services staff who feel impacted by the event. These roles either have a direct link to traumatic events through recordings, or they have indirect exposure from conversations in the workplace.

There is complexity in understanding CISD and CISM and which populations they are suitable for. For example, a significant meta-analysis by Rose et al. (2005) reported that debriefing did not prevent PTSD or reduce psychological stress. This finding can be explained through debriefing being used as an individual process. Rose et al.'s (2005) report was criticised by O'Mahoney (2012) for its failure to understand that the group component is essential to CISD, and that group needs to be similar or share their experience of the same event, in other words they need to be a homogenous group. This was such a controversy in the literature in relation to the National Institute for Health and Care Excellence (NICE) guidelines and the emergency services that the British Psychological Society (2002) undertook a review of the literature and effectiveness. They concluded that CISD was effective for emergency responders as within that group they share a common experience of a traumatic event. The report agreed that using CISD across a range of the general population who all have exposures to different traumatic events was not effective. Consequently, the parameters of this approach are quite clear in this context.

Isaac and Buchanan (2021) explored preferences of non-UK firefighters to support their different needs, such as interpersonal needs, task-oriented needs, critical incident stress, and even suicide. The aim of the survey was to find out what type of mental health service firefighters prefer, with the spectrum ranging from professional mental health help

to peer support or CISM support. The results showed that firefighters preferred fire service led peer CISM when critical incidents or job stress occurs. In terms of issues regarding personal lives, they preferred support from a professional mental health provider, however items exploring the effects of job demands on relationships indicated a peer support preference. Similar studies are rare; therefore, it must be assumed for not that these results may not fully reflect the UK FRS or the UK culture on mental health and help-seeking. However, the associated surrounding literature does consistently support the need for a mixed economy of support that creates an independent, professional trained and confidential offer (Jeannette and Scoboria, 2008; Isaac and Buchanan, 2021).

Trauma Risk Management (TRiM)

Another program to support traumatic exposure is TRiM developed by the UK Navy. Currently, the armed forces commonly use TRiM and commission research supporting its effectiveness (Arendt and Elklit, 2001; Rose et al., 2002). The approach also resonates with the NICE guidelines outlining expectations when an individual is exposed to traumatic situations (Greenberg at al., 2019) as it offers an individualistic approach which is done in a timely manner. TRiM uses the benefits of peer support as the education and awareness of traumatic reactions are shared by individuals already known to that person. TRiM requires multiple sessions to be conducted to promote becoming a 'survivor' instead of a 'victim' (Gov.UK, 2016). Greenberg et al. (2010) suggested organisational functionality was better in naval ships trialling TRiM, however the crews were not exposed to many traumatic incidents. TRiM has also been used by the UK police force to help reduce the stigmas present surrounding help-seeking behaviours (Watson and Andrews, 2018).

Due to TRiM being a relatively new offering, there is currently a lack of systematic reviews or meta-analyses to show the effectiveness. However, its use across the MoD and UK policing may support its application to individually experienced traumas by fire sector staff. In our review there were other embryonic approaches with published

trials (such as Trauma Impact Prevention Techniques) that were identified, but the developing evidence base was considered too low a threshold to be included in this evidence review.

Recommendation 8: Fire services, the Fire Fighters Charity and other stakeholders should ensure that any support incorporated in their offers which were originally designed for the general population are reviewed by an appropriately qualified and experienced practitioner, in consultation with external support and evaluation, to ensure its appropriateness for the fire community. Where changes are necessary these should be recorded appropriately on risk registers or policy audits.

Recommendation 25: The NFCC should work across the sector with all stakeholders to create policies and processes for the provision of mutual aid to provide capability and capacity to meet surge demand for health and wellbeing support for a high number of staff after a significant major incident.

Recommendation 27: The support offered by providers to alleviate potentially traumatic reactions should ensure a mixed ecology of support is offered. This support offer should be provided to all staff following potentially traumatic experiences to meet their needs regardless of role and whether the experience occurred in or out of work and should reflect the needs of both individuals and groups.

5.2.9. The Fire Fighters Charity's offer

The offer of support from the Charity is available to all green and grey book staff, and their dependents, including those retired from fire service employment. Their offer is bespoke solution focussed and developed in partnership. Support is available and wide ranging, such as financial advice, welfare support, through to rehabilitation to aid recovery from illness or injury, mental for depression, anxiety, stress and bereavement, 'rest and recharge', through to nursing beds for those with complex needs, child and family programmes.

Examples range from financial advice, rehabilitation after a sprained ankle, mental health support following bereavement, through to nursing beds for support, to family members/dependents after a significant injury. Alongside this the Charity has a highly skilled

workforce that understands the UK FRS and the health and wellness need of the fire population as a whole. The Charity can provide health and wellbeing support to assist the workforce in developing their health literacy. With support focussing on prevention, early intervention and for all sectors of the workforce, adopting a wellness coaching approach, the Charity will focus on developing knowledge and understanding of issues associated with physical, mental, and social health. The offering is tailored to the fire and rescue service and nuanced to the moment of delivery.

Alongside such interventions, there is a phone line and MyFFC which is an online support tool to help those enquiring about support to navigate to the right source of support.

Their website states their approach is unique to the individual:

> "Because everyone is different, our approach to supporting you is different. Here's how we aim to tailor the support we offer to meet your needs. Ensuring you get the right support, delivered to you in the right way and at the right time. This is the corner stone on which our support philosophy is based.
>
> We do all we can to support every member of the UK's fire family. By providing easy access to proactive health and wellbeing information and lifestyle advice, specific to the fire community, we want to help our community to live well throughout their lives. But, when something goes wrong and a need arises, we are always there too.
>
> From our innovative, centre-based residential programmes, to a whole of host of digital solutions, we do all we can to give our beneficiaries the physical and psychological support they need, wherever they are in the UK. Furthermore, our Welfare Services and community-based teams, provide support to individuals and families at home

and in their local communities, helping them through life's tough times.

We know that everybody is different, that no two injuries are the same and that no two people may be affected in the same way by incidents they experience. So we treat every one of our beneficiaries as individuals, taking time to fully understand your health and wellbeing needs, whatever the primary reason for your reaching out for support.

By gaining this full picture, we can personalise and create a package of support that can help you in the short, medium and long term. Whether you are injured, recovering from an illness, feeling stressed or anxious, our approach is always the same; understand, personalise, deliver.

This personalised support can involve one or more possible pathways, delivered in a number of different ways – over the phone, online using digital technology, out in your local community or at one of our centres: Harcombe House in Devon, Jubilee House in the Lake District or Marine Court in West Sussex.

In the long term we also want you to sustain the quality of life you want, so we'll help you to learn and adopt the tools and techniques you need to support yourself into the future.

The aim, however, is always the same; to help you move forward positively in your life.

The first step on this journey is the same for everyone; call us on 0800 3898820 or enquire about support online."

5.3. Analysis of survey findings

The survey data was collected and analysed in line with scientific

protocols. This includes data cleaning, preparation, and then analysis. The steps taken to clean and prepare the data are included in here for reference, transparency, and integrity. However, it is the analysis that is likely to be of the most interest.

5.3.1. Data cleaning

The data was collected in a survey tool called Qualtrics and was cleaned and analysed in a statistical package called SPSS. The recorded total of responses amounted to 3084, of which 1991 were fully completed responses, 233 of the total responses were at least 71% completed, and the remaining 860 were below 70% completion. The incomplete responses were discarded in data cleaning due to not providing sufficient usable data in the psychometric scales, leaving a total of 2224 responses (of which 233 were partially completed).

Analysis was undertaken to identify if any patterns of attrition existed in the survey. This analysis identified no particular pattern of attrition; the data was normally distributed. Missing value analysis was run and no patterned missing data was identified, 223 partially completed responses were identified and retained for analysis. Imputation was completed, which creates multiple data sets with imputed data varying across those data sets (5 data sets). Each one was analysed and the analysis reported for the inferential statistics is the pooled analysis, to reduce imputation uncertainty and reduce the chance of concluding the results from this report are statistically significant when the result is actually due to chance or unrelated factors.

The Skew and Kurtosis were satisfactory, within the cut off limits of –2 and 2. Analysis for outliers found that the means of identified cases were similar to the 5% trimmed mean. Z scores analysis was carried out and using the suggested +-3.29 cut-off points (Tabachnick et al., 2007), only 66 (11 participants) outliers were found in the depression and anxiety scale, and 84 (14 participants) outliers in the traumatic reactions scale. As these are extreme scores on measures of psychological constructs rather than on demographics, they were not removed or altered as they are believed to be real scores reflecting the

distribution of scores rather than input mistakes due to the concepts and theoretically informed expectations of this populations scoring on those scales.

Table 4. Statistical terms reference guide

Statistical terms reference guide
Statistical Significance
Statistical significance is the degree to which a research outcome cannot reasonably be attributed to the influence of chance or random factors.
Imputation
Imputation is a technique used for replacing the missing data with some substitute value to retain most of the data/information of the dataset. When using multiple imputation, missing values are identified and are replaced by a random sample of completed datasets.
Regression Model
A regression model seeks to explain how much change in one variable is contributed by a range of other variables both as a group and individually.
Skewness
Skewness is a measure of symmetry, or more precisely, the lack of symmetry. A normal distribution is symmetric if it looks the same to the left and right of the centre point.
Kurtosis
Kurtosis is a measure of whether the data are heavy-tailed or light-tailed relative to a normal distribution.
Outliers
Outliers are extreme values that differ by lying an abnormal distance from most other data points in a dataset. They usually need to be treated as they can have a big impact on statistical analyses and skew the results of any hypothesis tests.
Cut off points
For diagnostic tests, cut-off values are thresholds that are used as references to indicate certain attributes. For example, skewness and kurtosis scores between –2 and 2 are considered satisfactory, while values outside these extremes can indicate a problematic normal distribution. For screening tests that have continuous results (measured on a scale), cut-off values are the dividing points where the test results are divided into different categories; typically positive (indicating someone has the condition of interest), or negative (indicating someone does not have the condition of interest).
Standard Deviation
Standard deviation (SD) is a measure of dispersion that shows the spread of scores around the mean. A low SD score means that the scores are more closely clustered around the mean and didn't vary as much. However, a high

Statistical terms reference guide (continued)
SD score indicates that the data in the set are very different to each other where the mean can't be used as a good indication of the sample scores.
Z Scores
A z-score describes the position of a raw score in terms of its distance from the mean, when measured in standard deviation units. The z-score is positive if the value lies above the mean, and negative if it lies below the mean.
MANOVA
MANOVA is a statistical analysis test that checks for statistically significant mean differences among groups. In other words, it tells you if group differences probably happened by random chance, or if there is a repeatable trend.

A copy of the cleaned and complete survey results are available on request from NTUs data store for future research studies. To access the survey results please contact the authors or NTUs Library Team and see a references of this report for a citable link. Please note some data such as participants home Service has been removed in line with confidentiality agreement.

5.3.2. Descriptive statistics of the participant demographics

The following characteristics have been identified regarding the demographics of the survey participants. As can be seen by the Table 5 there are some different profiles within the different clustering of roles. Particularly the distribution of gender of operational firefighters contrasted with control and professional services staff. The same cluster differences can be observed in the data relating to personal circumstances. This distribution of characteristics was expected across the clusters of roles as this is reflective of the representation across the workforce in those clusters at national level. The age range of the sample was 19-68 years. To indicate the broad nature of their home life and circumstances, we asked participants what the combined ages of their children are. The average age is 17 years old (total combined age of children = 1521, range = less than a year to 330 years, mean = 34.5 years).

Table 5. Demographic information of the participants grouped by role clusters

Baseline characteristic	Operational Firefighters (n=1213; 54.5%)		Non-operational firefighters (n=278; 12.5%)		Control Staff (n=90; 4%)		Professional Services (n=643; 28.9%)		Full sample (n=2224; 100%)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Age (M, SD)	(42.6, 9.0)		(46.7, 10.31)		(43.6, 10.56)		(46.8, 11.4)		44.4 (10.1)	
Gender										
Male	1028	84.7	157	56.5	21	11.7	185	28.8	1391	62.5
Female	156	12.9	116	41.7	69	38.3	445	69.2	786	35.3
Transgender	3	0.2	0	0.0	0	0.0	2	0.3	5	0.2
Prefer not to say	0	0.0	0	0.0	0	0.0	3	0.5	39	1.8
Other	26	2.1	5	1.8	90	50.0	8	1.2	3	0.1
Total	1213	100	278	100	180	100	643	100	2224	99.9
Sexual Orientation										
Heterosexual	1075	88.6	252	90.6	81	90.0	588	91.4	1996	89.7
Homosexual	39	3.2	9	3.2	4	4.4	15	2.3	67	3
Bisexual	27	2.2	5	1.8	2	2.2	12	1.9	46	2.1
Pan-sexual	5	0.4	2	0.7	0	0.0	4	0.6	11	0.5
Asexual	3	0.2	0	0.0	1	1.1	3	0.5	7	0.3
Prefer not to answer	64	5.3	10	3.6	2	2.2	21	3.3	97	4.4
Total	1213	100	278	100	90	100	643	100	2224	100
Marital Status										
Married	701	48.5	159	57.4	47	41.2	321	50.2	1228	55.2
Single	164	11.3	44	15.9	44	38.6	135	21.1	363	16.3
Divorced	116	8.0	16	5.8	4	3.5	46	7.2	116	5.2
Cohabiting	406	28.1	48	17.3	15	13.2	108	16.9	406	18.3
Civil Partnership	17	1.2	0	0.0	1	0.9	5	0.8	23	1
Separated	25	1.7	7	2.5	3	2.6	11	1.7	46	2.1
Widowed	3	0.2	2	0.7	0	0.0	9	1.4	14	0.6
In a relationship	2	0.1	1	0.4	0	0.0	5	0.8	8	0.4
Engaged	3	0.2	0	0.0	0	0.0	0	0.0	3	0.1
Prefer not to say	8	0.6	0	0.0	0	0.0	0	0.0	8	0.4
Total	1445	100	277	100	114	100	640	100	2215	99.6

Baseline characteristic (continued)	Operational Firefighters (n=1213; 54.5%)		Non-operational firefighters (n=278; 12.5%)		Control Staff (n=90; 4%)		Professional Services (n=643; 28.9%)		Full sample (n=2224; 100%)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Ethnicity										
White	1133	93.4	259	93.2	90	100.0	612	95.2	2094	94.1
Mixed or multiple ethnic groups	28	2.3	4	1.4	0	0.0	7	1.1	39	1.7
Asian or Asian British	1	0.1	7	2.5	0	0.0	11	1.7	19	0.8
Black, African, Caribbean, or Black British	6	0.5	4	1.4	0	0.0	3	0.5	13	0.6
Other	3	0.2	0	0.0	0	0.0	1	0.2	4	0.2
Prefer not to answer	42	3.5	4	1.4	0	0.0	9	1.4	55	2.5
Total	1213	100	278	100	90	100	643	100	2224	99.9
Children										
Do not have children	327	27.0	83	29.9	37	41.1	239	37.2	686	30.8
1 child	209	17.2	39	14	16	17.8	121	18.8	385	17.3
2 children	478	39.4	111	39.9	28	31.1	200	31.1	817	36.7
3 children	131	10.8	35	12.6	7	7.8	63	9.8	236	10.6
4 children	47	3.9	6	2.2	0	0.0	15	2.3	68	3.1
5-10 children	21	1.7	4	1.4	2	2.2	5	0.8	32	1.4
Total	1213	100	278	100	90	100	643	100	2224	99.9
Smoking										
Non-smokers/ vapers	1026	84.6	216	77.7	65	72.2	557	86.6	1864	83.8
Quit within the last 12 months	30	2.5	15	5.4	4	4.4	14	2.2	63	2.8
Vape/use an e-cigarette	74	6.1	21	7.6	9	10.0	35	5.4	139	6.3
Smoke 20+ a day	4	0.3	0	0.0	2	2.2	1	0.2	7	0/3
Smoke 10-20 a day	19	1.6	6	2.2	4	4.4	7	1.1	36	1.6
Smoke 1-10 a day	31	2.6	9	3.2	4	4.4	17	2.6	61	2.8
Smoke less than once a day	20	1.6	7	2.5	1	1.1	6	0.9	34	1.5
Prefer not to answer	9	0.7	4	1.4	1	1.1	6	0.9	20	0.9
Total	1213	100	278	100	90	100	643	100	2224	6.8

Baseline characteristic (continued)	Operational Firefighters (n=1213; 54.5%)		Non-operational firefighters (n=278; 12.5%)		Control Staff (n=90; 4%)		Professional Services (n=643; 28.9%)		Full sample (n=2224; 100%)	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
Alcohol Consumption										
Do not drink	109	9.0	37	13.3	14	15.6	68	10.6	228	10.3
Less than once a week	328	27.0	70	25.2	26	28.9	203	31.6	627	28.2
1-5 units a week	229	18.9	46	16.5	19	21.1	141	21.9	435	19.6
6-10 units a week	210	17.3	61	21.9	14	15.6	92	14.3	377	17
11-15 units a week	132	10.9	17	6.1	7	7.8	60	9.3	216	9.7
16-20 units a week	89	7.3	19	6.8	6	6.7	37	5.8	151	6.8
21-25 units a week	49	4.0	10	3.6	0	0.0	11	1.7	70	3.1
26-30 units a week	32	2.6	7	2.5	2	2.2	14	2.2	55	2.5
30+ units a week	28	2.3	8	2.9	2	2.2	11	1.7	49	2.2
Prefer not to say	7	0.6	3	1.1	0	0.0	6	0.9	16	0.7
Total	1213	100	278	100	90	100	643	100	2224	100.1
Exercise frequency										
Do not exercise often	57	4.7	37	13.3	21	23.3	119	18.5	234	10.5
0-2 hours a week	188	15.5	63	22.7	21	23.3	162	25.2	434	19.5
2-4 hours a week	341	28.1	70	25.2	27	30.0	170	26.4	608	27.3
4-6 hours a week	309	25.5	60	21.6	6	6.7	89	13.8	464	20.9
6-8 hours a week	159	13.1	20	7.2	11	12.2	51	7.9	241	10.8
8-10 hours a week	79	6.5	18	6.5	3	3.3	22	3.4	122	5.5
10+ hours a week	80	6.6	10	3.6	1	1.1	30	4.7	121	5.4
Total	1213	100.0	278	100	90	100	643	100	2224	99.9

Figure 11 shows the geographical distribution of responses indicating the level of survey completions taken against workforce statistics. The map is split between services that achieved above 10%, above 2%, and below 2% threshold when compared with all staff returns of total staff figures retrieved from publicly published reports from the Home Office

(2021), (StatsWales, 2022), Scotland (Scotland Fire and Rescue Service, 2020), and Northern Ireland (Northern Ireland Fire and Rescue Service, 2021).

Figure 11. Map representing survey completion rates per Fire and Rescue service across the UK

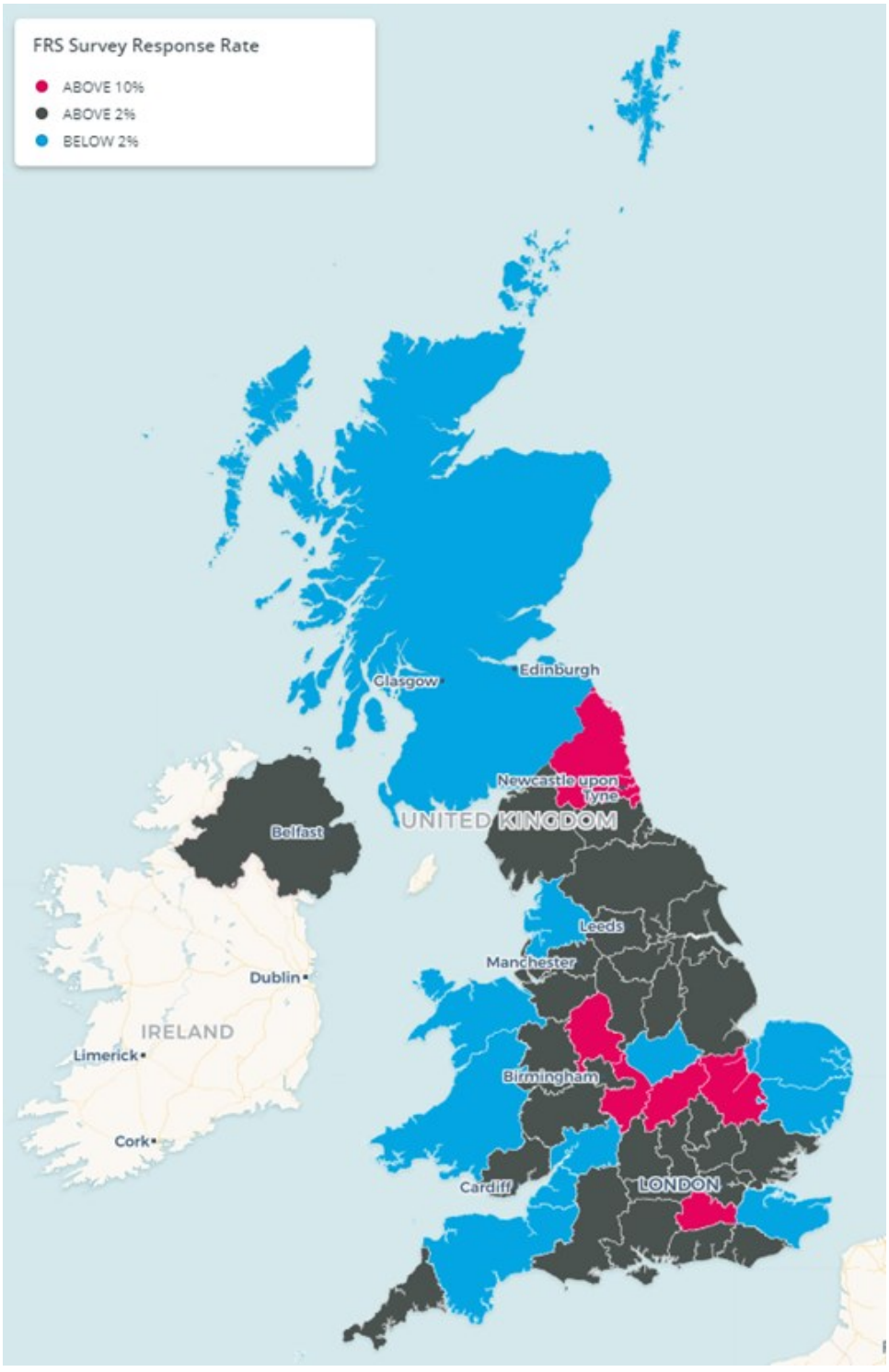
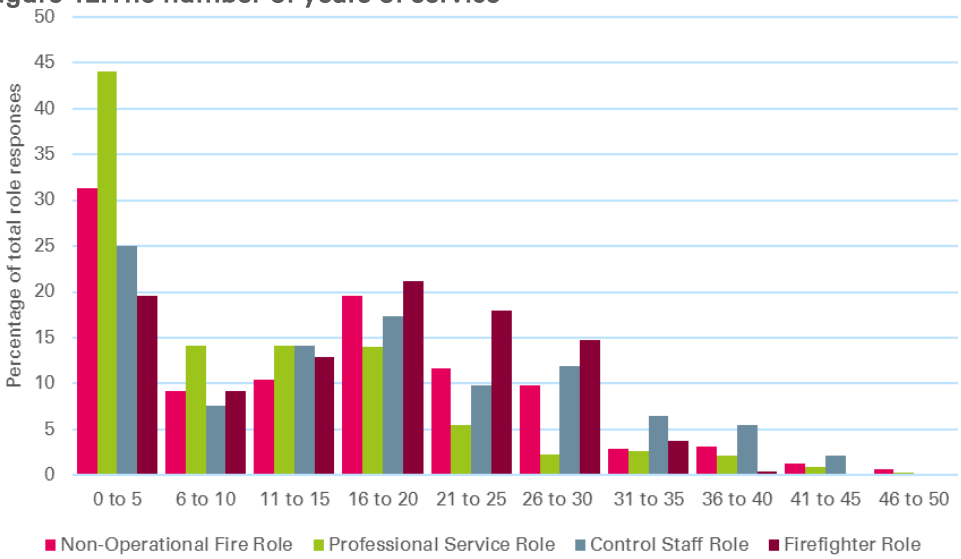


Figure 12.The number of years of service



Of all participants (2224), the number of years worked in the fire and rescue service ranges from less than a year to 50 years, where the mean is just under 15 years (14.9 years). Data was gathered in whole years.

5.3.3 Discussion of the survey scale results

To understand how the different scales responses compare across job roles and against the scales population norms we have presented both the mean and standard deviation (SD) of the results against each job role group in Table 6. This table allows for a comparison between job roles, the population norm and full survey sample across each measure. It also shows the variation within the responses for each role using the standard deviation score where a high figure indicates a wider variation or spread of responses (please note that this may be due to a small number of outliers or a flatter more even distribution of responses).

Table 6. Comparison of survey scale responses of participants

Scales	Population Norm Data *		Study Full Sample Study		Operational FF		Non-Op FF		Professional Services		Control Staff	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Intention to quit	11.7	4.85	16.26	8.86	16.31	8.77	16.21	8.64	15.81	9.01	18.86	9.25
Work Engagement	30.6	11.25	36.29	12.48	36.29	12.62	36.68	12.49	36.72	12.19	31.94	11.89
Job Satisfaction	20.76	4.44	20.74	5.47	21.00	5.50	20.64	5.17	20.56	5.52	18.98	5.20

Scales (continued)	Population Norm Data*		Study Full Sample		Operational FF		Non-oO FF		Professional Services		Control Staff	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Mental Wellbeing	23.60	3.9	22.83	4.96	22.64	5.02	22.73	4.86	23.53	4.86	20.76	4.51
Sources of Stress**	24.57	10.33	27.41	14.35	30.82	13.77	27.29	14.45	20.63	13.32	30.07	11.43
Anxiety, depression, and stress	13.43 ***	12.79 ***	14.15	11.58	14.75	11.52	14.61	11.70	12.38	11.28	17.21	12.64
Burnout	17.6	5.04	28.01	11.25	28.34	10.95	28.53	11.51	26.45	11.49	33.04	10.90
Impact of Event	11.8	12.4	15.01	17.71	16.13	17.59	17.54	18.66	11.65	16.76	16.10	19.81
Social Support	69.6	10.32	62.40	16.86	61.52	16.87	62.59	15.88	63.81	17.16	63.57	16.92
Life Satisfaction	23.5	6.43	21.17	7.22	21.10	7.27	20.81	6.49	21.65	7.28	19.98	8.13
Resilient Coping	12.36	3.72	13.12	2.97	13.28	2.90	13.23	2.03	12.90	3.07	12.28	2.63

*Population Norm Data details can be found in scale references in the appendix

**This scale is developed using a fire service population, so the population norm data does not relate to wider norm data but published wider fire sector data.

*** Average figures from different literature papers

All survey measures were checked for statistical reliability, details of these tests can be found in the technical appendix.

Participants were asked if they had (or had tried to) access mental health support services since the start of the Covid-19 pandemic. As can be seen from Figure 13, 17.3% of the participant group have accessed or tried to seek support for their health and wellbeing once, 12.3% have accessed or tried to access support for their health and wellbeing more than once, 67.8% have not accessed support for their health and wellbeing, and 2.7% preferred not to say. This distribution between those who have reported accessing or trying to seek support for their health and wellbeing and those who have not makes the findings of this report representative. Having a (broadly) 40-60 split between those who have experience accessing support and those who have not had recent experience accessing support ensures our findings are balanced across the different levels of engagement of workforce. Figure 14 highlights that there is a broadly even distribution across the role groups/clusters when seeking support.

Figure 13. Percentage of participant group who have tried to access to support for their health and wellbeing

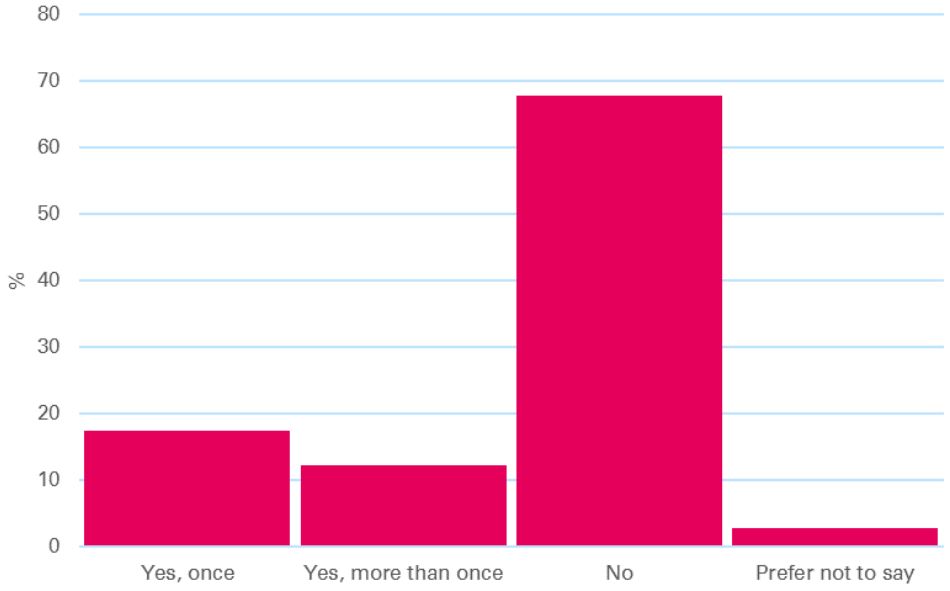
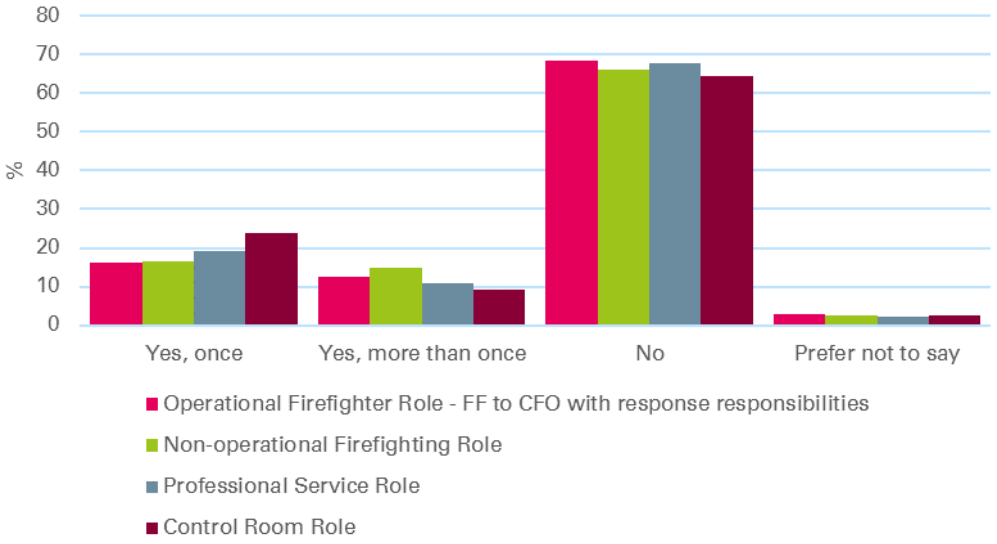


Figure 14. Percentage of participant group who have tried to access to support for their health and wellbeing by role



Descriptive statistics related to those staff who have contact with incidents (operational firefighters and control staff)

The survey was designed to split so that data about operational incidents could be collected from those who attend operational incidents in their role, primarily covering operational firefighters, some senior manager roles, or roles in control.

As can be seen from the Figure 15, which is displaying the roles of participants who reported attending incidents, out of the total 1328 responses, 91.4% indicated they responded to incidents this year. Firefighters submitted over 40% of all responses recorded in the survey. Watch managers were second in their frequency of attendance at incidents with just over 16% of the total, crew managers and station managers each attended just under 15% of the incidents in our sample. We then have a smaller group of roles in low single percentage figures and a group split between other and prefer not to say that makes up almost 3% of the sample.

Figure 15. Incident response distribution across sample

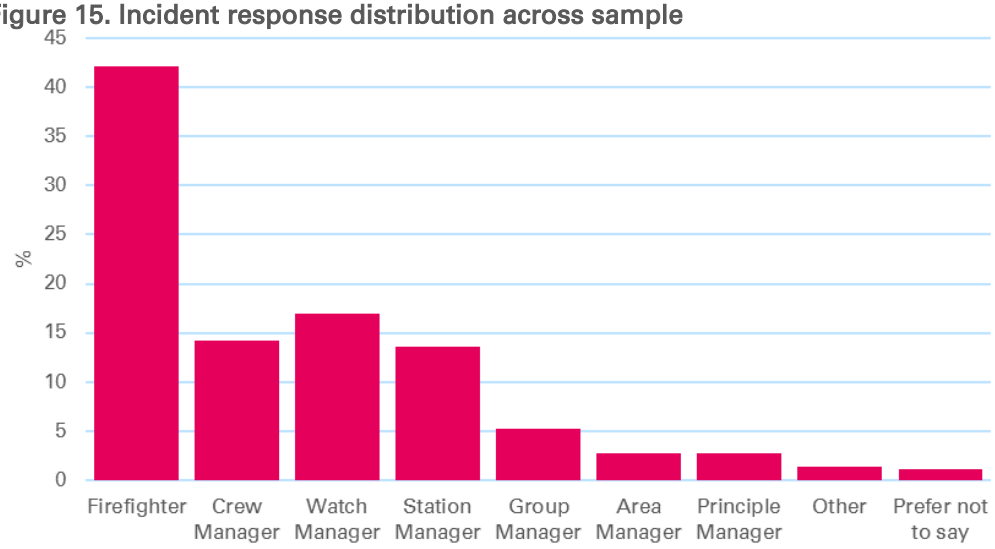
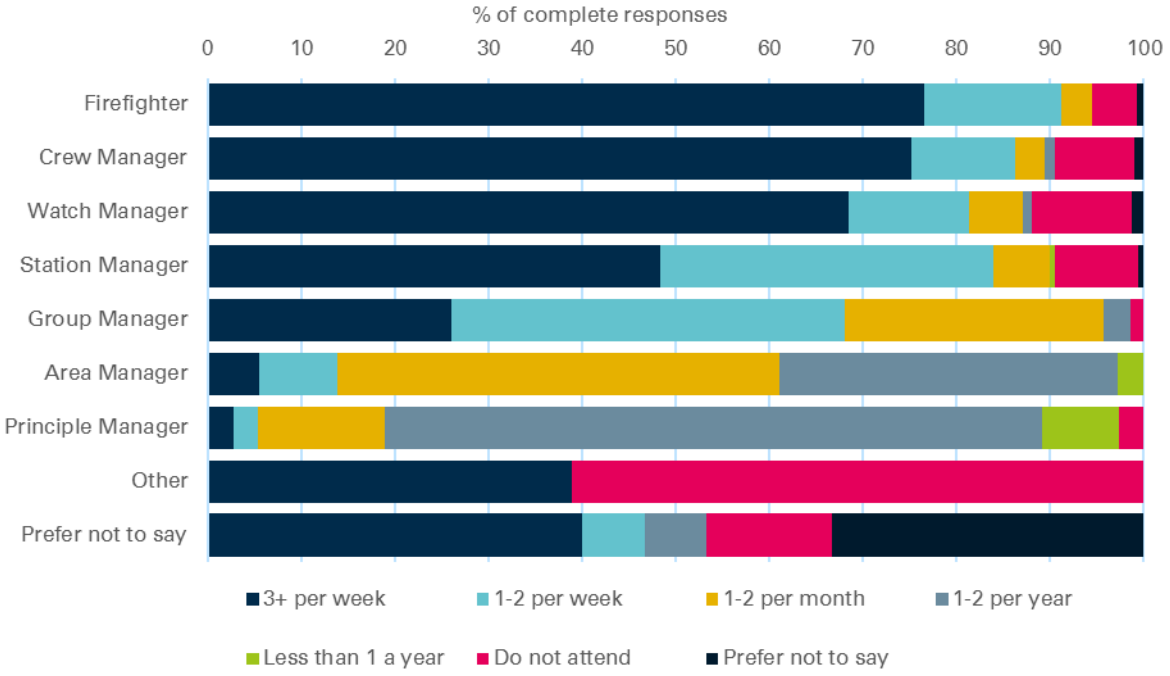


Figure 16 shows the frequency of incident responses by role to offer a more nuanced interpretation of response distribution by these role types which highlights the frequency and distribution of incident response by our sample. To contextualise some of these answers at the lower end of the spectrum, there is distribution in the working pattern as not all participants are on shift, as each job role is unique. It is necessary to mention that (where it was given 1213) almost 40% of responses came from people employed full time, full-time and on call staff made up 6.1% of the sample. Those on call and on flexi duty made up 8.6% of the sample split almost equally between them, with the remainder of the sample 0.3% either preferring not to say or outlining a role in the other category.

It is also helpful to consider the hours worked per week. Of the total

participants (2206) hours worked ranged from 7.5 - 168 hours per week, with a mean of 44.5 hours per week. The 168 hours figure might be reflective of some duty or on-call rotas.

Figure 16. Spread of participants with contact with incidents by role



Main regression analysis results: Mental Wellbeing

A regression analysis seeks to understand the relationship between many variables, what proportion of the variance in the model can be explained by the identified variables, and how strong the variables each predict the criterion variable. In this case the criterion variable was 'mental wellbeing' and the 11 predictor variables included 'social support, intention to quit, work engagement, job satisfaction, resilient coping, awareness of support, sources of occupational stress, anxiety/ depression/stress, burnout, impact of event, and life satisfaction' from the survey data.

The model was statistically significant: $F(10,2213) = 367.040$, $p < .001$ and 62.2% of variance explained ($R2 = .622$). This means that those 11 variables in combination have a relationship with mental wellbeing and explain 62.4% of the variance in the data.

As well as explaining their combined contribution to mental wellbeing, we can also see their individual relationship with mental wellbeing. Eight of the variables were statistically significant.

The positive predictors of mental wellbeing were:

- social support ($p < .001$)
- work engagement ($p = .001$)
- job satisfaction ($p < .001$)
- resilient coping ($p < .001$)
- life satisfaction ($p < .001$)

The negative predictors of mental wellbeing were:

- sources of occupational stress ($p < .001$)
- burnout ($p < .001$)
- anxiety, depression and stress ($p = .001$)

Overall, the largest positive predictor of mental wellbeing was work engagement (β = .595) and the largest negative predictor of mental wellbeing was anxiety, depression and stress (β = -.678). This indicates that the Fire and Rescue Sector should ensure these largest contributing factors are promoted and the negative ones are mitigated wherever possible. This may perhaps include ways that work engagement could be recognised and supported across the organisation. More specifically with support interventions designed to alleviate anxiety, depression and stress are implemented and the causes of the anxiety, depression and stress are mitigated when it is within the gist of the organisation, through role clarity and good practices of job design.

The two variables that did not have a statistically significant relationship with mental wellbeing were:

- intention to quit
- impact of traumatic events

This may indicate that the other factors should be prioritised when considering intentional engagement with health and wellbeing

initiatives and strategies into the future. Details below offer deeper insights for into specific factors that can make a difference.

Other relationships with mental wellbeing
Further analysis regarding the variables in the survey identified the following.
Within social support, peer support had the strongest positive effect on mental wellbeing (β = .255, p <.001), followed by support from family members (β = .177, p<.001), and lastly support from a significant other (β = .057, p =.056). This is consistent with the findings in the literature review and highlights that peer support should be valued across the sector for the benefits that it can bring to staff and volunteers.

A breakdown of the anxiety, depression and stress scale found that depression had the highest impact on mental wellbeing (β = -.575, p <.001), followed by stress (β = -.172, p<.001), and anxiety (β = -.001, p =.966). These results indicate that when the effects of stress and depression are accounted for, anxiety has a non-significant effect on wellbeing, although in isolation from these two, anxiety has a significant negative effect on wellbeing (β = -.473, p <.001). Attention therefore may need to be drawn to depression and its impacts across the sector.

Analyses were also completed on the relationships between demographic factors and mental wellbeing. An increase in exercise frequency was significantly related to better mental wellbeing (β = .096, p <.001), supporting the literature review's clear link with improved wellbeing to physical and mental health and exercise. Alcohol consumption was found to have no significant relationship with the state of mental wellbeing (p =.313). This adds more evidence to the literature where alcohol consumption is questioned as a way to self-medicate within the fire sector for when an individual concerned is experiencing any undue strain.

Attending fire incidents was also found not to have any significant impact on mental wellbeing (p =.051). However, length of career was

significantly negative for mental wellbeing, with more years spent employed in the FRS related to lower mental wellbeing (β = -.101, *p* <.001). This suggests that there is sufficient evidence to eliminate the accumulation of incident stressors as a significant negative cause of wellbeing over time. Further work is needed to understand how to mitigate the possible impact of a long career in the sector.

Items of awareness of support, measured by the Bluelight set of questions, were checked for correlations with mental wellbeing. Awareness of support within a general non-specified timeline measured by Items 1 and 2 were found significantly correlated with mental wellbeing (*p* <.001, R^2 = 0.80, β= .284; *p* <.001, R^2 = 0.120, β= .346 respectively). Items 3 and 4, measuring for awareness of support within Covid-19 timeline, were also found individually significant with mental wellbeing (*p* <.001, R^2 = 0.116, β= .340; *p* <.001, R^2 = 0.120, β= .347 respectively).

Demographic relationships with the other psychometric variables

Further regression analyses were also conducted to evaluate the relationships between demographic factors and the 11 variables (after mental wellbeing). The results are described below. A table of the Beta and *p* vales across these variables are shared in the technical appendix.

Increased alcohol consumption was found to have a statistically significant relationship with higher levels of anxiety, stress and depression. Increased alcohol consumption also had a significant relationship with lower work engagement.
Increased exercise frequency had a statistically significant relationship with work engagement, job satisfaction, perceived social support, life satisfaction, and resilient coping. Increased exercise frequency also had a significant relationship with lower burnout and lower levels of anxiety, stress, and depression.

A longer career in the FRS was statistically significant with lower work engagement, job satisfaction, perceived social support, life satisfaction,

and resilient coping. Hence, people that were in their career longer were less engaged, less satisfied with work and less connected. A longer career length was also statistically significant with higher levels of anxiety, stress and depression, higher burnout, being more impacted by traumatic events, having a higher score for occupational stressors, and having higher intentions to quit.

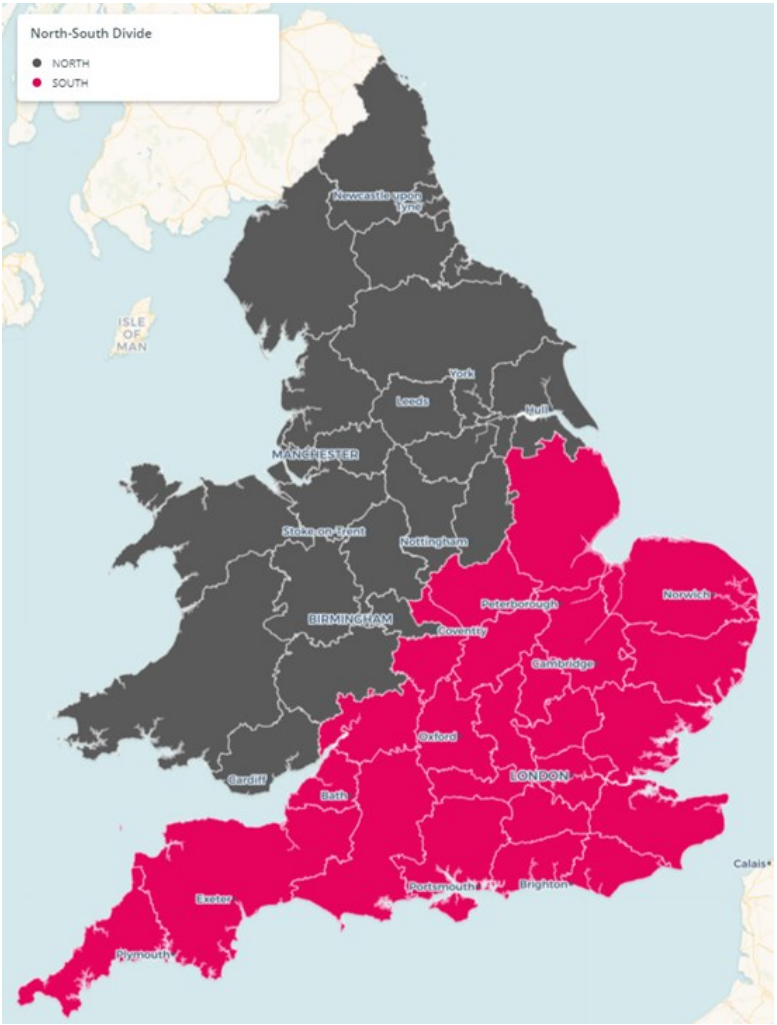
Attending more fire incidents had a statistically significant relationship with higher work engagement and job satisfaction, as well as being more bothered by occupational stressors. Attending more incidents also had a significant relationship with lower burnout and a lower intention to quit.

North v South

It has been widely established that within the United Kingdom there are different health and social profiles, this split is commonly referred to as the North and South divide. This is particularly evidenced in the Marmot Reviews from the Institute of Health Equity. These health disparities are most starkly contrasted to London, but also include the counties clustered around London and the Southern counties. Comparisons of these areas to the rest of the country (most starkly the North-East) have been evidenced to be disproportionately impacted by financial pressures. These disproportionate consequences have intersected with pre-existing inequalities such as ethnicity, socioeconomic gradients and public service spend. Consequently, when looking outside of the fire sector, to the broader community within which each employee is supported to live their full, healthy and flourishing life, there should be predictable differences as seen in the population disparities. This is because between each fire service (or local authority area and geography) would be expected to have different offers of support (or disparities) available to the local population to support their physical, psychological and social needs through the statutory and voluntary offers. In order to gain an understanding of the full health provision across the national picture an analysis of the survey responses was undertaken to contrast the

differences between northern services and London and the surrounding southern services. To do this simply on a geographical land mass basis would not make sense as the North South divide frequently discussed as explained previously is a clustering more akin to London and the surrounding counties contrasted to the rest of the country. Therefore, the categorisation of Figure 17 looks on initial inspection as off-balance, but is informed by a range of academic findings such as Dorling (2010), investigations and analysis of health and economic clustering.

Figure 17. North-South divide representation of English FRS boundaries derived from Dorling (2010)



The statistical comparisons between the participants from fire and rescue services categorised as North with those categorised as fire and rescue services in the South provided surprising results. Analysis of variance as well as tests of difference suggest there are no statistical differences between the two groups on any of the survey variables (wellbeing, intention to quit, work engagement, job satisfaction, sources of job stress, burnout, traumatic reactions, social support, satisfaction with life, resilient coping, depression, anxiety and stress and the questions relating to awareness of support). There was also no statistical difference between the groups in their alcohol intake, exercise frequency, or personal demographic data. The only two statistical differences between the groups were ethnicity and clusters of roles. This means that there was a different in how people in Northern services and Southern services were self-classifying their ethnicity and their role. These differences can be explained through the wider population demographics of society. This leads to the assumption that the fire community might be more homogenous and share more in common than the general population. In other words, the consistency of experience of the fire sector may counter -balance the wider societal disparities.

The scales within the survey are also quite specific to the firefighting population, therefore an alternative explanation could be that the survey located within the fire community so well that the external influences were not as influential as the sector influences. However, this is still surprising given that the scale scores for this project were compared to the scale scores of the wider population and found to be consistent, some of those were population wide norm data.

This needs more consideration and should be considered as part of recommendations 11 and 12 which maps the offers of support available across services and organisations. This may provide further insight to the statutory agility than in other regions and that may explain some of the way in which service level and geographical need is understood in national organisations.

The analysis run to compare the North and South did reveal a difference between the groups in the clusters of roles. In the findings of the literature review, one observation was the emphasis of provision of support for operational staff and their role-related stressors. Where there is a greater percentage of operational staff there is likely to be provision for them. In contrast, the findings of the literature review for non-operational roles were linked more directly with life stressors experienced in the wider population and the provision of support available for these stressors but as there is a significant gap in the literature providing evidence for these roles, this remains an assumption. Consequently, the differences in roles and assumed associated difference in support might be masking the psychological, social and health profiles of the North and South within the fire community.

The current landscape of mental health and wellbeing in the fire sector

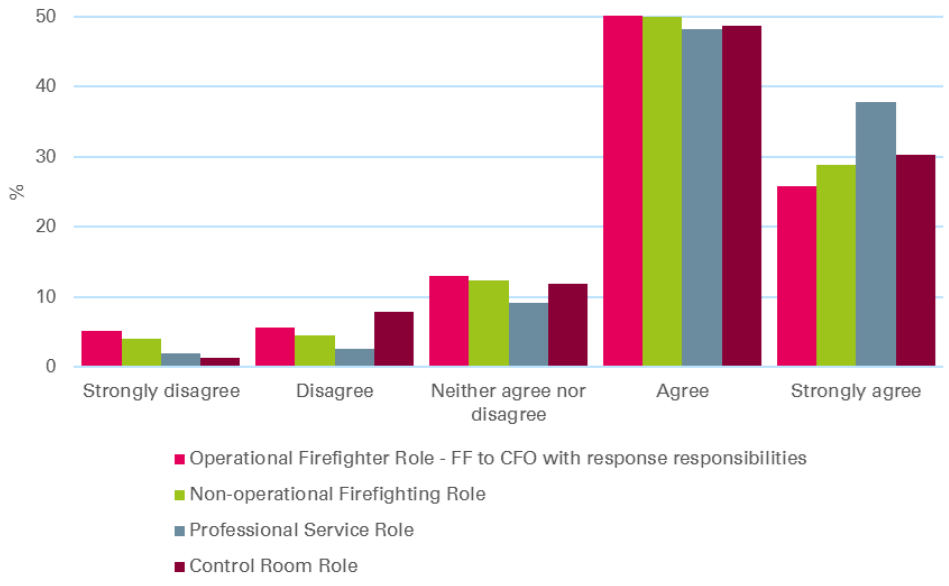
A question set explored participants' experiences and perceptions of support through work. These questions were modelled on the Mind Bluelight survey and asked participants whether they knew what support was available, if it was effective, and if they perceived their organisation to prioritise the health and wellbeing of them and their colleagues. The mean scores for the Bluelight items were different between operational firefighters and non-operational firefighters (such as those in training) ($p < .005$), and operational firefighters and professional services ($p < .0005$), but not between operational firefighters and control room staff ($p = .4403$). This might reflect that some groups in high-risk roles (such as those with contact with incidents) are more effectively targeted with communications about the type and nature of support available and how to access that support. The percentage endorsements for these questions can be seen below in Table 7. The differences might be explained by the variation in responses relating to general understanding of sources of support, contrasted with the support during the pandemic where the distribution of responses was much flatter across the three options.

Table 7. Awareness of support scores

I am aware of any support my organisation offers to improve the wellbeing and mental health of its personnel. Agree: 79% (1573), Neutral: 12.3% (244), Disagree: 8.7% (174)
My organisation encourages staff to talk openly about mental health. Agree: 65.1% (1296), Neutral: 20.4% (406), Disagree: 14.5% (289)
I feel my organisation provided guidance and/or resources to help me support my mental health and wellbeing during the pandemic. Agree: 52.4% (1043), Neutral: 24% (478), Disagree: 23.6% (470)
My organisation has prioritised the mental health and wellbeing of its staff and volunteers during the coronavirus pandemic. Agree: 43.7% (870), Neutral: 26.3% (524), Disagree: 30% (597)

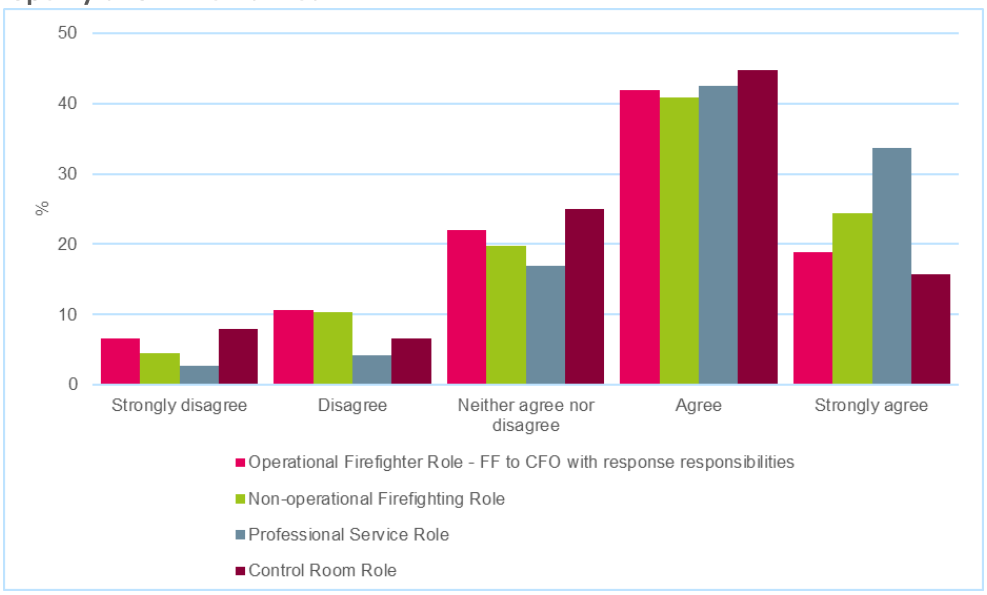
We can break these questions down further to look at the distribution across the role profiles. For the question 'I am aware of any support my organisation offers to improve the wellbeing and mental health of its personnel' Figure 18 displays the way in which this question was answered differently by the different role clusters.

Figure 18. Bluelight Question 1: I am aware of any support my organisation offers to improve the wellbeing and mental health of its personnel



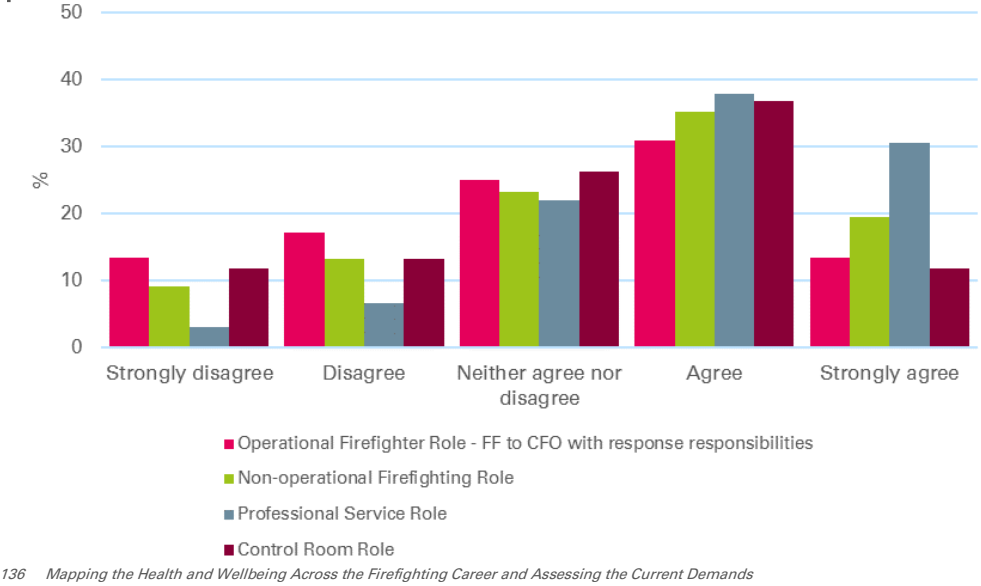
For the question 'My organisation encourages staff to talk openly about mental health' we can see from the Figure 19 the different groups are answering in a similar pattern.

Figure 19. Bluelight Question 2: My organisation encourages staff to talk openly about mental health



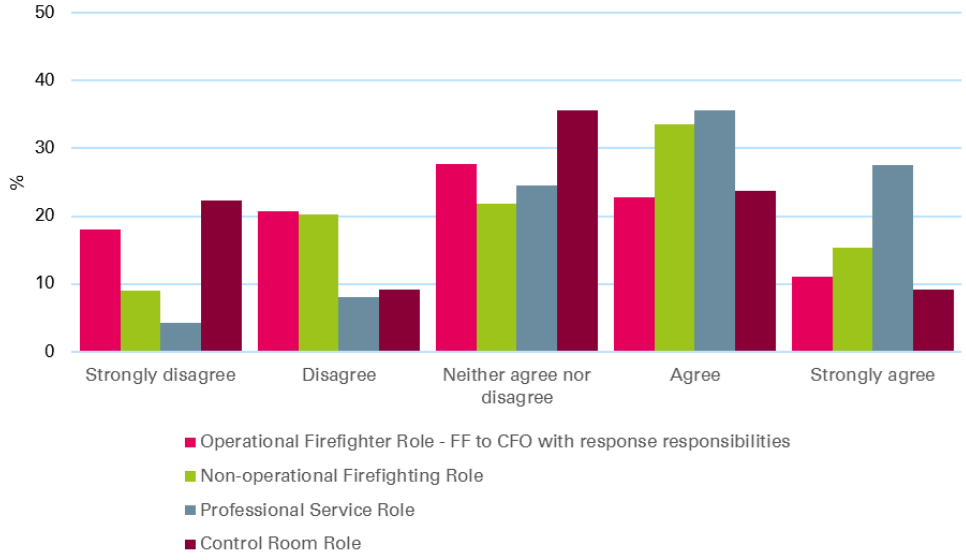
For the question 'I feel my organisation provided guidance and/or resources to help me support my mental health and wellbeing during the pandemic' we can see from Figure 20 different groups answered this question in a similar way.

Figure 20. Bluelight Question 3: I feel my organisation provided guidance and/or resources to help me support my mental health and wellbeing during the pandemic



For the question 'My organisation has prioritised the mental health and wellbeing of its staff and volunteers during the coronavirus pandemic' we can see from Figure 21 that there were some differences in how these groups responded.

Figure 21. Bluelight Question 4: My organisation has prioritised the mental health and wellbeing of its staff and volunteers during the coronavirus pandemic



We can see that the groups identifying as professional services staff had a more positive perception that organisation had prioritised the mental health and wellbeing of staff and volunteers during the coronavirus pandemic than other groups.

It is important to note the differences in response patterns of whether organisations were perceived to have provided guidance and prioritised support during the pandemic. It is important as it enables learning from the mental health and wellbeing promotions delivered during the pandemic and presents how this was communicated as a priority area of the organisation.

Self-defining psychological health problems

Within the survey, two open-ended questions were included to gain qualitative data and an overview of the participants own definition of their challenges. First, participants were asked to list or describe any psychological health problems that they felt they were experiencing. The total number of responses for this question was 2224. In order to analyse the data the responses were categorised thematically to produce a frequency count of the problems that were listed, identifying which problems had the highest occurrence. The top ten problems listed by participants can be seen in Table 8 below.

Table 8. Frequency count of psychological health problems listed by survey respondents – the highest occurring answers

Listed Response	Frequency
"No problems"	762
"Anxiety"	597
"Prefer not to say"	519
"Depression"	361
"Stress"	208
"PTSD"	118
"Low mood"	32
"Yes" but problem unspecified	27
"Trouble sleeping"	26
"Menopause"	23

A total of 47 different problem categories were identified through this analysis (including the 10 listed above). Other examples of the categories developed through the responses are:

- burnout
- grief
- anger
- low self-esteem
- obsessive compulsive disorder
- loneliness

As can be seen from Table 8, the greatest number of participants identified themselves as having no psychological health problems. The next largest category was anxiety, followed by prefer not to say, then depression, stress, and traumatic reactions. The third category of prefer not to say is larger than typically expected in surveys, but not necessarily when asking about psychological or mental health challenges in the workplace. In contrast to trauma literature (which we discuss in following sections), a key take-away in these findings is that traumatic reactions are not the most pressing issue for individuals.

Across these 47 categories, a total frequency count of problems equalled 2833. This total is greater than the number of respondents (2224) because several individuals listed more than one problem in their answer. Responses were subsequently counted for problem comorbidities. 418 respondents listed between 2-7 problems, with the highest occurring comorbidity of problems being "Anxiety and Depression" (153 responses). The top six most occurring comorbidities can be seen in Table 9.

Table 9. Frequency count of psychological health problem comorbidities listed by survey respondents – the highest occurring answers

Problem Comorbidities	Frequency
"Anxiety, Depression"	153
"Anxiety, Stress"	57
"Anxiety, Depression, PTSD"	29
"Anxiety, PTSD"	22
"Depression, Stress"	16
"Anxiety, Depression, Stress"	16

The second qualitative question asked respondents to identify the type of wellbeing support they would like to see introduced in their workplace. As it was the final question in the survey, a total of 1991 respondents reached this question. A total of 1366 respondents answered this question (625 left the question blank). The responses were categorised thematically to produce a frequency count. A total of

182 responses were categorised as being satisfied with the current wellbeing support provision. The remaining responses were categorised into different requests for extra support, totalling 37 categories.

The top nine categories in frequency were:

- Better access to counselling or therapy (170 mentions)
- Seeing genuine action happen rather than just 'lip service' (99)
- Improvement in management (97)
- More social activities and peer to peer support (87)
- Having mandatory, regular wellbeing check-ins (74)
- More time or access to fitness and nutrition related support (69)
- More wellbeing champions and mental health first aiders on site (61)
- More time and access to relaxation activities e.g., yoga (51 mentions)
- Access to more focused mental health support, such as stress management, anxiety, PTSD, menopause, and suicide prevention (51)

These categories highlight the breadth and diversity of requests sort by staff and volunteers across the sector. They also indicate a number of opportunities for moving forward with engagement and could be used for longitudinal tracking if the survey is repeated.

Recommendation 4: The strategy and framework developed for the sector should prioritise a holistic offer for all staff and volunteers that includes a health promotion approach.

Recommendation 11: The NFCC, Fire Fighters Charity and fire services should complete a mapping exercise to capture the offers of support available from the local to national levels for those working or volunteering in the fire sector. This would be for each cluster of jobs detailed in this report to ensure both individuals and services are easily able to find and access support for the wellbeing of their people. This would then feed into a strategy for health and wellbeing in the Fire and Rescue Sector.

Recommendation 12: Fire services and the Fire Fighters Charity should consult the analysis in this report to complete a review of the support offer for their staff within each organisation. This should be completed alongside an evidence base of identified good or leading practice and co-produced with staff groups to develop future support offers.

Recommendation 14: Fire services and the Fire Fighters Charity should review their development, design, threshold triggers for access, and targeting/communicating of wellbeing support offers to ensure that increased length of service (not age) is considered appropriately in policies and practices.

Recommendation 26: Fire services, the Fire Fighters Charity and the NFCC should work with staff groups to ensure the needs of different clusters of job roles are included in the offers of support, including nuanced communication methods to enhance engagement with support services for different groups.

5.4 Analysis of stakeholder engagement focus groups

The stakeholder engagement sessions were conducted to contextualise the findings for the research team, to sense check emerging findings and to test the general principles underlying the developing strategy. The data from these focus groups were themed. The main themes identified in the stakeholder focus groups categorised by their three participant clusters: external wellbeing experts, implementation and use leads, and strategic stakeholders. The thoughts and idea mentioned in this section are purely retrieved from the participants in the focus groups.

5.4.1. External wellbeing experts

Overall, these participants indicated that they were not surprised by the presented project findings and felt that they were in-keeping with trends across other similar sectors. The importance of needing clear ownership and accountability of the strategy was emphasised by this group. They also highlighted a need for the strategy to have a strong driver that will motivate consistent engagement throughout the

service. With regards to support mechanisms to avoid failure, these participants asserted that ensuring open two-way communication surrounding what is and is not working within the strategy will be crucial to its success. Moreover, it needs to be flexible and fit into existing systems to encourage engagement and uptake; if it becomes a chore, it will not be successfully taken up.

5.4.2. Implementation leads

These participants were relieved that stressors outside of direct traumatic stressors experienced during incident response had been considered within this project, as they felt stressors related to other areas of work or general life are often overlooked. Echoing the external wellbeing experts, they mentioned a need for flexibility within the application of the strategy; if it becomes too rigid or prescriptive, they believe it may cause more harm than good. Maintaining an awareness of the current social and political environments was also recommended, as changes to these conditions can impact what the most relevant or necessary support will be for members of the service. Furthermore, instability within these areas may negatively impact how the strategy is received. Keeping an open dialogue with staff surrounding what support can be offered and what they feel is not needed was identified as important, but also keeping a dialogue with any external support providers to ensure that the best support possible is being provided. Sharing of successful strategies between fire services also came under this umbrella. The involvement of senior staff members was encouraged as it has been previously noted that staff are more likely to engage with wellbeing support when it is being encouraged by someone they trust and respect; it adds more validity to the message.

5.4.3. Strategic stakeholders

This cluster acknowledged that both the work of the fire service and the climate it is being conducted in are constantly changing, which in turn means that novel stressors are constantly being introduced to both their work and home lives. As a result of this, they too asserted

that the strategy offerings must be flexible and fit into the existing systems and culture if they are to succeed. The offerings must also be things that staff actively want to engage in that are relevant to their challenges; provision of support that has no strong relevance to staff may mean the strategy is perceived as a token gesture or 'tick-box' rather than a genuine intention to help. It was noted that it will take a significant degree of time and effort to change the organisational culture to embed wellbeing and recommended that the strategy be led 'top-down' with senior staff spearheading engagement. The language used to promote it will need to be clear and carefully chosen, potentially adapted, and framed for the specific group being targeted to encourage maximum engagement.

Recommendation 5: The NFCC, Fire Fighters Charity and other stakeholder governance structures within the health and wellbeing strategy should establish and maintain a two-way communication process with all staff to capture what is and what is not working in the strategy and framework. This should include an annual wellbeing survey built from the one used in this report alongside reporting channels through services or engagement approaches.

Recommendation 13: Fire services and any other stakeholder groups who include external support providers in their offer should keep an open dialogue and regular review, to ensure the offer continues to be a good fit with the needs of the sector and its workforce. Transparent quality assurance mechanisms should be built into this.

Recommendation 17: The strategy that implements the findings and recommendations should be flexible and fit into existing systems and practices. It should also have mechanisms to ensure that it keeps current and is updated to reflect the changing social and political context. This should include a bi-annual mapping exercise against the academic literature base or good or leading practice as defined by national or international health bodies such as the World Health Organisation. This should also ensure it continues to develop evidence for changed approaches to wellbeing support.

Recommendation 18: A structure and process should be developed for recording, sharing and aggregating health data (physical, psychological, and social) so that role, service, and national health profiles can be understood across time. Fire and rescue services, Fire Fighters Charity and other providers should contribute and use this data to inform their own health and wellbeing offer, identify changes in need, evaluate and guide policy development.

6. Synthesis of findings

The findings across both the literature review and the survey, with the contextual information from the stakeholder engagement focus groups were contrasted. These are presented in this section of the report.

6.1. Positive effects on wellbeing of the fire sector

To summarise, the survey showed that mental wellbeing was improved by job and life satisfaction, social support, resilient coping, and work engagement.

6.1.1. Work engagement

Work engagement was found to be the strongest predictor of wellbeing through the survey findings. This is reflected in research on most workplaces, not just limited to the fire sector. Research on workplace happiness has found that work engagement and career satisfaction was associated with wellbeing (Joo and Lee, 2017), where employees who had greater engagement with their work, felt a greater sense of wellbeing. This finding applies across the board to all roles in the fire sector. Developing a sense of work engagement can be fostered by organisations and in turn, could serve as a protective factor across the organisation. The findings of the literature review and the survey show the positive value of work engagement. It demonstrates the importance of the fire sector to recognise this in their staff. Work engagement is when an employee feels they have a positive, fulfilling, work-related state of mind that is characterised by vigour, dedication and absorption and it is often referred to as the opposite to burnout in employees. As well as being relevant across the roles, it is also seen in the largest role group, the operational firefighters. A study on European firefighters (Dan et al., 2020) has shown that the motivational process of a firefighter fits around work meaning and specifically work engagement, not altruism as some older literature has suggested. Other literature (see for example Perrott and Blenkarn, 2015) has suggested that firefighter motivation can also be explained through

their identification with sensation seeking, with the engagement with high adrenaline tasks and situations.

6.1.2. Job satisfaction

Also relevant in the findings of the survey and the literature is job satisfaction, as that was also a positive predictor for wellbeing across the fire sector roles. Although this finding is not specific or unique to this sector and can be found across many organisations and sectors, this does give the opportunity for organisations and the sector to identify good or leading practices in facilitating increased job satisfaction and to build that into policy and practice. It also identifies some of the data measures that evaluations may wish to include to assess the interventions developed.

6.1.3. Resilient coping

One variable obtained from the survey data, was resilient coping, which was measured specifically from the Development and Evaluation of the Brief Resilient Coping Scale. This was necessary as with improvements in research, resilience is not just viewed only as a standalone, but instead also with a shift towards a protective process of resilient coping (Luthar et al., 2000; Richardson, 2002). Resilient coping refers to the tendency to cope with stress adaptively (Sinclair and Wallston, 2004) Resilience is shown to place a vital role in maintaining healthy psychological and physical functioning through challenging issues (Bonanno, 2004) across the general population and therefore the roles across the fire sector. Levels of resilience can change throughout the life course, hence, it is necessary to promote resilience across the length of service and to all age groups within an organisation. Primarily to introduce narratives in the workplace that encourage self-awareness and reflection within individuals. So that they can observe if the general trends in their usual ways of how they feel, operate, and move through challenging times changes or feels different. Across the fire sector organisations could encourage skills to increase emotional literacy to be able to then communicate about these changes and possible reasons why that individual may or may

not need to find pathways to support. This would fit well in promotions of health and wellbeing. When considering resilience and coping we should ensure that health and wellbeing programmes integrates learning and activities that support individual's abilities to cope.

There are a number of ways that resilience can be promoted, one of which is through social support. Both the literature and survey findings highlighted the importance of formal and informal social support and the benefit of peer support. The survey results show that social support can have a positive effect on wellbeing, with the highest effect from peer support, followed by family and lastly significant others. The importance of social support is highlighted repeatedly in the literature, including the importance of peer support. Organisations across the fire sector should look to increase practices to facilitate both formal and informal social support. Formal support structures must be evidence based, quality assured, and have good governance. Both formal and informal structures should aim to facilitate connectedness and belonging for staff. This also means considering the family of staff members in their policy design and education/health promotion activities (through the Fire Fighters Charity and/or other services).

6.1.4. Life satisfaction

Life satisfaction had a positive effect on wellbeing across the participant groups. Feeling that life is close to ideal as possible at that time and that life is going well and is fulfilling has a significant association with wellbeing. This was also found in the literature review threaded throughout the life course research. It indicates that where life (including, but not limited to the workplace) is generally going as hoped, people are healthier and have good mental health. This also has clear links to the discussions surrounding physical and psychological health. The clear association between life satisfaction and wellbeing, and consequently the link with the workplace also provides further evidence for the fire sector strategy to be holistic, in other words, to be designed to support the staff's ability to engage positively with life inside and outside the workplace.

6.1.5. Negative impacts on wellbeing of the fire sector

The survey was also able to identify variables that negatively impact wellbeing so that we could cross map these to the findings from the literature review. Occupational stress, burnout, anxiety, depression, and stress were all associated with poorer wellbeing and is echoed in the findings from the literature review. This highlights the need for workplace support to include a mixed ecology of support, ensuring staff have pathways to support for a range of challenges.

6.2. Findings that warrant further exploration

The survey and literature findings sometimes did not align in the way that we would have expected. This section of the report unpacks those findings.

6.2.1. Intention to quit

Intention to quit showed a different effect on wellbeing through the survey than expected. This was surprising as the policing literature and the Durham Survey (National Policing Wellbeing Service, Oscar Kilo) for policing has identified intention to quit as one of the key indicators of poor wellbeing and associated with occupational stress. The finding highlights a key difference across the bluelight services and the nuances in their support needs and structures to respond to those needs. It does not mean it is not associated with wellbeing, but it might be likely that intention to quit is correlated with other factors. One interpretation might be that intention to quit is an outcome or secondary consequence to other factors such as burnout. This interpretation has been informed by the findings of the literature review mentioned in this report.

6.2.2. Traumatic reactions

Although the finding of a more complex relationship between knowledge of support available and wellbeing was surprising, the effect on wellbeing from traumatic reactions (measured through the

Impact of Event scale) was also surprising. Again, interpreting with within the context of the literature, traumatic reactions might also be correlated with other factors and is therefore a secondary factor in the regression model which examined the relationship between support and wellbeing. Given this unusual result, it would be prudent to run this survey on an annual basis to track how the different stressors and transition points are experienced differently given the wider societal context. For example, papers following the first few years of the pandemic that have tacked the impact on emergency and essential services have started to explore the possible presence of moral injury which can be defined as the "profound effects of being required to perform already highly challenging duties in a more constrained manner which may lead to risks being more difficult to manage" (Williamson et al., 2020).

The presence of moral injury (Rushton et al., 2022) in other professions is associated with traumatic reactions, depression and suicidal ideation and these papers are starting to predict an increasing number of emergency services experiencing this in the coming years. This is not conceptualised as an aspect of mental ill health; it is more akin to a deep-seated reaction to personal morality and ethics being threatened when asked to complete a task within a system under significant stress and at capacity which means the task will most likely fail and the most at risk will not be supported or protected from harm. One illustration is a health worker consistently seeing their efforts to put distressed individuals on a patient pathway, only for this to fail as its definition is an adult social care issue, but adult social care is at capacity so cannot respond to that individual. Having a repeated experience such as this or seeing other services not able to complete their statutory obligations could contribute to moral injury. As such it cannot be resolved with debriefing techniques (e.g. TRiM or CISD). It also cannot be screened for currently. This developing experience of the emergency services and the fire sector post pandemic and in a more interconnected world with the presence of a changing climate requires the checking of assumptions relating to psychological health needs of the fire sector and the updating of traditional support structures across

organisations. A longer-term strategy to update the needs profiles of roles across the sector, and update support structures.

There are inferences from the literature that PTSD is common amongst emergency responders including firefighters given the perceived risks and potential traumatic events of the job; however recent literature is indicating a clear counternarrative (Gulliver et al., 2021). However, by using the impact of event scale on FRS employees, the results indicated no such relationship with wellbeing. The emphasis in the literature could be explained through research focussing on mental health is strongly encouraged to use labels or categories as this aids the process of resource allocation and treatment. Consequently, some avenues have used PTSD as an umbrella term, as this is commonly found in a biomedical approach (Reid, 2019).

An alternative explanation could relate to stigma associated with seeking help (Hom and Stanley, 2018) within this population (Brunsden et al., 2014). This is associated with a lack of social support and lack of health promotion in some environments (Henderson et al., 2016).

Some recent studies of prevalence suggest that traumatic reactions are not as commonly experienced in emergency service sectors as the literature would suggest (Regehr and LeBlanc, 2017). For example, Gulliver et al. (2021) concluded that only 3% of the 322 participants developed a diagnosis of PTSD, major depression, or generalized anxiety disorder in a 3 year period and there is a need to understand prevalence rates over the long term in the fire sector.

6.2.3. Awareness of support at work

The survey showed that awareness of support at work showed a non-significant effect on wellbeing. This section of the survey sought to understand whether staff thought their organisation was clear about the support provision available for them. The findings of the literature review identified that both supervisor support and peer support (both

formal and informal) are associated with wellbeing (Stanley et al., 2019; Varvel et al., 2007; Paul and Thompson, 2006). An unexpected finding based on literature results and is a surprising result. One suggestion to explain these findings can be linked to the stigma around accessing support and this might also explain the higher return of 'prefer not to say' in the psychological health question where participants declared and described their own definition of any psychological health challenges they are currently experiencing. Although the fire service respondents were consistently reported to be more likely to endorse a positive response to these questions, in the Mind Bluelight programme report bespoke to the fire service, the response rates were relatively small and in some cases were a quarter of the responses from policing (approximately 440 participants). The Mind report also did not test the results through statistical analysis, but through descriptive statistics such as percentages and means. Although the analysis of data collected by this study shows that participants might be aware of the report, there is clearly more of a complex indirect relationship between knowledge of support pathways and wellbeing. This highlights the need to further understand this relationship.

6.3. Associations with positive wellbeing

The survey also measured some wider health and wellbeing related behaviours. These will now be considered and reviewed in this section.

6.3.1. Alcohol

The literature has suggested that there may be a higher risk of alcohol consumption amongst the fire service than the wider population (Carey et al., 2011; Piazza et al., 2014; Turner et al., 2018). However there is a presence of mix results for alcohol use (Blaney and Brudsen, 2015) Some studies suggest this is a self-medicating behaviour by roles who respond to incidents as a response to the demand of emergency response work (Haddock et al., 2012; Turner et al., 2018), but with significant impact on their wellbeing and service delivery including

sleep deprivation, depression, and mental wellbeing (Carey et al., 2011). The misuse or overconsumption of alcohol has a consistent pattern on the different aspects of wellbeing and work engagement of those in the role of firefighter specifically (Haddock et al., 2017; Gulliver et al., 2019; Stevelink et al., 2020). The survey findings of this study concluded that alcohol consumption was found to have no significant relationship with mental wellbeing, but increased alcohol consumption had an association with lower work engagement. This offers more evidence to the literature where alcohol consumption is suggested to be a way of self-medication within the fire services.

Figure 22. Weekly self-reported alcohol consumption across sample

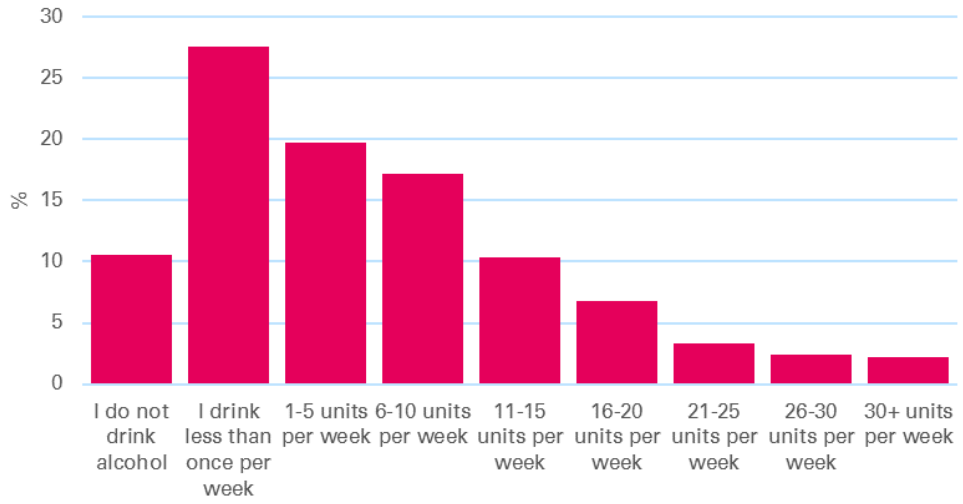
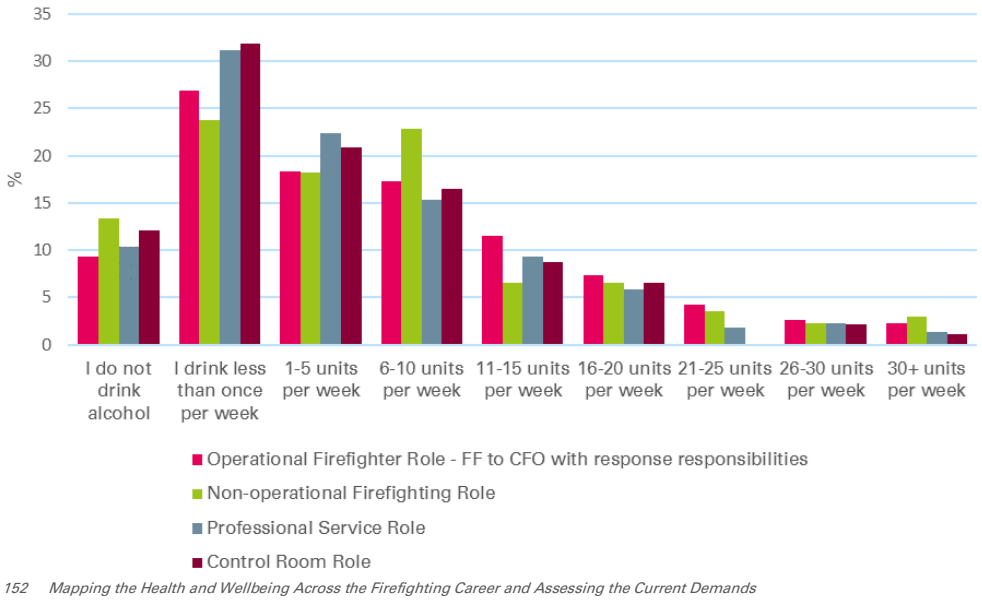


Figure 23. Weekly self-reported alcohol consumption by role



The patterns of alcohol intake are broadly similar across the different role clusters within our sample.

6.3.2. Exercise

Exercise has been suggested to be a defusing or prevention technique rather than being a standalone intervention or coping strategy in the fire service, and its outcomes on managing occupational stress and mental health symptoms have been documented in the literature. Previous research findings have also demonstrated a positive link between exercise and health outcomes (Murphy et al., 2002) and stress reduction within the fire service (Blaney and Brunsden, 2015; Throne et al., 2000; Katsavouni et al., 2014; Soteriades et al., 2022), including resilience (Lane et al., 2022). Exercise contributes to alertness, fitness, efficiency, and the overall job satisfaction amongst the fire service population (Rhea et al., 2004). The findings of the survey aligned to the findings of the literature as increased exercise frequency had a statistically significant positive relationship with work engagement, job satisfaction, perceived social support, life satisfaction, and resilient coping, as well as a significant relationship with lower burnout and lower levels of anxiety, stress, and depression. Figure 24 outlines the volume of exercise reported in the study.

Figure 24. Weekly self-reported exercise across survey sample

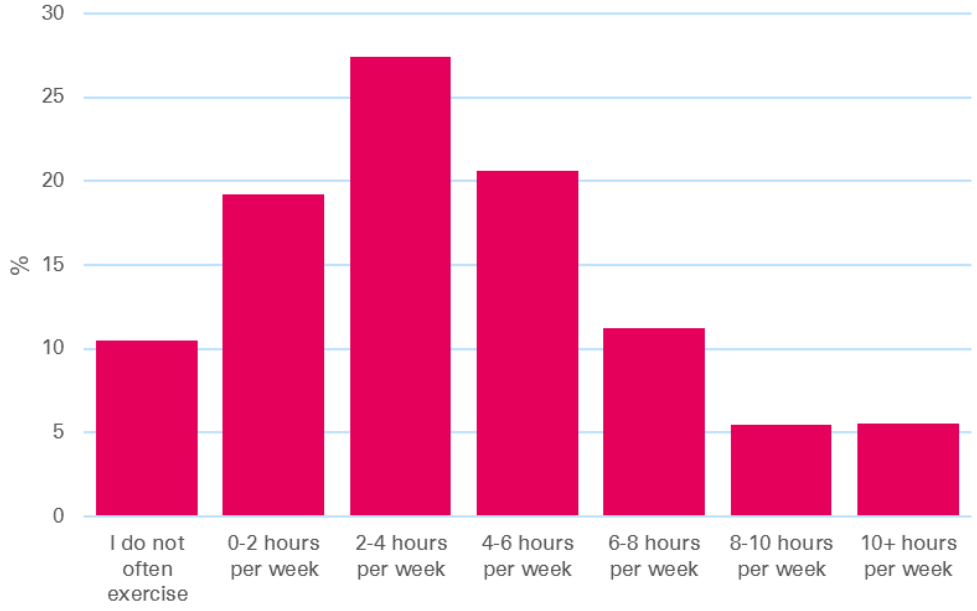
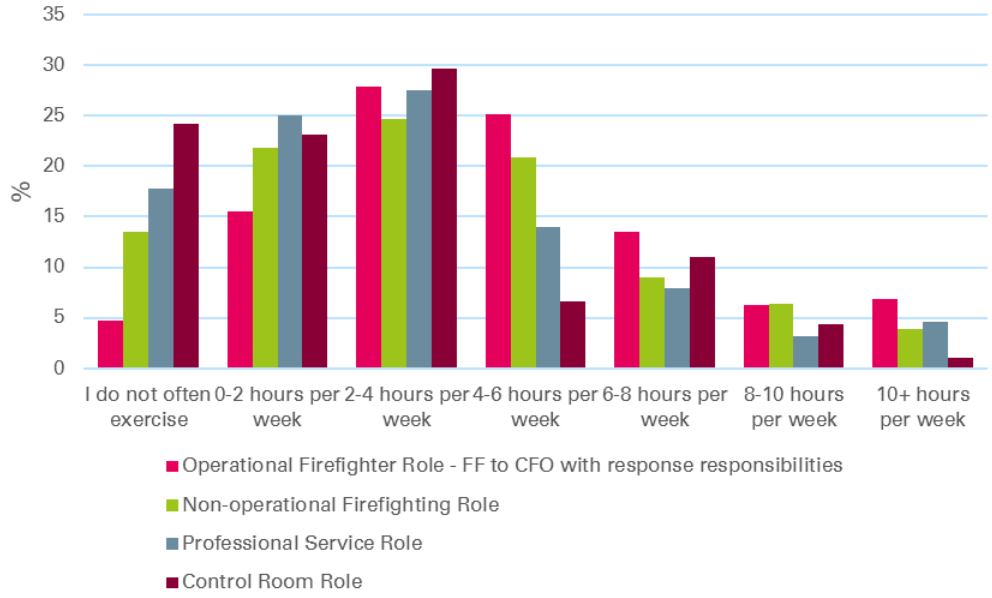


Figure 25 shows patterns of exercise are similar across the different role clusters which further supports inclusion of exercise opportunities throughout a wellness initiative in the FRS. Overall the findings on exercise provide specific evidence from the fire sector that a holistic approach to the individual's physical, psychological, and social health is key to engagement, and aligns with the broader literature on health and wellness.

Figure 25.Weekly self-reported exercise by role



6.3.3. Operational impacts on health and wellbeing

The following section discusses aspects of role activities and their impacts on health and wellbeing.

Length of career

The survey highlighted that those individuals who had a longer career in the FRS tend to have more challenges for their mental wellbeing compared to colleagues who have worked in the service for a shorter period of time. Findings indicate that longer serving employees are more likely to experience higher levels of burnout, anxiety, stress and depression, occupational stressors, and indicated a lower ability for resilient coping. They were also more likely to have a desire to leave

the service. Those roles who are operational and working in the service for more years were also found to be more impacted by traumatic events.

Similarly, the survey findings also showed that longer serving employees had lower work engagement and enjoyment of their job, as well as lower overall life satisfaction. They also had a perception of receiving lower social support compared to employees who had a shorter length of service.

These findings seem to be consistent with the literature for staff who respond to incidents where a longer career in an emergency response field like the fire service leads to a culmination of more experiences in potentially traumatic environments (Paton, 2006; Jahnke et al., 2016). A Canadian qualitative study by MacDermid et al. (2021) interviewing firefighters highlighted that many feel it is a challenge to maintain good mental wellbeing throughout their career in service. Sustained occupational stress over time was emphasised as a factor in their worsened mental health and subsequently tied to consequences of disrupted coping, as also found in the present study with regards to lower levels of reported resilient coping. In a comparative study of experienced firefighters and new recruits, Regehr et al. (2003) also found more years of experience was significantly related to worse mental health, including higher levels of depression and traumatic stress. The study also found more experienced firefighters reported lower levels of social support than their newer colleagues. And lastly, more experienced firefighters were found to have lower levels of self-efficacy, which can be defined as performance-related self-belief. As well, more recent literature (Joyce et al., 2019; McCreary et al., 2019; Blaney et al., 2021) suggest that examining resilience levels may serve as a more effective means of screening in the workplace; resilience is a malleable construct which can be enhanced via targeted interventions. As well cognitive-behavioural and mindfulness-based resilience training programs, even at low-intensity, can be effective in clinical and non-clinical populations, and have been found to improve resilience.

This supports the position of a mixed ecology of support, with some of that designed to be relatively low level in intensity.

However, this part of the survey was not specific to just those who respond to incidents, so the accumulation of occupational and traumatic stressors may only be part of the explanation. This finding is relevant across the roles in the fire service. So future work should look to understand this complex relationship in more detail.
These findings suggest that support offers for those longer in service might need to be designed or targeted in a different way than the support offered to those newer to the sector.

Just to clarify this finding further, tests were run to control for age to ensure that this finding is not attributable to age rather than length of time working in the fire service. Normal assumptions were met to run an analysis of covariance and after controlling for age there was a statistically significant interaction between length of service and mental wellbeing F (1, 28) = 2.5, $p = 0.00$, *partial eta squared* = 0.3. This test suggests that there is a significant relationship between length of service and mental wellbeing whilst controlling for the influence in the statistical analysis for age, with a partial eta squared of 0. 32.

The findings of this report and the association with length of service is not specific to the UK fire service. This is reflected in literature (some of which is detailed above) in other countries.

Attending incidents

The sample size for this analysis was smaller as these questions were only asked of those who declared a role in which they responded to incidents. Therefore, it excluded any non-operational or control staff members who do not respond to emergency calls.

The survey findings indicate that attending more incidents was found to link to higher levels of both work engagement and job satisfaction. Firefighters and control staff have been identified as a group who identify strongly with their role and their ability to help. Supporting

their community is reported as a key driver of why they carry out the work they do (Egdell et al., 2021; McNamara et al., 2021) which has a clear pathway to work engagement. Areas outside of incident attendance, including organisational or managerial problems, have been noted as either stressful or dissatisfying within the literature indicating that attending incidents may be the area of the role operational staff find most fulfilling (Haslam and Mallon, 2003; Wagner and O'Neill, 2012).

The findings of the survey conclude that increased incident attendance was found to link to a reduced intention to quit. This also aligns with the correlations between increased job satisfaction and work engagement. Within the literature, most indications of a desire to leave the role appear to be more connected to feeling undervalued, physically unable to meet the requirements, or reaching retirement age (Egdell et al., 2021; Kragt et al., 2017). Increased attendance at incidents was also linked to lower burnout. Within the literature findings focussing on burnout, it is suggested to be mitigated by higher self-efficacy, strong social support, and the use of humour as a coping mechanism (Pietrantoni and Prati, 2008; Sliter et al., 2014; Mitani et al., 2006). One explanation is that if higher levels of attendance at incidents are increasing work engagement and job satisfaction and lower levels of intention to quit, then it is not unexpected that individuals who have access to these psychological resources do not feel emotionally exhausted and disengaged from their role (core aspects of burnout).

Levels of social support, life satisfaction and resilient coping were all found to be unrelated to attending incidents. This is not unexpected as life satisfaction is broader than a work activity, but there is a tentative line through work engagement and job satisfaction to life satisfaction. Resilient coping is an internal process and so it is not unexpected that there is no relationship. Social support from colleagues has been repeatedly identified as important to the fire sector across a number of roles (Dangermond et al., 2022; Egdell et al., 2021; Issac and Buchanan, 2021). However, attendance at incidents does not mean that the nature of those incidents has had any impact on those individuals. They may

be predominantly low risk incidents where the risk is mitigated and resolved quickly without any undue impact on the individual staff member.

Attending a higher number of incidents was linked to an increase in occupational stress. Despite the positive correlation between incident attendance and occupational stressors, attending incidents was found to be unrelated to both general mental wellbeing and anxiety, depression, and stress levels. This suggests that as the number of incidents increases, so does the stress from occupational stressors. The items that make up this scale includes:

- poor diet
- exposure to anxious or overly demanding colleague or administrator
- bothered by not being able to predict or control events
- thoughts about the past run(s) that have been particularly upsetting/disturbing
- observing negative effects of stress on colleague, e.g., illness, alcohol abuse, and burnout
- working with a substandard colleague on emergency incidents or situations
- conflicts with colleague and team members
- disruption of sleep
- feelings of isolation from family due to work demands and stress
- concerns about serious personal injury/disablement/death due to work

Although not the entire scale, these items could be relevant when responding to incidents for both control staff and operational staff. Whilst the link between the content of these items and attending incidents can be clearly seen, these difficulties are not translating into poor mental wellbeing or anxiety, depression, or stress symptoms.

Similarly, the prevalence of traumatic reactions (measured using the Impact of Event scale) was also found to be unrelated to attending

incidents. This is consistent with the traumatic reactions literature as whilst there is an argument regarding accumulative or cumulative impact of one significant traumatic event, versus many lower-level traumatic events having a similar impact but over different time trajectories (Berninger et al., 2010; Fullerton et al., 2004; Del Ben et al., 2006; Gulliver et al., 2021; Khan et al., 2018), there is a small amount of published work that suggests firefighters are relatively resilient compared to other emergency services, disaster workers or veterans. Published literature has established levels of traumatic reactions within a firefighting population as 24% reaching thresholds in the USA (Regehr and Bober, 2004) and 18 % reaching thresholds in the UK (Jones et al., 2006). Meta analyses of global prevalence data suggest levels are generally higher in rescue workers than a lay population at 10% (Berger et al., 2012). These studies are country or service specific and have built in measurement issues where there is a conflation of different measures, different criteria cut off points, the restriction of responses being anchored to one event, and different understandings of the roles (culturally firefighters do different tasks between the UK and USA for example). To contextualise the 10% in the wider literature, Berger, et al. (2012) completed a review of the worldwide current prevalence rates where:

- 1.3-3.5% lay population from diverse countries
- 3-6% UK veterans returning from Iraq War
- 2-17% US Vietnam war veterans
- 19-39% in disaster victims

Whilst the firefighter prevalence rates are higher than the general levels observed in the population, the 10% figure represents the most extreme traumatic reactions. Whilst this does not give the prevalence for traumatic reactions, which is bound to be a higher figure as there are many factors involved in capturing such data, it is much healthier than other critical occupations.

Associations with sleep

To explore sleep within our sample a single item measure was used

from the occupational sources of stress scale and explored with mental wellbeing. A negative moderate relationship was found using a Spearman's rho. There was a medium negative correlation between these two variables (r= -.359, p= .000). This suggests that we can be fairly confident that as fire sector employees report that they are more bothered by disrupted sleep, they have poorer mental wellbeing. To explore this further the same test was also run with two other items associated with sleep which generated the same pattern of findings and association. This replicated and echoed these results.

This echoes the findings of other literature reviewed in this report where sleep disturbances in a firefighter population was associated with other lower levels of wellbeing such as increased depression (Carey et al., 2011). This association of improved sleep behaviours and practices having an associated increase in physical, psychological and social health is also captured in studies on the general population and so is relevant across the fire sector (Irish et al., 2015; Garbarino, et al, 2019; Magnavita et al, 2017; Chow, 2020).

Recommendation 1: The fire sector, with support from the National Fire Chiefs Council (NFCC), should consider implementing the recommendations contained within this report by recognising and supporting health and wellbeing within each Fire Standard.

Recommendation 2: The NFCC and Fire Fighters Charity should develop a health and wellbeing strategy for the sector, with a holistic approach including physical, psychological and social health. The framework and associated policy should be designed to support the staff's ability to engage positively both inside and outside the workplace. This can be supported by the associated 'recommended key priorities' document which synthesises the findings of this report into actionable future delivery and evaluation mechanisms, addition to this report.

Recommendation 3: The design of workplace support and policies within fire services and the Fire Fighters Charity should be built as a mixed ecology of provision, the design should use this evidence base in their creation and to ensure staff have pathways to support for a range of stressors/transitions/challenges that they may face in their adult lives.

Recommendation 7: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to review, identify and

quality assure good or leading practice to help services build psychological resources such as job satisfaction, connectedness and belonging into their policy and practices. This should be in the form of guidance, or a compendium of resources.

Recommendation 9: Any national stakeholders (NFCC, Fire Fighters Charity, Home Office and others) should ensure that current and future developments across the health and wellbeing of the fire sector recognise the key differences between the bluelight services and ensure that any shared work responds to the needs of the fire sector.

Recommendation 10: The NFCC should ensure there is a mechanism to update the knowledge across the sector relating to health and wellbeing such as an annual survey. Through this the understanding of health and wellbeing needs should be updated annually. In due course this would also create a longitudinal evidence base to inform strategic priorities and highlight where support offers or structures need reviewing.

Recommendation 19: Following recommendation 18, the key stakeholders should identify direct or proxy measures of impacts on wellbeing to evaluate support and interventions across services and the sector. These should be incorporated into the data and digital future planning of Fire and Rescue Sector.

Recommendation 20: Future research commissions (such as from the Home Office, Fire Fighters Charity and NFCC) should seek a deeper understanding of the complex indirect relationship between staff awareness of support pathways available and their wellbeing. There is a need to understand this relationship across all job roles as their needs, support and awareness, as reported in this report, is nuanced and different.

Recommendation 21: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to create a resource pack and compendium of practice for services to implement a positive resource ecology that facilitates work engagement and enhances shared psychological resources across organisations (for example drawing on mutual aid arrangements). This should be captured and supported through the development of a strategy, framework and future national workstreams, directed by the 'recommended key priorities' document developed alongside this report.

Recommendation 28: Fire services should consider the inclusion of the family of staff members in their practices and education/health promotion activities through the Fire Fighters Charity and/or themselves.

7. Gap analysis

This report has provided the opportunity for a gap analysis to develop a clear understanding of where the fire community broadly is at the time of writing, to where it will need to be in five years. The gap analysis compares the current with the ideal future state and suggests broad areas of difference which need to be explored in order to close that gap. These broad areas for development are themed in five areas below.

This report has worked towards accounting for necessary caution that has been highlighted by both practitioners and academics around issues of many mental health campaigns. The key message of most campaigns focus on the need to just ask for help when it is needed, however this endorses an ill health model. The concern is that it portrays a message that the issue is with the individual and does not acknowledge the wider context. This approach also aims to be a simple one solution policy where the evidence suggests a plethora of policy and practice solutions are needed for communities, services and individuals. These campaigns also challenge resource capacity as well as the management of expectations of individuals.
This report and its recommendations and linked strategy therefore focus on ensuring the current governance, provision, approach and framework across organisations in the sector are aligned with good practice and have capacity to respond to changes in demand. This report requires a response which is thorough, ubiquitous, considered and sector wide. More importantly, it is a requirement that it moves beyond an awareness campaign and instead changes the customs, practice and culture across the sector.

7.1. Governance

There is a need for the fire community to embed health and wellbeing across all activities and levels of existing governance, as well as a need to develop new governance structures to provide the essential monitoring and coordination. This includes using mechanisms such as the Fire Standards Board, the inspectorate and other structures where

appropriate. There is a clear need to develop a health and wellbeing strategy for the sector, with a holistic approach including physical, psychological and social health. This needs to be a mixed ecology of support, across the individual services, the Fire Fighters Charity and other stakeholder groups using a health promotion approach. Mechanisms need to be built to ensure the ongoing activities stay current, leading and informed by evidence from across the range of staff groups. Support for services to develop organisational psychological resources such as job satisfaction, connectedness and belonging needs to be built across policy and practices.

7.2. Review

In order to coordinate and define the changes required across each organisation and stakeholder, a series of reviews are needed to map against the content of this report and recommendations. This includes reviews that should be completed by NFCC, Fire Fighters Charity and fire services to review policy and practices to ensure the content, design, offer and implementation of offers of support across different groups of staff, across their career and life stages align to leading and good practice as well as the existing and new governance structures.

7.3. Data

In order to keep the current breadth and depth of understanding about the health and wellbeing of the sector, the fire sector needs to commit to building mechanisms to refresh, renew and support this ongoing development of understanding. This is essential to ensure that staff needs are understood. This includes surveys, reviews of the evolving evidence base and the identification of proxy measures of physical, psychological, and social wellbeing. These need to be jointly recorded, shared and aggregated so that role, service, and national health profiles can be understood across time. Current and future identified knowledge gaps need to inform future research commissions and projects. All these sources of support should be incorporated into the

data and digital future planning of UK FRS.

7.4. Implementation of leading practice

The analysis of this report suggests there is currently a mixed profile of support for health and wellbeing across the UK fire sector. This includes different conceptualisations of wellbeing, mental health and health. This report offers a clear and shared understanding which needs to be jointly adopted across the sector. Within the offers of support for staff there are areas of good or leading practice, but few opportunities for a mixed ecology of practice and (where appropriate) accredited support. Services need resources in order to highlight how they can implement positive resource ecologies, how to use mutual aid to deliver mixed ecologies where resources do not fully provide a mixed ecology, or where the more complex mental health support is not typically required in that service but may need to be provided on occasion. Mutual aid can also provide a national method of providing capability and capacity to meet surge capacity to support a lot of staff after a significant major incident. The provision of evidence informed resources should be nationally developed for services and the charity to provide to families, trainees, new starters, those who transition to flexi-duty rotas and those who participate in the direct entry schemes.

7.5. Necessary enhancement

Currently there are some clear areas that require enhancement in order to achieve success in the above areas. This includes stakeholders working with different staff groups to ensure communication about where to seek support is nuanced to the needs of each group. Working alongside professional groups to ensure good/leading practice is followed to implement a mixed ecology of support and health promotion. This includes practices to implement for successful coaching, onboarding and training.

8. Recommendations

The 31 recommendations developed through this report have been listed below to re-align them to their priority and necessary sequencing within a broader theme clustering on governance, review, data, implementation of leading practice and necessary enhancement. As noted at the top of this report, each recommendation is directed towards an indicative stakeholder.

Governance

Recommendation 1: The fire sector, with support from the National Fire Chiefs Council (NFCC), should consider implementing the recommendations contained within this report by recognising and supporting health and wellbeing within each Fire Standard.

Recommendation 2: The NFCC and Fire Fighters Charity should develop a health and wellbeing strategy for the sector, with a holistic approach including physical, psychological and social health. The framework and associated policy should be designed to support the staff's ability to engage positively both inside and outside the workplace. This can be supported by the associated 'recommended key priorities' document which synthesises the findings of this report into actionable future delivery and evaluation mechanisms, addition to this report.

Recommendation 3: The design of workplace support and policies within fire services and the Fire Fighters Charity should be built as a mixed ecology of provision, the design should use this evidence base in their creation and to ensure staff have pathways to support for a range of stressors/transitions/challenges that they may face in their adult lives.

Recommendation 4: The strategy and framework developed for the sector should prioritise a holistic offer for all staff and volunteers that includes a health promotion approach.

Recommendation 5: The NFCC, Fire Fighters Charity and other stakeholder governance structures within the health and wellbeing

strategy should establish and maintain a two-way communication process with all staff to capture what is and what is not working in the strategy and framework. This should include an annual wellbeing survey built from the one used in this report alongside reporting channels through services or engagement approaches.

Recommendation 6: To reflect the nature of all wellbeing needs of different groups within the fire sector, and the need to embed wellbeing approaches through all areas of policy development, a review should be undertaken across the existing documentation of key stakeholders (including the NFCC, the Fire Fighters Charity and all fire services) to ensure wellbeing and inclusion are woven through all areas of activity.

Recommendation 7: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to review, identify and quality assure good or leading practice to help services build psychological resources such as job satisfaction, connectedness and belonging into their policy and practices. This should be in the form of guidance, or a compendium of resources.

Recommendation 8: Fire services, the Fire Fighters Charity and other stakeholders should ensure that any support incorporated in their offers which were originally designed for the general population are reviewed by an appropriately qualified and experienced practitioner, in consultation with external support and evaluation, to ensure its appropriateness for the fire community. Where changes are necessary these should be recorded appropriately on risk registers or policy audits.

Recommendation 9: Any national stakeholders (NFCC, Fire Fighters Charity, Home Office and others) should ensure that current and future developments across the health and wellbeing of the fire sector recognise the key differences between the bluelight services and ensure that any shared work responds to the needs of the fire sector.

Recommendation 10: The NFCC should ensure there is a mechanism to update the knowledge across the sector relating to health and wellbeing such as an annual survey. Through this the understanding of health and wellbeing needs should be updated annually. In due course this would also create a longitudinal evidence base to inform strategic priorities and highlight where support offers or structures need reviewing.

Review

Recommendation 11: The NFCC, Fire Fighters Charity and fire services should complete a mapping exercise to capture the offers of support available from the local to national levels for those working or volunteering in the fire sector. This would be for each cluster of jobs detailed in this report to ensure both individuals and services are easily able to find and access support for the wellbeing of their people. This would then feed into a strategy for health and wellbeing in the Fire and Rescue Sector.

Recommendation 12: Fire services and the Fire Fighters Charity should consult the analysis in this report to complete a review of the support offer for their staff within each organisation. This should be completed alongside an evidence base of identified good or leading practice and co-produced with staff groups to develop future support offers.

Recommendation 13: Fire services and any other stakeholder groups who include external support providers in their offer should keep an open dialogue and regular review, to ensure the offer continues to be a good fit with the needs of the sector and its workforce. Transparent quality assurance mechanisms should be built into this.

Recommendation 14: Fire services and the Fire Fighters Charity should review their development, design, threshold triggers for access, and targeting/communicating of wellbeing support offers to ensure that increased length of service (not age) is considered appropriately in policies and practices.

Recommendation 15: Fire services and the NFCC should review their guidance, policies and practices of supervisor induction and training. This review should ensure that supervision training and delivery incorporates and promotes the health and wellbeing of all staff as a consistent approach throughout. Training delivery needs to review in the context of the 'recommended key priorities' document and include effective support of supervisors.

Recommendation 16: Fire services and the Fire Fighters Charity should implement the recommendations from the 'Understanding the transition to retirement for Firefighters: A social identity approach' report completed on the UK fire sector in 2020.

Data

Recommendation 17: The strategy that implements the findings and recommendations should be flexible and fit into existing systems and practices. It should also have mechanisms to ensure that it keeps current and is updated to reflect the changing social and political context. This should include a bi-annual mapping exercise against the academic literature base or good or leading practice as defined by national or international health bodies such as the World Health Organisation. This should also ensure it continues to develop evidence for changed approaches to wellbeing support.

Recommendation 18: A structure and process will be developed for recording, sharing and aggregating health data (physical, psychological, and social) so that role, service, and national health profiles can be understood across time. Fire and rescue services, Fire Fighters Charity and other providers will contribute and use this data to inform their own health and wellbeing offer, identify changes in need, evaluate and guide policy development.

Recommendation 19: Following recommendation 18, the key stakeholders should identify direct or proxy measures of impacts on wellbeing to evaluate support and interventions across services and the sector. These should be incorporated into the data and digital

future planning of Fire and Rescue Sector.

Recommendation 20: Future research commissions (such as from the Home Office, Fire Fighters Charity and NFCC) should seek a deeper understanding of the complex indirect relationship between staff awareness of support pathways available and their wellbeing. There is a need to understand this relationship across all job roles as their needs, support and awareness, as reported in this report, is nuanced and different.

Implementation of leading practice

Recommendation 21: The NFCC and Fire Fighters Charity should coordinate their knowledge and resources to create a resource pack and compendium of practice for services to implement a positive resource ecology that facilitates work engagement and enhances shared psychological resources across organisations (for example drawing on mutual aid arrangements). This should be captured and supported through the development of a strategy, framework and future national workstreams, directed by the 'recommended key priorities' document developed alongside this report.

Recommendation 22: Fire services, the Fire Fighters Charity, and sector specific recruitment websites should include resources and information packs for the family to increase their knowledge of the role and the stressors within them. Clear communication on transition points across Fire and Rescue Sector roles and pathways to appropriate support should support family members to recognise needs and proactively engage with support if required. Similar material should also be developed for trainee firefighters, new starters in professional services, those who move on to a flexi-duty rota and those who come into the fire sector through the direct entry schemes.

Recommendation 23: Fire services should provide a formal peer support offer which is accredited, peer-led and has a robust governance framework, within which onward referrals to professional

support are signposted and supported with clear triggers and thresholds for onward referral.

Recommendation 24: The NFCC, Fire Fighters Charity and Home Office should come together with other key stakeholders across the fire sector to create a work stream to address the lack of evidence regarding the risk and support available to those transitioning into a flexi-duty rota.

Recommendation 25: The NFCC should work across the sector with all stakeholders to create policies and processes for the provision of mutual aid to provide capability and capacity to meet surge demand for health and wellbeing support for a high number of staff after a significant major incident.

Necessary enhancement

Recommendation 26: Fire services, the Fire Fighters Charity and the NFCC should work with staff groups to ensure the needs of different clusters of job roles are included in the offers of support, including nuanced communication methods to enhance engagement with support services for different groups.

Recommendation 27: The support offered by providers to alleviate potentially traumatic reactions should ensure a mixed ecology of support is offered. This support offer should be provided to all staff following potentially traumatic experiences to meet their needs regardless of role and whether the experience occurred in or out of work and should reflect the needs of both individuals and groups.

Recommendation 28: Fire services should consider the inclusion of the family and social support network of staff members in their practices and education/health promotion activities.

Recommendation 29: Fire services and NFCC guidance should advocate for the provision of clear feedback to all unsuccessful

promotion candidates to help them understand the decision and to engage in meaningful goal setting and professional development to increase their chances of succeeding in the future.

Recommendation 30: Fire services should facilitate access for all their staff to the NFCC coaching programme Home - NFCC Coaching (https://nfcccoaching.mye-coach.com/).

Recommendation 31: Fire services and the NFCC should consider the recommendations of the Levin (2020) report with a view to revising onboarding and training practices to include virtual methods (where possible) and include health promotion education. This should ease the transition into the service for new starters, and promote knowledge of the role to them and their family. This also increases the accessibility and inclusion for all staff, recognising diverse needs such as ethnicity and neurodiversity.

9. Summary and conclusions

This report has explored the changing nature of the fire and rescue sector in the UK and used analysis of survey data, stakeholder engagement focus groups and a literature review to identify the issues at play across the sector. This report draws conclusions from the data and literature, providing a narrative and commentary to the current landscape of health and wellbeing across the fire sector and outline the next steps to provide a sector that supports all staff regardless of role or location to lead a fulfilling and supported life as a future, current or former fire and rescue sector staff member.

The report findings and recommendations have provided an evidence base which has informed the development of the strategy for wellbeing across the UK FRS.

It is clear from the analysis and recommendations that there are areas the sector needs to prioritise moving forward. The longevity and complexity of commitment needed from across the sector to provision sound wellbeing support requires a long-term commitment that needs more than just an uptick in financial resourcing. It requires investment and commitment from all within the fire sector. Leadership across the sector must set wellbeing as a high priority. Each individual is also responsible for managing their own wellbeing and for investing in their own skills and ability to be self-aware, reflect on their normal ways of feeling and to be proactive in seeking support if they feel that they are felling different. To be able to implement this successfully, a long term national and local monitoring and evaluation approach; the approach needs to be developed from quality within the sector as well as organisational level resources such as those produced by the WHO, the Fire Fighters Charity and initiatives such as the What Works projects.

Designing support for all roles across the fire sector should be a priority founded on a holistic approach that recognises individuals have strains and strengths outside of work as well as inside of the work environment and their wellbeing is comprised of their psychological, physical, and social health. Our review of the evidence has highlighted

an unbalanced attention in the research literature which should be addressed by our academic colleagues and funders ensuring we have a detailed and nuanced understanding of the wellbeing needs of across the sector.

Mapping the interventions and sources of support and ensuring they have appropriate plans to evaluate their effectiveness from all providers including the fire services, the Fire Fighters Charity and external providers is important work to complete so that the comprehensive offer to individuals can be clarified. Building support structures that connect people and increase connectedness and cohesion has been identified as an important ambition for wellbeing across the fire sector.

As well as mapping the key stakeholders, mapping the associated policy and portfolio areas is also important work to complete. How the strategy fits with other ongoing work to policies and practices including physical health, death by suicide prevention and postvention, transition into retirement, safeguarding, leadership and all elements across the NFCC People Programme.

To develop a meaningful long term and effective governance process to sit alongside the strategy, it is essential to develop a systematic and long-term health and wellbeing data provision. Ensuring wellbeing data from across fire services and national bodies is available and accessible will provide confidence for decision makers when setting strategy and allocating resources and allows for accountability for sector representatives. Data availability will continue to inform the strategic decision making and opportunities for evaluations. Evaluation must be designed with two-way communication between national and local health and wellbeing boards (or their equivalent) so that a coordinated sector approach can be achieved.

All those involved in the wellbeing of fire sector staff must be informed of the typical points of strain and transitions within the career clusters that we created from their common aspects. These groups have

different needs and may need different communications to ensure those who need support can find pathways to appropriate support.

One way that an overall approach can be developed to support both fire sector staff and their families is by conceptualising the organisations wellbeing within the Conservation of Resources theory (Hobfoll, 2012) where evidence suggests that organisations can act as resource pools for their staff, by offering energy, positive mood, social support, peer support and other impactful resources that can have a positive effect on that individual. This sees the interconnectivity of the individual nested in a family, nested in an organisation, nested in society, where resources and strains are present at each of those layers and disruption to them causes effects through the different layers. In this sense you cannot just interact meaningfully with the whole person through just one layer, all the layers need to be recognised to make meaningful interactions. This supports a holistic approach recognising that what is going on in the other domains of an employee's life impacts work and vice versa.
Types of resources can be strengths such as self-esteem, optimism, time, knowledge, seniority, companionship, loyalty, and money. Resources are defined as things that can be drawn on to manage stress and increase their resilience to negative emotions. These include universally valued resources such health, peace, self-preservation, wellbeing, family, and a positive sense of self (Hobfoll, 2012). Recognising the universal value of preserving health and wellbeing therefore informs the basic premise of this strategy.

We acknowledge that across the fire sector there are services and organisations with different:

- budgets
- diversity within the workforce
- employment and governance models
- accesses to health and wellbeing support
- geographical contexts.

However, the strategy aims to provide clear principles and priorities to

deliver a positive environment promoting health and wellbeing to support all staff to be healthy in all domains of their life, throughout their life.

One solution to a limited resource envelope is mutual aid. Tehrani (2018) suggested extending the concept of mutual aid to include wellbeing support in order to ensure provision is scalable (in the event of a significant organisational or geographical event) or aligned with the recommendations in this report, to provide a mixed ecology of support provision.

In summary, having reviewed the three sources of evidence, we have developed recommendations and a number of documents from the content of this report to increase the accessibility and disseminate information to relevant audiences with different interests and requirements.

9.1. What next

This report will inform the development of work packages across the health and wellbeing stakeholders in the fire sector. We hope the findings from this report can be taken forward and acted upon collectively to make a difference to the fire sector and those staff working within it. It is important to recognise that any developments need to be co-produced and delivered and so this report and related materials are not intended to be a series of stages of actions or a fixed approach. Together the whole of the sector and those around it must shape where the FRS goes next to produce a strategy and way forward that supports people to recognise prepare for, seek and utilise resources and support when they need it. Given the findings contain evidence of resilience and health amongst our study, future steps within this programme of work need to explore and understand the majority who are maintaining their health and wellbeing in order to learn from them.

This project has highlighted both the commitment to wellbeing and the gaps to be addressed. We hope this report and related material can support the ongoing development of a holistic wellbeing approach for all FRS staff which can begin to lead the way when we discuss what everyone in society needs to consider and engage with to mitigate and manage short-, medium- or long-term health issues. As a sector made famous for its gallant approach to preserving life, we must all work to ensure this reputation extends to its staff across the full breadth of health and wellbeing in the 21st century.

10. Technical appendix

This technical appendix is made up of five sections which delve into additional detail on a range of topics discussed in the report.

10.1 Survey measures

The 11 validated psychometric instruments and survey block from the Mind Bluelight survey are set out below for reference.

Short Warwick–Edinburgh Mental Well-being Scale (SWEMWBS)

This 7-item scale (Stewart-Brown et al., 2009) was used to assess general mental wellbeing using positively phrased statements such as "I've been feeling optimistic about the future".

Items are measured on a 5-point rating scale (1 = none of the time to 5 = all of the time) with total scores ranging between 7 and 35, with higher scores indicating better psychological wellbeing.

The scale has good internal consistency with a Cronbach's alpha of .89 (Vaingankar et al., 2017) and is a shortened version of the original 14-item WEMWBS. It is deemed to be a better model fit than its predecessor as it is unidimensional and more robust for research due to its brevity (Stewart-Brown et al., 2009). The original test sample was a general population sample aged between 16-74, and it has also been well-validated for use within research with clinical and occupational samples (Shah et al., 2018; Petrie et al., 2018; Summers et al., 2021).

Depression Anxiety Stress Scales (DASS–21)

This scale (Lovibond and Lovibond, 1995) contains 21 items across three subscales, measuring the negative emotional states of depression, anxiety and stress. Scale reliability is shown through Cronbach's alpha scores, which for the subscales are .94, .87 and .91 respectively.

Items are rated on a 4-point rating scale (0 = did not apply to me at all to 3 = applied to me most of the time or very much), asking respondents to indicate the frequency or severity of their experience of symptoms over the past week. Total scores on the scale range between

0 and 63. It is a shortened version of the original 42-item DASS and is regarded to be more advantageous for research due to fewer items and an improved factor structure (Antony et al., 1998). It is suitable for use with clinical and non-clinical samples. Mean and standard deviation scores varied substantially across different populations in the literature. Therefore, scores from 4 different papers were averaged out and used as our chosen population norm figures. These papers were authored by Norton (2007); Henry & Crawford (2011); Lu et al. (2018); Ali et al. (2021).

Utrecht Work Engagement (UWES-9)

This is a 9-item scale (Schaufeli, et al., 2006) designed to measure work engagement, which is described as a positive sense of fulfilment at work, characterised by dedication, vigour and absorption.

It is measured on a 7-point rating scale (0 = never to 6 = everyday) asking respondents to indicate how often they feel engaged with their job, with an example item being "My job inspires me". Total scores for this scale range between 0 and 54. The scale's test population recruited employees across 8 occupational groups, including police, health care and management, and across 10 countries. Cronbach's alpha scores from this sample ranged between .85 and .92, demonstrating good reliability. It is a shortened version of the original 17-item UWES and is deemed to be consistent with the original for test-retest reliability and suitable for use in research.

Sources of Occupational Stress (SOOS-14)

This 14-item scale (Kimbrel et al., 2011) was developed as an abbreviated version of the 57-item SOOS (Beaton and Murphy, 1993), a scale designed specifically to assess the sources of stress faced by firefighters within their job. The SOOS-14 is more suitable for use in research as its length reduces respondent burden whilst maintaining construct validity with the original. It also has good internal consistency, with Cronbach's alpha of .82 and .86 across two samples of firefighters.

The items are rated on a 100-point Visual Analogue Scale, asking respondents to indicate how bothered they are by each stressor in their job (1 = not at all to 100 = extremely bothered). Example items of stressors include "disruption to sleep", "concerns about serious personal injury" and "not being able to predict or control events at work". Total scores can be summed, ranging between 14 and 1400.

Intention to Quit Measure

This is a 5-item scale (Wayne, et al., 1997) to assess an employee's desire to leave their organisation.

Items, which include "I am actively looking for work outside of my current employer", are rated on a 7-point rating scale (1 = strongly disagree to 7 = strongly agree). Total scores range between 5 and 35, and the scale has good internal consistency with Cronbach's alpha of .89. The scale has been used with occupational samples, including in relation to work-related stress and wellbeing research (Villanueva and Djurkovic, 2009).

Burnout Measure

This scale (Bacharach, et al., 1991) is an 8-item measure of burnout symptoms (e.g., "being emotionally exhausted"). Respondents are asked to indicate how often they have experienced symptoms during their job in the past month.

Items are rated on a 7-point rating scale (1 = never to 7 = always). Total scores on the scale range between 8 and 56, and reliability of the scale has been shown with Cronbach's alpha of .92. The scale is suitable for use with occupational samples, with the original study sample being employees in health care and engineering roles.

Impact of Event Scale-Revised (IES-R)

This 22-item scale (Weiss and Marmar, 1997) assesses post-traumatic stress (PTSD) symptoms.

Items are rated on a 5-point rating scale (0 = not at all to 4 = extremely)

with total scores ranging between 0 and 88. Internal consistency for the scale is good (Cronbach's alpha = .96), and the scale is a revised version of the original IES (Horowitz, et al., 1979). The IES consisted of two subscales (intrusion and avoidance), and the revised scale used in this study has added an additional subscale (hyperarousal) on the basis of PTSD clinical diagnostic criteria (Weiss, 2007). The test population of the scale were emergency personnel.

Multidimensional Scale of Perceived Social Support

This 12-item scale (Zimet et al., 1988) aims to measure the respondent's perception of the social support they receive.

The items (e.g., "My family really tries to help me") are scored from 1 (very strongly disagree) to 7 (very strongly agree) with total scores ranging between 12 and 84. The 12 items are subcategorised into significant other, family, and friends subscales with four items each. The scale has high internal consistency amongst the subscales (Cronbach's alphas = .91, .87 and .85, respectively), as well as for the scale as a whole (= .88).

Brief Resilient Coping Scale

The Brief Resilient Coping scale (Sinclair and Wallston, 2004) captures tendencies to cope with stress adaptively, consisting of 4 items.

These items run on a 5-point rating scale from 1 "does not describe me at all" to 5 "describes me very well". Total scores range between 4 and 20 with low (4-13), medium (14-16), and high (17-20) resilient coping levels. The parameter of internal consistency for the BRCS scale is reported at a value of $\alpha = .69$. The scale has been tested in both clinical and general population samples (Sinclair and Wallston, 2004; Varma et al., 2021).

Job Satisfaction Scale

This 6-item scale (Iverson, Olekalns and Erwin, 1998) is designed to measure how content the respondent is with their job. It is a shortened version of Brayfield and Rothe's (1951) Job Satisfaction Index (JSI) and

maintains a high-reliability score of α = .85.

The items (e.g., "I find real enjoyment in my job") are graded on a 5-point rating scale (1 = strongly disagree to 5 = strongly agree). The scale's study population were hospital employees.

Satisfaction with Life Scale (SWLS)

This scale (Diener et al., 1985) consists of 5 items to assess an individual's happiness with their life (e.g., "In most ways my life is close to my ideal").

It is graded on a 7-point rating scale (1 = strongly disagree to 7 = strongly agree). Total scores range between 5 and 35 and can be subcategorised into (31 – 35) extremely satisfied, (26 – 30) satisfied, (21 – 25) slightly satisfied, (20) neutral, (15 – 19) slightly dissatisfied, (10 – 14) dissatisfied, or (5 – 9) extremely dissatisfied. The scale is characterised as reliable with a Cronbach's alpha score of .87. The scale was tested on general population with a broad age range of 18-75.

Bluelight Awareness of Support

These items were adapted from the Mind Bluelight survey and were designed to assess the individual's opinion on how well they think their organisation supports them. The fifth item in the scale is rated in a yes/no format, asking the individual if they have accessed support for their mental wellbeing.

This scale contains 5 items, four of which are measured on a 5-point rating scale (1 = strongly disagree to 5 = strongly agree) and one yes/no question.

10.2 Statistical reliability checks

Internal consistency of the scales used in the study was remeasured against this dataset and all hold a satisfactory threshold of reliability above .7 for Cronbach's alpha. This means the scales measure the concept within the fire sector population reliably.

- Intention to quit = .910
- Work engagement = .923
- Job satisfaction = .892
- Mental wellbeing = .871
- Sources of occupational stress = .866
- Anxiety, depression and stress = .940
- Burnout = .955; Impact of event = .968
- Social support = .954
- Life satisfaction = .920
- Resilient coping = .775

10.3 Beta coefficients and p values of relationships between demographic factors and psychometric variables from regression analyses.

The Beta values below show what contribution the variable makes if all other things are held constant. The p values signify the probability that an effect this big or bigger would arise if there is no effect. The alpha value used in this report is ($p < .05$), alpha values below this mean indicate that the effect is unlikely to have been this large if there was no effect (due to chance in the data collected for example), suggesting evidence that there is the association/effect.

Table 10. Beta coefficients and p values of relationships between demographic factors and psychometric variables from regression analyses.

Scales	Alcohol consumption	Exercise frequency	Length of career	Attending Incidents
Work engagement	β = -.072, p<.001	β = .098, p<.001	β = -.162, p<.001	β = .055, p=.048
Job satisfaction	p=.084	β = .071, p<.001	β = -.076, p<.001	β = .062, p=.026
Social support	p=.462	β = .051, p=.008	β = -.073, p<.001	p=.171
Life satisfaction	p=.233	β = .078, p<.001	β = -.052, p=.023	p=.525
Resilient coping	p=.937	β = .128, p<.001	β = -.058, p=.006	p=.978

Scales (continued)	Alcohol consumption	Exercise frequency	Length of career	Attending Incidents
Anxiety, depression and stress	β = .046, *p*=.029	β = -.079, *p*<.001	β = .071, *p*<.001	*p*=.156
Sources of occupational stress	*p*=.503	p=.145	β = .168, *p*<.001	β = .078, *p*=.006
Burnout	*p*=.385	β = -.109, *p*<.001	β = .061, *p*=.003	β = -.089, *p*=.002
Intention to quit	*p*=.060	*p*=.095	β = .123, *p*<.001	β = -.069, *p*=.012
Impact of event	*p*=.135	*p*=.419	β = .100, *p*<.001	*p* =.926

10.4 FRS employment figures for England and Devolved Nations

A full breakdown of publicly available employment data is shared in Tables 11 and 12. The table outlines the last three years of data across England with the latest October 2022 figures included for completeness. At the time of analysis these figures and any amendments were not released. Data for Wales and Scotland follows a similar reporting structure to England, reported by StatsWales and the Scottish Fire and Rescue Service. For Northern Ireland the data is reported in a different format show in Table 12. This data represents employment figures for 2020 which is why we have also shared three years of available data for England, Scotland and Wales for comparison purposes.

Table 11. Data table of FRS employment figures shared by England, Scotland and Wales

Nation	Role	2020	2021	2022
England	Wholetime	22,793	22,720	22,781
	Retained	12,497	12,559	12,179
	Fire control	1,151	1,169	1,157
	Non-operational staff	8,076	8,219	8,233
	Total	44,517	44,667	44,350

Nation	Role	2020	2021	2022
Scotland	Wholetime	3,636	3,584	3,531
	Retained	2,937	2,872	2,758
	Fire control	188	182	174
	Non-operational staff	817	836	922
	Total	7,578	7,474	7,385
Wales	Wholetime	1,452	1,454	1,474
	Retained	1,332	1,240	1,279
	Wholetime	92	96	91
	Non-operational staff	602	626	618
	Total	3,478	3,416	3,462

Table 12. Data table of FRS employment figure shared for Northern Ireland

	Roles	2020
Northern Ireland	Wholetime	830
	Retained	882
	Fire control	57
	Non-operational staff	199
	Total	1,968

10.5 Results of North-South divide multivariate regression analysis

A multivariate regression analysis was carried out with north-south divide working as the independent variable and the scales as dependent variables. The north-south divide has shown non-significant relationships with all scales:

- social support (p=.134)
- intention to quit (p=.673)
- work engagement (p=.263)
- job satisfaction (p=.551)
- resilient coping (p=.824)
- sources of stress (p=.607)
- anxiety, depression and stress (p=.382)
- burnout (p=.352)
- intention to quit (p=.770)
- life satisfaction (p=.208)
- mental wellbeing (p=.664)

11. Glossary

Bluelight Services	Frontline services within the UK. Covers the ambulance service, police service, fire and rescue service, and the search and rescue service.
Burnout	Physically and emotional exhaustion brought on by chronic stress which has not been correctly managed.
Compassion Fatigue	Emotional or psychological strain experienced as a result of helping others deal with stressful or traumatic experiences.
Coping Strategy	An action or thought process consciously chosen by an individual to help them regulate their reactions to certain situations. Commonly used as a response to stress.
Critical Incident Stress Debriefing	Facilitator-led group intervention meeting that occurs soon after a traumatic event, conducted with the aim of mitigating the stress experienced.
Critical Incident Stress Management	A suite of intervention in the form of debriefing or diffusion steps which are carried out after a traumatic incident.
Deep Diversity	Encompasses both visible and invisible traits, including gender, sexuality, religion and disabilities.
Diffusing Technique	An action or thought process undertaken to reduce or release stress.
Emotional Intelligence	Being able to read and respond to the emotions of someone else as well as your own.
Emotional Literacy	Being able to clearly communicate our emotions and the impacts that they are having on us to others.
Family	Members of an individual's family unit, including children and partners/spouses.
Fire Fighters Charity	They are the UK fire family's charity, set up for every member of the extensive fire service community. They operate to help everyone live healthier and happier lives by providing a broad range of health and wellbeing services, online and in person.
Fire (and Rescue) Sector	Includes all key stakeholders, organisations, and groups with a vested interest in activities related to fire and rescue as a whole.
Fire and Rescue Service	Collective of all individual fire services within the UK.

Mental Health (WHO definition)	Mental health is more than the absence of mental disorders. Mental health is an integral part of health; indeed, there is no health without mental health. Mental health is determined by a range of socioeconomic, biological and environmental factors. Cost-effective public health and intersectoral strategies and interventions exist to promote, protect and restore mental health.
Mental Wellbeing (derived from Warwick-Edinburgh Mental Wellbeing scale definition)	The "positive aspect of mental health" that promotes happiness and good function. Exists along a spectrum of mental health, as does mental illness.
National Fire Chief Council	The National Fire Chief's Council (NFCC) is the professional voice of the UK fire and rescue service in the UK. It aims to improve and develop the sector and is the first point of contact with government and sector forums.
Peer Support	Support that comes from a trained colleague within an organisation.
Resilience	Personal ability to manage and overcome stressors.
Secondary Trauma	When an individual who was not directly exposed to a traumatic event still develops related trauma as a result of secondary exposure, like hearing descriptions of the event or being subjected to the negative reactions had by another individual.
Self-Efficacy	An individual's belief in their own ability to achieve certain things, or attain certain goals.
Social Connectedness	A feeling of closeness to other individuals, often leading to a sense of belonging within a community.
Social Support	Support that originates from family, friends, or co -workers (in a non-professional capacity)
Suicidal Ideation	Contemplating or dwelling on the possibility that taking one's own life would be the most beneficial course of action.
Support Ecology	A complete and multifaceted offering of a range of support types.
Trauma Risk Management	Peers are trained to recognise signs and symptoms of traumatic response so that sufficient support can be delivered early-on to limit adverse effects.

Traumatic reactions	Traumatic reactions can include a variety of responses, such as intense and ongoing emotional upset, depressive symptoms or anxiety, behavioural changes, difficulties with self-regulation, problems relating to others or forming attachments, regression or loss of previously acquired skills, attention and academic difficulties, nightmares, difficulty sleeping and eating, and physical symptoms, such as aches and pain.
Wellbeing (UK Gov, 2014 definition)	Wellbeing is about feeling good and functioning well and comprises an individual's experience of their life; and a comparison of life circumstances with social norms and values.
Wellbeing (What Works Wellbeing initiative definition)	Personal and subjective, but also universally relevant. Wellbeing encompasses the environmental factors that affect us and the experiences we have throughout our lives. These can fall into traditional policy areas of economy, health, education and so on. But wellbeing also crucially recognises the aspects of our lives that we determine ourselves: through our own capabilities as individuals; how we feel about ourselves; the quality of the relationships that we have with other people; and our sense of purpose. These psychological needs are an important part of what makes us human, along with our ability to feel positive and negative emotions. It matters how often, and for how long, we experience positive emotions – such as pleasure and a sense of purpose – or potentially negative emotions, like anxiety.

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The Fire Fighters Charity

NFCC National Fire Chiefs Council