

Sentinel: A co-created Digital Intervention to Support Trauma-Informed Mental Health and Wellbeing in Emergency Health, Social Care and Frontline Workers

Turning Workplace Trauma into Strength



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The Problem. Summary.

Frontline workers suffer from the increased risk of occupational trauma and developing poor mental health.

- Struggle to get the help and timely support.
- Lengthy waiting times.
- Difficulties accessing face to face treatment.
- Stigma of mental health help seeking.
- Lack of specialist and credible support specific to their needs.

49% experience acute stress **indicative of trauma.**
(Cogan et al, 2022)

sources: <https://press.hse.gov.uk> / www2.deloitte.com



Setting the Scene.

Frontline health and social care workers operate in high-pressure, high-stakes environments where split-second decisions can save lives.

Repeated exposure to distressing events can take a toll - this isn't about weakness, but human response.

Resilience is a skill that can be nurtured, and recovery is an active process.

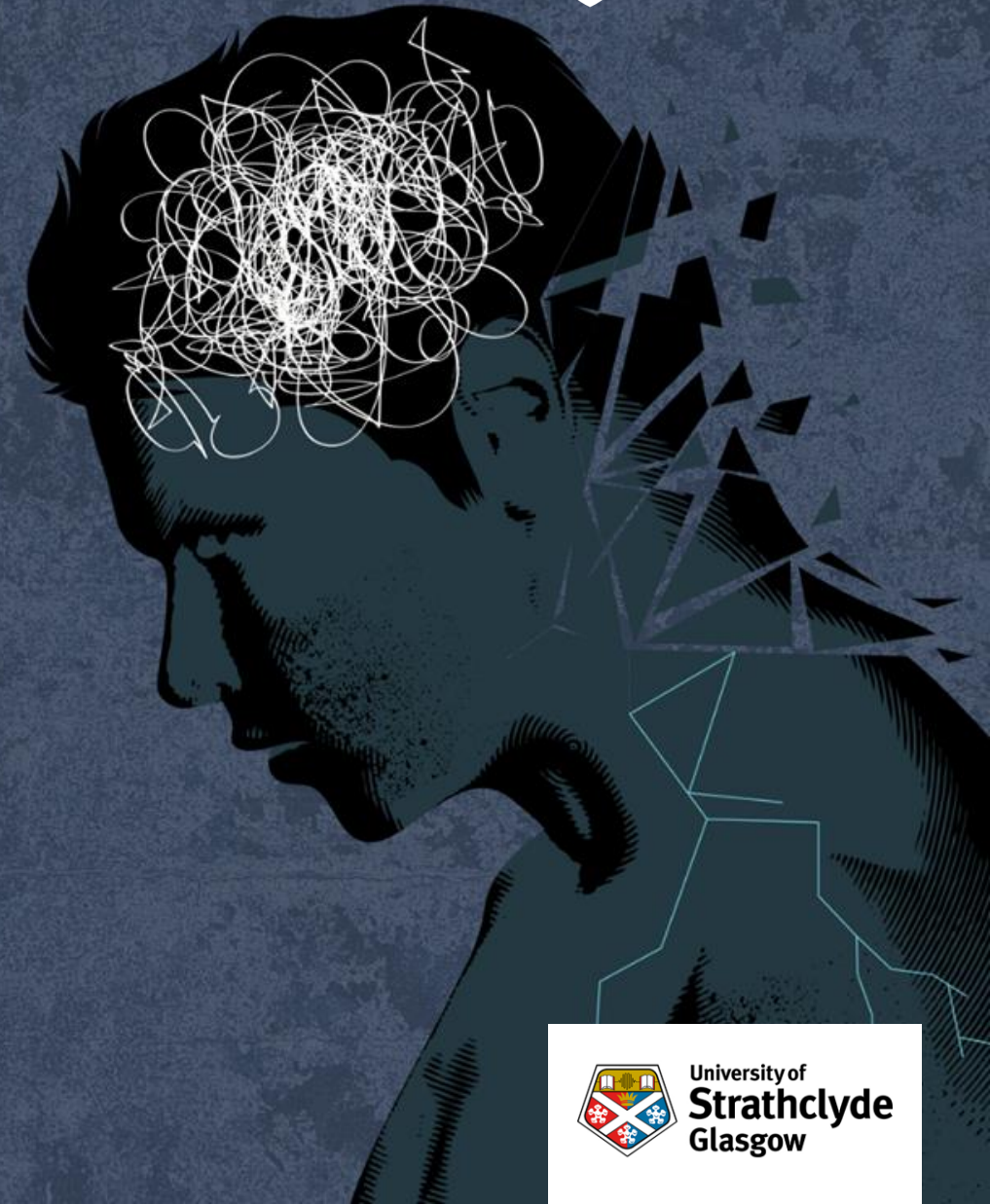
Why this matters: personal wellbeing, team cohesion, and long-term workforce sustainability (West et al., 2018).



What We Mean by Workplace Trauma.

Trauma can stem from:

- **Single critical incidents** (e.g., serious accidents, violence, sudden loss).
- **Cumulative stressors** and repeated exposures — ongoing pressures, chronic understaffing, repeated exposure to distressing situations.
- **Microtraumas** — subtle but repeated experiences such as being undermined, excluded, or exposed to disrespectful behaviour over time (Cogan et al., 2024)



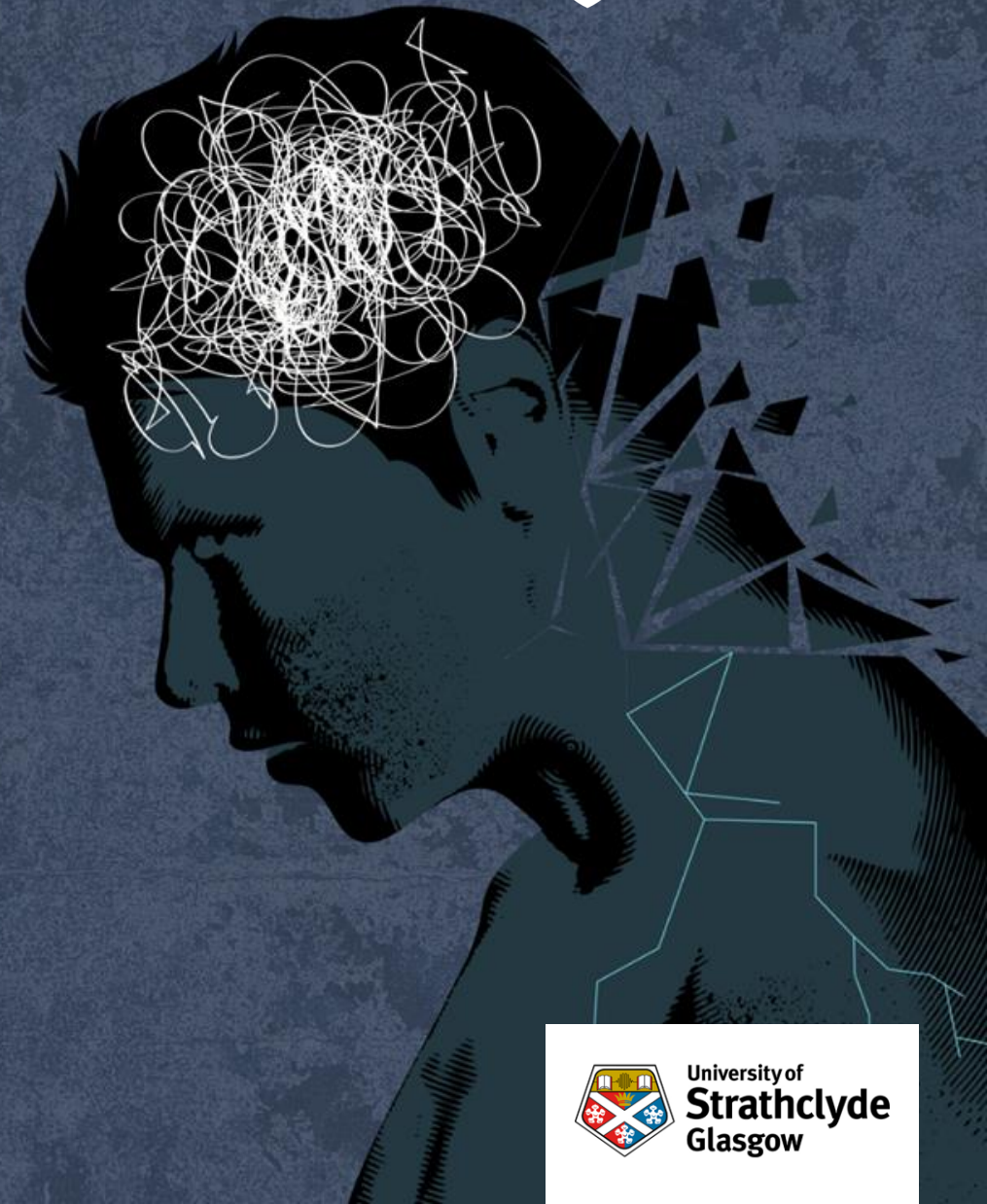
The Impact of Trauma.

Impacts may be:

- **Emotional:** fear, anger, guilt, shame.
- **Physical:** fatigue, headaches, muscle tension.
- **Cognitive:** difficulty concentrating, intrusive thoughts.
- **Relational:** withdrawal from others, irritability.

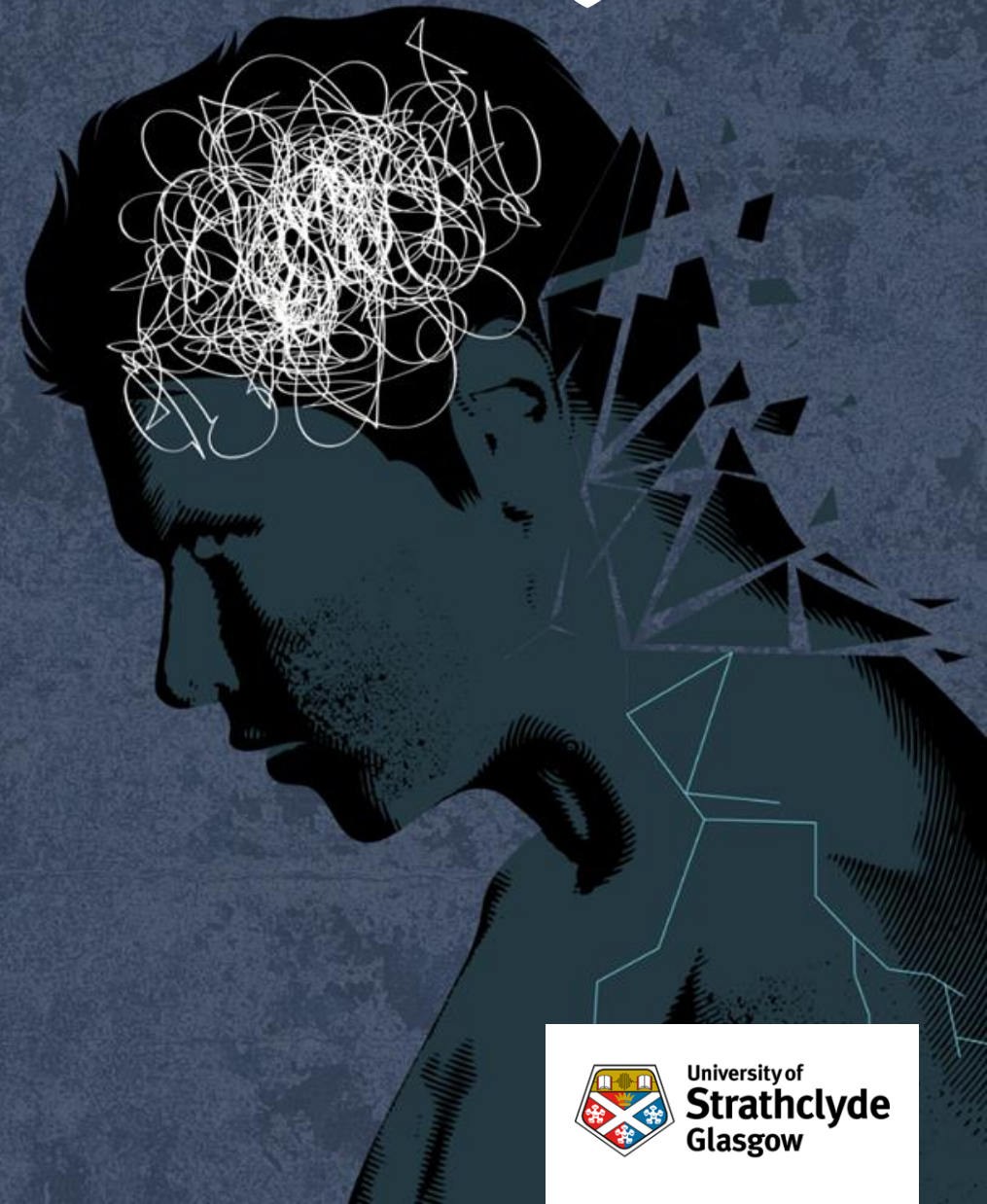
It is the internal response — shaped by our history, context, and support - not just the external event, that defines trauma.

Recognising that these responses are normal reactions to abnormal or prolonged stress helps reduce stigma and encourages help-seeking (van der Kolk, 2014).



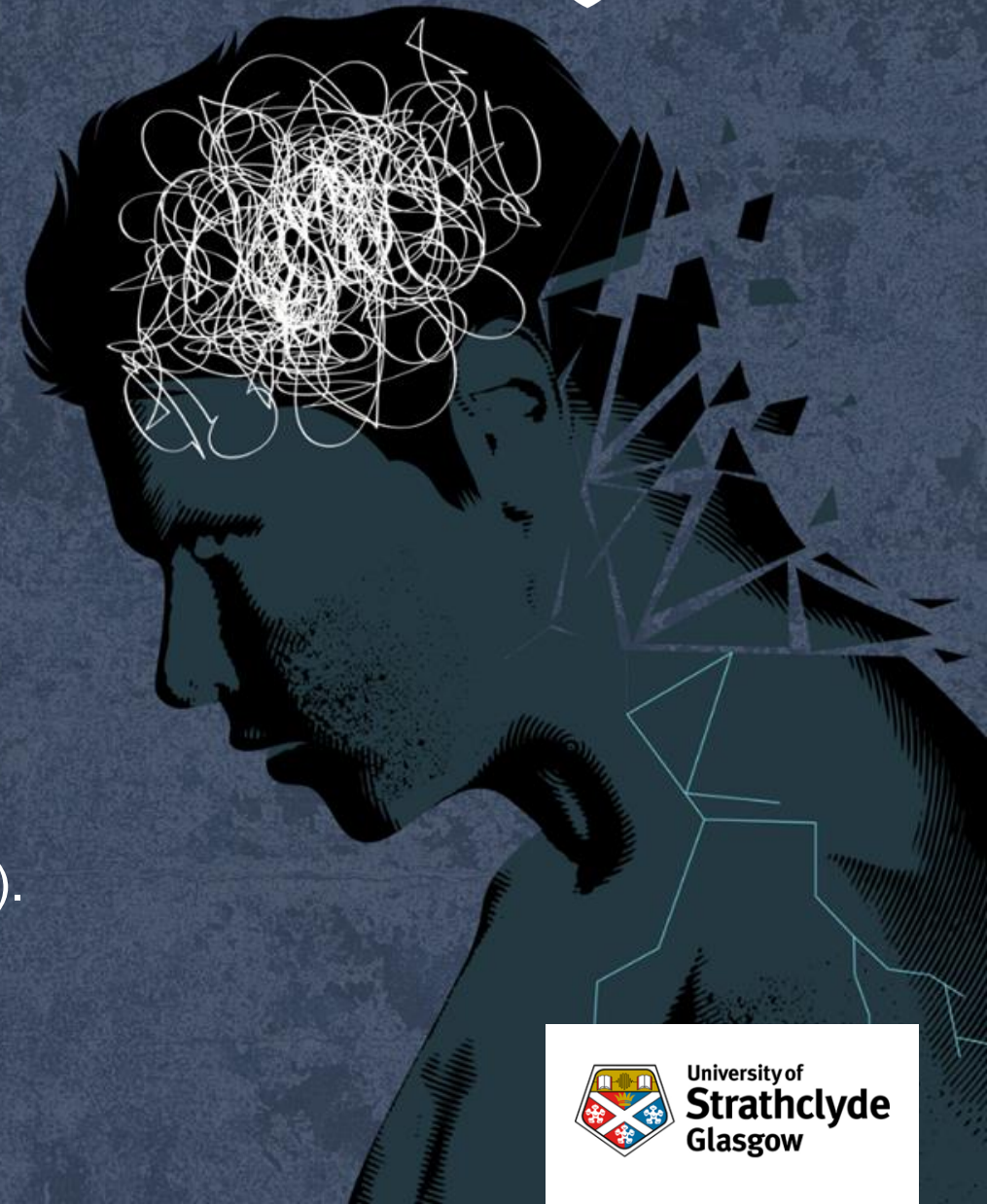
The Cost of Unaddressed Trauma.

- **Increased sickness absence** and reduced operational readiness.
- **Higher staff turnover** and loss of experienced personnel.
- **Decline in morale**, trust, and engagement across teams.
- **Financial costs** to organisations — recruitment, training, lost productivity.
- The '**too hard to do**' box: without clear evidence and solutions, organisations delay action.
(Deloitte, 2020; HSE, 2023)



The Opportunity in Adversity.

- Post-Traumatic Growth (PTG) is when individuals find positive personal change after adversity.
- This can include a deeper appreciation for life, stronger personal relationships, and new professional purpose.
- Frontline workers often describe finding new meaning in their role after difficult experiences.
- PTG doesn't mean the trauma was good — it means growth is possible despite it (Tedeschi & Calhoun, 2004).



Co-creation. **Surveys.**

200+

Survey Responses.

85-95%

Qualitative responses to open questions.



94%

Experienced trauma at work directly or indirectly.

82%

Noticed the effect of traumatic events in their thoughts.

64%

Interested in an app designed to take care of their mental health.

* Conducted by University of Strathclyde under stringent ethical guidelines.

Co-creation. Interviews.

Emergency First Responders' Experiences of Occupational Trauma.

Understanding the problem from the perspectives of first responders

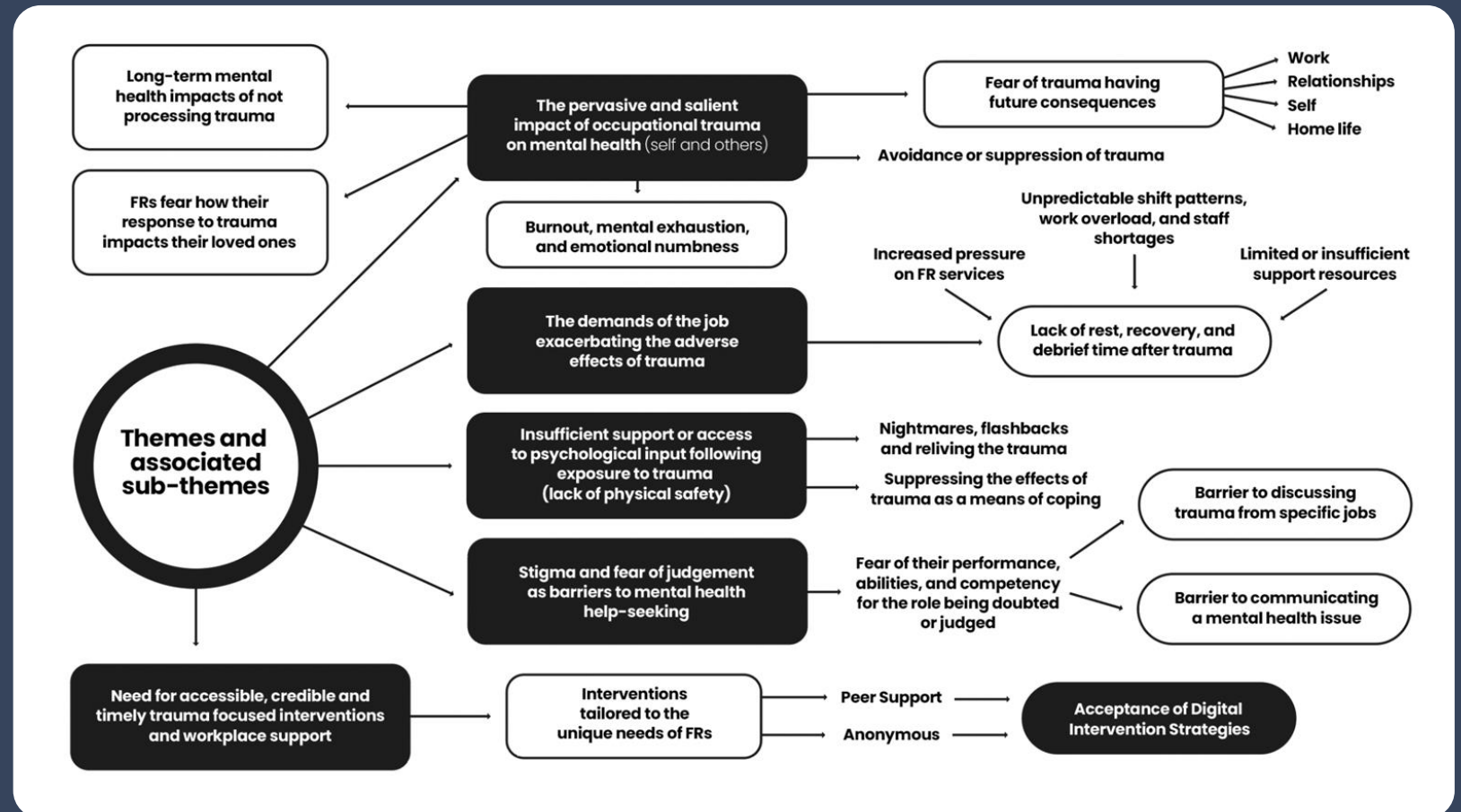
21 paramedics

15 fire fighters

12 emergency healthcare workers

6 police

* Conducted by the University of Strathclyde under stringent ethical guidelines.



“I've got no PPE to protect my mind and that's what leaves you in a bit of a vulnerable position.”

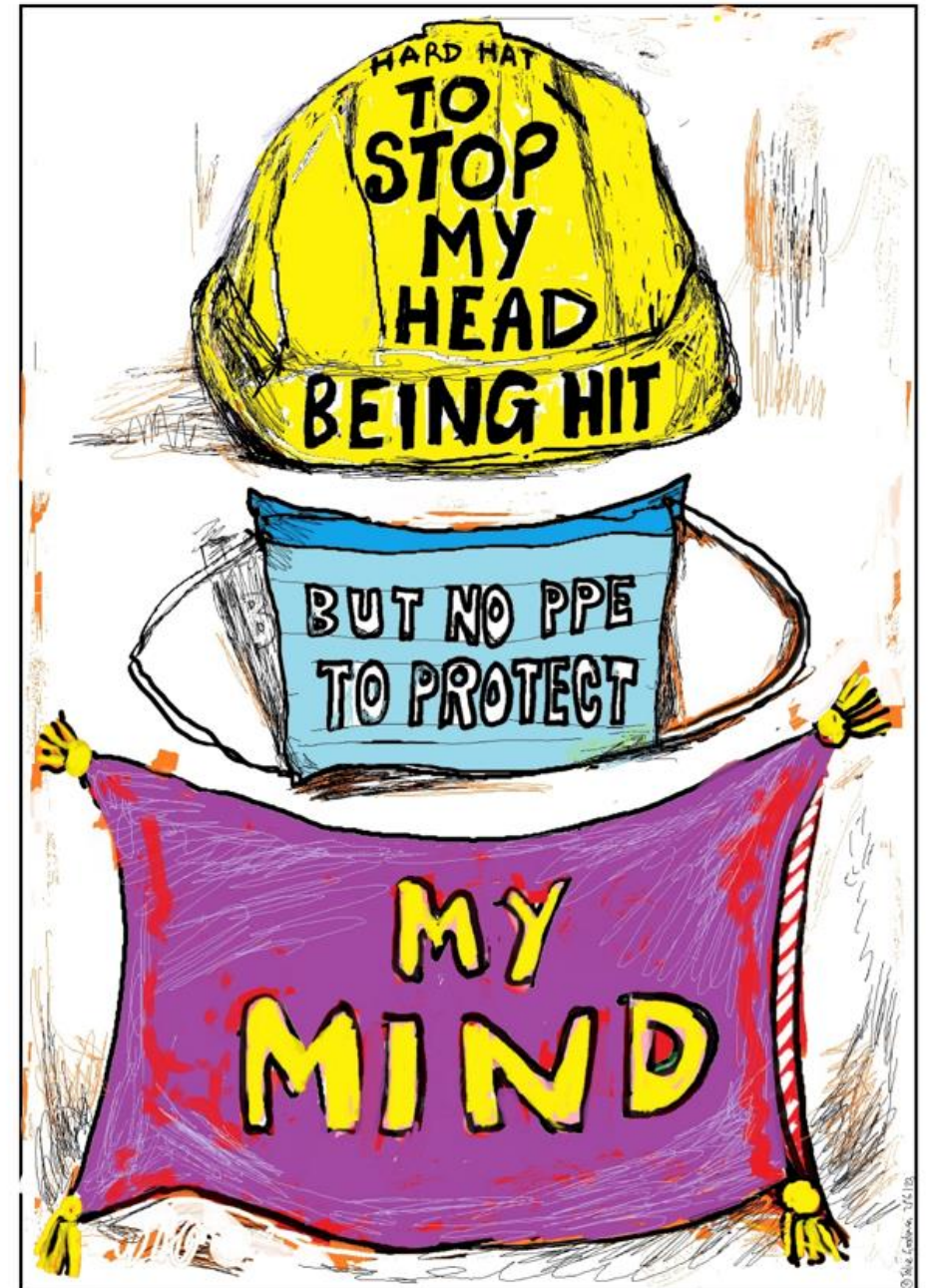
Emergency first responders' experiences of occupational trauma. *

European Journal of Psychotraumatology

* Taken from qualitative interviews.



Scan me!



Co-creation. Interviews.

Designing Digital Mental Health Interventions with Paramedics: A Reflexive Thematic Analysis of Co-Creation and Acceptability.

Lived experiences and views on
overcoming barriers to traditional mental
health seeking using digital tools

22 paramedics

Pre-print of paper :

JMIR
Human Factors



* Conducted by the University of Strathclyde
under stringent ethical guidelines.

Five key themes emerged:

1. Ease of Use

Paramedics emphasised the necessity for a simple, intuitive design that doesn't add to their cognitive load post-shift.

2. Personalisation

A preference for tools adaptable to individual coping styles, schedules, and emotional states was evident.

3. Peer Support

The value of connecting with colleagues who understand their unique pressures was highlighted.

4. Confidentiality

Concerns about data security underscored the need for absolute privacy to mitigate fears of stigma or professional repercussions.

5. Human Integration

Participants stressed that digital interventions should complement, not replace, human-led mental health support.

Outcome from Insight Report

Qualtrics survey of a prototype (screenshot walkthrough of the Sentinel app) gathering feedback on **acceptability, content, design, and usability**.

496 participants across UK frontline sectors (avg. 14 years service).

76% expressed a clear need for this type of digital intervention.

High satisfaction scores:

- Content **82%**; Design **88%**; Credibility **84%**; Need **91%**

83%+ found content relevant, coherent, and appropriate for the target audience.

Privacy and confidentiality highlighted as critical concerns.

Desired features: **Panic Button/Crisis Support, Peer Support/Community Chat, AI-assisted therapy, Stress monitoring**.

Overall: Sentinel is viewed as **intuitive, professional, and much-needed** for trauma prevention and management.

💬 *“Sometimes I just need reassurance that what I’m feeling is normal given what I’ve experienced, and this app could this validation.”* — Nurse respondent



Take part in our survey

Academic Research.

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Psychotraumatology and Artificial Intelligence: A Public Health Approach

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Abstract

Public health is increasingly becoming a central perspective and critical issue worldwide and is associated with a need to understand populations, diagnoses and risk factors. A paradigm of institutions with a multi-level framework that focuses on level. It is postulated that adopting a wider systems perspective that will accelerate understandings of traumatic events that have the potential to facilitate post-traumatic growth and machine learning algorithms with a range of the need to harness computational approaches to big data and 'best practice' governance structures to improve public health outcomes.

Keywords: Psychotraumatology; Trauma; Artificial Intelligence

Abbreviations: PTSD; Post-Traumatic Stress Disorder; AI; Artificial Intelligence.

Introduction

There has been increasing interest in the discipline of traumatic stress in the field of public health. Exposure to trauma is associated with substantial costs to individuals, communities, societies and wider economies (1). Epidemiological research from countries worldwide indicate that traumatic events occur commonly across the lifespan (2), often with major consequences for mental and physical health (3). Psychological trauma has increasingly been understood as a transdiagnostic risk factor across a wide range of mental health conditions such as depression,

European Journal of Psychotraumatology
Volume 16, 2025

'I've got no PPE to protect me and experiences of first workplace'

'No tengo EPP para protegernos y experiencias de intervención expuestas'

Abstract

Background: First responders (FR) are at high occupational risk. Responding to critical incidents, such as road traffic accidents, fires, and major disasters, can lead to acute and chronic stress. FRs are exposed to occupational trauma and have a high risk of developing post-traumatic stress disorder (PTSD) and other mental health problems.

Objective: This study aimed to explore the experiences of FRs in their mental wellbeing. The wider objective was to explore the experiences of FRs in their mental wellbeing and to identify the factors that influence their mental health.

Method: A qualitative research design using semi-structured interviews was used to explore the experiences of FRs in their mental wellbeing. The study was conducted in a hospital setting.

Results: Themes developed were: (1) the need for a multi-level system, (2) the need for a multi-level system, (3) the need for a multi-level system, (4) the need for a multi-level system, (5) the need for a multi-level system.

Conclusions: The implications of these findings are discussed in the context of the need for a multi-level system and the need for a multi-level system.

Journal of Occupational and Organizational Psychology

Coping with work-related stressors and burnout in mental health workers: A comparative focus on interpretative phenomenological analysis

Danielle Lamb, Nicola Cogan

First published: 11 September 2015 | <https://doi.org/10.1111/joop.12124>

Abstract

Experiencing excessive stress in the workplace can lead to costs both personally for individuals and for the wider economy. This study used two in-depth focus groups, one with FRs (n = 3) and one with Samaritans' volunteers (n = 8), to investigate work-related stressors, and build and maintain resilience. The focus groups were compared and analysed using interpretative phenomenological analysis to gain an in-depth understanding of those working in both statutory and voluntary adult mental health services. Themes emerged: (1) Perceived lack of control, (2) Building resilience, (3) The dual impact of values, and (4) The implications of these findings are discussed in the context of training to help foster resilience within mental health care systems of future investigation.

Practitioner points

- Resilience has been shown to be an important element in volunteering in mental health settings to cope with the stress of the role.
- Allowing staff reasonable control over their work, and providing them with the resources to carry out their work, is conducive to maintaining resilience.
- Consideration should be given to the dual nature of some mental health contexts, in terms of both the positive and negative values, values and environments.
- Training programmes using aspects of development such as acceptance and commitment training may also be able to help in maintaining resilience in mental health workers.

Taylor & Francis

A journey towards a trauma informed and responsive Justice system: the perspectives and experiences of senior Justice workers

El camino hacia un sistema de justicia sensible e informado en trauma: Perspectivas y experiencias de trabajadores experimentados del sistema judicial

Nicola Cogan, D. Dwyer, M. Fingleton, S. Saratchi, J. Leary, J. Black, M. Heaton

First published: 11 September 2015 | <https://doi.org/10.1111/joop.12124>

Abstract

Objectives: There is a risk of re-traumatisation for survivors of trauma who engage with the justice system, given their high propensity to encounter situations that trigger traumatic responses. While a growing body of research has explored the experience of trauma informed practice (TIP) from service user perspectives, little research has incorporated the views and experiences of practitioners working in the justice system in terms of the implementation of TIP in their service setting.

Method: An exploratory, qualitative research design based on semi-structured, in-depth interviews. One to one, online interviews were conducted with senior justice workers (n = 22) who had undertaken theoretically informed TIP training and had responsibility for its implementation. Interviews were audio recorded, transcribed and analysed using an inductive, reflexive thematic approach.

Results: The themes identified were: (1) Supporting staff and user knowledge and well-being, training, trust, safety, reflection, (2) Recognition in the value of TIP (reflected in the resources, supervision, infrastructure and physical environment), (3) Encouraging flexible, creative and collaborative ways of working (overcoming resistance).

Conclusions: The findings have implications at the service user, provider and organisational level. Emphasis is placed on the importance of overcoming barriers to implementing TIP through adopting a whole systems approach that encourages collaborative working while supporting staff well-being, access to ongoing TIP training, supervision and resources to establish a safe working environment. Implementing a strengths-based, non-pathologising approach to TIP service delivery within the justice system is essential. Further longitudinal work to explore the mechanisms by which TIP can help reduce re-traumatisation to service users and providers is recommended.

References

1. World Health Organization. (2019) *World Mental Health Report: Global Burden of Mental Disorders*. Geneva: WHO.
2. Kessler, R.C., & Üstün, T.B. (2008) *World Mental Health Surveys: The Prevalence and Burden of Major Depressive Disorder*. Cambridge: Cambridge University Press.
3. World Health Organization. (2018) *World Mental Health Report: Global Burden of Mental Disorders*. Geneva: WHO.

Citing Literature

Journal of Occupational and Organizational Psychology

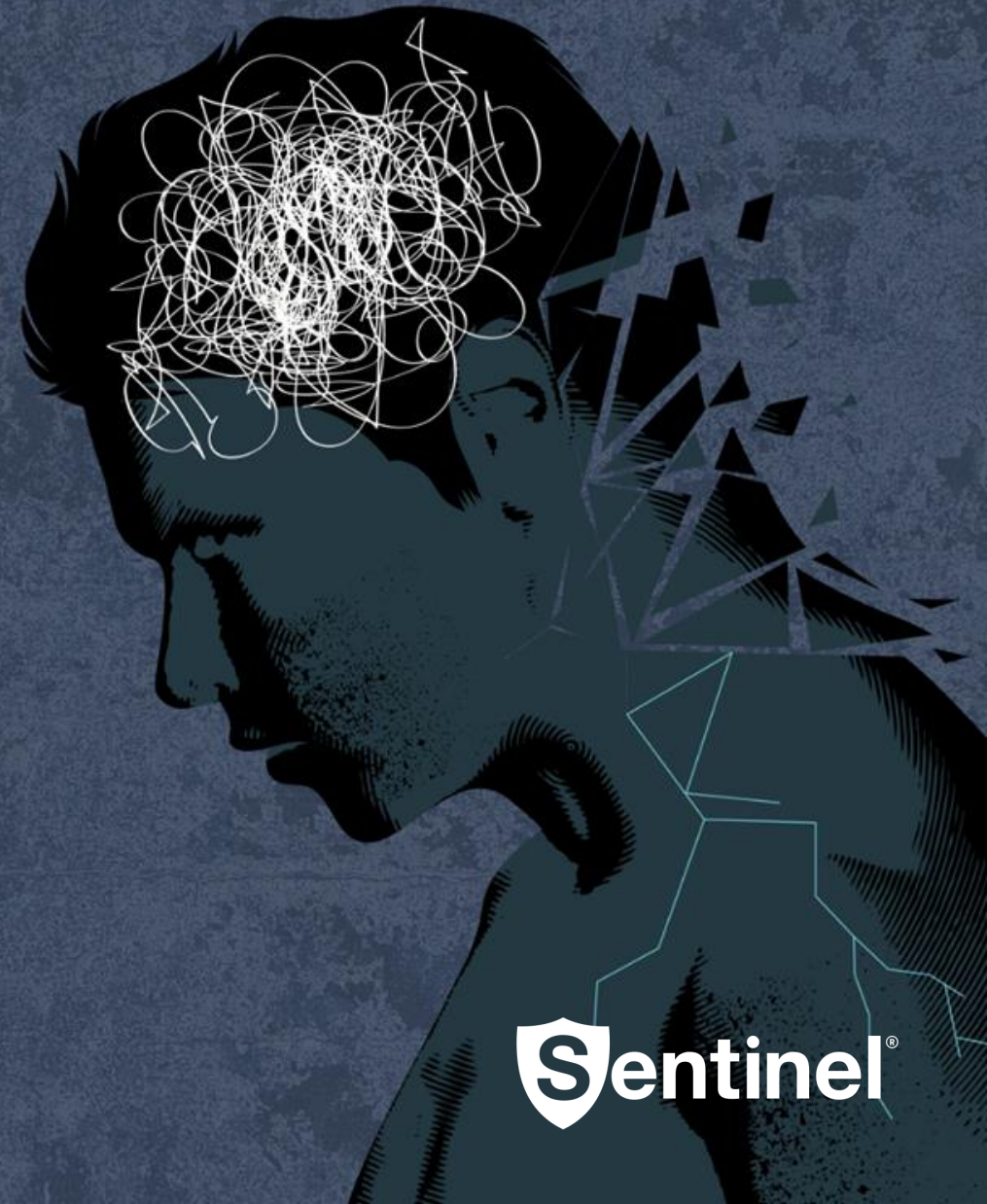


Ideas for Good.

Sentinel is a new **digital intervention** solution for the **prevention** and **management** of traumatic stress and the facilitation of **post-traumatic growth**.

Developed in **collaboration** with **Strathclyde University** and **Industry Partners**.

And **co-created** with and designed for **front line employees** exposed to trauma in the workplace.



Sentinel[®]

Co-created digital app: Sentinel.

- Sentinel is a digital tool co-created with emergency services and health workers.
- Provides immediate, evidence-based guidance in high-pressure moments.
- Offers reflective prompts and wellbeing resources tailored to frontline roles.
- Currently in research and pilot testing with NHS and emergency services partners.
- Designed to complement, not replace, human support systems.

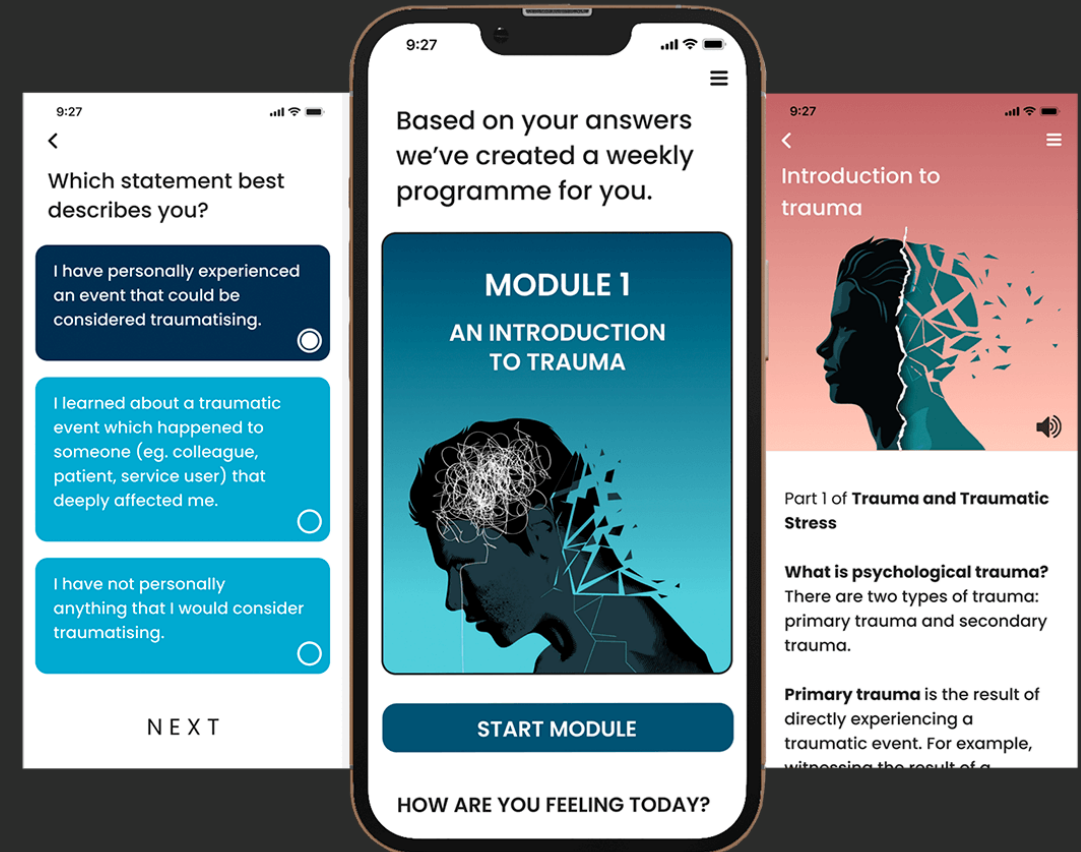


A Personalised Intervention.

Trauma Prevention and Management.

Sentinel is an evidence-based, trauma management application that utilises **Dynamic Profiling** to create a tailored and supportive experience for the end user.

Using a combination of **cognitive behavioural techniques** and exercises mixed with **various modes of engagement** (daily, weekly, triggered and discrete) the user is provided with visual and auditory content.



Our Solution. Scale of Content.

Trauma Care Content Produced.

Care Strategies: **4**

Number of Modules: **14**

Number of Components: **75**

Examples of content:

Understanding Trauma, Grounding Techniques, Sleep Therapy, Muscle Relaxation, Psychological Safety Anchors and Coping Strategies.

YOUR PERSONAL PROGRAMME



Continue with Part 2 of
An Introduction to Trauma



Collaboration Opportunities.

Research.

We can collaborate through Strathclyde University on R&D, including pilot testing
Upcoming PhD studentship title - Using Sentinel and Wearables to Explore Physical Activity, 24-Hour Movement, and Psychophysiological Measures of Stress and Trauma in Frontline Workers

Trials.

Sentinel is already the most advanced specialist trauma management solution in the market, registered as Medical Device (MHRA) and available for purchase.

Collaborate with us.

We are open to further ideas for collaboration.



Our Partnerships.

University of Strathclyde: Dr Alison Kirk (PAH – co-lead), Dr Susan Rasmussen (PSH), Dr David Young (Mathematics), Dr Marc Roper (CIS), Sotirios Terzis (CIS)

NHS 24: Professor Dawn Orr, Dr Donald MacIntyre

NHS Lanarkshire: Professor Patricia Graham, Dr Amdy Siddaway, Dr Susan Ross

NHS Highlands: Dr Hannes De Kock

Saudi Arabia: KAUST: Digital Tenancy; PNU, KFSRH, Batterjee Medical College

South Africa: Professor Ian Coupar – University of Stellenbosch

Developing partnerships in Ukraine, US and other industry partners (e.g. Aslef)

Sentinel[®]

WORKPLACE TRAUMA MANAGEMENT

Video of app



Scan Code
for Top Tips Video



Thank you

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