

# The Development and Feasibility Testing of Sentinel: A Co-Created Digital Intervention to Support Mental Wellbeing and Trauma Management in Frontline Workers and First Responders



SCAN ME

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## 1 BACKGROUND

Frontline health, emergency, and social care workers are frequently exposed to high-intensity stress, occupational trauma, and moral injury, leading to increased risks of psychological distress, post-traumatic stress disorder, and burnout. These challenges have significant implications for individual wellbeing, workforce retention, and health system performance. Despite the urgent need, access to scalable, trauma-informed, and evidence-based digital interventions remains limited.

## 3 METHODS

Sentinel was developed through a multi-phase participatory research process. Initial qualitative interviews with frontline workers explored experiences of trauma and barriers to support. These insights, combined with evidence on trauma recovery, psychological safety, and resilience science, informed intervention design. Iterative co-design and concept testing with 522 frontline workers optimised content and functionality. A mixed-methods feasibility study with up to 100 participants, including longitudinal follow-up and in-depth interviews with a sub-sample of 30, is assessing impact and acceptability.

## 5 CONCLUSION

Sentinel is a co-created, trauma-informed digital intervention aligned with national and international strategies for mental health in high-risk occupational groups. It offers a scalable, context-sensitive solution to a pressing public health challenge.

Future phases include cultural and linguistic adaptation for Saudi Arabia, Ukraine, and South Africa, alongside a powered randomised controlled trial. Integration of wearable technologies (e.g., heart rate variability, sleep, movement) and neurophysiological measures is underway to deepen insights into stress responses.

Further development includes AI-driven personalisation and a natural language processing-based trauma conversation simulator to support reflective learning and engagement.

## 2 OBJECTIVE

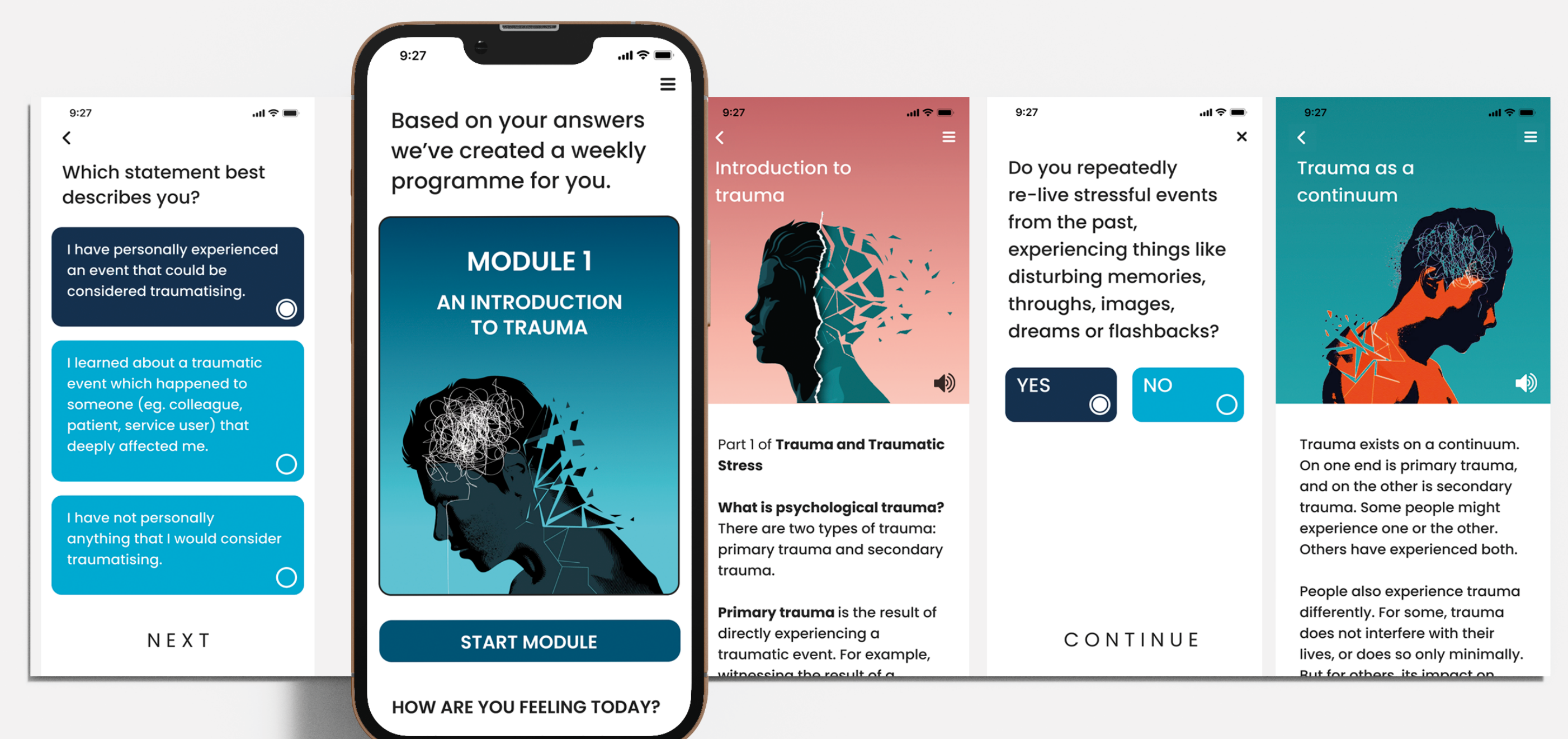
To co-develop and evaluate the feasibility of Sentinel, a trauma-informed digital intervention to strengthen psychological safety, emotional resilience, and post-traumatic growth among emergency health, social care, and frontline workers.

## 4 RESULTS

Findings show strong user engagement and high perceived relevance and authenticity of the content. Participants valued Sentinel's trauma psychoeducation, grounding techniques, and reflective tools, highlighting that the language resonated with real-world experiences. Users appreciated the flexible, stigma-free access to mental health support.

Early qualitative data suggest Sentinel promotes recognition of trauma responses, encourages help-seeking, and fosters a sense of connection and validation within a workforce often marked by silence around psychological distress.

### Sentinel - Trauma Management and Prevention



## REFERENCES

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## ETHICS

All participants recruited to take part in the study provided informed consent, and full ethical approval was obtained from the University Ethics Committee at the University of Strathclyde.



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**"I've got no PPE to  
protect my mind"**

(Jo, Paramedic)

