



THE UNIVERSITY  
*of* ADELAIDE

Ellie Lawrence-Wood

Global Alliance Conference on  
Posttraumatic Stress



Australian Government  
Department of Defence  
Department of Veterans' Affairs

**CROSS SECTIONAL AND LONGITUDINAL HEALTH IMPACTS OF  
DEPLOYMENT AND WORKPLACE EXPOSURES AMONG  
MILITARY AND FIRST RESPONDERS**

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# Military and first responder occupations

- Occupational standards - physical and mental health requirements
- Selection and training and ongoing leadership support programs prepare, guide and assist in optimal performance, confidence and competence
- Repeated and regular trauma exposure is an occupational hazard of the job

Mental, physical and cognitive health can be impacted in the immediate and longer term by:

- Psychological trauma
- Injury
- Stress
- Environmental exposures and toxins

# Key questions:

- **How much and what type of exposure?**
- **What is the association between type and amount of exposures and mental health?**
- **When do symptoms emerge?**
- **What processes underlie the association between exposures and mental health outcomes?**

## The Metropolitan Fire Service(MFS) Health and Well Being Study (N=1061)

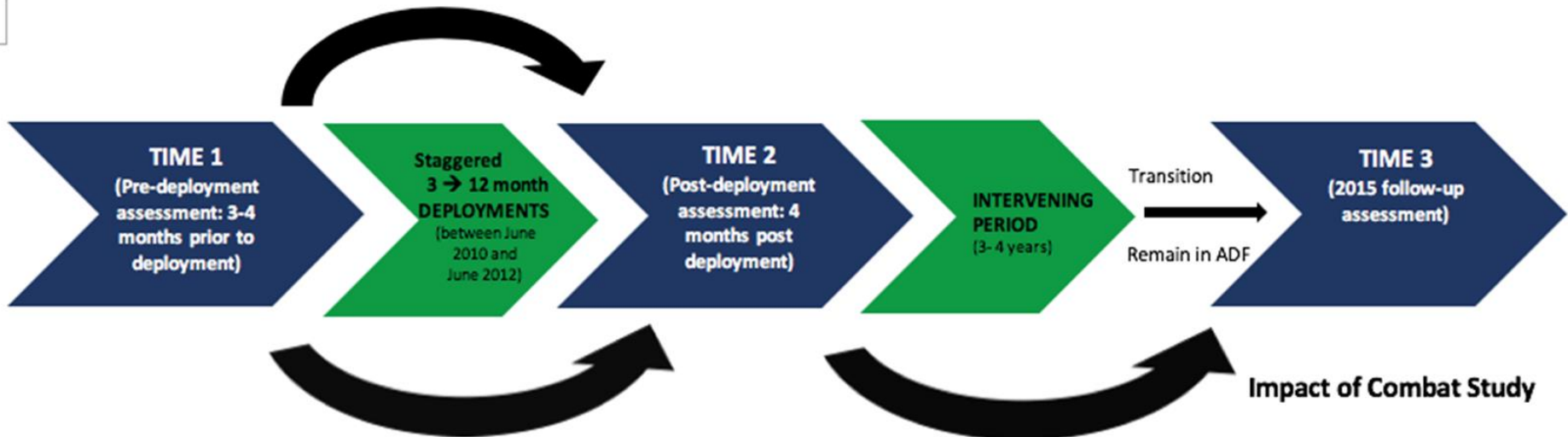
Participants were drawn from two nominal rolls  
and comprised:

- ◆ All currently serving full-time MFS  
personnel (N=830)
- ◆ All currently serving retained MFS  
personnel (N=205)

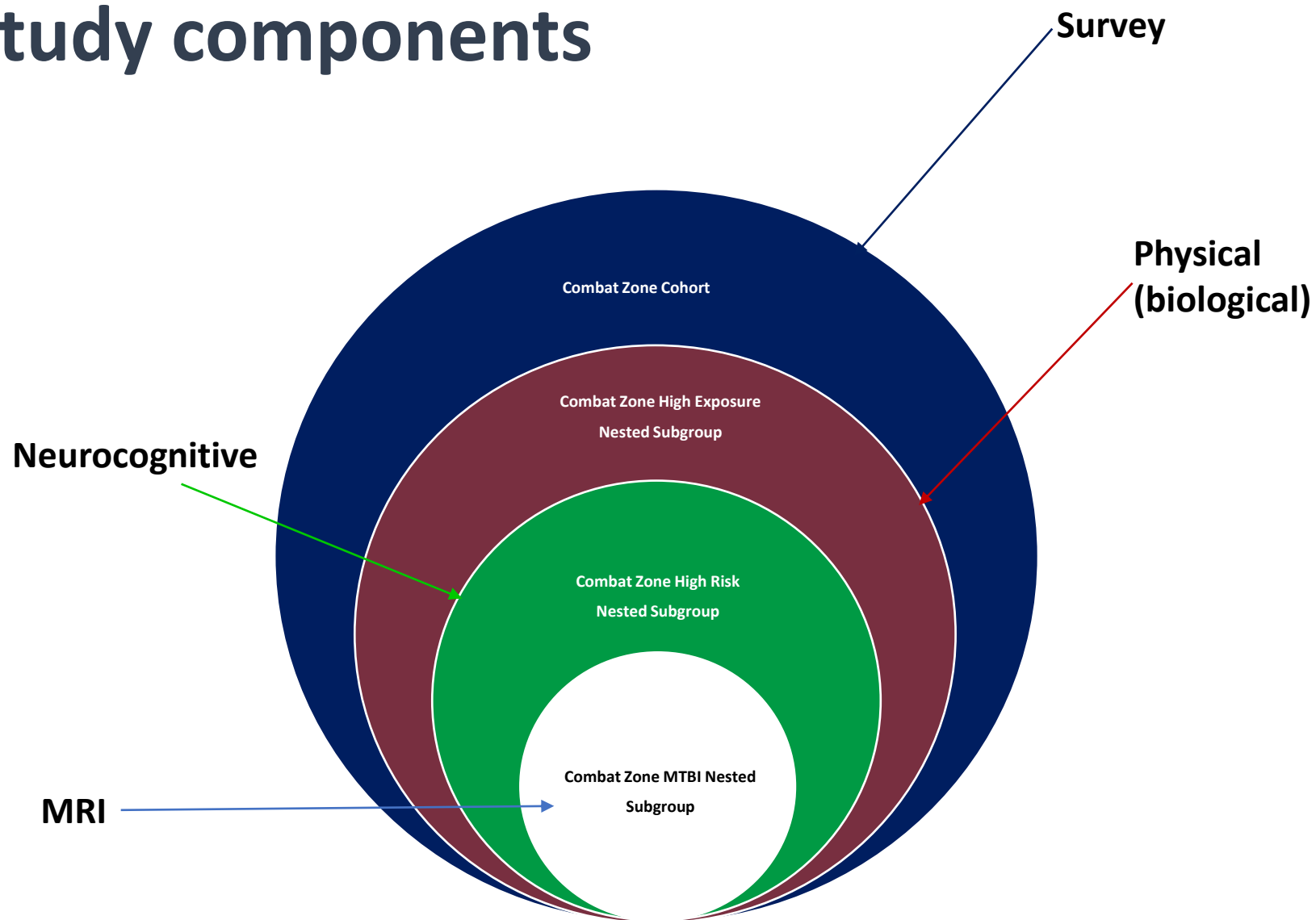


# MEAO Prospective and Impact of Combat Study

## MEAO Prospective Study



# Study components



# MFS and ADF samples

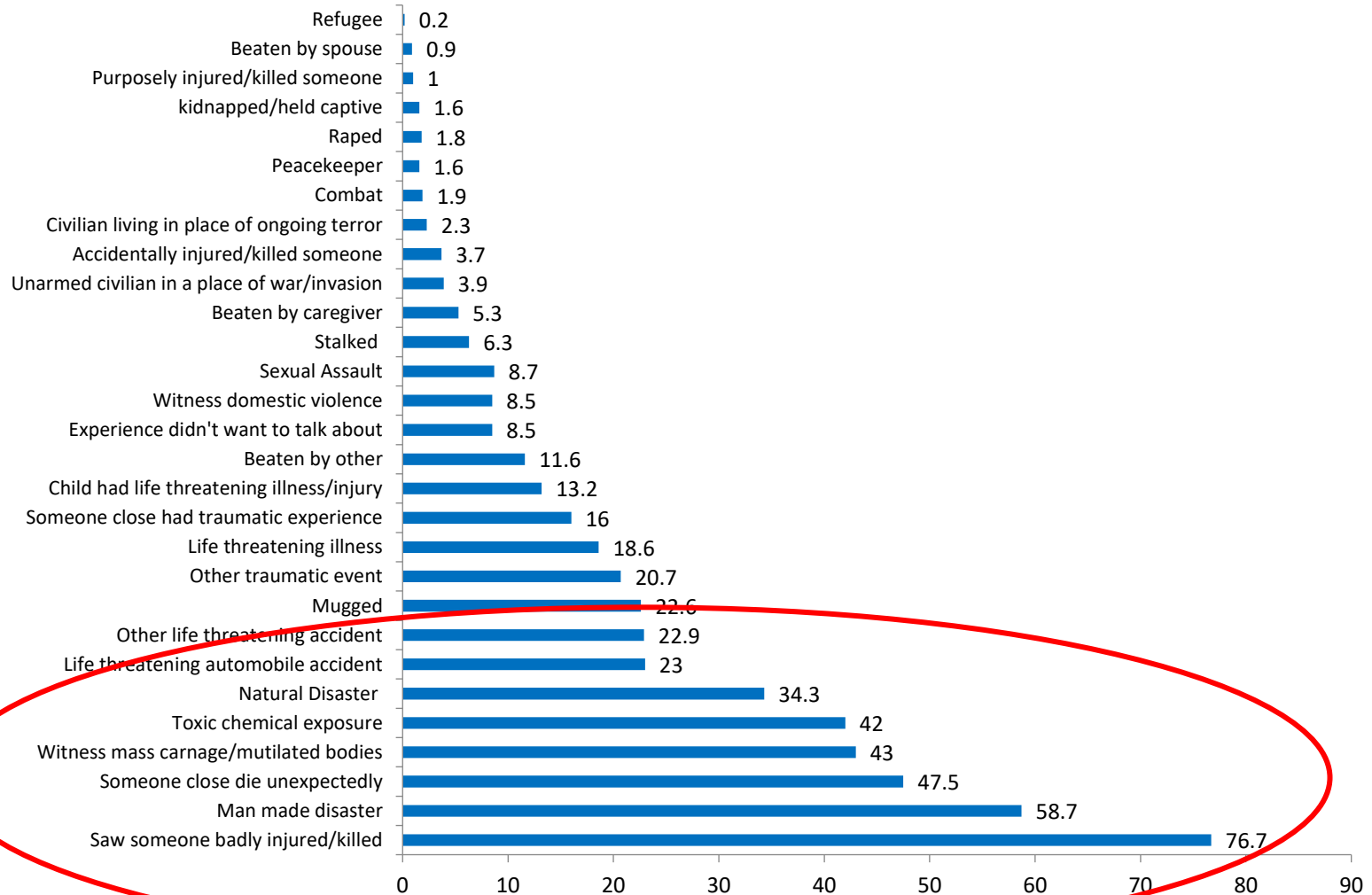
Many similarities:

- Younger to middle aged males
- Relatively high levels of exposure
- Majority 5 or more years of service

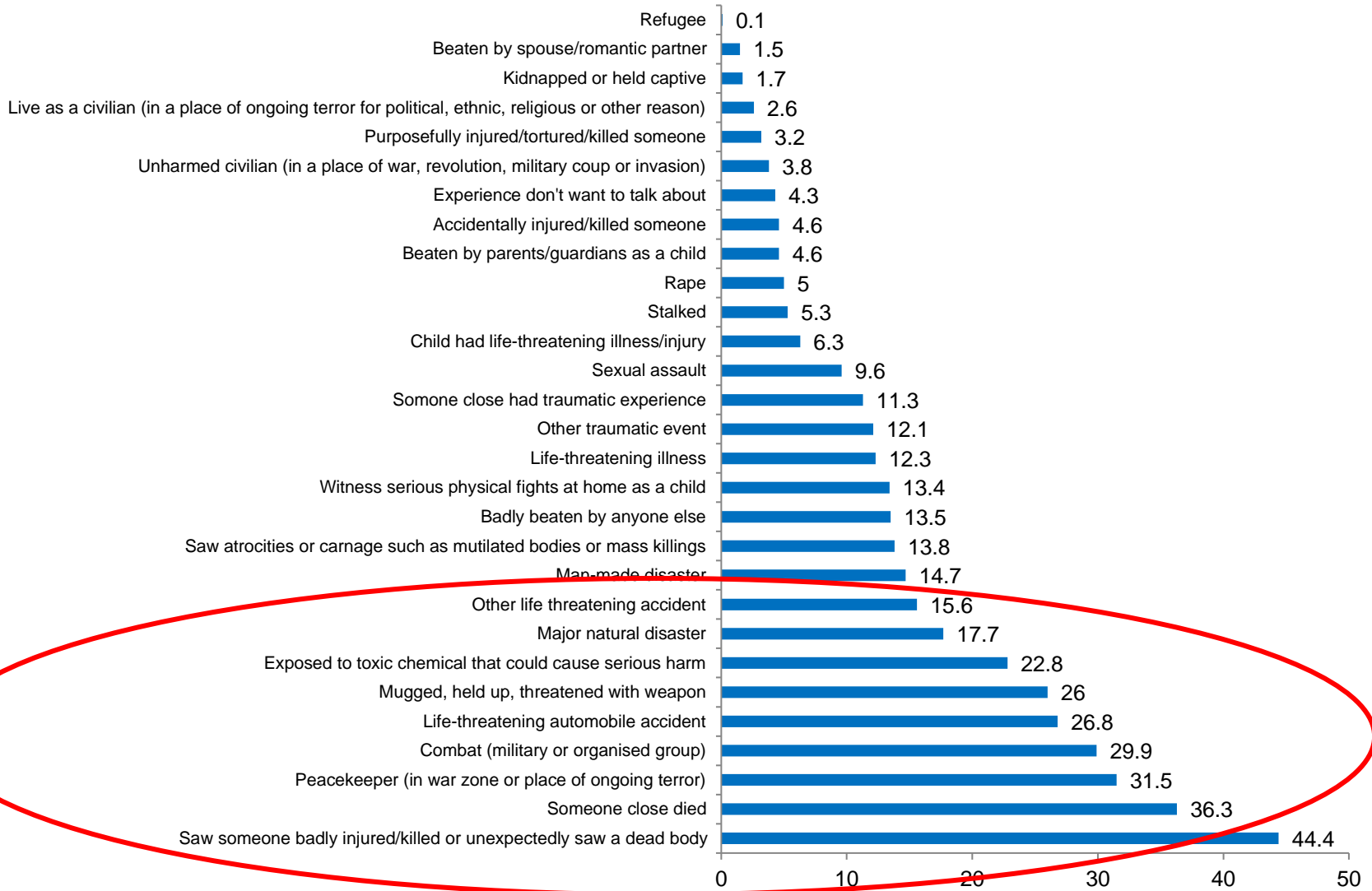


**Exposures: how much and what type?**

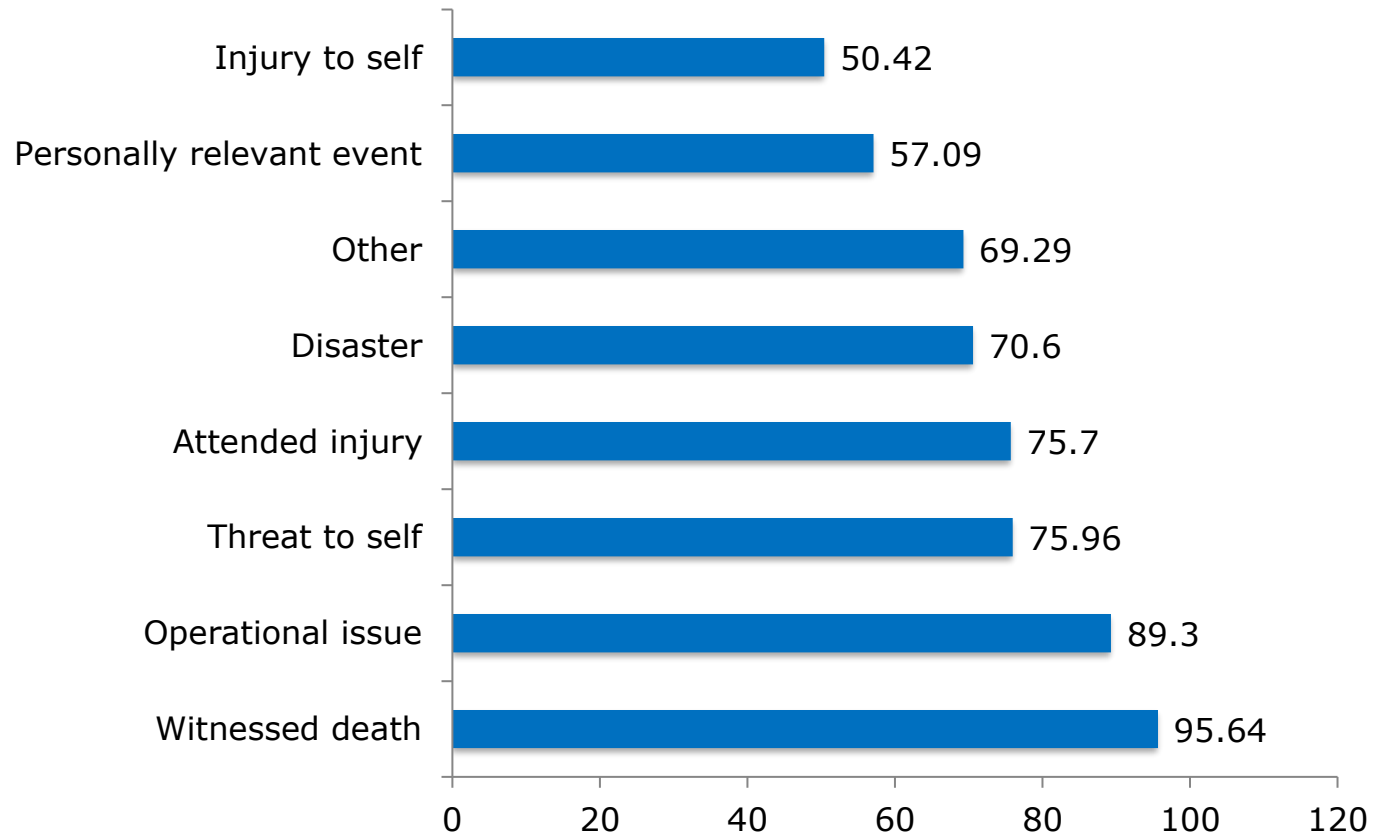
# Lifetime trauma exposure in the MFS



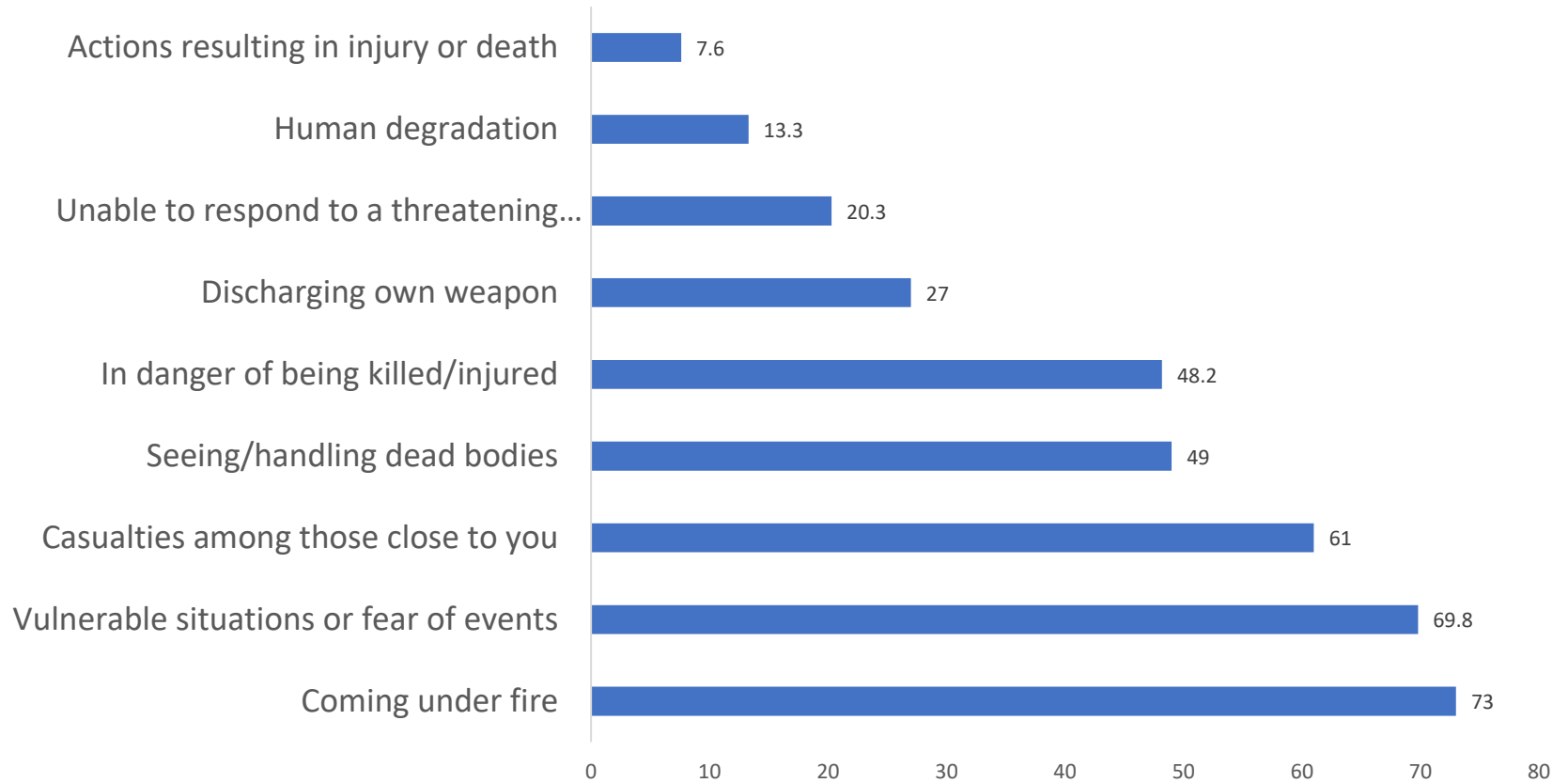
# Lifetime trauma exposure in the ADF



# Workplace exposures in the MFS



# Deployment exposures in the ADF



# Exposures and mental health

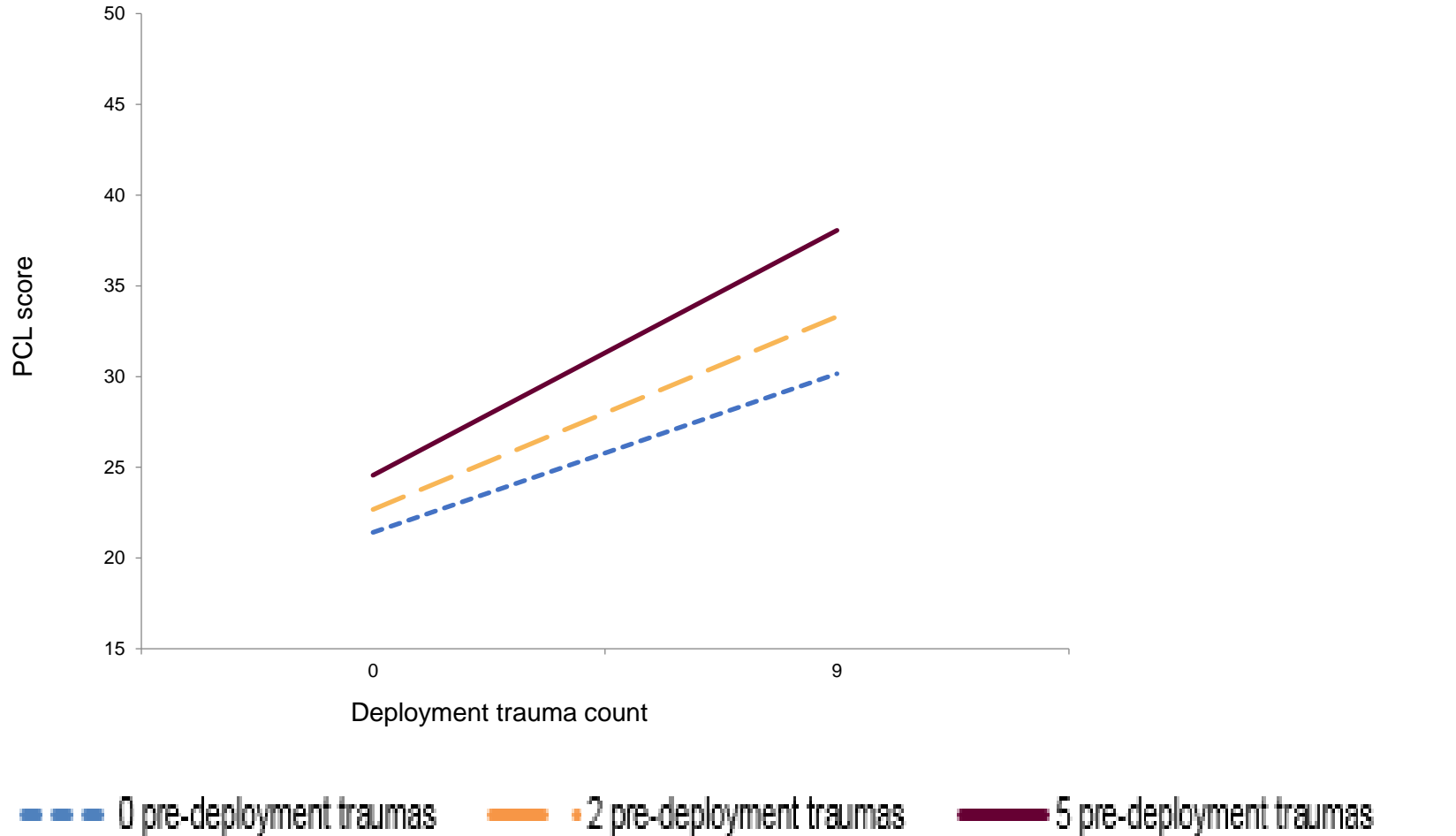
# Exposures and mental health in the MFS

Majority of the population healthy with few symptoms, despite significant levels of exposure

Current PTSD symptoms predicted by:

- Cumulative workplace exposures
- Specific workplace exposure types (Injuries to self, callouts to mental health)
- Lifetime trauma load
- Occupational stressors

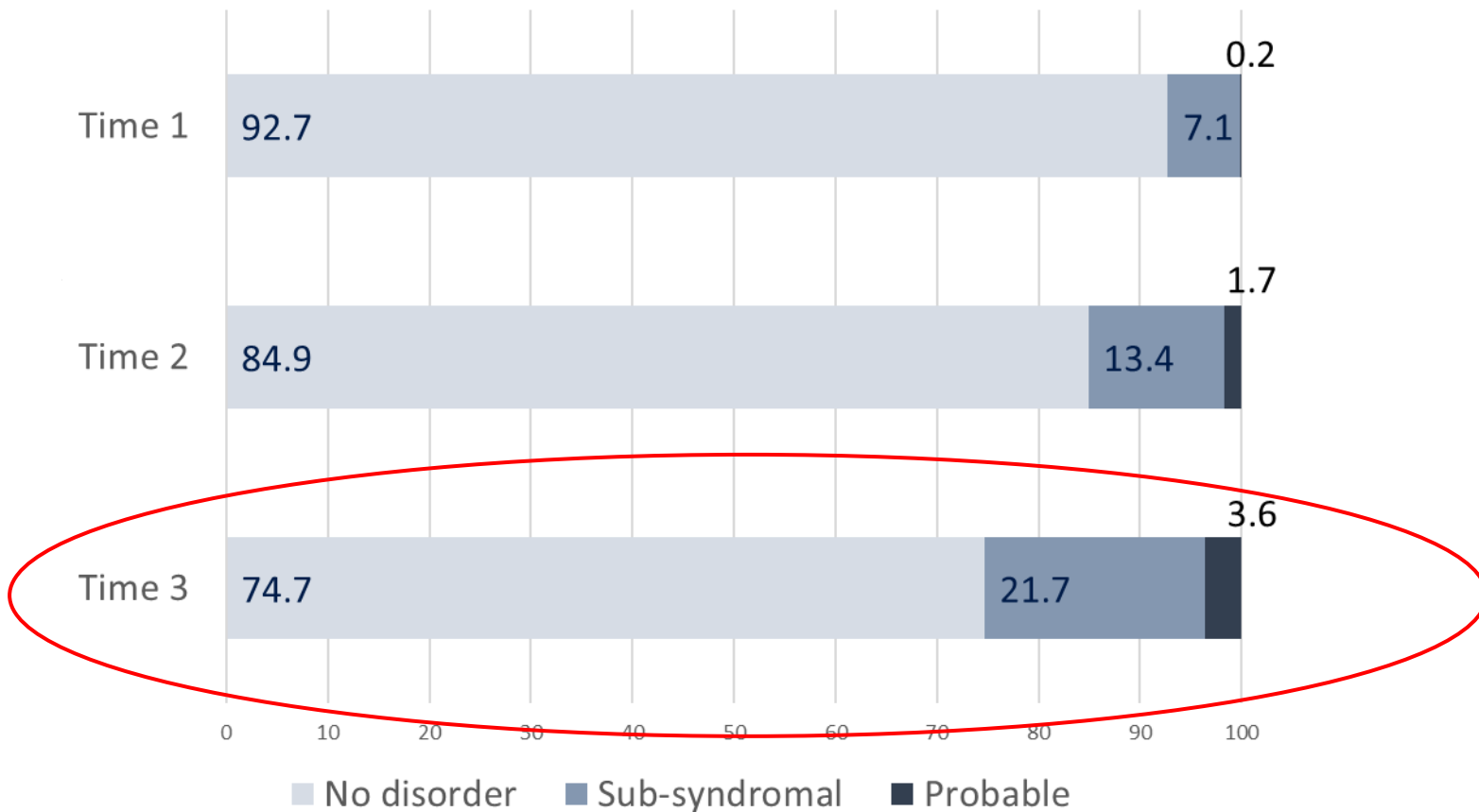
# Pre-deployment trauma, deployment trauma and mental health in the ADF





**When do symptoms emerge?**

# Posttraumatic stress symptom status over time in the deployed ADF



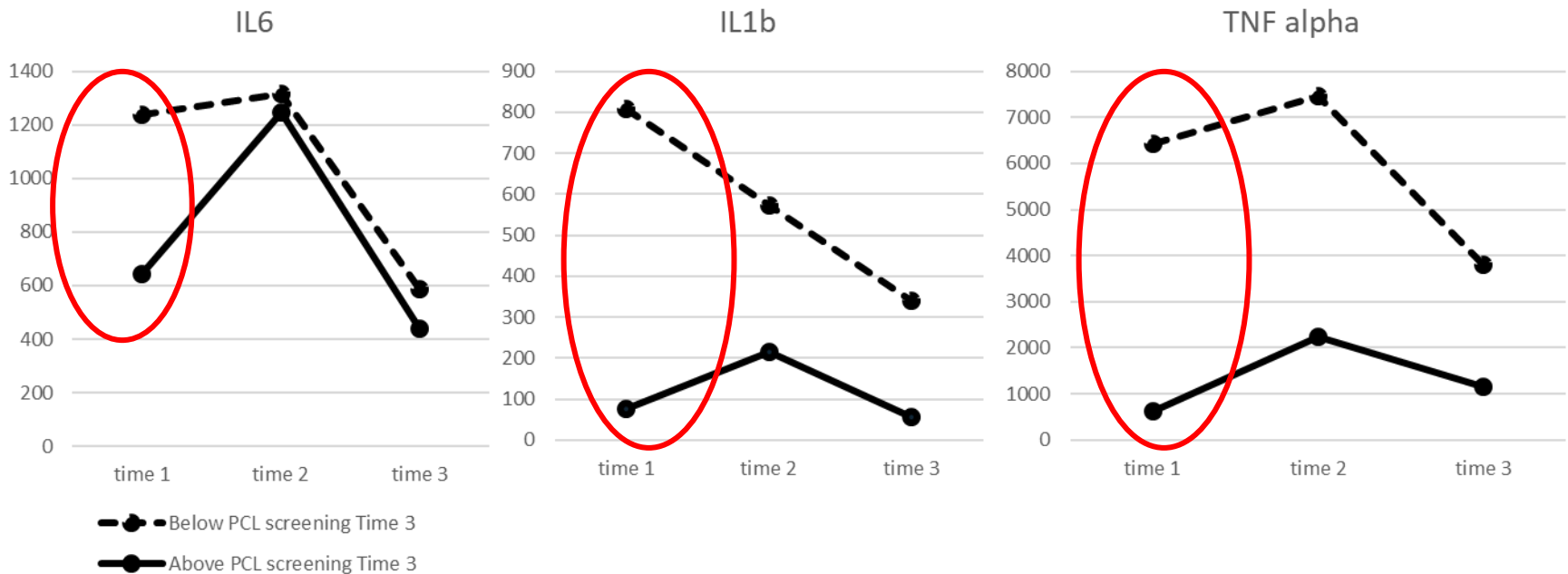
# **Predictors of posttraumatic stress symptom recruitment at over time:**

- **Lifetime trauma exposures at baseline (incl. prior combat)**
- **Number of potentially traumatic exposures on deployment**

**Underlying processes?**

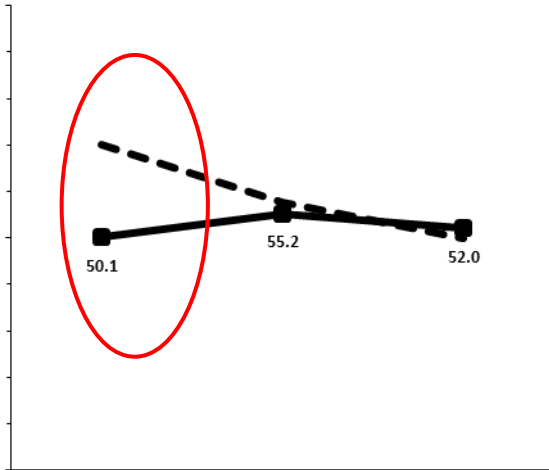


# Inflammatory marker change over time

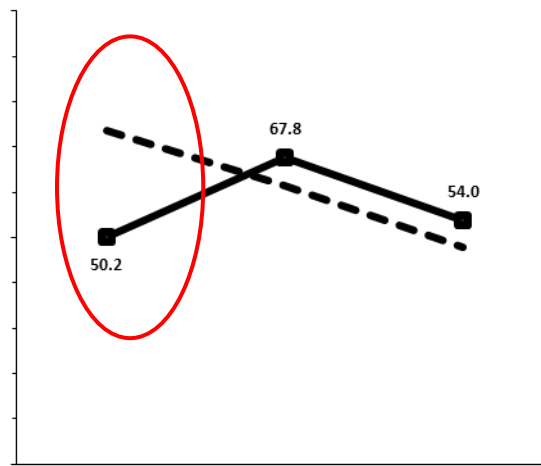


# Resting brain over time

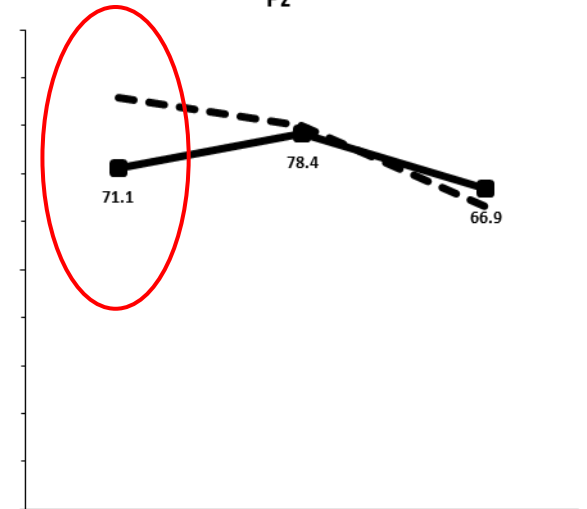
P3



P4



Pz



— Above PCL screening Time 3

- - - Below PCL screening Time 3



# Key points

- The level of exposure to traumatic events and stressors is high in these occupations
- All potentially traumatic events (lifetime, workplace, other stressors) may have detrimental effects on military and first responder personnel, regardless of timing or source
- Cumulative exposure predicts recruitment of mental health symptoms

# Key points

Health impacts are multidimensional:

- Mental health (PTSD, Psychological Distress)
- Physical health and underlying physiological processes
- Cognitive health (resting brain function, working memory, attention, emotion regulation and recognition)



# Key points

- Exceptionally healthy populations
- Symptoms emerge slowly and progressively over time in a subset
- The effects of exposures on health manifest across multiple domains
- Subtle shifts in symptoms and markers are detectable well before, and may predict, the emergence of sub-threshold or full disorder.

# Implications

- Need for a multidimensional focus on health
- Identification and monitoring of early changes (e.g., small shifts in mental distress, reduced ability to relax or concentrate, underlying shifts in systems)
- Management of early shifts to optimise performance and mitigate future risk (e.g., exercise and diet, mindfulness meditation, brain training)



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