

Mental Health theme

Lead investigators: (collaboration - Schools of Social & Comm Med and Experimental Psychol)

David Gunnell (co-lead, Public Health / Epi), **Stan Zammit** (co-lead; Psychiatry), **Gene Feder** (Primary Care), **Matt Hickman** (Public Health / Epi), **Sarah Lewis** (Gen Epi), **David Kessler** (Primary care / trials), **Paul Moran** (Psychiatry), **Marcus Munafo** (Exp Psychol), **Ian Penton-Voak** (Exp Psychol) , **Dheeraj Rai** (Psychiatry), **Nicola Wiles** (Epi / trials)

Associated Investigators:

Qualitative/trial development: Katrina Turner ; Lucy Biddle; Judi Kidger; Helen Lambert.

Genetic Epidemiology: Luisa Zuccolo

Epidemiology/Statistics: Claire Haworth; Oliver Davis; Jon Heron; Chris Metcalfe; Rebecca Pearson; Carol Joinson; Sarah Sullivan

Clinical academics: Jonathan Evans; John Potokar; Kyla Thomas.

Aim

- To use our expertise in causal analyses, and our existing RCTs, population & clinical cohorts and clinical networks, to identify promising targets for clinical or policy interventions for common mental and behavioural disorders.
- Three work streams:
 - ❖ Biomarkers
 - ❖ Causal analysis
 - ❖ Experimental medicine

Disease areas

- Psychosis
- Depression
- Suicide
- Addiction
- Domestic abuse

Why focus on these areas?

- Mental ill health is **the** leading cause of disability in the UK, depression is the leading specific cause
- 20% disease burden and estimated annual cost £70-100 billion
- Suicide leading cause of death in 15-50 year olds
- Psychosis a major international cause of disability - interventions to prevent and treat psychosis limited
- Alcohol is the third leading risk factor for disease and injury in W Europe
- Domestic violence experienced by 1 in 3 women causing long term damage to physical and mental health

Short term objectives

- S1 Determine modifiable exposures and cognitive biases on the **causal pathway** to mental health outcomes
- S2 Identify personality traits contributing to **treatment response** in psychological therapies for depression

Medium term objectives

- M1 Informed by aim S1, **develop cognitive intervention** for emotion recognition bias in the strongest target condition for feasibility testing
- M2. Develop and conduct **feasibility trials** of choice architecture intervention for alcohol abuse and of trauma-focused therapy for PTSD post domestic violence
- M3 Identify **causal relationships** of adolescent alcohol use with health outcomes.
- M4. Identify the impact of media depictions of suicide on suicidal cognition and **transitions** to high-lethality methods.
- M6. Establish biomarker profiles to improve **prediction and risk stratification** of psychotic experiences.

Longer term – identifying biomarkers predicting response to psychological therapies; continued feasibility testing of interventions

Biomarkers: Predicting response to CBT

Background

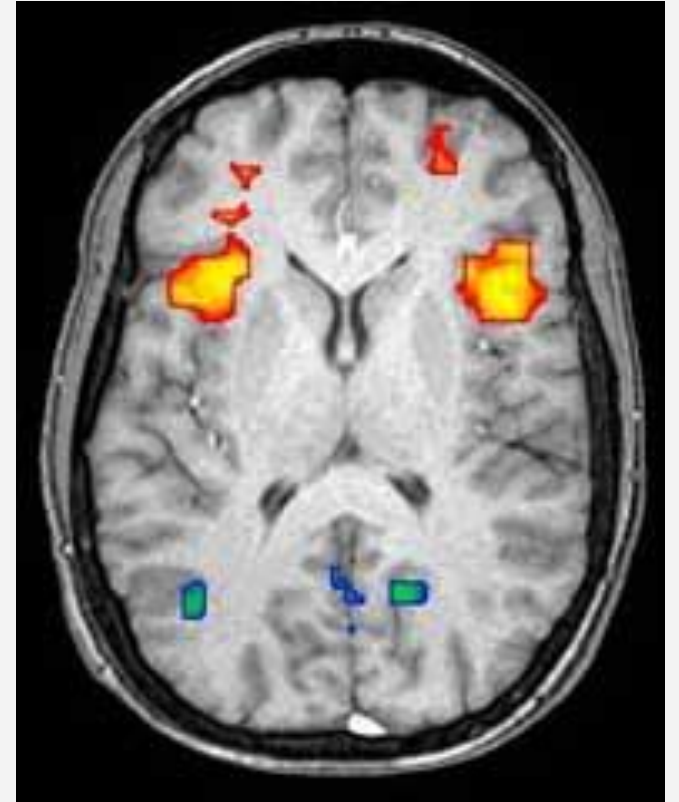
- Cognitive behavioural therapy (CBT) is an effective treatment for depression
- Limited evidence about factors affecting treatment response that could inform better-targeted interventions
- Research on automatic cognitive processes and neuroimaging changes (e.g. anterior cingulate activity) suggests these may predict treatment response
- Few data from large-scale RCTs

Research

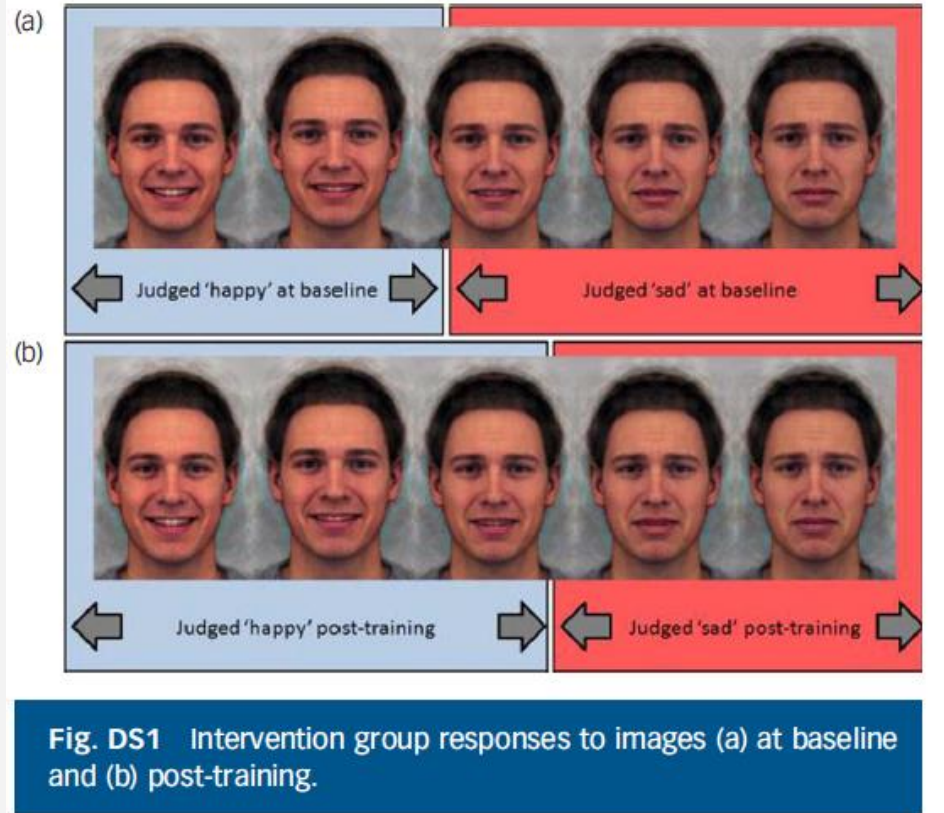
- Mechanistic study nested within our multi-centre INTERACT RCT (NIHR RP-PG-0514-20012)
- Will examine biomarkers (psychological tests; fMRI) that predict response to CBT

Potential Impact

- Better targeted interventions for depression



Causal Epidemiology /Experimental Medicine – Emotion recognition training to improve mood



Background:

Emotion processing deficits / biases linked to onset and maintenance of depression.

Changes in emotion processing in response to SSRIs predict mood improvement in depression.

Similar perceptual changes can be delivered by cognitive bias modification (CBM) training

Research:

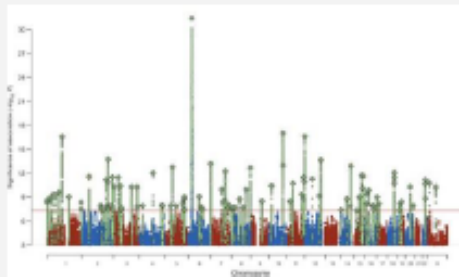
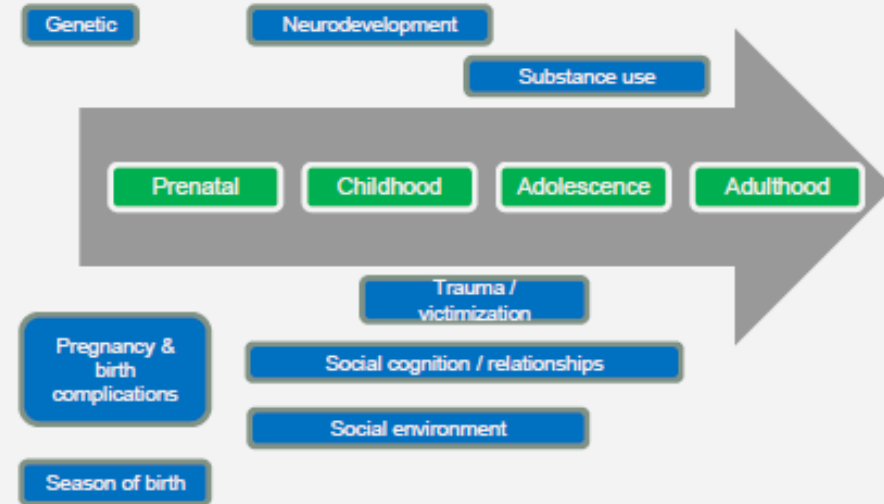
Identify targets by developing emotion recognition genetic risk profile scores for use in bi-directional Mendelian randomization analyses

Intervention development and testing

Adjunct therapy feasibility trial of CBM + SSRI

Potential Impact: Development of direct to consumer or clinical interventions with commercial partner

Biomarkers – Prediction of psychotic experiences and transition to psychotic disorder



Background:

Psychotic illnesses such as schizophrenia are a major health burden

Strong drive to identify individuals at high-risk early to offer preventative interventions

Robust prediction models for onset of psychotic experiences, and for transition from these to clinical disorder, are required

Research:

Use genomic, proteomic, cognitive, behavioural and psychological data to develop prediction models to test in other cohorts

Potential Impact on identifying young people at high risk of developing a psychotic illness

Experimental Medicine - The impact of media depiction of suicide on suicidal cognition and transitions to high lethality methods

Background:

Choice of method influences likelihood of death

Changes in commonly used methods may influence overall suicide rates

Media depictions may positively or negatively influence method preference

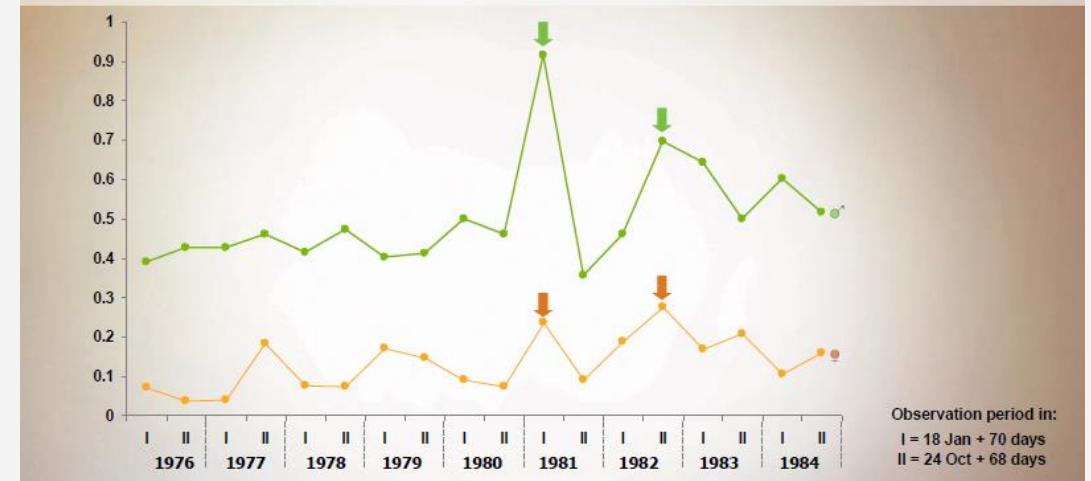
Research:

Healthy volunteers shown different depictions of suicide methods

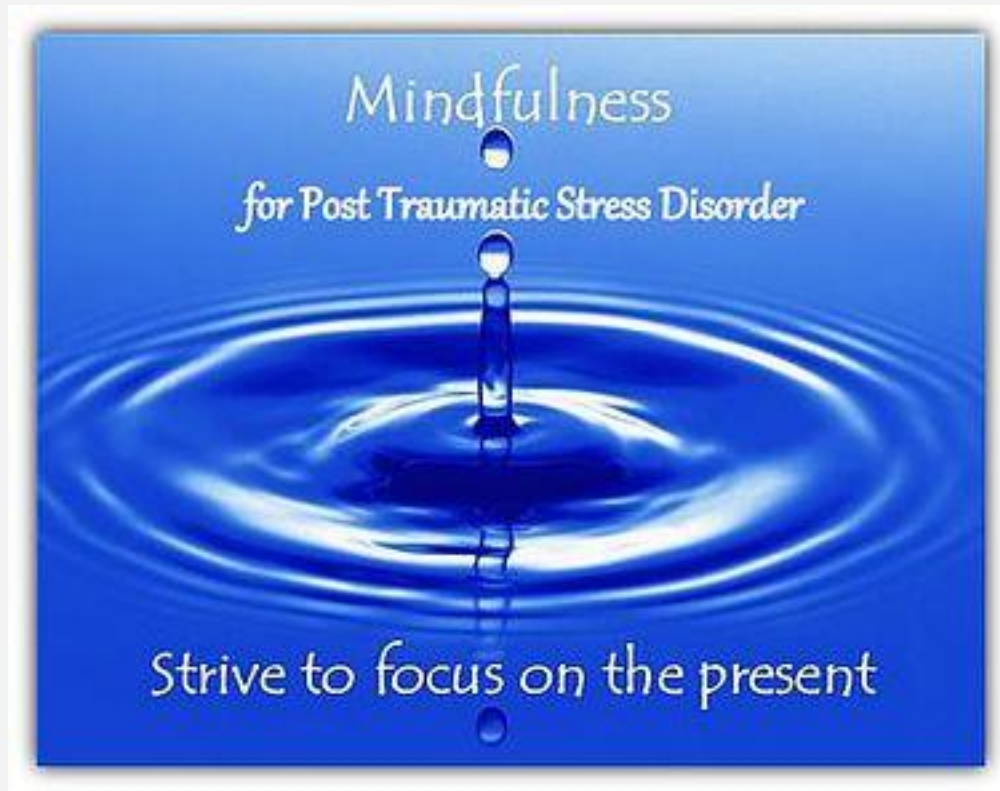
Impact on their neurophysiological responses and suicide-related cognition

Potential Impact on media reporting guidelines

Effect on method-specific suicide rates of TV depiction of rail suicide



Experimental Medicine: Mindfulness for survivors of domestic violence with post-traumatic stress disorder



- **Background.** In collaboration with survivors, we have adapted a standard mindfulness programme for the treatment of complex trauma of domestic violence.
- **Research:** (i) intervention refinement; (ii) feasibility study for a trial.
- **Impact:** (i) alternative psychological treatment without exposure work; (ii) increased uptake and retention in therapy; (iii) cost-savings.

Causal Epidemiology: influence of adolescent alcohol use on cognitive processes and liver damage



- **Background.** Adolescent alcohol use increases excessive consumption in young adulthood, but long term harms and effective interventions to complement strategies to reduce access to cheap alcohol are lacking
- **Research:** i) Use polygenic risk scores for alcohol misuse in ALSPAC to assess impact on cognitive processes and mental health; ii) assessment of contribution of adolescent drinking on liver function and fibrosis
- **Impact:** intervention content / timing of interventions

Thank you