after discharge; Future work will focus on breaking down some of the barriers experienced to living well; Working on refining a physical health intervention.

Depression Prior to Dementia: Examining Its Role as a Risk Factor, Prodromal Marker, or Confounding Comorbidity: A Synthesis of Current Research

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Aims: The relationship between depression and dementia represents a complex clinical phenomenon that continues to challenge our understanding of neurodegenerative disease progression. This review synthesizes the most recent evidence examining whether depression serves as a risk factor, prodromal marker, or common confounding comorbidity in dementia development.
Methods: A comprehensive review of recent research studies analysing the psychiatric markers associated with dementia onset were reviewed to develop a clinical framework for understanding and analysing the degree to which these psychiatric phenotypes are representing either risk factors, prodromal psychiatric markers or simply overlapping psychiatric comorbidity.
Results: Recent longitudinal research has revealed that mental disorders, particularly depression, significantly increase dementia risk, with symptoms manifesting up to two decades before dementia diagnosis. This research demonstrated that depressive symptoms often emerge as early as 15 years before formal dementia diagnosis, suggesting its potential role as a prodromal marker. These findings align with recent meta-analytic evidence confirming depression as an independent risk factor for dementia development.

Research has identified specific inflammatory pathways linking depression and neurodegeneration, with elevated inflammatory markers serving as a potential biological bridge between these conditions. This neuroinflammatory process appears to be bidirectional, with depression potentially increasing inflammatory markers that may accelerate cognitive decline, while neurodegenerative processes can trigger inflammatory responses that exacerbate depressive symptoms. These biological markers suggest shared pathophysiological pathways between depression and neurodegenerative processes, with inflammation playing a central role in both conditions.
Conclusion: The synthesis of research findings has significant implications for understanding and developing appropriate clinical practice and preventive strategies. The identification of depression as a risk factor, confounding variable and potential prodromal marker, is generally supported by robust longitudinal evidence and biological mechanisms and emphasizes the need for early intervention and regular monitoring of cognitive function in individuals with late-life depression. The evidence suggests a complex multifactorial interplay where depression may serve as a risk factor, comorbidity and an early manifestation of neurodegenerative processes, highlighting the importance of comprehensive assessment and long-term monitoring of depressed elderly patients for cognitive decline.

Development and Evaluation of an AI-Powered MRCPsych CASC Simulator for Exam Preparation

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Aims: Preparation for the MRCPsych CASC exam can present unique challenges for psychiatry trainees, including limited access to structured practice, real-time feedback and standardized patient interactions. This project aimed to develop the MRCPsych CASC Simulator (MCS), a custom AI-powered tool designed to enhance exam preparation by providing interactive clinical simulations, structured feedback and objective performance assessment.
Methods: The simulator incorporated three core roles – Doctor (candidate), Patient (actor), and Examiner – to create realistic CASC exam stations. MCS was trained in the functional aspects of the CASC, the requirements of both doctor and patient roles, along with the psychiatric expertise, knowledge and resources required. To test performance, we utilized validated assessment tools, including the examiner's marking sheet for the CASC, Simulated Patient Rating Scale (SPRS), Objective Structured Clinical Examination (OSCE) the Communication Assessment Tool (CAT) to ensure objective and standardized evaluation. The simulator was tested in two roles, doctor and patient, by two different human assessors. The interactions were recorded and replayed for each assessment. Five stations were completed for each role from various psychiatric specialties. These scores were used to compare MCS with stock ChatGPT and to gain an overall understanding of MCS' performance. Additionally, assessors requested MCS for immediate feedback on their questioning style, response phrasing, diagnostic accuracy and communication skills to gauge MCS' effectiveness in providing feedback.
Results: The assessors found that MCS was competent in psychiatric assessments and patient simulation. MCS provided comprehensive learning support including mnemonics, diagnostic frameworks and summaries which facilitated differential diagnosis, clinical reasoning and memorisation. MCS provided real-time performance tracking, allowing potential candidates to refine their skills through iterative practice and targeted improvements.

MCS proved to be a significantly more effective tool for CASC practice than stock ChatGPT, scoring higher in both doctor and patient roles. MCS outperformed stock ChatGPT by an average 58% in doctor roles and 25% better in patient roles. Overall, the assessors found MCS to be a vital tool in CASC preparation.
Conclusion: MCS offers a novel and effective approach to psychiatric exam training by providing structured, objective and interactive practice opportunities. Its ability to provide tutoring, simulate realistic patient interactions and offer personalized feedback enhances clinical reasoning, communication skills and exam preparation.

Ketogenic Metabolic Therapies for Psychiatric and Neurodevelopmental Disorders

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Aims: Emerging evidence suggests that disruptions in brain energy metabolism – including impaired insulin signalling, altered glucose utilization, and mitochondrial dysfunction – may contribute to psychiatric and neurodevelopmental disorders such as bipolar disorder, schizophrenia, depression, post-traumatic stress disorder (PTSD), and autism spectrum disorder (ASD).

Ketogenic metabolic therapies (KMTs) provide the brain with an alternative energy source in the form of ketone bodies, which have been hypothesized to restore metabolic balance and improve psychiatric symptoms. Here we review the potential therapeutic effects of KD for mental health.

Methods: A structured review of recent clinical research was conducted to evaluate the influence of KMT on psychiatric and neurodevelopmental disorders. Relevant studies were identified through a manual selection process.

Results: Across studies, KMTs were associated with improvements in both psychiatric and metabolic outcomes. Patients with severe mental illness – like schizophrenia and bipolar disorder – demonstrated symptom reduction, decreased psychotropic medication use, and, in some cases, remission. Individuals with metabolic impairments experienced resolution of metabolic syndrome criteria alongside psychiatric symptom improvements. Case series also indicate that KMTs may support symptom remission in depression and anxiety. Early clinical research and preliminary findings indicate the feasibility and potential benefits of KMTs in PTSD and ASD. Most studies monitored adherence to KMT through ketone testing, recognizing adherence as a key factor in achieving therapeutic outcomes.

Conclusion: These findings highlight the potential of KMTs as adjunctive treatments in psychiatry. Symptom improvements across mood disorders, PTSD, and ASD, along with metabolic benefits, warrant further clinical investigation. Metabolic psychiatry presents a novel approach to understanding and treating these conditions by targeting brain energy metabolism.

'Flow' Transcranial Direct Current Stimulation (tDCS) Device and On-Line Behaviour Therapy Training Software Used at Home for Perinatal and Maternal Loss Patients With Diagnosis of Depression

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Aims: 'Flow' is a transcranial direct current stimulation (tDCS) treatment for depression that patients use at home. Meta-analyses of randomised sham-controlled trials (RCTs) show tDCS is safe, easy to use, and associated with significant improvements in depressive symptoms and high rates of clinical response and remission relative to placebo sham stimulation. Flow is BSI and CE-marked for treating depression in the UK, with NICE guidance for use in the NHS.

Flow incorporates an evidence backed healthy lifestyle behaviour training software app, and depression symptom tracking that enables users and their clinicians to monitor progress/symptoms. Training modules on: 'Behaviour activation', 'Mindfulness', 'Exercise for your brain', 'An anti-depression diet', and 'Therapeutic sleep'.

In a first for the NHS, Northamptonshire Healthcare NHS Foundation Trust's (NHFT) Specialist Perinatal Mental Health and Maternal Loss Psychology Service offered Flow to their patients with a diagnosis of depression and evaluated the feasibility and impact.

Methods: The patient self-administers Flow tDCS treatment, sessions last for 30 minutes, and are repeated 5 times weekly for 3 weeks, and after the initial 3-week period, patients self-administer 3 sessions per week for 3 weeks, and then as long as required. Outcome measure data collection from baseline to 6-week follow-up point. Self-report measures used were depression: Personal Health Questionnaire (PHQ-9); health related quality of life: EQ-5D-5L; and real-world functioning: Work and Social Adjustment Scale (WSAS). In-depth interviews were undertaken with 14 patients.

Results: There has been high level of adherence in the 25 participants to treatment protocol. There has been statistically significant improvements in depression symptoms (large effect size), real-world meaningful functioning, and health-related quality of life. Reliable improvement and remission rates for PHQ-9 were 64% and 52% respectively. In in-depth interviews most participants described a positive impact on depressive symptoms, sleep, social life, and functioning.

Conclusion: Flow has been successfully integrated into Perinatal Mental Health and Maternal Loss Psychology Service depression treatment offer. It is important to offer NHS patients an evidence-backed alternative to existing depression treatments (antidepressant medication and talking therapies), many patients stop anti-depressants when they become pregnant, and many do not tolerate antidepressants side effects or wish to try due to side effects and withdrawal issues. Findings provide support for the approach of delivering both tDCS and on-line wellbeing behaviour therapy training to patients with experience of depression.

Does Socioeconomic Deprivation Lead to More Drug-related Deaths?

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Aims: Drug-related deaths are a tragedy, with socioeconomic deprivation associated with higher rates. Globally deaths have increased with most involving an opioid. We aimed to assess the rates and causes of drug-related deaths for a deprived city in Northern England, compared with the surrounding less deprived semirural county (with pockets of high deprivation) against national data. We want to assess whether there is an association of deaths with higher deprivation levels.

Methods: Drug-related deaths in 2022 were provided by Dr Copeland via the National Programme of Substance Use Mortality (NPSUM) using postmortem (PM) records. Two deaths did not have full postcodes, so not included where location was required. We assessed deaths against demographics, implicated drugs, prescribed medications, comparing with Indices of Multiple Deprivation (IMD) by postcode. Regional deaths were compared with Office for National Statistics (ONS) death rates. Statistical analysis via Excel.