



## Effectiveness of Digital Interventions That Are Available for Healthcare Professionals Who Experience Psychological Trauma: A Systematic Literature Review

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**Aims:** Historically, healthcare professionals were prone to experiencing turmoil of emotions prominent to psychological trauma due to the nature of their work. The healthcare professionals were subjected to elevated risks of psychological elements, leading to mental health implications due to the aftermath of the COVID-19 pandemic. By extension, these mental health repercussions can highly affect the patients' care as they profoundly affect the healthcare professionals from offering the best quality of care. Different types of digitalised psychological interventions exist and seem to be making an increased trend into being added into the medical field. They are becoming increasingly popular for mental health improvements due to their cost-effectiveness, their scalability, their ability to offer greater anonymity and stigma reduction compared with traditional interventions. Randomised controlled studies (RCTs) were systematically reviewed to explore the effectiveness of digital interventions which are available for healthcare professionals who experience psychological trauma.

**Methods:** A comprehensive search was conducted across four electronic databases, Pubmed, Medline Ovid, Embase Ovid, PsychINFO Ovid, resulting in a total of six RCTs that met inclusion criteria. Assessment of study quality and risk of bias were conducted using the Jadad scale and Cochrane Risk of Bias Tool respectively. Whilst the RCTs included in the review investigated the efficacy of interventions on healthcare professionals' wellbeing, the modalities of the interventions varied. Interventions included smartphone-based stress management modules, resilience training, smartphone applications focusing on emotional skills, cognitive-behavioural therapy exercises and psychoeducation, as well as computerised Eye Movement Desensitisation and Reprocessing (EMDR) intervention and internet intervention enhancing self-efficacy. As a result, a meta-analysis was not applicable to be carried out.

**Results:** Based on the findings, digital interventions had positive impacts on reducing the mental strain experienced by healthcare professionals. Some studies proved that the improvements were of statistical significance. The results of the RCTs in this review looked promising for the future of digital interventions targeting the mental wellbeing of healthcare professionals. In particular, the computerised EMDR intervention and the self-guided internet intervention targeting self-efficacy or social support, illustrated the potential benefits in its results. However, other studies indicated the need for further research before definitive conclusions can be drawn. The majority of the studies used a smartphone-based intervention. However, there was no correlation between the efficacy of these RCTs and this feature of their modality.

**Conclusion:** The scarce literature available in relation to this topic displayed promising evidence that digital interventions helped healthcare professionals experiencing psychological trauma.

Abstracts were reviewed by the RCPsych Academic Faculty rather than by the standard *BJPsych Open* peer review process and should not be quoted as peer-reviewed by *BJPsych Open* in any subsequent publication.

## The Y-Health Prospective Study of Physical Health in Young People in Mental Health Inpatient Units

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**Aims:** To explore the physical health of YP admitted to adolescent inpatient mental health units and reflect on any differences over the following 6 months.

**Research Questions:** 1. To assess physical health of young people upon admission to adolescent inpatient services (cardiovascular risk factors e.g. BMI, blood pressure, blood glucose and lipids). 2. To assess current lifestyle behaviours of young people upon admission to adolescent inpatient wards (e.g. physical activity, diet, smoking rates). 3. To assess changes in physical health/lifestyle 3 months and 6 months post-admission. 4. To understand the impact of inpatient care environment on lifestyle behaviours and physical health of adolescents admitted to inpatient units. 5. To understand the experiences and beliefs about physical health in adolescents admitted to inpatient units. 6. To establish the feasibility of monitoring physical health in a cohort of young people upon admission to an adolescent inpatient unit.

**Methods:** We aimed to recruit young people aged 14+ from each participating site within 6 weeks of admission to the unit. The young person needed to be able to give informed consent and be well enough to take part (severe anorexia/eating disorder excluded). Physical and mental health assessments were completed by a researcher in conjunction with the clinical team. Assessments completed at three time points: Baseline on admission; 3 months post admission; 6 months post admission. Participants given £10 voucher at each timepoint as a thank you (total £30).

Measures collected included: Demographic information, e.g. age, gender, ethnicity, education, diagnoses, previous admissions, medication, length of admission; Physical Health Outcomes, e.g. BMI (centiles), BP, routinely collected blood tests (random glucose, lipids, etc), ECG; Behavioural Outcomes, e.g. physical activity levels, smoking status, diet, physical fitness (six-minute walk & questionnaire), substance use, comorbid physical health disorders and concurrent treatments; Mental Health Outcomes, e.g. Health of the Nation Outcome Scales for Children and Adolescents (HONOSCA), World Health Organization Wellbeing Index (WHO-WI).

**Results:** Physical health outcome (Weight): Baseline – 64.5. 3 months – 67.7. 6 months – 69.3. Behavioural outcome: Low levels of physical activity (average 20 mins sport and 1 hour walking per day); High levels of sedentary behaviour; Most common substances used were alcohol (n=11, 44%), tobacco (n=10, 40%) and cannabis (n=6, 25%); Most YP self-reported average fitness levels; Consumed on average 1.8 meals per day (ranged from 1–5).

HONOSCA outcome: 80% lack of concentration (68% severe); 75% self-harmed; 56% difficulties with relationships at home (30% severe); 88% anxious or low mood (44% severe); 64% impairments with educational ability; 64% stopped attending education.

Qualitative interviews (thematic analysis): Outcomes on Young peoples knowledge, Autonomy, environment, sources of support, independence and facilitators.

**Conclusion:** Young people on CAMHS inpatient units have multiple factors affecting their physical health; Already showing some signs of compromised physical health, likely to worsen; Observed lots of challenges with transitory care and barriers to following people up

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

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## 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.

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## 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.

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## Ketogenic Metabolic Therapies for Psychiatric and Neurodevelopmental Disorders

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