rTMS Implementation in ELFT (East London Foundation Trust): A Prospective Clinical Study

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Aims: To evaluate the effectiveness and safety of repetitive transcranial magnetic stimulation (rTMS) in treating treatment-resistant depression (TRD), with a focus on changes in depression severity measured by the Montgomery–Åsberg Depression Rating Scale (MADRS) and the Hamilton Depression Rating Scale (HAMD).
Methods: A prospective clinical trial was conducted with 15 patients diagnosed with TRD, defined as having failed at least two adequate antidepressant trials. rTMS was administered using a left dorsolateral prefrontal cortex (DLPFC) protocol, with sessions delivered five times per week over six weeks for the majority of participants. Depression severity was assessed using MADRS and HAMD scores both before and after treatment. Adverse events were monitored throughout the study. Paired t-tests were used to analyse changes in MADRS and HAMD scores, with statistical significance set at $p<0.05$. Effect sizes were calculated using Cohen's d.
Results: The average MADRS score decreased from 35.33 pre-intervention to 24.67 post-intervention, reflecting a mean reduction of 10.67 points and a large effect size (Cohen's d=1.23). Similarly, HAMD scores decreased from 22.83 to 13.67, with a mean reduction of 9.17 points and a large effect size (Cohen's d=0.98). While most patients demonstrated significant improvement, one patient experienced worsening symptoms. Adverse events were generally mild, with 7 patients reporting no side effects and 4 reporting mild pain at the stimulation site.
Conclusion: rTMS appears to be an effective and well-tolerated treatment option for reducing depressive symptoms in patients with TRD. The significant reductions in MADRS and HAMD scores, along with large effect sizes, support the potential of rTMS as a therapeutic intervention for this population. Further research with larger sample sizes, including the use of a control group, is needed to confirm these findings and explore the long-term efficacy of rTMS in managing TRD.

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 Effect of the Ketogenic Diet on Aggression and Violence in Patients with Severe Mental Illness: A Systematic Review

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Aims: The aim of this systematic review was to explore the existing literature on the impact of the ketogenic diet on aggressive and violent behaviour in patients with serious mental illness and the potential mechanisms involved, with the hypothesis that the ketogenic diet can reduce aggression and violence in this patient population. The ketogenic diet has proven to be useful as a therapeutic to reduce some clinical symptoms of certain neurological and psychiatric conditions, so this review was interested to determine if there were any correlations in impacts on behaviour in similar patient populations.
Methods: Following the PRISMA guidelines, a systematic review was conducted of the bibliographic databases MEDLINE, PsycINFO, Scopus, Web of Science, Cochrane Library, PubMed and Open Grey. The sources retrieved were narrowed down using specific inclusion and exclusion criteria and quality appraisal of the relevant sources was carried out using the Joanna Briggs Institute critical appraisal tools.
Results: Of the 32 sources included in the final review, 26 of these, when linked together by association, supported the concept of the ketogenic diet reducing aggression either directly or indirectly via metabolites upon which the ketogenic diet can impact. Increased β-hydroxybutyrate, γ-aminobutyric acid and brain-derived neurotrophic factor were all observed when following the ketogenic diet and were, in most cases, associated with reduced aggression.
Conclusion: Despite the limited literature available on the topic, the majority of the relevant sources supported the notion that the ketogenic diet could generally reduce aggression, an observation that could often be replicated in psychiatric settings. The conclusions made in this review were mostly formed by making associations between the available sources, so future research would need to be conducted with the specific focus of observing the impacts of the ketogenic diet on behaviour in psychiatric settings. Randomised controlled trials should be conducted in both inpatient and outpatient settings to enable further systematic reviews and meta-analyses to evaluate the ketogenic diet's potential for use as a non-pharmacological therapeutic in prescribing and patient care.

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Functional Connectivity in the Default Mode Network During Rumination in Depression: A Systematic Review

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Aims: The Default Mode Network (DMN) is a network of brain regions that are functionally connected and become active during self-directed thought, introspection, and rumination. Rumination refers to the repetitive and passive focus on distressing thoughts, often linked to negative emotional states. Specifically, an increase in the brooding type of rumination is associated with severity of depression. Functional magnetic resonance imaging (fMRI) research offers a unique perspective on how the functional connectivity of the DMN is involved in rumination, shedding light on its neurobiological underpinnings. This systematic review aims to synthesise existing literature that explored the functional connectivity of the DMN in individuals with depressive disorders during episodes of rumination.
Methods: This systematic review investigated activity in DMN in patients with depression using resting state fMRI scans. Literature search was done on PubMed, Medline and Cochrane using search terms "depression OR Major Depressive Disorder OR depressive episode" AND "ruminat*" AND "functional MRI OR fMRI". 324