

predict the clinical outcomes of daily DTMS in unipolar major depression using a systematic review and meta-analysis.

**Methods:** A systematic literature search of PsycInfo and Medline (in EBSCO; any date till 24.06.2016) identified  $k=22$  open-label studies with 'DTMS' and 'depression' in titles. After exclusion of studies with fewer than 5 patients ( $k=4$ ), data from the same patients ( $k=4$ ), reviews ( $k=3$ ), diagnoses of bipolar or alcohol use disorders ( $k=2$ ), and other scales than Hamilton Depression Rating Scale (HDRS;  $k=1$ ),  $k=8$  studies were included in this analysis. Predictors of clinical outcomes (standardised change scores on HDRS and Hamilton Anxiety Rating Scale, HARS, response, remission, and dropout rates) were evaluated using univariate, random-effects meta-regressions with inverse-variance weights.

**Results:** Eight studies included 128 patients with treatment-resistant unipolar depression (average onset age of 17–45 years, illness duration of 3–30 years, age of 41–54 years, 14–67% females/study). High-frequency DTMS (18–20 Hz) with H1-coil was administered over 20 sessions as either add-on or monotherapy (in  $k=2$  studies with 26 patients). The antidepressant outcomes of DTMS did not depend on the demographics (mean age or % females/study) or the clinical patient characteristics (mean onset age or illness duration). Relative to monotherapy, DTMS as an add-on therapy tended to produce greater reduction in the HDRS scores ( $p=.08$ ). The reduction in the HARS scores (in  $k=6$  studies) was significantly associated with higher mean age of patients/study ( $p=.04$ ).

**Discussion:** DTMS may improve the antidepressant outcomes as an add-on therapy. It may also enhance the antiolytic outcomes in older patients with major depression. Additional data are necessary to examine predictors of clinical response to DTMS in unipolar major depression using multivariate statistical methods.

Keywords: unipolar major depression, deep transcranial magnetic stimulation (dtms), meta-analysis, univariate predictors

#### [0065]

#### CLINICALLY-RELEVANT OUTCOMES OF DEEP TRANSCRANIAL MAGNETIC STIMULATION (DTMS) IN UNIPOLAR MAJOR DEPRESSION: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Introduction:** Deep transcranial magnetic stimulation (DTMS) is a non-invasive brain stimulation method approved by the FDA as a therapy for treatment-resistant major depressive disorder. The aim of the current study was to evaluate the clinically-relevant outcomes of daily DTMS treatment in unipolar major depression using a systematic review and meta-analysis.

**Methods:** Following a systematic literature search of PsycInfo and Medline (any date till 24.06.2016),  $k=9$  studies ( $k=8$  open-label and  $k=1$  double-blind randomised controlled trial, RCT, with an inactive sham group) were included in the current study. The outcomes were standardised change scores (Hedges'  $g$ ) in depression severity on Hamilton Depression Rating Scale (HDRS), response, remission, and dropout rates, and several cognitive functions after daily DTMS compared to baseline. Effect sizes were pooled according to a random-effects meta-analysis with inverse-variance weights.

**Results:** The nine studies included  $n=229$  patients with treatment-resistant unipolar major depression (according to DSM-IV) at baseline ( $n=128$  in open-label studies and  $n=101$  in RCT/active DTMS group only). DTMS was administered with H1-coil as a high-frequency (18–20 Hz) and high intensity (120% of the resting motor threshold) stimulation with 33,600–60,000 stimuli over 20 daily sessions. DTMS significantly reduced depression severity in  $k=8$  open-label studies (Hedges'  $g=1.74$ , 95% CI: 1.35–2.13). The pooled response, remission, and dropout rates were 56%, 30%, and 21% respectively in  $k=8$  open-label studies, and 38%, 33%, and 8% respectively in the RCT (active DTMS group only). Of the 44 dropouts, two patients reported suicidal ideation and two patients experienced a seizure. Visuospatial memory improved significantly after DTMS relative to baseline in two out of three open-label studies with cognitive data.

**Discussion:** High-frequency DTMS appears to improve clinical symptoms and some cognitive functions in treatment-resistant unipolar major

depression. Future head-to-head studies are required to compare the clinical efficacy of DTMS with other brain stimulation methods.

Keywords: unipolar major depression, deep transcranial magnetic stimulation (dtms), clinical and cognitive outcomes, meta-analysis

#### [0066]

#### HOW DEEP IS THE DEEP TRANSCRANIAL MAGNETIC STIMULATION (DTMS)? PUTATIVE STIMULATION OF REWARD PATHWAYS IN SUBSTANCE USE DISORDERS: A SYSTEMATIC REVIEW AND META-ANALYSIS

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**Introduction:** Deep transcranial magnetic stimulation (DTMS) is a non-invasive method of stimulating widespread cortical areas and presumably deeper neural networks. The current study assessed the efficacy of DTMS in the treatment of substance use disorders (SUD) using a systematic review and meta-analysis.

**Methods:** Following a systematic literature search of PsycInfo and Medline (any date till August 2016),  $k=5$  open-label studies and  $k=3$  double-blind, randomised sham-controlled trials were included in the review. Short-term (acute) and longer-term (at the last follow-up) efficacy was measured as craving (Obsessive Compulsive Drinking Scale, OCDS; Visual Analogue Scale for Craving, VAS), dependence (Fagerstrom Test for Nicotine Dependence, FTND), or consumption (use frequency, abstinence rate, biological test outcomes).

**Results:** A random-effects meta-analysis revealed a large pooled reduction in craving (for alcohol and cocaine) and dependence (for nicotine) after an acute treatment with DTMS relative to baseline (Hedges'  $g=2.65$ , 95% confidence interval, 95% CI: 1.28–4.02,  $p<.001$ ,  $k=5$  studies,  $n=53$  participants,  $I^2=85\%$ ). A qualitative synthesis showed that high-frequency (18–20 Hz) and high-intensity (120% of the resting motor threshold, MT) DTMS reduced alcohol craving particularly in patients with comorbid alcohol use disorder (AUD) and a major depressive disorder in the short-term (after 20 sessions) and at 6–12 months follow-up. Cocaine craving was reduced after 12 sessions of DTMS (15 Hz, 100% MT) and both craving and consumption were reduced at 2–6 months follow-up respectively. Nicotine consumption (but not craving) was reduced after 13 sessions of DTMS (10 Hz, 120% MT) and at 6-months follow-up.

**Discussion:** Acute improvements in various symptoms of SUD after high-frequency DTMS could be due to changes in activity of the cortico-mesolimbic pathways and neural regions involved in control of reward-mediated behaviour. Repetitive stimulation might induce changes in neuroplasticity which could contribute to the longer-term effects of DTMS on SUD without maintenance treatment.

Keywords: deep transcranial magnetic stimulation (dtms), substance use disorders (SUD), reward pathways, meta-analysis

#### [0071]

#### ECT-RELATED ANXIETY: WHAT HAVE WE (NOT) LEARNED?

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**Objectives:** A significant proportion of ECT treated patients experience anxiety anticipating the treatment, often to such an extent that they refuse or discontinue a much-needed treatment. Despite its great impact on treatment adherence, anxiety in patients receiving ECT is underexposed in the scientific literature. We aimed to review the prevalence and specific objects of ECT-related anxiety, and therapeutic interventions to reduce ECT-related anxieties.

**Methods:** We performed a computerized search, for papers meeting the following inclusion criteria: (1) qualitative (interview) studies, quantitative (questionnaire) studies or experimental (interventional) studies, that (2) report on anxiety that is related to a planned, ongoing or past ECT.

**Results:** Of 1160 search-results, 31 papers were included. ECT-related anxiety is estimated to be present in 14–75% of patients, and is most often linked to worries about memory impairment or brain damage. Only a few interventions to reduce patients' ECT-related anxiety (chlorpromazine,