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## Effect of transcranial direct current stimulation on relapse of alcohol dependence syndrome and associated changes in functional brain imaging

**Biswal J, Chand P K, Murthy P, Venkatsubramanian G, Benegal V and Bharath R D**

National Institute of Mental Health and Neurosciences, India

**Objective:** Neuromodulatory interventions like transcranial direct current stimulation (tDCS) is an emerging and potential therapeutic strategy to help in reducing craving and relapse prevention in patients of alcohol dependence syndrome. This study was designed to explore the effect of tDCS treatment on relapse prevention and its correlation to dorsolateral prefrontal cortex (DLPFC) activation in alcohol dependent patients.

**Methods:** Twenty-four patients of alcohol dependence syndrome were recruited following approval of NIMAHNS ethics committee (22nd MEETING/2015 DATED 19/05/2015). After, detoxification underwent baseline fMRI and MRS scans. Followed by tDCS with intensity of 2 mA and duration of 20 minutes per day was administered for five consecutive days with cathode over left dorsolateral prefrontal cortex (DLPFC) and anode over right DLPFC. On the 5th day post fMRI and MRS scan were repeated. Both investigator and subjects remained blind throughout the study period. During scans patients were exposed to visual alcohol cues using VICE (visual image-Induced craving for ethanol) paradigm. Pre-treatment and post-treatment scans were analyzed using SPM-12 software.

**Results:** Direct correlation between DLPFC activation and prevention of relapse in alcohol dependent subjects treated with tDCS. Significant difference in relapse to alcohol, found between the groups (80% sham-tDCS vs. 33.3% in true tDCS) during one-month follow up period. Effects of True tDCS (Post-Pre) showed significant activation in bilateral DLPFC (left>right) displayed at P<0.005.

**Conclusion:** This fMRI study results suggests that tDCS is safe and potentially beneficial in combating relapse prevention in patients with alcohol dependence syndrome and provides a framework for further studies with larger sample size to investigate the same

## The mediating role of early maladaptive schemas in the relationship of attachment styles and parenting styles with psychological well-being

**Bita Yazdani and Reza Ghorban Jahromi**

Islamic Azad University, Iran

The aim of this research was to determine the mediating role of early maladaptive schemas in the relationship between attachment and parenting styles with psychological well-being and to fulfil this, among all students in faculty of psychology and educational sciences in Islamic Azad University, South Tehran Branch, 324 students (273 female and 51 male) were selected based on simple random sampling method. The tools used in this research for extracting the required data has been the following standard scales: psychological well-being by Ryff (1989), early maladaptive styles by Young (1988), attachment styles by Hazen and Shaver (1987) and parenting styles by Baum rind (1972) which were all used after verification and stability assessment. Data were analysed using path analysis method. The results suggested that the direct effect of avoidant attachment style was significant on four schemas. The direct effect of secure attachment style on three schemas was significant and negative and the direct effect of ambivalent attachment on all five schemas is significant. Moreover, the results suggest that there is a direct significant relationship between permissive parenting styles and other directedness, authoritarian parenting style and all five schemas and authoritative parenting style and three schemas. In addition, the direct effect of all five schemas on psychological well-being were negative and significant (p<0.01). Secure attachment style had an indirect effect on psychological well-being through schemas in a positive and significant way. The indirect effect of avoidant and insecure attachment styles on psychological well-being was negative and significant. The permissive parenting style did not have a significant indirect effect on psychological well-being. The authoritative parenting style indirectly affected psychological well-being in a significant and negative way through the schemas. The authoritarian parenting style also had a significant indirect effect on psychological well-being through the schemas.