remains underexplored. Limited studies involving individuals with ‘at risk mental state’ have demonstrated that they have lower levels of resilience than healthy controls, and that baseline resilience is lower among those who convert to frank psychosis than among those who do not. What is more, at risk individuals are characterized by a wide range of cognitive impairments, including general intelligence, executive function, verbal and visual memory, verbal fluency, attention, working memory, processing speed and social cognition. Recently, it has also been shown that a great majority of at-risk individuals have personality disorders, mainly depressive, borderline or schizotypal type.

Methods: Ninety-three young adults were administered a neurocognitive battery assessing attention, processing speed, verbal learning, working memory and verbal fluency along with Cloninger’s Temperament and Character Inventory (TCI), a self-report measure of psychological resilience (CD-RISC 10) and a semi-structured interview assessing at-risk mental state (CAARMS). We performed a two-step regression analysis. In the first model the results of cognitive tests were included as predictors of resilience, in the second model we added personality and temperamental traits to the significant cognitive predictors from the first model.

Results: The first model demonstrated that verbal fluency (b*=0.25, p=0.033), digit coding score (b*=-0.27, p=0.039), TMT version B performance time (b*=-0.33, p<0.005), and D2 test total score (b*=-0.32, p<0.005) were all significant predictors of resilience. In the second model all of them except for D2 test total score, remain significant along with Self-directedness (b*=-0.33, p<0.001) and Reward dependence (b*-0.22, p=0.022) subscales of TCI. What is more, resilience has proven to be a predictor of the positive symptoms subscale in CAARMS (b=-0.21, p=0.047).

Discussion: The obtained results indicate that resilience is associated with both neurocognitive functioning and personality traits, although significant standardized beta scores are not high (they range from 0.21 to 0.33) in this sample. Generally, they are consistent with previous findings that more resilient people are more ‘cognitively dexterous’ than those who are more prone to stress and adversity. However, an interesting findings of our study is the negative beta coefficients for digit symbol coding and D2 total score with resilience, which suggests that more resilient individuals do not necessarily "do their best" on cognitive testing. The result can also be examined from the point of view of the relationship between resilience and reward dependence demonstrated in this study. Perhaps the more resilient participants were aware that they would receive a reward (cash voucher) for participating in the study anyway, so they were not motivated enough to complete the task at their utmost. Nonetheless, these results stimulate the reflection on the definition of resilience that still remain equivocal and polysemic.

M66. FACILITATIVE EFFECTS OF TRANSCRANIAL DIRECT CURRENT STIMULATION ON SEMANTIC MEMORY EXAMINED BY TEXT-MINING ANALYSIS IN PATIENTS WITH SCHIZOPHRENIA

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Background: Transcranial direct current stimulation (tDCS) is a neurophysiological therapy which modulates neural activities in the brain with weak electrical current. The beneficial effects of tDCS are relevant to positive and negative symptoms, as well as cognition and functional capacity in patients with schizophrenia (Narita et al, 2017). However, whether tDCS would improve higher-order cognition, e.g. semantic memory organization, has remained unclear. Recently, text-mining analyses have been proven to be effective to reveal semantic memory in patients with schizophrenia (Sung et al., 2012; Sumiyoshi et al., 2018). The purpose of the study was to investigate effects of tDCS to improve semantic memory, as evaluated by text-mining analyses of category fluency data, in patients with schizophrenia.

Methods: Twenty-eight patients meeting DSM-5 criteria for schizophrenia entered the study. All subjects gave written informed consent, and the study was approved by the Ethical Committee of National Center of Neurology and Psychiatry and the Ethical Committee of Osaka university. Data from healthy control subjects (N=335) were also used. The tDCS was conducted according to the previous study (Narita et al., 2017). tDCS was administered twice a day in 5 consecutive days. The Brief Assessment of Cognition in Schizophrenia, (BACS) was administered at baseline and one month after the last tDCS session. Verbal outputs of the category fluency task in the BACS were submitted to the singular valued decomposition (SVD) analysis. Semantic memory structures were estimated by calculating cosine values (i.e. similarities) among frequent items in the six-dimensional solution. These values were compared between healthy controls vs. patients at baseline and follow-up using Pearson’s correlational coefficients.

Results: The correlational coefficient for the frequent items (DOG, CAT, ELEPAHANT; GIRAFFE, LION, TIGER) between patients and healthy controls was considerably higher at the follow-up (r=0.58) compared to that at base line (r=0.12), reaching a marginal significance (p=0.058). A visual inspection for the cosine profiles of frequent items indicated that distinct clusters of Pet (DOG, CAT), Wild-Herbivorous (ELEPAHANT, GIRAFFE), and Wild-Carnivorous (LION, TIGER) in patients at follow-up, as in the case for healthy controls.

Discussion: To our knowledge, this is the first study reporting a facilitative effect of tDCS on higher-order of cognition in patients with schizophrenia. Semantic memory in the patients became structurally similar to that for healthy controls after administration of tDCS. Furthermore, animal names frequently produced were meaningfully clustered in patients at follow-up, similar to the pattern of healthy controls. These results may explain the efficacy of tDCS for improving other domains of cognitive function in patients with schizophrenia. We also could demonstrate that text-mining analysis is a powerful tool to elucidate higher-order cognition in people with mental disorders.

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M67. UNDERSTANDING SOCIAL COGNITION IN SCHIZOPHRENIA THROUGH THE LENS OF SCHIZOTYPY

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Background: Social cognitive deficits are common, detectable across a wide range of tasks and appear to play a key role in influencing poor functioning in schizophrenia. Despite its importance as a treatment target, the factors that underlie social cognitive deficits in schizophrenia remains elusive. Schizotypy appears to be one such factor that can explain the variability in social cognitive deficits seen in schizophrenia. The study’s primary aim was to provide a more comprehensive understanding of social cognitive functioning and its relationship to schizotypy.

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**Methods:** 108 patients and 70 healthy controls completed nine tasks across 4 social cognitive domains based on the SCOPE study. In addition, all participants completed the Schizotypal Personality Questionnaire. Clinical symptoms were also rated using the Brief Psychiatric Rating Scale.

**Results:** Theory of Mind, social perception, emotion processing and attribution bias were measured in patients with schizophrenia (n = 108) and healthy controls (n = 70). A social cognition composite score was calculated using principal components analysis. Cluster analysis on the derived factor scores revealed 3 clusters. Multiple univariate ANOVAs with Bonferroni correction were used to examine differences between the 3 clusters on each of the 4 social cognition domain scores, which indicated that higher social cognitive performance was related to lower schizotypy. In addition, results indicated that despite differences in the social cognitive performance among patients in the 3 clusters, they did not differ in clinical outcome measures.

**Discussion:** The primary aim of the study was to address gaps in the current literature by examining the relationship between social cognition and schizotypy. This study built upon past studies which had the tendency to focus on single, discrete domains by comparing the social cognitive performance of patients and controls using an extensive battery of tests, indexing four social cognitive domains. The significant differences on total SPQ score and the SPQ domain scores between the various clusters, coupled with the significant correlations between schizotypy and social cognition, reinforces the utility of schizotypy in refining our understanding of the variation in the degree of social cognitive deficits in schizophrenia. In conclusion, this study substantiates the importance of understanding the relationship between social cognition and schizotypy. This could support and pave the way for the development and implementation of targeted social cognitive interventions catered to the patients’ level of deficit.

**Results:** Since age, gender, and parental education were significantly different between the groups, they were included as covariates in the RM-ANOVA. In this revised model, there was no main effect of age (p = 0.69) nor any interaction between age and any cognitive domain. Therefore, age was removed from the final model.

We observed a significant main effect of group (p <.001); All patient groups were significantly impaired compared to the control group (CHR mean difference (MD) = 6.12; FEP MD = 16.46; CSz MD = 16.37; p <.001 in all cases), individuals with both FEP and CSz had significantly more cognitive impairment than the CHR group (FEP MD = 10.34; CSz MD = 10.25; p <.001 in both cases). No significant differences were observed between FEP and CSz groups (MD = .09, p >.99).

We also found a significant group by cognitive domain interaction (p <.001). Namely, all patient groups were cognitively impaired compared to the control group, except in the Verbal and Visual Learning domains in which there were no significant differences between the control and CHR groups. No significant differences were found between the FEP and CSz groups in any domain. Moreover, the CHR group was not significantly different from the other clinical groups in the Social Cognition domain. Within the FEP and CSz groups, no significant correlations were observed between duration of untreated psychosis and any cognitive domain.

**Discussion:** We observed significant cognitive deficits since at-risk stages of the schizophrenia spectrum. Patients with FEP were as impaired as those with CSz, while cognitive functioning observed in CHR individuals was intermediate between controls and patients with syndromal psychosis. These results emphasize the importance of pre-syndromal detection and prediction of burgeoning psychotic illness. Future research to strategies to mitigate the decline in cognitive function between presyndromal and first-episode psychosis is warranted.

**Methods:** In a double-blind crossover design, participants underwent both active and sham stimulation via tDCS approximately one week apart. Half of the participants received active and sham stimulation of rTPJ (n = 22), while the other half received active and sham stimulation of a comparator site within the social brain network (dmPFC, n = 23). After stimulation, visual attention was assessed through concurrent eye-tracking while participants complete several tasks of social cognition (emotion recognition: ER40, BLERT; Theory of Mind: TASIT). Visual attention was determined as the proportion of time spent attending to socially and contextually important AOIs.

**Results:** Data collection and data processing are still ongoing for this study, however planned interim analyses on a subset of the total sample (n = 45) indicate small to medium effects of active stimulation to the rTPJ compared to sham and dmPFC stimulation for both visual attention (np2 = 0.035) and social cognitive performance on the BLERT task (np2 = 0.067), specifically. These same effects are not seen in the other social cognitive tasks.