the full sample. The MEMS group reported strong satisfaction with the text-messages. Recruitment has been completed, and analyses from the full sample will be ready to present at the meeting.
Discussion: Initial results indicate that MEMS is acceptable and may successfully improve motivation in people with schizophrenia-spectrum disorders. However, additional analyses with the full sample are needed to more rigorously test the feasibility and effectiveness of MEMS.

S51. MOTIVATIONAL ENHANCEMENT IMPROVES TREATMENT OUTCOMES OF MOBILE-BASED COGNITIVE REMEDIATION IN INDIVIDUALS WITH SCHIZOPHRENIA

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Background: Cognitive impairment is a core feature of schizophrenia, which limits functions of individuals with schizophrenia and negatively influences their quality of life (Green, 1993; Green et al, 2000; Heaton et al., 2001; Heinrichs, 1998). While pharmacological treatment is known to have a limited effect on impaired cognition in schizophrenia (Marder, 2006; Rund and Borg, 1999; Elie et al., 2010), a majority of literature has concluded that cognitive remediation(CR) produces small to moderate improvements (McGurk et al., 2007; Wykes et al., 2011). As the smartphone user population continues to increase, the effectiveness of CR based on mobile devices have started to be studied. While CR is effective in improving cognitive deficit, treatment adherence and engagement of participants in the real world setting is known to be poor compared to laboratory setting. Thus, in the current randomized controlled study, we aimed to investigate whether motivational intervention would enhance motivation, treatment adherence and neurocognitive function of individuals with schizophrenia.
Methods: All subjects participated in a group-based CR using mobile application (mCR) twice a week for five weeks, and were given opportunity to practice voluntarily outside the treatment sessions. While CR only group participated in usual CR with Q&A sessions, experimental group participated CR sessions integrated with motivational intervention. For motivational enhancement (ME), we employed principles (e.g., goal setting, linking of CR with life goals, etc) of the bridging group (Medalia, Revheim, & Herlands, 2009) along with key aspects of motivational interviewing (e.g., open end questions, affirmation, reflect, and summary). We hypothesized that compared to CR only group, CR+ME group would show higher levels of intrinsic motivation, attendance rate and extra voluntary training hours, and greater improvement in cognitive functions.
Results: We are undergoing the current project, and a total of 14 participants were randomly assigned to either CR+ME (n=8) or CR only (n=5). Among 14 participants, two participants dropped out (n=1 experimental group and n=1 control group).
Independent sample t-test were used to compare scores of demographics and clinical characteristics between groups, and no differences were found except for the PANSS excitement subscale ($t = 2.91$, $P < .05$) at the time of pre-treatment. Due to a small sample, we conducted paired sample t-tests to examine whether there was a significant difference between the pre and post-test for two groups, respectively. The paired t-test revealed improvements in coding, TMT-B, logical memory I and K-AVLT immediate recall performances of CR+ME ($t=-2.92$, $p < .01$; $t=-3.65$, $p < .05$; $t=-3.20$, $p < .05$; $t=-2.89$, $p < .05$), but not CR only. In addition, there were pre and post-treatment differences in motivation variables (MSQ) for CR+ME. Comparing task related motivational level of first session to the final 10th session, CR+ME showed increased identified regulation(IR) score of MSQ and decreased external regulation(ER) score (IR=22.3(3.2), 23.5(3.7); ER= 10.67 (3.88), 6.67 (3.08)).
Discussion: We conclude that ME is promising to further enhance neurocognitive and motivational outcomes of mCR. The data collection process is expected to be completed in late January 2018, and the results will be accordingly updated by the time of presentation at SIRS 2018. Limitations and future directions will be discussed.

S52. WORKING MECHANISMS OF VIRTUAL REALITY BASED CBT FOR PARANOIA: A RANDOMIZED CONTROLLED TRIAL EXAMINING COGNITIVE BIASES, SCHEMATIC BELIEFS AND SAFETY BEHAVIOR

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Background: Recently, the efficacy of a novel virtual reality based cognitive behavior therapy (VR-CBT) for paranoia was demonstrated. Cognitive biases, cognitive limitations, negative schematic beliefs and safety behavior have been associated with paranoid ideations and delusions. It is unknown whether VR-CBT affects these associated factors, and how changes in these factors relate to changes in paranoid ideation.
Methods: In this multi-center randomized controlled trial patients with a psychotic disorder and paranoia were randomized to VR-CBT (n = 58) or treatment as usual (TAU; n = 58). VR-CBT consisted of maximally sixteen 60-minute individual therapy sessions. Paranoia, safety behavior, schematic beliefs, cognitive biases and limitations were assessed at baseline, post-treatment (at three months) and follow-up (at six months). Mixed model analyses were conducted to study treatment effects. Mediation analyses were performed to explore putative working mechanisms by which VR-CBT reduced paranoia.
Results: VR-CBT, but not TAU, led to reductions in jumping to conclusions, attention for threat bias and social cognition problems. Schematic beliefs remained unaffected. The effect of VR-CBT on paranoia was mediated by reductions in safety behavior and social cognition problems.
Discussion: VR-CBT affects multiple mechanisms that are associated with paranoid ideation. Although maintaining factors of paranoia are likely to influence each other, targeting safety behavior and social cognitive problems seems effective in breaking the vicious circle of paranoia.

S53. COMPARISON OF RALOXIFENE AND ISRADIPINE AS AN ADJUNCTIVE TREATMENT IN COGNITIVE DEFICITS OF PATIENTS WITH SCHIZOPHRENIA

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Background: Cognitive impairment is the most important feature of schizophrenia that leads to severe social and functional disability. Improving neurocognitive physiopathologic aspect of schizophrenia is a current challenge to identify the pathway to develop goal directed clinical interventions in practice. In the current study we investigated the effect of raloxifine as a selective estrogen modulator and isradipine as a voltage gated L type calcium channel blocker on the enhancement of schizophrenic patients' cognitive deficits.
Methods: We designed a double blind randomized, parallel, placebo controlled clinical trials. 60 patients with schizophrenia randomized in 3 specific groups. The first group received isradipine 5 mg, the second raloxifine 60 mg and the third placebo for 6 consequent weeks, in the same shape capsules, 2 times a day, alongside treatment with the conventional antipsychotics. The initial and final lab tests, ECG, as well as cognitive tests in specific domains such as attention, processing speed, executive function and verbal memory were carried out.
Results: Our findings, revealed a remarkable association between adjunctive treatment of raloxifine in verbal memory deficits. moreover, isradipine treatment indicated significant improvement relative to placebo in verbal memory as well as attention dysfunction in some variables of the Stroop test. However, no effect was observed in processing speed and executive function deficits.
Discussion: The study provides the first evidence to our knowledge, which isradipine as a novel therapy was associated with improvement in verbal

memory and attention, both related to hippocampal and cerebellar activity. Overall, further investigation is necessary to determine the various ways of the both drugs performance in the brain.

S54. THE ROLE OF THE CLINICAL PHARMACIST IN DRUG EDUCATION FOR INCREASING COMPLIANCE WITH DRUG THERAPY IN THE PERIOD OF DISCHARGE WITH THE DIAGNOSIS OF SCHIZOPHRENIA SPECTRUM DISORDERS

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Background: The inability to achieve full compliance with drug treatment during the post-discharge period with exacerbations in the illness in patients with schizophrenia and other psychotic disorders is a major problem for the patients themselves, their families, and the healthcare staff in psychiatry.
Methods: In this prospective study, it was aimed to evaluate whether the written and verbal drug education (drug color and shape, interactions, side effects, etc.) given by the clinical pharmacist during the discharge period had an effect on drug compliance. Between 1st September 2016 and 12th June 2017, 40 patients diagnosed with schizophrenia, schizoaffective disorder, schizotypal personality disorder or acute schizophrenia-like psychotic disorder according to ICD-10 diagnostic criteria who were admitted to Hacettepe University Faculty of Medicine, Department of Psychiatry Inpatient Service, were involved in this study. A number of scales were used to evaluate the severity of illness, drug side effects and drug compliance respectively; PANSS; UKU, SAS, BARS, AIMS; MARS and ROMI. It has been emphasized during discharge to the patients by the clinical pharmacist that how important administering the prescribed medicines regularly and as directed. Six to 8 weeks after discharge, the patients were invited to be reevaluated using the scales applied during admission.
Results: There was a statistically significant increase in compliance with treatment as quantitatively assessed by the MARS after drug education ($p<0.001$). There was no significant correlation between compliance and gender, age, tobacco/alcohol use or marital status. At the same time, a significant correlation between severity of akathisia obtained through BARS and a decrease in MARS scores representing the level of compliance was observed (r: -0.367; $p<0.05$). A decrease in the baseline MARS score was related to an increase in the total number of hospitalizations (r: -0.325; $p<0.05$) and the number of psychotropic drugs used (r: -0.316; $p<0.05$). When the factors that may affect compliance were examined by multiple regression analysis, akathisia was found to have the highest impact on compliance (ß: -0.389, r2: -0.002, F: 0.750).
Discussion: These results support the literature in terms of the importance of the impact of side effects on compliance. As a result of the study, it was seen that drug counseling services given by clinical pharmacists can effectively be employed in psychiatric care, for the rational use of medicines. It appears that it is necessary to take advantage of drug counseling on drug use and to develop strategies to improve drug compliance in psychiatry.

S55. MECHANISTIC BASIS OF FRONTO-TEMPORAL TRANSCRANIAL DIRECT CURRENT STIMULATION ON AUDITORY VERBAL HALLUCINATION IN SCHIZOPHRENIA: A MEDIATION ANALYSIS OF COROLLARY DISCHARGE

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Background: Corollary discharge (CD), ubiquitous throughout the animal kingdom, refers to suppression of sensory consequences arising from self-generated actions. Complex motor acts like covert/overt speech are associated with corollary discharge that helps in ascertaining agency. Auditory verbal hallucinations (AVH) are hypothesized to originate due to failure of corollary discharge in auditory processing system. Transcranial Direct Current Stimulation (tDCS), as an add-on treatment, has been reported to significantly reduce severity of persistent AVH in schizophrenia patients. In this study, we describe mediation analysis findings that strongly support a role for amelioration of corollary discharge deficits as a mechanistic basis for tDCS effects on AVH in schizophrenia.
Methods: 27 DSM-IV-TR Schizophrenia patients (SCZ) with persistent AVH despite adequate antipsychotic treatment and 27 healthy controls (HC) underwent neurophysiological assessment for CD. In an event-related potential task, N1 component that reflects cortical responsiveness of auditory cortex to sounds, was elicited and examined in two conditions – i) Talk (with online auricular feedback of self-spoken speech sounds) and ii) Listen (passive playback of recorded self-spoken speech sounds). Corollary discharge index (CDI) was calculated by subtracting Listen condition N1 amplitude from Talk condition N1 amplitude (at FCz). Among these 27 patients, 13 patients participated in a randomized, double-blind, sham-controlled study examining the effect of add-on tDCS on AVH and CDI [5 consecutive days, twice-daily, 20-minute sessions; 2mA; anode: left dorsolateral prefrontal cortex; cathode: left temporo-parietal junction]. Mediation analysis was modelled with tDCS type (Verum vs. Sham) as independent variable, percent change in auditory hallucination rating scale score (AHRS) as dependent variable and percent change in CDI as the mediator. As recommended for small samples, bootstrap estimation approach with 5000 samples was used to examine the indirect effect of independent variable on dependent variable through proposed mediator for significance.
Results: SCZ (Mean±SD: -0.67 ± 1.93) had significantly deficient CDI than HC (1.36 ± 2.18) (t=3.62; p=0.001). Verum tDCS (32.24 ± 16.48) resulted in greater percentage reduction in AHRS than sham (4.79 ± 8.84) (t=3.64, p=0.004). There was a significant increase in CDI (t=2.48; p=0.03) with verum (0.85 ± 1.08) but not sham (-0.55 ± 0.98) tDCS. Percent change in CDI positively correlated with percent change in AHRS from pre-RCT to post-RCT time-point for the entire sample (N=13; ρ=0.55, p=0.05). Regression analysis showed that tDCS type (verum/sham) was a significant predictor of percent change in AHRS (β=-27.46, p=0.003) as well as percent change in CDI (β=-1.40, p=0.033). Percent change in CDI was a significant predictor of percent change in AHRS (β=8.87, p=0.014). When controlled for percent change in CDI, tDCS type ceased to be a significant predictor of percent change in AHRS (β=-15.0, p=0.063). The predictors accounted for approximately 75% of the variance (R2=0.756, $p<0.001$). Bootstrap estimation results indicate the coefficient of indirect effect to be significant, β=-12.46, SE=6.92, 95% CI=-31.20, -2.79, and significantly different from zero at $p<0.05$ (two tailed).
Discussion: Fronto-temporal tDCS reduces severity of auditory verbal hallucination in schizophrenia possibly through correction of the deficient corollary discharge. Fronto-temporal network is crucial to self-tagging component of auditory processing and has conspicuous implications for auditory verbal hallucination pathophysiology.
Trial No. CTRI/2014/12/005307 (Clinical Trials Registry–India)

S56. PHOENIX GROUP, A PROJECT TO PREVENT RELAPSES IN SCHIZOPHRENIA

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