relatively understudied. Our recent data provided evidence for disruptions in the attention-related electrophysiological responses among individuals following their first psychotic break (FESz). Specifically, FESz exhibited reduced amplitudes of the N2pc component compared to healthy controls (HC) during a target detection task. The present investigation additionally used the magnetoencephalography (MEG) data that had been simultaneously recorded during selective attention task performance to identify disruptions in source-resolved cortical regions underlying the N2pc impairment.

Methods: MEG and EEG were simultaneously recorded from 22 first-episode schizophrenia spectrum (FESz) and 22 healthy control (HC) individuals during two target detection tasks that required different degrees of top-down attentional control; pop-out and visual search. MEG and EEG sensor locations were coregistered with structural MRI scans for each participant and the boundary element method was used to model the forward solution. The inverse solution for cortical activity contributing to the N2pc signal (275 – 325ms post stimulus) was then derived using the noise covariance matrix calculated from the baseline period of each trial. BA7, BA39, and BA37 were selected a priori as regions of interests (ROIs) based on previous investigations of N2pc sources. Average activity during the N2pc time window was compared between groups using a 2 (task condition) x 2 (group) x 3 (ROI) ANOVA.

Results: A significant interaction between group and task condition was observed ($F1,42=5.3$, $p=.03$). HC exhibited marginally increased activity during pop-out compared to FESz ($t42=1.86$, $p=.07$) despite a statistically equivalent level of activity during visual search ($t42=-0.86$, $p=.39$). There were no main effects of group ($p=.54$), task condition ($p=.90$), or ROI ($p=.94$). Nor were there interactions between ROI and group ($p=.81$) or ROI and task ($p=.16$). Whereas no correlations between ROI activity and N2pc were observed among FESz (p's>.05), larger BA37 during visual search activity was associated with larger N2pc scalp amplitudes in HC ($r=-.65$, $p=.001$).

Discussion: In contrast to the simple group difference in N2pc amplitude recorded from the scalp, examination of the cortical dynamics contributing to this response revealed a differential effect of task condition between groups. FESz exhibited reduced activity relative to HC on target pop-out trials compared to those requiring a top-down, serial search of potential target stimuli. While this finding appears counterintuitive, it may reflect a hyperfocusing of attention on distractor stimuli in our FESz group recently described in a study of individuals with schizophrenia. This mechanism would explain the relative preservation of attention-related cortical activity in FESz during a task with increased distractor interference. The difference between our sensor-level N2pc results based on EEG recordings and our source-level cortical activity derived from simultaneously recorded EEG and MEG speaks to the importance of utilizing complementary imaging modalities to enrich our understanding of processes involved in complex cognitive functions.

O8.6. IS JUMPING TO CONCLUSIONS BIAS ASSOCIATED WITH FREQUENT "JUMPING" TO SALIENCE-RELATED FUNCTIONAL BRAIN STATES?

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Background: Delusion is a false belief with strong conviction and incorrigibility. It is well documented that people with delusions and schizophrenia show the jumping to conclusions (JTC) bias, which means patients need less evidence for judgment than healthy people. Recently, JTC bias is indicated to be associated with aberrant salience in schizophrenia (Speechley et al, 2010). However, its neural representation is unknown. In this study, we employed the beads task, which measures JTC, and resting-state functional magnetic resonance imaging (rsfMRI) to reveal the neural correlates of the association between JTC bias and aberrant salience in patients with schizophrenia.

Methods: Forty-one patients with schizophrenia (SCZ) and 34 healthy controls (HC) were recruited. All participants performed the beads task in the following procedure: subjects were presented with two jars containing 80 blue / 20 yellow and 20 blue / 80 yellow beads, respectively. Beads were drawn from one of the jars repeatedly with replacement, and subjects were told to decide from which of the two jars the beads were drawn. The number of draws needed to decision (DTD) was used as the index of JTC bias. The rsfMRI data were acquired from all the subjects on a Siemens 3T scanner, preprocessed by independent component analysis (ICA)-based denoising (Aso et al, 2017), and analyzed by group ICA implemented in FSL. Nine independent components (ICs) were identified as the networks of interest (NOIs) based on previous literature: the anterior, posterior, and ventral default mode networks (DMNs), left and right central executive networks (CENs), salience network (SN), medial temporal lobe network (MTLN) and basal ganglia network (BGN). The time-courses of these 9 ICs were analyzed by the Energy Landscape Analysis (ELA: Watanabe et al, 2013; Ezaki et al, 2018). ELA utilized pairwise maximum entropy model and Boltzmann machine to calculate "energy" of brain activation patterns (states), and created an energy landscape, which represented frequency of brain states. Transition rate between low-energy, stable states and high-energy, unstable states was calculated, and the effect of DTD and diagnosis and interaction between them on the transition rate were tested, with age, gender, IQ and temporal signal-to-noise ratio of rsfMRI data as covariates.

Results: Low-energy, stable states were characterized by activation and deactivation of almost all NOIs, while high-energy, unstable states were characterized by activation and deactivation of salience-related NOIs. A significant interaction was found between DTD and diagnosis ($p<0.05$, FWE), indicating smaller DTD was correlated with more frequent transition between low and high energy states in SCZ patients, while larger DTD was correlated with more frequent transition in HC subjects.

Discussion: This study revealed dynamic neural correlates of JTC bias and its association with aberrant salience in schizophrenia. These findings elucidate the pathway how aberrant salience in schizophrenia lead to psychotic symptom such as delusion.

O8.7. STIMULATING THE BRAIN TO IMPROVE INTROSPECTIVE ACCURACY IN SCHIZOPHRENIA

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Background: Introspective accuracy (IA) refers to the ability to accurately assess one's own skills and capabilities. Recent work provides evidence that IA deficits in schizophrenia that are predictive of everyday functioning and has demonstrated reduced activation for patients in right rostrolateral prefrontal cortex (rlPFC), a region thought to be critical for successful IA. Together, these findings suggest that increasing activity of the rlPFC in individuals with schizophrenia may result in improved IA, which may then lead to better functional outcomes. The current study aimed to directly test this hypothesis by using transcranial Direct Current Stimulation (tDCS) to increase activity in the rlPFC in individuals with a diagnosis of schizophrenia or schizoaffective disorder.

Methods: Thirty-five participants completed two brain stimulation sessions (one active and one sham) approximately one week apart. Active stimulation occurred at 1.5mA for 20 minutes. The sham condition included 5 seconds of stimulation at 1.5mA that was then discontinued for the remainder of the session. In both conditions, the anode was placed immediately over the right rlPFC, with the cathode placed on the left bicep. After each session, participants performed neurocognitive (i.e. Wisconsin Card Sorting Task; WCST) and social cognitive (i.e. emotion recognition; ER40) tasks that were modified to allow for assessments of IA. Participants also completed