



Altered auditory network functional connectivity in other specified schizophrenia spectrum disorder, other psychotic disorder



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Background & Objective

There are no studies have investigated functional connectivity (FC) in patients with other specified schizophrenia spectrum disorder, other psychotic disorder (OSSOs) with auditory network. We sought to identify distinct FC differentiating OSSO from schizophrenia spectrum disorders (SSDs) in auditory network.

Methods

In total, 88 patients with OSSOs, 81 with SSDs, and 85 healthy controls (HC) matched for age, sex, and education underwent functional magnetic resonance imaging (fMRI) brain scans and clinical evaluation. Using auditory networks consisting of five regions of interest (ROIs) from Gordon atlas, we conducted seed-to-voxels, -ROIs, and intra- and inter-network FC analyses using resting-state fMRI (rs-fMRI) data. Correlations of altered FC with symptomatology were explored.

Demographic and clinical characteristics

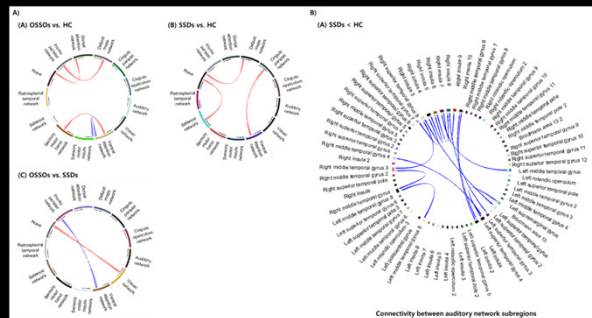
Characteristics	OSSOs (n = 88)	SSDs (n = 81)	HC (n = 85)	p-value
Age (years)	33.91 (11.60)	34.79 (10.31)	33.12 (8.52)	0.575*
Sex				
Male (%)	44 (50.00)	41 (50.62)	39 (45.88)	0.800 ^b
Female (%)	44 (50.00)	40 (49.38)	46 (54.12)	
Education (years)	13.99 (2.22)	13.74 (2.20)	13.44 (1.79)	0.211*
DI (months)	84.78 (95.37)	80.00 (93.65)	-	
Min	0.10	0.25	-	
Max	394	420	-	0.743*
Age of onset (years)	26.74 (8.81)	28.26 (9.79)	-	0.289*
PANSS				
Positive symptoms	12.39 (5.08)	17.81 (6.98)	-	<0.001*
Negative symptoms	10.03 (3.52)	9.49 (2.54)	-	0.252*
General psychopathology	25.42 (6.04)	27.19 (6.80)	-	0.076*
Total	47.84 (12.29)	54.49 (13.59)	-	0.001*
Medication				
Naive / Free	10/27	16/12	-	0.042*
CPZ equivalent (mg/day)	298.19 (316.68) (n=51)	423.09 (302.08) (n=53)	-	

Data given as mean (SD); *Significant F statistic for the one way ANOVA; ^bSignificant F statistic for the Chi-square test; ^cSignificant T statistic for the two sample t-test.
Note: CPZ, Chlorpromazine; DI, Duration of illness; HC, Healthy Control; OSSOs, Other Specified Schizophrenia Spectrum and Other Psychotic Disorder; PANSS, Positive and Negative Syndrome Scale; SSDs, Schizophrenia Spectrum Disorders.

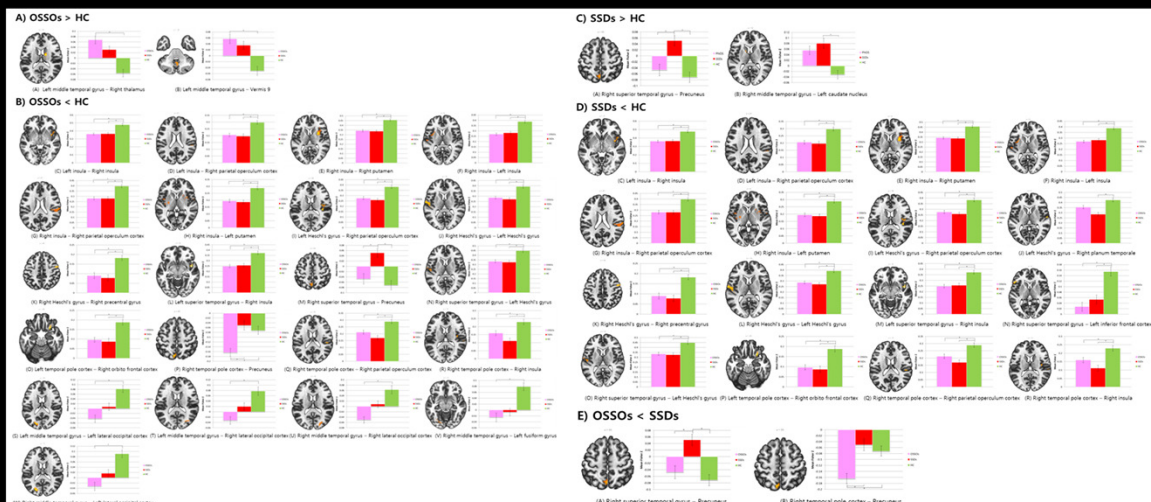
Results

We found common brain connectomics in OSSOs and SSDs including temporo-cortical (especially superior temporal gyrus), temporo-limbic, and within-temporal hypoconnectivity, compared to HC. Additionally, features differentiating the two patient groups included hypoconnectivity between the superior temporal gyrus and precuneus in OSSO compared to SSDs. The network-based FC analysis revealed increased inter-network connectivity in OSSOs, suggesting disrupted sensorimotor integration, while SSDs showed reduced FC within auditory networks, highlighting connectivity deficits related to auditory processing.

Comparison of A) between- and B) within-network functional connectivity among OSSOs, SSDs and HC



Altered functional connectivity among OSSOs, SSDs and HC: Whole-brain pairwise connectivity of the seeds



Conclusions

These findings suggest that OSSOs and SSDs exhibit both common and differentiating changes in neuronal connectivity. Furthermore, they may support the hypothesis that OSSO should be treated as a separate clinical syndrome with distinct neural connectomics.