Methods: Thirty-five FESz and 40 healthy controls (HC) matched for age, sex, parental socioeconomic status, and premorbid IQ participated in the study. Magnetoencephalography (MEG) was recorded during binaural presentation of 1KHz tones at 3 intensities (75 dB, 80 dB, and 85 dB). Structural MRIs were obtained to enhance cortical localization of MEG sensor activity. All participants completed the Wechsler Abbreviated Scale of Intelligence (WASI), the MATRICS cognitive battery (MCCB), and the Global Functioning: Role and Social scales (GFR/GFS). Patients were administered the Positive and Negative Syndrome Scale (PANSS). Primary outcomes included AC activity elicited by tone stimuli as well the dynamic range of this activity, defined as the increased AC activity from 75 dB to 85 dB, and its correlations with clinical assessment scores.

Results: FESz exhibited an overall reduced AC response to tones relative to HC (p = 0.002, partial η2 = 0.13). Importantly, the enhancement of AC activity to tones of increasing intensity observed across groups (p < 0.001, partial η2 = 0.35) was blunted in FESz relative to HC (p = 0.03, partial η2 = 0.05). Reduced dynamic range among FESz was associated with lower GFS (r = 0.62, p < 0.001) and GFR (r = 0.45, p = 0.006) scores, worse MCCB performance (r = 0.49, p = 0.003), and increased PANSS Negative symptom subscale scores (r = −.53, p < 0.001).

Conclusions: Beyond an impaired sensory response to pure tones, FESz exhibit reduced AC dynamic range relative to HC. This impairment was correlated with various markers of disease morbidity including poorer community functioning as well as cognitive and negative symptoms, though the most robust association was observed with social functioning scores. The relationship with impaired social functioning may reflect the role of AC dynamic range in decoding the emotional content of language and highlights its importance to future therapeutic sensory remediation protocols.

Keywords: First Episode Schizophrenia, Magnetoencephalography, Auditory Cortex, Auditory Processing, Social Functioning

Disclosure: Nothing to disclose.

P577. Shared and Unique Abnormalities in Sleep and Rest-Activity Rhythms in Residential and Outpatient Schizophrenia Spectrum Disorder Patients

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Background: Sleep and rest-activity-rhythm (RAR) abnormalities are commonly reported in schizophrenia spectrum disorder (SSD) patients. However, an extensive characterization of RAR alterations in SSD patients relative to healthy control subjects is currently lacking. Furthermore, differences in RAR parameters between residential and outpatient SSD individuals, including their relationships with the SSD clinical symptoms, have not been thoroughly examined.

Methods: Two hundred and fifty participants, including one hundred and thirty-seven patients diagnosed with Schizophrenia Spectrum Disorders (SSD, seventy-nine residential patients, and fifty-eight outpatients) and one hundred and thirteen healthy comparison (HC) subjects, were recruited at ten different mental health centers in Northern Italy Ras as part of the DiAPAson project. To monitor habitual sleep-wake patterns, study participants were instructed to wear an ActiGraph GT9X on the non-dominant wrist for seven consecutive days. Data from 20 participants were excluded due to having either less than 3 days

of actigraphy data or being detected as an outlier. Therefore, 68 residential SSD patients, 54 SSD outpatients, and 108 HC individuals were included in further analyses. RAR parameters, including M10, L5 relative amplitude (RA), intra-daily variability (IV), inter-daily stability (IS), alpha, beta, F-statistic (F-stat), and sleep parameters (i.e., total sleep time [TST], wake after sleep onset [WASO]) were computed for each study participant. Moreover, negative symptoms were assessed in residential and outpatient SSD patients with the Brief Negative Symptom Scale (BNSS). Analysis of covariance (ANCOVA) was performed to identify differences in RAR and sleep parameters between HC, outpatient SSD, and residential SSD groups after controlling for age and sex. Statistical significance was determined by applying Bonferroni's correction for multiple comparisons. For RAR/sleep parameters showing significant ANCOVA differences across the three groups, the Tukey HSD test was used for pairwise comparison, including differences between each SSD population with HC and between the two SSD samples. Finally, correlation analyses between BNSS scores and RAR parameters were performed.

Results: Among sleep parameters, TST (F(2, 225) = 79.43, p < 0.001), but not WASO, was different between groups after Bonferroni's correction for multiple comparisons. Furthermore, except RA and F-stat, all RAR parameters, including IV (F(2, 225) = 8.35, p = 0.003), M10 (F(2, 225) = 31.13, p < 0.001), L5 (F(2, 225) = 7.91, p = 0.005), alpha (F(2, 225) = 46.092, p < 0.001), beta (F(2, 225) = 27.68, p < 0.001), and IS (F(2, 225) = 14.33, p < 0.001) were significantly different across the three groups. Specifically, TST was higher in both SSD groups compared to HC (t = 11.18, p < 0.001, t = 9.28, p < 0.001; for residential and outpatients SSD vs HC, respectively). Both SSD groups showed also lower M10 (residential vs control: t = −7.71 and p < 0.001; outpatients vs control: t = −4.2 and p < 0.001) and L5 (residential vs control: t = −3.79 and p < 0.001; outpatients vs control: t = −2.43 and p = 0.048), along with higher alpha (residential vs control: t = 7.43 and p < 0.001; outpatients vs control: t = 8.25 and p < 0.001) compared to HC. Residential SSD patients had higher IV (residential vs control: t = 2.98 and p = 0.010), IS (residential vs control: t = 5.35 and p < 0.001), and beta (residential vs control: t = 7.16 and p < 0.001) relative to HC. In contrast, SSD outpatients showed no differences in any of those three measures compared to HC. We also observed that M10 (t = 2.67, p = 0.024) was higher in SSD outpatients compared to residential patients, whereas IV (t = −3.95, p < 0.001), beta (t = −5.51, p < 0.001), and IS (t = −2.73, p = 0.020) were higher in residential compared to SSD outpatients. Furthermore, residential patients had worse negative symptoms compared to outpatients (t = 2.6299, p = 0.010), and IS correlated with the severity of negative symptoms across all SSD patients (R = 0.248, p = 0.024).

Conclusions: In this study, we found that compared to healthy controls, residential and outpatient SSD individuals had both unique (IV, beta, IS) and shared (e.g., TST, M10, L5, alpha) abnormalities in RAR/sleep measures, and IS was associated with the severity of the SSD clinical symptoms.

Keywords: Actigraphy, Schizophrenia (SCZ), Circadian Rhythm, Brief Negative Symptom Scale (BNSS)

Disclosure: Nothing to disclose.

P578. Odor Discrimination and Identification in Schizophrenia: Relationship to MRNA in Lymphocytes and MATRCIS Battery Scores

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