

## EPV1315

## Electrophysiological characterization of schizophrenia-associated variants in NaV1.2 sodium channel

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**Introduction:** A major pathophysiological hypothesis of schizophrenia states an increased activity of glutamatergic neurons leading to an imbalance of neural excitation and inhibition (E/I-imbalance). One potential molecular mechanism of E/I-imbalance is a dysfunction of voltage-gated sodium channels, which are crucial for the generation of action potentials, the fundamental event of neuronal excitation. Indeed, patients with schizophrenia exhibit an increased burden of rare exonic variants of sodium channel genes, but the literature describing their electrophysiological effect is scarce.

**Objectives:** The aim of this project is to assess the functional impact of three mutations of the Sodium Voltage-Gated Channel Alpha Subunit 2 (SCN2A) gene / Na<sub>v</sub>1.2 channel which were identified in four patients with schizophrenia, using a heterologous expression system.

**Methods:** Three variants of the human SCN2A gene (R850P, V1282F and S1656P) were created using site-directed mutagenesis. HEK293T cells transfected with either the mutant or wild type constructs are being investigated by voltage-clamp technique, applying activation, steady-state fast inactivation, use dependency and ramp protocols.

**Results:** All three mutated constructs were successfully created. Preliminary recordings from the V1282F mutant indicate a shift of both the activation and steady-state fast inactivation to the hyperpolarized direction.

**Conclusions:** In a subgroup of patients, E/I imbalance may be a consequence of Nav1.2 mutations leading to increased excitability of glutamatergic neurons. By integrating insights from different mutations we aim to identify traits of a potentially shared disease pathway which may provide a basis for the development of novel therapeutics.

**Disclosure:** No significant relationships.

**Keywords:** schizophrenia; Electrophysiology; site-directed mutagenesis; Voltage-gated sodium channels

## EPV1314

## The psychopathological trajectories to delusion in Schizophrenia: the affective and schizotypal pathways

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**Introduction:** Delusions are a key feature of schizophrenia psychopathology. From a phenomenological approach, Jaspers (1913) differentiates between “primary” or true schizophrenic delusions,

defined as an unmediated phenomenon that cannot be understood in terms of prior psychological origin or motivation, and “secondary” delusions, understandable from the patient’s mood state or personality. Primary delusions have been considered the hallmark of reality distortion dimension in schizophrenia, disregarding a possible affective pathway to delusional belief.

**Objectives:** The present study was aimed at elucidating the psychopathological trajectories to delusion in schizophrenia through the investigation of both affective and schizotypal trait dispositions.

**Methods:** Seventy-eight participants affected by schizophrenia were administered the Peters Delusional Inventory (PDI), the Positive and Negative Affective Scale (PANAS), the Experience of Shame Scale (ESS), the Referential Thinking Scale (REF), the Magical Ideation Scale (MIS) and the Perceptual Aberration Scale (PAS).

**Results:** The severity of delusional ideation (PDI) was positively related to both affective (PANAS positive dimension, ESS) and schizotypal traits (MIS, PAS and REF). Moreover, referential thinking (REF) mediated the relationship between “magical ideation” (MIS) and delusions severity (Fig. 1), whereas experience of shame (ESS) was a moderating factor in the between referential thinking and delusion severity (Fig. 2).

Fig. 1. Mediation model between schizotypal traits and delusion severity.

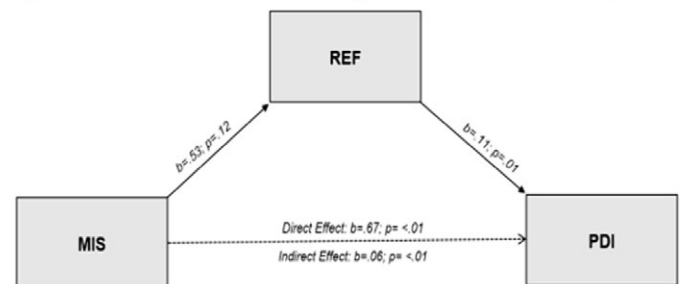
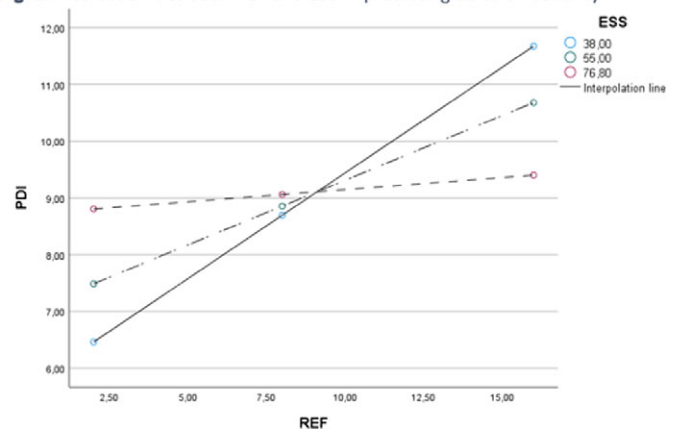


Fig. 2. Interaction between REF and ESS in predicting delusion severity.



**Conclusions:** The study findings suggest that in schizophrenia patients, severity of delusions is underpinned by an intertwining of both affective and schizotypal pathways.

**Disclosure:** No significant relationships.

**Keywords:** delusion; Psychosis; Psychopathology; schizophrenia

## EPV1315

### The effect of intranasal oxytocin application and mindfulness-based group therapy for patients with schizophrenia spectrum disorders – A study protocol

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**Introduction:** Research indicates improvements in negative symptoms and empathy for schizophrenia spectrum disorders (SSD) after mindfulness-based interventions (MBI). Current treatment approaches for SSD remain limited regarding their effectiveness on negative symptoms and sociocognitive deficits. After oxytocin (OXT) administration, especially in a positive social context, an increase in empathy could be shown. The effect of mindfulness in combination with OXT has not yet been examined.

**Objectives:** This study investigates the additional effect of OXT administration combined with MBI on empathy and negative symptoms in patients with SSD.

**Methods:** An experimental, randomised, triple-blinded, placebo-controlled study is proposed. Based on power calculations, 140 participants with SSD will be recruited at Charité – Universitätsmedizin Berlin. A dose of intranasal oxytocin with 24 I.U. or placebo will be administered 45 minutes before each session. Following each administration, a total of four MBI interventions will take place for two weeks. Empathy as primary outcome will be measured using validated psychometric questionnaires. Outcomes, including negative symptoms and OXT plasma levels, will be measured at baseline and post-intervention. A 2x2 mixed-model ANCOVA design with time as within- and group as between-subject factor will be calculated to assess empathy and negative symptom changes.

**Results:** The study hypothesises that applying intranasal oxytocin in combination with MBI will increase empathy and reduce negative symptoms in patients with SSD.

**Conclusions:** Findings could provide insight into enhancing therapies like MBI by utilising OXT as a possible supplementary treatment option. Findings could therefore pave the way for a personalised psychiatric medicine treatment for individuals with SSD.

**Disclosure:** No significant relationships.

**Keywords:** Mindfulness; schizophrénia; Oxytocin; negative symptoms

## EPV1316

### Differences in physical activity in subjects with psychosis versus a control group

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**Introduction:** Psychiatric illnesses are related with a reduced life expectancy and an increase of mortality rates (around 60%) mainly associated with cardiovascular diseases [1]. The high prevalence of obesity, metabolic syndrome, diabetes mellitus and tobacco use among these patients undoubtedly predispose to the impairment in physical health and mortality increase. Regular physical activity in the general population is associated with a decrease in cardiovascular risk but little is known about its influence in some chronic and severe mental disorders like schizophrenia [2].

**Objectives:** To quantify the physical activity performed by a sample of subjects with psychosis, both males and female, compared to a control group.

**Methods:** A sample composed of 141 patients with schizophrenia was compared to 103 healthy subjects as a control group. The International Physical Activity Questionnaire - Short Form (IPAQ) scale was applied to all participants. The time (minutes) of physical activity performed in a week (METs) was collected by each participant [3].

**Results:** The differences in the total physical activity METs for the patients with schizophrenia were highly significant ( $p = 0.001$ ), showing a lower degree of physical activity compared to the control group. A higher and significant percentage of sedentary lifestyle among the psychiatric group (64.5%), compared to 35.5% in the control group was found.

**Conclusions:** The group of patients with Schizophrenia showed a significant higher sedentary lifestyle including less physical activity. This finding could be highly related with a higher risk of cardiovascular disease and deterioration of the physical health.

**Disclosure:** No significant relationships.

**Keywords:** schizophrénia; Physical exercise; Psychosis; physical health

## EPV1317

### Language and turn-taking in schizophrenia spectrum disorders

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**Introduction:** Language and conversation are deeply interrelated: language is acquired, structured, practiced in social interactions and linguistic resources (specifically syntactic, prosodic and pragmatic