

## **T223. MULTIVARIATE PREDICTION OF FOLLOW UP SOCIAL AND OCCUPATIONAL OUTCOME IN CLINICAL HIGH-RISK INDIVIDUALS BASED ON GRAY MATTER VOLUMES AND HISTORY OF ENVIRONMENTAL ADVERSE EVENTS**

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functioning and emotions. These SEs had at least a moderate to severe impact (defined by a VAS score  $\geq 50$ ) on all aspects of functioning (physical, psychological, social, and vocational). The most common emotions associated with SEs reported by participants were feeling 'Frustrated', 'Dissatisfied', and 'Ashamed/embarrassed'. Generally, the results from the survey in Italy were comparable to those of the global survey.

**Discussion:** Findings from this survey confirm that participants taking SGAs for the treatment of schizophrenia still have many SEs, including activating and sedating SEs, sexual SEs, and weight gain. These SEs have a considerable negative impact on participant's daily functioning and quality of life satisfaction, including on work, and sexual drive, in addition to psychosocial effects.

## T221. CAUSAL RELATIONSHIPS BETWEEN EMPATHY, MOTIVATION AND FUNCTIONAL OUTCOMES IN EARLY SCHIZOPHRENIA IDENTIFIED WITH CAUSAL DISCOVERY MODELING

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**Background:** Schizophrenia is characterized by devastating impairments in occupational and social functioning. These impairments result in poor quality of life, have significant societal burden, and are resistant to current treatments. Although a number of predictors of poor functional outcomes have been identified, the causal relationships between malleable illness variables and functional status must be discovered to establish the most promising candidate treatment targets. The aim of this research is to employ a data-driven causal network approach in the Recovery After an Initial Schizophrenia Episode (RAISE) trial to identify variables that have causal effects on occupational and social functioning. Our second aim was to validate our results in an independent sample drawn from the Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) study.

**Methods:** Measures of neurocognition, motivation, empathy, psychiatric symptoms, duration of untreated psychosis, and social and occupational functioning were obtained for 279 participants with early schizophrenia enrolled in RAISE. Data were analyzed using a machine learning causal discovery algorithm, Greedy Fast Causal Inference, which infers causal relationships among the variables while identifying potential influences of latent variables. Causal effect sizes (ES) were estimated by fitting a linear structural equation model to the causal graph. Graph stability was evaluated by running GFCI on 1000 jackknifed and 1000 bootstrapped datasets. Results were validated using a similar set of variables in 187 participants in the CATIE study who were within five years of initiating antipsychotic treatment.

**Results:** Baseline empathy caused baseline motivation (ES = 0.77), which in turn caused both baseline social (ES = 1.5) and occupational (ES = 0.96) functioning. Baseline social and occupational functioning then caused six-month social and occupational functioning, respectively. Additionally, at the six-month time point, social functioning caused motivation (ES = 0.21), which in turn caused occupational functioning (ES = .92). Causal relationships between motivation and social functioning were cyclical through time. The causal structure in the CATIE dataset had some less determinate edge orientations, but otherwise confirmed the findings from RAISE. The jackknife and bootstrap causal graphs showed high concordance with all graph features in the social and occupational functioning subgraphs.

**Discussion:** Motivation and empathy at baseline have causal effects on both occupational and social functioning six months after entering treatment in early schizophrenia. In addition, an improvement in social functioning over six-months may drive improvements in occupational functioning. This indicates that future research should test the efficacy of interventions targeting motivation and empathy for promoting functional recovery in early schizophrenia as soon as individuals enter treatment.

## T222. IMPAIRED COST-BENEFIT COMPUTATION IN SOCIAL CONTEXT IN PATIENTS WITH SCHIZOPHRENIA

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**Background:** Social withdrawal is one of core negative symptoms in schizophrenia, which dampens their social outcomes and prognosis. However, the underlying behavioral mechanisms of this symptom are poorly understood. In the present study, we aimed to explore the capacity of cost-benefit computation under social context in schizophrenia patients.

**Methods:** We recruited twenty-six patients, who met the criteria for diagnosis of schizophrenia, and thirty-one healthy controls matched for their age and gender ratio. All the participants were administered to Effortful Job Interview Task, which is a novel behavioral paradigm where participants were asked to make an effort to get job offers. Before their taking effort, they were required to decide whether they would like to get involved in a less challenging job interview with no bonus point or a more challenging one with varied bonus points (i.e., 5, 15, 25 points, higher points indicate higher chance of getting a job offer).

**Results:** In healthy controls, there was a main effect of prize on the choice percentage of challenging job interview ( $F(2, 90) = 68.577, p < 0.001$ ), with higher percentage of picking challenging interview under large (25) and medium (15) bonus points than low bonus point (5). Schizophrenia patients, however, exhibited lower percentage of challenging interview choices under medium ( $p = .015$ ) and large ( $p < .01$ ) bonus points than healthy controls, as reflected by a significant Group x Prize interaction effect ( $F(2, 110) = 6.478, p < 0.01$ ). In addition, we observe significant negative correlations between percentage of challenging interview choices under large bonus and amotivation sub-score on the Scale for the Assessment of Negative Symptoms ( $r = -0.49, p = 0.01$ ). Interestingly, patients with schizophrenia displayed spared experience of pleasantness when they received a job offer as compared with healthy controls ( $p = .09$ ). But, they showed blunted aversive experience towards the outcomes of failure as compared to healthy controls ( $p < .01$ ).

**Discussion:** These findings suggest that impaired social cost-benefit computation may play a central role in the symptoms of social withdrawal in schizophrenia, which may facilitate the clinical intervention of negative symptoms.

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Paolo Brambilla<sup>13</sup>, Stefan Borgwardt<sup>14</sup>, Alessandro Bertolino<sup>1</sup>, Nikolaos Koutsouleris<sup>15</sup> PRONIA Study Group<sup>15</sup>

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**Background:** Functional deficits associated with the Clinical High Risk (CHR) status very often lead to inability to attend school, unemployment, as well as social isolation, thus calling for predictors of individual functional outcomes which may facilitate the identification of people requiring care irrespective of transition to psychosis. Studies have revealed that a pattern of cortical and subcortical gray matter volumes (GMV) anomalies measured at baseline in CHR individuals could predict their functional abilities at follow up. Furthermore, literature is consistent in revealing the crucial role of several environmental adverse events in increasing the risk of developing either transition to psychosis, or a worse overall personal functioning. Therefore, the aim of this study is to employ machine learning to test the individual and combined ability of baseline GMV data and of history of environmental adverse events in predicting good vs. poor social and occupational outcome in CHR individuals at follow up.

**Methods:** 92 CHR individuals recruited from the 7 discovery PRONIA sites were included in this project. Social and occupational impairment at follow up (9–12 months) were respectively measured through the Global Functioning: Social (GF:S) and Role (GF:R) scale, and CHR with a follow up rating of 7 or below were labeled as having a poor functional outcome. This way, we could separate our cohort in 52 poor outcome CHR and 40 good outcome CHR. GMV data were preprocessed following published procedures which allowed also to correct for site effects. The environmental classifier was built based on Childhood Trauma Questionnaire, Bullying Scale, and Premorbid Adjustment Scale (childhood, early adolescence, late adolescence and adulthood) scores. Raw scores have been normalized according to the psychometric properties of the healthy samples used for validating these questionnaires and scale, in order to obtain individual scores of deviation from the normative occurrence of adverse environmental events. GMV and environmental-based predictive models were independently trained and tested within a leave-site-out cross validation framework using a Support Vector Machine algorithm (LIBSVM) through the NeuroMiner software, and their predictions were subsequently combined through stacked generalization procedures.

**Results:** Our GMV-based model could predict follow up social outcome with 67.4% Balanced Accuracy (BAC) and significance ( $p=0.01$ ), while it could not predict occupational outcome (46.6% BAC). On the other hand, our environmental-based model could discriminate both poor vs. good social and occupational outcomes at follow up with, respectively, 71% and 66.4% BACs, and significance (both  $p=0.0001$ ). Specifically, the most reliable features in the environmental classifier were scores reflecting deviations from the normative values in childhood trauma and adult premorbid adjustment, for social outcome prediction, and in bullying experiences and late adolescence premorbid adjustment, for occupational outcome prediction. Only for social outcome prediction, stacked models outperformed individual classifiers' predictions (74.3% BAC,  $p=0.0001$ ).

**Discussion:** Environmental features seem to be more accurate than GMV in predicting both social and occupational outcomes in CHR. Interestingly, the predictions of follow up social and occupational outcomes rely on different patterns of occurrence of specific environmental adverse events, thus providing novel insights about how environmental adjustment disabilities, bullying and traumatic premorbid experiences may impact on different bad outcomes associated with the CHR status.

## T224. TESTING THE EFFECTIVENESS OF A BRIEF, PEER SUPPORT INTERVENTION TO FACILITATE TRANSITION FROM PSYCHIATRIC HOSPITALIZATION FOR A SCHIZOPHRENIA SPECTRUM POPULATION

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**Background:** The period immediately following discharge is highly stressful for many individuals with schizophrenia spectrum illnesses as they transition from protracted inpatient stays to community settings with minimal support. In this period the risk of hospital re-admission is at its highest, many do not engage with community supports and clinical resources, and the risk of suicide is greatest. The evidence base for brief, effective interventions to support such transitions is to date underdeveloped.

**Methods:** This randomized controlled trial examined the effectiveness of a Peer Support intervention that combines components of Cognitive Adaptation Training (CAT) and the Welcome Basket Program. CAT is an evidence-based intervention that provides environmental supports to help people with schizophrenia compensate for the cognitive impacts of the illness. The Welcome Basket Program is a peer intervention approach that helps bridge discharge through the provision of a small individualized 'basket' of staple supplies and comfort items along with the facilitation of engagement with community resources. The intervention involves peer supports engaging patients in the days preceding discharge to assess goals and needs followed by weekly visits post-discharge for 1 month providing Welcome Basket and CAT supports. The study also collected pilot data examining the outcomes of an abbreviated, two contact version of the intervention. Inpatients with a schizophrenia spectrum diagnosis were randomized with a 2:2:1 ratio to treatment as usual, the full intervention, and the abbreviated intervention. Along with feasibility assessments, outcome metrics included re-hospitalization, symptomatology, quality of life, and community functioning. Assessments at baseline, 1-month post-discharge, and 6 months post-discharge facilitated the examination of relative effectiveness and sustainment of gains.

**Results:** The trial was successfully implemented with data collected from 106 participants at baseline, 82 at post-intervention, and 74 at 6-month follow up. Overall, the interventions and the study design appeared feasibility with attrition primarily due to the high acuity nature of a population recruited largely through an early psychosis inpatient unit (mean age 34.6 years). Preliminary analysis suggests limited effects on community functioning though completed analyses of other metrics are pending and may provide insight into the possible mechanisms of action of this intervention should it prove to be effective.

**Discussion:** This study was designed to assess the development and dissemination of a cost-effective method for mitigating relapse risk and promoting community involvement and engagement in care. The effort to better support successful care transitions through approaches such as this is a priority area for service systems globally and contributes to the literature on peer support. While widely implemented, models of peer support have seldom been examined for effectiveness in clinical trials.

## T225. THE CHANGE OF ADMISSION PATTERN IN PSYCHIATRIC INPATIENTS FOLLOWING REVISION OF MENTAL HEALTH ACT IN KOREA

Abstract not included.