

## **Symposium: Cognitive heterogeneity, cognitive course and cognitive remediation in severe mental disorders: recent studies from the Norwegian Centre for Mental Disorders Research**

Organized by: Torill Ueland

Chair: Torill Ueland

Brief description of symposium (max 70 words)

We first present two studies investigating cognitive heterogeneity across schizophrenia and bipolar disorder. The first study uses a cluster analytic approach based on IQ trajectories, while the second investigates cognitive dispersion differences in patients compared to healthy controls. Further, we present a 10-year follow-up study of cognitive functioning in first-episode schizophrenia. Finally, results from an RCT of cognitive remediation for participants in the early phase of schizophrenia are presented.

### **Presentation 1:**

**Title:** Cognitive clusters across schizophrenia and bipolar disorder

**Presented by:** Anja Vaskinn, PhD, Senior Research Psychologist, Norwegian Centre for Mental Disorders Research, University of Oslo & Oslo University Hospital

**Abstract:** Although schizophrenia and bipolar disorder are characterized by cognitive impairment, there is also great cognitive variability among individuals with these diagnoses. We investigated cognitive heterogeneity across schizophrenia and bipolar disorder using cluster analysis. Three hundred and ninety-eight individuals with schizophrenia (n = 223) or bipolar I disorder (n = 175) were assessed with clinical and neuropsychological measures. Premorbid (National Adult Reading Test) and current IQ (Wechsler Abbreviated Scale of Intelligence) estimates were subjected to hierarchical and k-means cluster analyses. Three cognitive clusters were identified: a relatively intact group (36% of whole sample), an intermediate group with mild cognitive impairment (44%), and an impaired group with global deficits (20%). The clusters did not follow a schizophrenia versus bipolar disorder distinction: one-third of the schizophrenia group belonged to the intact cluster. The clusters, or cognitive groups, differed for clinical, functional, and neuropsychological variables, suggesting their validity. Our results highlight that precise characterization of the individual depends on neuropsychological assessment, not on psychiatric diagnostics.

### **Presentation 2:**

**Title:** Cognitive heterogeneity in schizophrenia and bipolar spectrum disorders compared to healthy individuals: mean and dispersion differences

**Presented by:** Beathe Haatveit, PhD, Post-doctoral fellow at Norwegian Centre for Mental Disorders Research, University of Oslo & Oslo University Hospital

**Abstract:** Although cognitive heterogeneity is extensively documented in schizophrenia (SZ) and bipolar disorder (BD), previous studies have explicitly compared the observed inter-individual heterogeneity in patients with the average healthy population. We investigated cognitive mean and dispersion differences in SZ (905), BD (522) spectrum disorders compared to healthy controls (HC, 1170) using double general linear models. Results revealed significant group-level mean differences across 96 % of the twenty-two variables in SZ and BD compared to HC, and on 81 % of the variables in SZ compared to BD. Compared to HC, patients showed significantly larger between-subject dispersion on speeded tests, including measures of inhibitory control, fine-motor speed, and mental processing speed (both SZ and BD), and on intellectual functioning

and verbal memory (only SZ). The results showed no dispersion differences in other key cognitive processes including working memory, semantic fluency and psychomotor processing speed. Interpretation of these results will be discussed.

### **Presentation 3:**

**Title:** Long-term cognitive development in schizophrenia

**Presented by:** Camilla Bärthel Flaaten, PhD candidate, Norwegian Centre for Mental Disorders Research, University of Oslo & Oslo University Hospital

**Abstract:** Schizophrenia is characterized by cognitive impairments that appear largely stable after illness-onset. There are, however, relatively few long-term studies including healthy controls. We investigated the course of cognitive functioning from baseline to 10-year follow-up in 89 participants with schizophrenia and 115 healthy controls. Participants were assessed with clinical and neuropsychological measures at baseline and follow-up and data were analyzed using repeated-measures ANOVA. The schizophrenia group scored lower on all functions at both time-points, and were most impaired in semantic fluency, psychomotor- and motor speed. Semantic fluency, cognitive control, psychomotor- and motor speed increased over time in both groups. An interaction effect on short-term memory showed stability in patients, while controls improved. In sum, patients had stable impairments compared to controls. While the most pronounced impairments were found on speeded measures, these improved over time. Our findings indicate different developmental courses for specific cognitive domains.

### **Presentation 4:**

**Title:** Cognitive remediation in the early phase of schizophrenia: results from an RCT

**Presented by:** Torill Ueland, PhD, Associate Professor, Norwegian Centre for Mental Disorders Research, University of Oslo & Oslo University Hospital

**Abstract:** Cognitive impairments are considered core symptoms of schizophrenia and have a detrimental effect on functioning. Impairments are prevalent already in the early course of illness and remain relatively stable over time. We investigated the effect of a 30-hour cognitive remediation program on cognition, symptoms and functional outcome in patients in the early phase of schizophrenia in a randomized controlled trial. Sixty participants with schizophrenia spectrum disorders with in the early course of illness (onset < 5 years) were included and randomized to cognitive remediation (N=32) or to a wait list control group (N=28). Participants were assessed on clinical, cognitive and functioning measures at baseline, post intervention and at 10-month follow up. Results from the trial will be presented and discussed.