

S219. SINGLE-SUBJECT PREDICTION OF FUNCTIONAL OUTCOMES ACROSS DIAGNOSTIC GROUPS USING CLINICAL DATA

Marlene Rosen*¹, Nathalie Kaiser¹, Linda Betz¹, Theresa Haidl¹, Mauro Seves¹, Tanja Pilgram¹, Frauke Schultze-Lutter², Katharine Chisholm³, Alessandro Bertolino⁴, Stefan Borgwardt⁵, Paolo Brambilla⁶, Rebekka Lencer⁷, Eva Meisenzahl², Stephan Ruhrmann¹, Raimo K. R. Salokangas⁸, Rachel Upthegrove³, Stephen Wood⁹, Nikolaos Koutsouleris¹⁰, Joseph Kambeitz¹, PRONIA consortium¹¹
¹University Cologne, Germany; ²Heinrich-Heine University Düsseldorf; ³University of Birmingham; ⁴University of Bari; ⁵University of Basel; ⁶University of Milan, Italy; ⁷Münster University; ⁸University of Turku, Finland; ⁹Orygen, the National Centre of Excellence in Youth Mental Health; ¹⁰Ludwig-Maximilian-University; ¹¹PRONIA

Background: Psychotic disorders are associated with serious deterioration in functioning even before the first psychotic episode. Also on clinical high risk (CHR) states of developing a first psychotic episode, several studies reported a decreased global functioning. In a considerable proportion of CHR individuals, functional deterioration remains even after (transient) remission of symptomatic risk indicators. Furthermore, deficits in functioning cause immense costs for the health care system and are often more debilitating for individuals than positive symptoms. However in the past, CHR research has mostly focused on clinical outcomes like transition. Prediction of functioning in CHR populations has received less attention. Therefore, the current study aims at predicting functioning in CHR individuals at a single subject level applying multi pattern recognition to clinical data. Patients with a first depressive episode who frequently have persistent functional deficits comparable to patients in the CHR state were investigated in addition.

Methods: PRONIA ('Personalized Prognostic Tools for Early Psychosis Management') is a prospective collaboration project funded by the European Union under the 7th Framework Programme (grant agreement n°602152). Considering a broad set of variables (MRI, clinical data, neurocognition, genomics and other blood derived parameters) as well as advanced statistical methods, PRONIA aims at developing an innovative multivariate prognostic tool enabling an individualized prediction of illness trajectories and outcome. 11 university centers in five European countries and in Australia (Munich, Basel, Birmingham, Cologne, Düsseldorf, Münster, Melbourne, Milan, Udine, Bari, Turku) participate in the evaluation of three clinical groups (subjects clinically at high risk of developing a psychosis [CHR], patients with a recent onset psychosis [ROP] and patients with a recent onset depression [ROD]) as well as healthy controls.

In the current study, we analysed data of 114 CHR and 106 ROD patients. Functioning was measured by the 'Global Functioning: Social and Role' Scales (GF S/R). In a repeated, nested cross validation framework we trained a 11-regularized SVM to predict good versus bad outcome. Multivariate pattern recognition analysis allowed to identify most predictive variables from a multitude of clinical, environmental as well as sociodemographic potential predictors assessed in PRONIA.

Results: Based on the 5 to 20 identified most predictive features, prediction models revealed a balanced accuracy (BAC) up to 77/72 for social functioning in CHR/ROD patients and up to 73/69 for role functioning. These models showed satisfying performance of BACs up to 69/63 for social functioning and 67/60 for role functioning in an independent test sample. As expected, prior functioning levels were identified as main predictive factor but also distinct protective and risk factors were selected into the prediction models.

Discussion: Results suggest that especially prediction of the multi-faceted construct of role functioning could benefit from inclusion of a rich set of clinical variables.

To the best of our knowledge this is the first study that has validated clinical prediction models of functioning in an independent test sample.

Identification of predictive variables enables a much more efficient prognostic process. Moreover, understanding the mechanisms underlying functional decline and its illness related pattern might enable an improved definition of targets for intervention. Future research should aim at further maximisation of prediction accuracy and cross-centre generalisation capacity. In addition, other functioning outcomes as well as clinical outcomes need to be focused on.

S220. DIFFERENTIATING EMPLOYMENT TRAJECTORIES IN SCHIZOPHRENIA: FEATURES OF CURRENT, FORMERLY, AND NEVER EMPLOYED PATIENTS

Katelyn Barone*¹, Cynthia Fundora-Trujillo¹, Maria Cruz¹, David L. Penn², Amy E. Pinkham, Ph.D³, Phillip D. Harvey, Ph.D¹
¹University of Miami; ²University of North Carolina, Chapel Hill; ³University of Texas, Dallas

Background: The interplay between neurocognition, social cognition, and employment outcomes among the schizophrenic population has been extensively investigated, but there are disparities between the impairments that predict these outcomes. In this study, we aim to provide further insight by discriminating between factors that influence getting a job and sustaining employment. We hypothesized that neurocognitive factors would predict which individuals experienced challenges in ever getting a job, while interpersonal deficits, disruptive behavior, or psychosis would characterize individuals who were able to obtain a job but unable to keep it.

Methods: Patients (n=396) were between 18 and 70 years old and received a diagnosis of Schizophrenia, Schizoaffective Disorder or Schizophreniform Disorder. Performance-based assessments were conducted to measure neurocognition, social cognition and psychosis; and, clinical ratings provided information on psychosis, negative symptoms and disruptive behavior. Patients were divided into three clusters defined as: individuals who had never been employed (n=196), individuals who formerly had a job for at least 2 years but have been unemployed for at least 2 years (n=149), and individuals with current employment for at least 2 years (n=51).

Results: Patients who never had a job manifested the following characteristics compared to those who currently had a job: significantly fewer years of patient education (Self, p=.006), mother's education (Mother, p=.028), and lower verbal working memory (LNS, p<.01). They also displayed significantly more PANSS social avoidance (p=.023), disturbance of volition (p=.037), and anxiety (p=.004). Compared to those who formerly had a job, these same patients manifested the following: significantly more total negative symptoms (p=.039), more severe poor rapport (p=.041) and more blunted affect (p=.002). Formerly employed patients reported significantly more depression (BDI, p=.01) and hostile cognitive bias (BLAME, p=.008), as well as worse emotional processing on the BLERT (p=.005) and ER-40 (p=.028) compared to the never employed group.

Lastly, patients who formerly had a job manifested the following compared to those who currently had a job: less patient education (Self, p=.011), mother's education (Mother, p=.015), premorbid intelligence (WRAT-3 Standard Score, p=.038), working memory (LNS, p<.01), and blunted affect (PANSS, p=.018). On the PANSS, they had more grandiosity (p=.031), suspiciousness (p=.008), anxiety (p=.001), active social avoidance (p=.003), and depression (p=.016). BDI total score, for depression, was also elevated [t(114)=3.58, p=001].

Discussion: Individuals who never had a job have evidence of less education and poorer working memory as well as negative and mood symptoms, when compared to those who were ever employed. Those who obtained a job but developed long-term unemployment had evidence of 1) social cognitive impairments, including hostile bias and emotion processing deficits, when compared to the never employed patients and 2) lower education, working memory, and PANSS ratings for negative symptoms, suspiciousness and



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Author/s:

Rosen, M; Kaiser, N; Betz, L; Haidl, T; Seves, M; Pilgram, T; Schultze-Lutter, F; Chisholm, K; Bertolino, A; Borgwardt, S; Brambilla, P; Lencer, R; Meisenzahl, E; Ruhrmann, S; Salokangas, RKR; Upthegrove, R; Wood, S; Koutsouleris, N; Kambeitz, J

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