Universität Basel

Publication

Multimodal prognosis of negative symptom severity in individuals at increased risk of developing psychosis

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 4621073
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Author(s) at UniBasel Studerus, Erich ; Andreou, Christina ; Schmidt, André ;
Year 2021
Title Multimodal prognosis of negative symptom severity in individuals at increased risk of developing psychosis
Journal Translational Psychiatry
Volume 11
Number 1
Pages / **Article-Number** 312
Mesh terms Brain; Humans; Prodromal Symptoms; Prognosis; Psychotic Disorders, diagnosis; Risk Factors
Negative symptoms occur frequently in individuals at clinical high risk (CHR) for psychosis and contribute to functional impairments. The aim of this study was to predict negative symptom severity in CHR after 9 months. Predictive models either included baseline negative symptoms measured with the Structured Interview for Psychosis-Risk Syndromes (SIPS-N), whole-brain gyrification, or both to forecast negative symptoms of at least moderate severity in 94 CHR. We also conducted sequential risk stratification to stratify CHR into different risk groups based on the SIPS-N and gyrification model. Additionally, we assessed the models' ability to predict functional outcomes in CHR and their transdiagnostic generalizability to predict negative symptoms in 96 patients with recent-onset psychosis (ROP) and 97 patients with recent-onset depression (ROD). Baseline SIPS-N and gyrification predicted moderate/severe negative symptoms with significant balanced accuracies of 68 and 62%, while the combined model achieved 73% accuracy. Sequential risk stratification stratified CHR into a high (83%), medium (40-64%), and low (19%) risk group regarding their risk of having moderate/severe negative symptoms at 9 months follow-up. The baseline SIPS-N model was also able to predict social (61%), but not role functioning (59%) at above-chance accuracies, whereas the gyrification model achieved significant accuracies in predicting both social (76%) and role (74%) functioning in CHR. Finally, only the baseline SIPS-N model showed transdiagnostic generalization to ROP (63%). This study delivers a multimodal prognostic model to identify those CHR with a clinically relevant negative symptom severity and functional impairments, potentially requiring further therapeutic consideration.
Publisher Nature Publishing Group
ISSN/ISBN 2158-3188
edoc-URL https://edoc.unibas.ch/83487/
Full Text on edoc No;
Digital Object Identifier DOI 10.1038/s41398-021-01409-4
PubMed ID http://www.ncbi.nlm.nih.gov/pubmed/34031362

ISI-Number WOS:000658515100003
Document type (ISI) Journal Article