

TITLE: Transition to severe mental illness in at-risk mental state: a multi-modal approach

ABSTRACT:

Background. Severe mental illness (schizophrenia, bipolar disorder, major depressive disorder - SMI) are associated with severe impairment in functioning and life-expectancy. Among several putative risk factors of schizophrenia, ultra-high risk for psychosis has shown to meet convincing evidence criteria (Radua, 2018). On the other hand, less solid evidence is available as regards at-risk state for bipolar disorder (Bortolato, 2017). Prodromal Questionnaire 16 (PQ-16) (Lorenzo, 2018), and Semistructured Interview for Bipolar At Risk States (SIBARS) (Fusar-Poli, 2018) are questionnaires used to assess “at-risk” mental state.

Given that early diagnosis is challenging, duration of untreated illness is long in SMI, which negatively impacts clinical outcome. Hence, early diagnosis in SMI, and ideally primary preventive interventions in at-risk subjects are warranted.

The objective of the project is to create a multi-modal prognostic model that predicts the transition to psychosis.

The project plans to recruit young subjects via media and via clinical services, and assess them with PQ-16 and SIBARS. Those meeting the criteria for “at-risk” (either for psychosis or bipolar disorder) mental state, will be included.

Participants will be assessed on: (1) psychiatric symptoms MADRS, YMRS, PANSS 6, YBOCS; (2) functional and structural magnetic resonance; (3) grip strength assessed with hand dynamometer; (4) physical activity levels assessed with SIMPAQ and wearable devices; (5) cognitive functions; (6) socio-occupational functioning (Socio-Occupational Functioning Assessment Scale - SOFAS); (7) quality of life; (8) traumatic events (Childhood Trauma Questionnaire – CTQ) (9) peri-natal complications; (10) 5HTTLPR, COMT, BDNF, DRD2 polymorphisms.

The project will have a longitudinal design. It will recruit 100 subjects. Participants will be monitored for transition to psychosis for 12 months.

The complex relationship among collected variables at baseline as well as the prediction multi-modal model will be investigated with network analysis, and machine learning techniques, in addition to standard statistical techniques.

REFERENCES

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PARTICIPANTS:

PIs: Elena Tenconi

CO-PIs: Angela Favaro, promoting collaborations

External: Marco Solmi

EXPERIMENTAL DATA:

To be acquired	X
Already acquired (ready to be used)	

Design of the study. Prospective cohort study in 100 patients at risk for severe mental illness.

Participants recruitment. Participants will be recruited via web, or in the context of Padua University Hospital Emergency Department, Psychiatry Department, or other collaborating health services.

Baseline assessment. (1) psychiatric symptoms MADRS, YMRS, PANSS 6, YBOCS; (2) Physical Activity will be assessed with levels with SIMPAQ, as well as with wearable devices to be selected among those already freely available (smartphone apps), or to be created ad-hoc in collaboration with engineers; (3) cognitive functions will be measured with stroop-signal task, n-back test, trail-A and trail-B making test, Wisconsin Card Sorting Task, Iowa Gambling Task, Rey-Osterreich Complex Figure, among others; (4) grip strength will be measured with hand dynamometer: patients will be required to produce a maximal grip three times, with both hands (handedness will also be assessed, by means of Edinburgh Handedness Inventory);(5) functional and structural magnetic resonance (T1, T2, resting state functional MRI); (6) socio-occupational functioning (Social and Occupational Functioning Assessment Scale - SOFAS); (7) quality of life will be measured with Quality of Life Scale; (8) traumatic events (Childhood Trauma Questionnaire – CTQ) (9) peri-natal complications by means of family interview; (10) 5HTTLPR, COMT, BDNF polymorphisms will be analyzed on a saliva sample.

Follow-up (3-6-12 months). Participants will be monitored for transition to psychosis or bipolar disorder or depressive disorder for 12 months. The primary outcome “SMI” will be met according to development of any DSM5- defined schizophrenia spectrum disorder, bipolar spectrum disorder, or depressive episode. Secondary outcomes will be quality of life and social and occupational functioning.

ETHICS COMMITTEE:

Obtained	
Conditioned submission	*
Not required	