



PhD student:

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Research project:

Personalized medicine and psychiatric rehabilitation

Abstract:

Atypical antipsychotics represent the first-line pharmacotherapy for the treatment of schizophrenia and bipolar disorder, due to their effectiveness in improving both positive and negative symptoms and their lower incidence of side effects compared to neuroleptics. However, the use of these medications has been associated with the onset of metabolic syndrome. Among the various factors contributing to the development of metabolic syndrome, unhealthy lifestyle habits—particularly diet—play a key role. In this context, the promotion of healthy eating habits becomes a fundamental intervention. This doctoral project therefore aims to:

- a) identify risk factors for metabolic syndrome in patients with schizophrenia spectrum and bipolar disorders;
- b) design a personalized rehabilitative intervention that takes into account the individual's identified risk factors, including habitual eating behavior.

A total of 25 patients with metabolic syndrome and 25 patients without metabolic syndrome, aged between 18 and 65 years, will be recruited. Both groups will consist of patients who have been treated with atypical antipsychotics for at least one year. An additional 25 healthy participants will also be recruited as a control group.

To perform a clinical and biological characterization of the patients, the main parameters related to insulin sensitivity, dyslipidemia, oxidative stress, inflammation, and the presence of autoimmune thyroid diseases will be assessed at baseline (T0) and after three months (T3). At T0, a stool sample will be collected to analyze the microbiome profile.

At both T0 and T3, patients' eating behaviors will be assessed using the Experience Sampling Method and a paper food diary, respectively for seven and three consecutive days. Additionally, through psychometric evaluation, the impact of health status on functioning, mood, and the perceived quality of life will be assessed.

By analyzing data from the evaluation of biochemical parameters, the microbiome, dietary habits, pharmacological treatments, mood, and perceived quality of life, it will be possible to design a rehabilitative intervention tailored to the individual. This approach accounts for personal complexity and is expected to be more effective than standardized interventions. The analysis of the study variables will provide a comprehensive overview of the individual's overall functioning, revealing patterns and interactions between various factors that may be crucial for the intervention's success. The relationships between the microbiome, inflammation, and mental health are well-known; for this reason, the rehabilitative intervention will consist of the following phases:

1. An initial session aimed at exploring the patient's motivation, locus of control, and perceived self-efficacy, as well as the goals they would like to achieve regarding their health condition;
2. Nine psychoeducational sessions providing information on the following topics: health and illness concepts; healthy lifestyles with a particular focus on dietary habits; the role of metabolism and the microbiome; metabolic syndrome—what it is, risk and protective factors; strategies to



prevent or reduce issues related to metabolic syndrome, including adopting a healthy diet, managing impulsivity, and mindful eating; stress management using diaphragmatic breathing techniques; and enhancing relational well-being.

The findings from this study will make it possible to design targeted interventions based on the holistic paradigm, built on the concept of individual complexity. The rehabilitative intervention will be tailored to the needs of each person, addressing the specific issues that affect their health status. Personalized care will allow for more effective and lasting results, improving patients' quality of life and paving the way for increasingly targeted and evidence-based medical practice.