



PhD student:

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Research project:

Physical Exercise as a Therapeutic-Rehabilitative Intervention in Mental Health: Predictive Models

Abstract:

Physical activity and structured exercise are widely recognized as key tools for promoting health and supporting rehabilitation. From a Global Health perspective, they represent low-cost, sustainable, and culturally adaptable interventions. However, maintaining adherence to exercise programs remains a challenge. This research project aims to develop predictive models to estimate adherence to physical activity and exercise (PA/EX) in individuals who are at risk or already affected by mental health conditions, with the goal of designing more effective and personalized preventive and rehabilitative interventions. The project will be carried out in three complementary phases. The first phase involves an integrative literature review to identify the main biological, psychological, and environmental factors that influence adherence, with a focus on affective and cognitive responses to PA/EX. The second phase will involve designing multimodal data collection systems using digital technologies (apps, sensors, computer-based tests, open data), and developing predictive models through advanced approaches such as machine learning, Bayesian analysis, and network analysis. Finally, a pilot clinical study will be conducted to test and validate these models in a clinical population, assessing their accuracy, feasibility, and scalability. The ultimate goal is to create innovative but accessible, replicable, and sustainable tools that support the adoption of therapeutic exercise programs, including for mental health. In doing so, the project also aims to contribute to broader Global Health goals by offering scalable solutions that can be applied across diverse healthcare systems.