

DISA-LNT

"Digital Innovation in Schizophrenia Assessment: Integration of AI-Powered Language Analysis and Neural Biomarkers for Enhanced Psychiatric Diagnosis. A Multi-National Validation Study of Quantitative Diagnostic Tools in Poland, Latvia, and Portugal"

ABSTRACT

The Digital Innovation in Schizophrenia Assessment (DISA) project represents a paradigm-shifting approach to psychiatric diagnostics through the integration of artificial intelligence-powered language analysis and quantitative neural biomarkers. Contemporary diagnostic methodologies in psychiatry, particularly for schizophrenia spectrum disorders, remain predominantly subjective and clinician-dependent (Corcoran et al., 2018; Nature Communications). This multi-national validation study proposes a novel diagnostic framework that synthesizes advanced natural language processing algorithms with EEG biomarkers to establish a more objective, reproducible diagnostic methodology.

It leverages state-of-the-art machine learning architectures for semantic analysis (based on transformer models similar to those described by Devlin et al., 2019; NAACL) combined with validated EEG biomarkers (following protocols established by Başar and Güntekin, 2013; Clinical Neurophysiology). The study encompasses a comprehensive validation across three European nations (Poland, Latvia, and Portugal), incorporating diverse linguistic and cultural contexts to ensure robust generalizability of the diagnostic tools.

Our methodology encompasses rigorous clinical validation protocols. The integration of quantitative EEG analysis with natural language processing introduces an innovative dimension to psychiatric assessment, potentially enabling earlier detection of prodromal states and more precise monitoring of disease progression (following methodologies similar to those described by Bedi et al., 2015; NPJ Schizophrenia).

This research advances both clinical practice and our understanding of schizophrenia biology. Quantitative diagnostic tools will improve patient selection for trials and treatment assessment. The cross-cultural approach fills an important gap by providing culturally and linguistically adaptable diagnostic methods.

KEYWORDS

- Psychiatry
- Schizophrenia
- Quantative
- Natural language processing (NLP)
- EEG
- Diagnosis
- Monitoring

DURATION

30 months

PARTNERS

	Name and Surname of the Principal investigator	Institution, Department, full Affiliations	City, Country
Coordinator (= Partner 1)	Eduardo Sampaio	Psycomeasure LDA (Portugal)	Portugal
Partner 2	Pawel Mierzejewski	Organisation Institue of Psychiatry and Neurology	Poland
Partner 3	Ruben Fernandes	Fundação Fernando Pessoa	Portugal
Partner 4	Jelena Kolesnikova	Rīga Stradiņš University	Latvia
Partner 5	Jurij Dreo	BrainTrip Limited	Malta
Partner 6	Renata Morais	Lumens Technologies Ltd	Malta