



ETHEREAL - project for personalised prevention of mental health disorders in autistic adolescents. Aims to develop a personalised solution to empower autistic adolescents to take preventive actions against mental health conditions.

ETHEREAL created a personalised prevention model for autistic adolescents at risk of mental-health escalation. The project linked biological modelling, environmental factors, digital self-management and community care, turning research on the epigenetic-genetic/metabolomic-mental-health cascade into practical tools for earlier, more person-centred support.



1. Describe your project through key words/key phrases that identify it.

Autistic adolescents and mental health prevention; epigenetic-genetic and metabolomic-mental health cascade; Personalised Digital Nurse and community-based care; explainable, person-centric digital health.

2. In terms of impact, what will be the most tangible your project will achieve?

ETHEREAL delivered an integrated prevention ecosystem connecting research evidence, clinical workflows and everyday support for adolescents and families. Its concrete outputs included the Central Repository, Clinic Server Platform, Home Mobile Technological Platform and Personalised Digital Nurse app, designed to translate multidimensional data into personalised preventive guidance. The project also generated a rich observational dataset through the ENIGMA study, identified environmental and biological markers associated with escalation towards mental-health disorders, and developed quantitative models of the epigenetic-genetic/metabolomic-mental-health process chain. These results are important because they moved prevention from a generic recommendation model to an actionable, person-centred pathway: clinicians and community services can better recognise risk, adolescents can receive tailored prompts and support, and families can be more actively involved before a crisis occurs. The project also produced practical knowledge on how digital health solutions can be embedded in real care settings while



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respecting ethics, privacy, accessibility and the specific needs of autistic young people. Its expected performance targets - including avoidance of escalation in a large proportion of cases and improved quality of life for adolescents and families - have been translated into a concrete exploitation and uptake pathway for future deployment.

3. Please describe your project's overall impact, if applicable, at the European level.

At European level, ETHEREAL addressed one of the most pressing social and health-system challenges: the late recognition of mental-health deterioration in vulnerable adolescents and the fragmentation of preventive support between families, schools, community services and specialist care. By focusing on autistic adolescents, the project contributed to a population that is often underserved by standard mental-health pathways and for whom prevention needs to be personalised, accessible and acceptable.

The European impact was therefore not only scientific or technological. ETHEREAL strengthened the case for prevention as a system-level priority: intervening earlier can reduce the burden on specialist services, avoid avoidable crisis pathways, and improve continuity of care. The project provided evidence and tools that can inform European approaches to digital health, telemedicine, explainable AI and community-based care for non-communicable diseases. It also contributed to social inclusion by giving adolescents and families more agency, promoting health literacy, and supporting a model in which technology complements human care rather than replacing it. In the long term,

ETHEREAL can help health systems shift from reactive treatment to proactive, personalised prevention, with benefits for quality of life, service sustainability and equity across Europe.

4. As an applicant, what advice would you have wanted in the Horizon project design process? What support did you receive from National Contact point (NCP) and your organisation, and what improvement of support would you benefit from?

The main advice is to design the impact pathway from the first day, rather than treating it as a final section to fill in. A strong Horizon health project requires a credible bridge between clinical needs, technical development, ethics, data governance, exploitation and adoption by services.

Early involvement of users, families, clinicians, regulatory experts and exploitation teams is indeed essential. In term of support from the NCP and the organization, this is especially valuable for interpreting the call, checking eligibility and budget logic, shaping the consortium, strengthening the impact narrative, and preparing ethics/GDPR and grant-management aspects. Further support would be useful through earlier intelligence on call competitiveness, more specific templates for clinical-study and AI-regulatory, and practical examples of successful pathways from research results to health-service adoption.



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