

HUMAN DECISION-MAKING ON AN AI-SUPPORTED YOUTH MENTAL HEALTH APP: A TRANSDISCIPLINARY MULTILOGUE AMONG ETHICISTS, SOCIAL SCIENTISTS, AI-RESEARCHERS, BIOMEDICAL ENGINEERS, YOUNG EXPERIENTIAL EXPERTS, AND PSYCHIATRISTS

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OVERVIEW AND ABSTRACT

We explore the **human decision-making processes** in the development of an AI-supported youth mental health app.

Document analysis reveals decisions taken during the funding phase and uncovers **why AI is incorporated** in app-development.

An innovative **transdisciplinary multilogue** points out **which decisions are taken, how, and by whom (or not)**.

Emerging themes are as follows:

1. The role of a **biomedical/exposomic understanding** versus **phenomenological and experiential perspective**
2. The **impact and limits of AI-co-creation by young experts** by experience and mental health experts, and
3. The perspectives regarding the **impact of AI on and meanings of autonomy, empowerment and human relationships**.



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DOCUMENT ANALYSIS AND TRANSDISCIPLINARY MULTILOGUE

AI-support: Internally desired and externally required



EC Horizon Call Staying Healthy

Request for a deeper molecular and neurobiological understanding of mental health, to make use of computational modelling and AI-tools to develop robust quantitative clinical measures in mental health. (EC 2021)



Grant proposal

Federated analysis of existing large European longitudinal youth cohorts and development of predictive models (identifying actionable targets for more precise trajectories of mental health and illness)
"Development of data-driven prediction tool for help-seeking young people and clinicians."



Reviewer's Assessment

The quality and robustness of AI are well-addressed using validated computational models for complex data integration.

Co-creation – the (im)possible role of young advisors

Biomedical engineer

"Our aim was to involve young advisors in all phases, initial designing, share and ask for feedback, all aspects of the app, start with very generic questions and be more and more specific, to make sure everything was taken into account."

Representative Youth Advisor Organization

"The young experts who cooperate in this project are not representative for all future users. They mostly are highly educated and interested in participating in research. But even then, I wonder if they understand everything about how the app is meant to work and for what purposes."

Message

The process of modelling, validating, and re-modelling is conducted in collaboration between AI-experts and psychiatrists, decisions are steered by data-sets and requests of professionals. On the level of coding, co-creation with young experts was considered unfeasible, while in later design and development phases it was highly valued to ensure meaningful development.

Using AI? (Re)Define Mental Health

Psychiatrist

"The EU wants to stimulate cooperation between different researchers from different countries and (academic) cultures. But biomedical researchers have no idea of the impact of what they are doing with all this data. It is important that they can see that this is not about data but about real people who struggle."

AI-Researcher

"With AI we can detect those participants who have troubles in the future, we can choose and select those people and monitor them"
"On the basis of big data sets and analysis of these data we can develop predictive models that work better than hypothesis-oriented approaches."

Message

Meaningfulness of AI-modelling depends on philosophical understanding of mental health. Mental health understood as a molecular and neurobiological disturbance can be supported by AI. Mental health conceptualized as a mental phenomenon challenges AI-modelling.

Sense(s) of Autonomy and Empowerment

AI-Researcher

"The project is controlled with privacy agreements and ethical approval, the model does not use personal data but pseudonymized data, ... User can chose which data they want to share and which not."

Biomedical engineer

"The next step is to make information that may be used to empower users, to go to self-management".

Social Scientist

"Anxiety can get worse when there is a constant focus on the phone, when people have to be alert and get primed by push-messages".

Message

While AI-experts focus on compliance to set regulations and judicial requirements respecting autonomy as a principle; young experts and some psychiatrists rather focus on what is actually helpful for them. Technical experts invoke autonomy as consent, while mental health experts (lay and professional) rely on autonomy as expressing self-reflection, active involvement and agency.

CONCLUSIONS

- Innovative research does not necessarily have **decision space** to decide about the very development and inclusion of some AI-supported tool
- A **biomedical concept of mental health is likely to benefit** of algorithmic calculations, and more so if supported by encompassing AI-tools
- A **phenomenological concept of mental health is not in need** of complex algorithms of behavioral, emotional, physical and social features
- The involvement of **young advisors improves** app-development/design; **balancing co-creation with technical complexities** is challenging
- **Judicial 'compliance' is crucial**; but from an ethics perspective issues need not be set by and **new ethical dilemma's arise** from compliance.
- **Transdisciplinary multilogues** enable explicit scientific self-reflection, render disciplinary differences visible, and foster **constructive critical engagement**