

European Congress of Psychiatry, Paris: press release

## ***Bodies of people with mental illness are biologically older than their actual age***

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Type of research: not peer reviewed/observational study/people<sup>1</sup>

New research shows that people with a lifetime history of mental disorders such as depression, bipolar disorder, or anxiety disorders have blood markers suggesting that they are older than their actual age. This may go some way to explaining why people with mental health problems tend to have shorter lifespans and more age-related diseases than the general population.

Dr Julian Mutz and Prof Cathryn Lewis, from King's College London, looked at data on 168 different blood metabolites from 110,780 participants in the UK Biobank<sup>2</sup>. They linked these data to information on whether individuals had a history of mental illness and found that those with a mental illness had a metabolite profile older than would have been expected for their age.

Presenting the work at the European Congress of Psychiatry in Paris, lead researcher Dr Julian Mutz (King's College London) said:

*"It is now possible to predict people's age from blood metabolites. We found that, on average, those who had a lifetime history of mental illness had a metabolite profile which implied they were older than their actual age. For example, people with bipolar disorder had blood markers indicating that they were around 2 years older than their chronological age."*

People with mental health disorders tend to have shorter lives, and poorer quality health, than the general population<sup>3</sup>. Estimates of the effect vary according to the mental health condition. Often people with poor mental health show an increased tendency to develop conditions such as heart disease and diabetes, and these conditions tend to worsen with age. A 2019 study found that on average people with mental disorders had shorter life expectancy (in comparison to the general population) by around 10 years for men and seven years for women<sup>4</sup>.

Dr Mutz continued:

*"Our findings indicate that the bodies of people with mental health problems tend to be older than would be expected for an individual their age. This may not explain all the difference in health and life expectancy between those with mental health problems and the general population, but it does mean that accelerated biological ageing may be an important factor. If we can use these markers to track biological ageing, this may change how we monitor the physical health of people with mental illness and how we evaluate the effectiveness of interventions aimed at improving physical health".*

Commenting, Dr Sara Poletti (Istituto Scientifico Universitario Ospedale San Raffaele, Milan) said:

*"This is an important work as it gives a possible explanation for the higher prevalence of metabolic and age-related diseases in patients with mental illness. Understanding the mechanisms underlying accelerated biological ageing could be crucial for the development of prevention and tailored treatments to address the growing difficulty of an integrated management of these disorders".*

*Dr Poletti was not involved in this work, this is an independent comment.*

The European Congress of Psychiatry takes place from 25-28 March 2023, in Paris. It is Europe's largest congress dedicated to psychiatry, with around 4500 attendees

<https://epa-congress.org/>

## Notes

1 This indication is part of a project from the Academy of Medical Sciences to improve press release communication. See <https://tinyurl.com/37pp49xu>

2 UK Biobank is a large-scale biomedical database and research resource containing anonymised genetic, lifestyle and health information from half a million UK participants. UK Biobank's database, which includes blood samples, heart and brain scans and genetic data of the volunteer participants, is globally accessible to approved researchers who are undertaking health-related research that's in the public interest. UK Biobank's resource was opened for research use in April 2012. Since then 30,000 researchers from 100 countries have been approved to use it and more than 5,000 peer-reviewed papers that used the resource have now been published. You can find out more about UK Biobank at <http://www.ukbiobank.ac.uk>

3 <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-022-02474-2>.

4 [https://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(19\)32316-5/fulltext](https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(19)32316-5/fulltext)

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## ENDS

### Notes for Editors

**Conference Abstract**      *Estimating accelerated biological ageing using machine learning and metabolomics data in people with mental disorders*, Mutz<sup>1,\*</sup>, C. M. Lewis<sup>1,1</sup> King's College London, London, United Kingdom

**Introduction:** Accelerated biological ageing might contribute to the higher prevalence of age-related diseases and excess mortality amongst individuals with mental disorders. Recent advances in machine learning and the collection of high-dimensional molecular "omics" data allow for the quantification of biological age.

**Objectives:** The aim of this study was to use machine learning methods to predict biological age from nuclear magnetic resonance spectroscopy metabolomics data and to identify psychiatric traits associated with accelerated biological ageing.

**Methods:** The UK Biobank is a multicentre community-based observational study that recruited >500,000 middle-aged and older adults. 168 metabolomic measures were quantified using the Nightingale Health platform. Phase 1 release of these data included a random subset of 118,462 UK Biobank participants. Metabolomic age delta (MetaboAge $\Delta$ ) was defined as the difference between predicted biological age and observed chronological age. We estimated group differences in MetaboAge $\Delta$  between individuals with and without mental disorders and examined whether polygenic scores for mental disorders predicted MetaboAge $\Delta$ .

**Results:** Up to 110,780 participants with complete data on all metabolomic measures were included in the analysis. Individuals with a history of mental disorders had higher MetaboAge $\Delta$  values than people without a mental illness. For example, MetaboAge $\Delta$  suggested that the difference between predicted biological age and observed chronological age was about two-years greater amongst individuals with bipolar disorder than amongst people without mental illness. Polygenic scores for mental disorders were positively correlated with MetaboAge $\Delta$ .

**Conclusions:** These findings suggest that individuals with a history of mental disorders or with higher polygenic scores for mental disorders were biologically older than their chronological age.

**Disclosure of Interest:** None Declared