

Metabolic differences in the diagnosis of and treatment refinement for episodic and chronic depression

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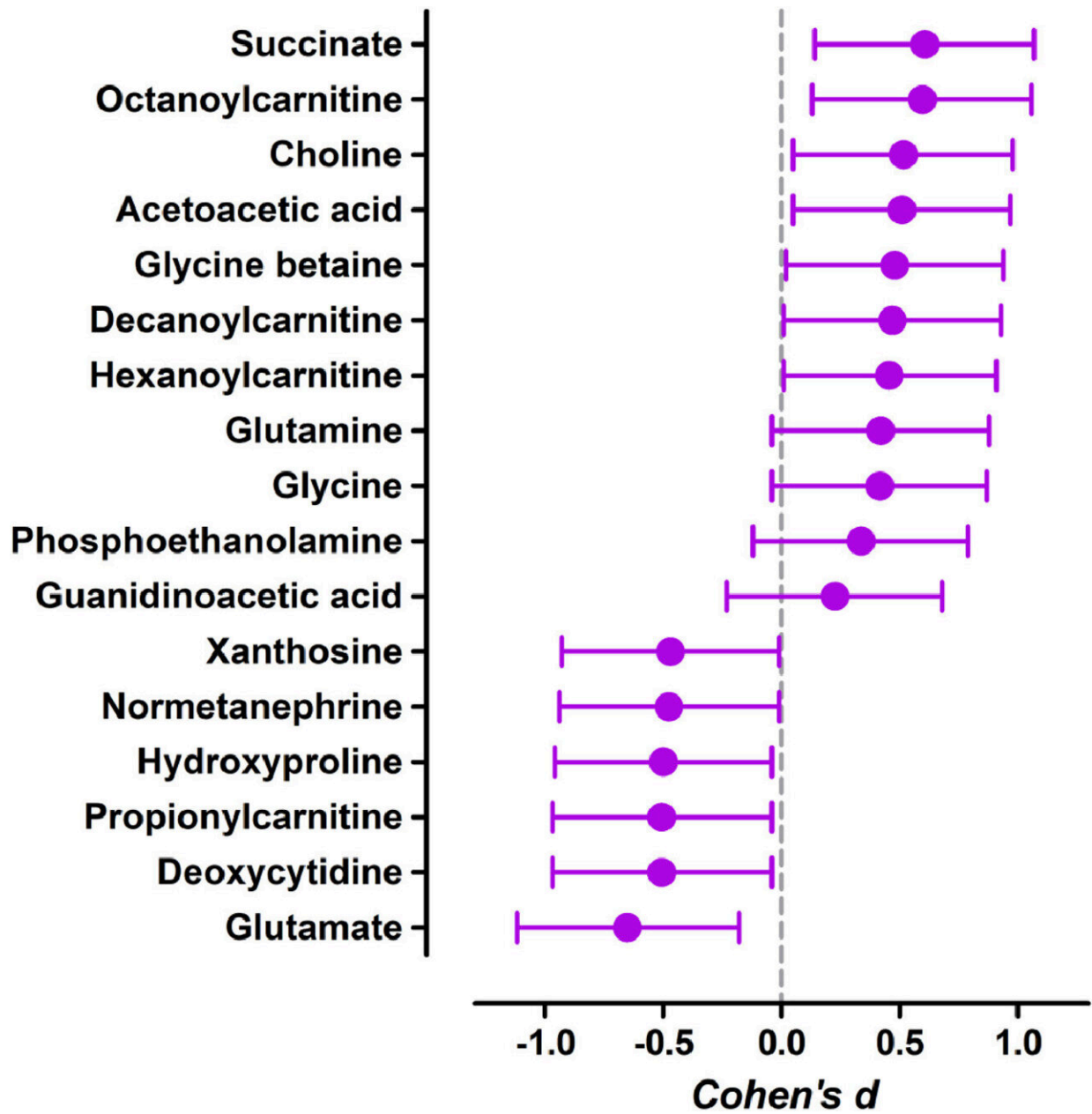


Fig. 1. Cohen's d effect sizes of metabolites with p-values below 0.05 in Welch's t-test with means and 95% confidence intervals across episodic MDD and chronic depression. Credit: DOI: 10.1016/j.jadr.2021.100261

A study carried out in the University of Eastern Finland discovered

differences in one-carbon and energy metabolism between episodic and chronic depression. One-carbon metabolism plays a key role in the production of, e.g., neurotransmitters. This type of knowledge concerning metabolism in relation to psychiatric disorders may eventually help in diagnosis and lead to better targeted and personalized treatments. The results were published in a peer-reviewed scientific journal, the *Journal of Affective Disorders Reports*.

"The diagnosis of [psychiatric disorders](#) relies on discussion and the observations of psychiatrists. In the future, metabolomic analysis could be an alternative method to separate diagnoses with often overlapping diagnostic criteria. In addition, the appropriate medical treatment is often only found after considerable trial and error. If metabolomic knowledge was more precise and we could determine more specifically how disorders are reflected in the metabolome, we might be able to use [blood samples](#) and metabolomic analysis to target appropriate medication right at the beginning of the treatment," says Early Stage Researcher Karoliina Kurkinen from the University of Eastern Finland.

The study was conducted on 76 young psychiatric outpatients diagnosed with episodic or chronic depression. Blood samples were analyzed to identify metabolites related to the chronicity of depression. When the [metabolism](#) of episodically [depressed patients](#) was compared with chronically depressed patients, differences in one-carbon and [energy metabolism](#) related metabolites were found. As the cohort was small, background factors, such as living habits, may have affected the results. Thus, these findings are considered preliminary, and research needs to be continued with a larger cohort to draw any stronger conclusions.

"These metabolomic studies require large study groups so that background factors can be controlled for, and actual changes become observable. Of course, the fact that so many factors, such as nutrition, sleep, and exercise, affect the metabolome does not make this task easy.

However, in a large enough cohort, the core alterations can be recognized. The most interesting part of this study has been the possibility to explore the possible mechanisms leading to the chronicity of depression based on these preliminary results. The next step would be to repeat this study but with a much larger cohort and with healthy controls," Kurkinen says.

More information: Karoliina Kurkinen et al, One-carbon and energy metabolism in major depression compared to chronic depression in adolescent outpatients: A metabolomic pilot study, *Journal of Affective Disorders Reports* (2021). [DOI: 10.1016/j.jadr.2021.100261](https://doi.org/10.1016/j.jadr.2021.100261)

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