

The Role of Brain Structure on Mental Health Concerns & Suicidality



We don't know how the brain contributes to the development of internalizing behaviors or suicidality across the lifespan. Find out how a research team recently studied this problem using data from MATR twins.

About Internalizing Behaviors and Suicidality

- Internalizing behaviors are mental health issues directed inward (e.g., depression, anxiety).
- 20.1% of teens (14–17) and 8.3% of adults (18+) experienced a major depressive episode in 2021.
- Internalizing behaviors have been linked with suicidality (engaging in suicidal thoughts, plans, gestures, or attempts). In 2021, 4.8% of adults and 12.7% of children ages 12–17 had serious thoughts of suicide.

Why Twins?

Twin survey and DNA data was used to pinpoint how brain structure affects suicidality.

This knowledge might enable better prevention and intervention strategies.

What is ABCD?

ABCD stands for the **Adolescent Brain and Cognitive Development study**.

ABCD is a national study of 12,000+ kids, including twins.

Researchers working with ABCD data explore how childhood experiences shape the brain and behaviors

Study Framework

The researchers of this project used data from adults as well as data from 456 twin pairs of older children aged 9–10 years old who participated in the ABCD study to answer two main questions:

- Is there a causal link between brain structure and suicidality in adults?
- Is there a causal link between brain structure and suicidality in children?

Click below to learn more

 [Project Overview](#)

Key Results

Adults: Lower total cortical surface area caused an increased risk of suicide attempt.

Children: No direct link to suicidality. A causal link between lower average cortical thickness and increased risk of depression and internalizing behaviors was detected.

What's Next?

The causes of suicide attempt in adults may be different than children.

These results encourage more work to determine the nature of these differences and better characterize suicidality across age groups.

Resources

988 Suicide & Crisis Lifeline

988lifeline.org

Call or text 988 for free, 24/7 confidential support during a mental health crisis.

The Jed Foundation (JED)

jedfoundation.org

Supports youth mental health and suicide prevention through education and community programs

Access the full [Resource Guide](#) for more support

Reference

Zhou, Y., Castro-de-Araujo, L. F., Singh, M., & Neale, M. C. (2025). Causal Analyses of Associations Between Brain Structure and Suicide Attempt in Adulthood and Late Childhood. JAACAP Open. <https://doi.org/10.1016/j.jaacop.2025.02.005>