

MDD and BPD: Child maltreatment, stress, cortical thickness and volume

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Background and objective

Adverse experiences in childhood have been related to structural and functional changes in the brain and in the neurobiological systems of stress¹; there is an association between suffering such experiences and developing mental illnesses in adulthood² such as Major Depressive Disorder (MDD) or Borderline Personality Disorder (BPD)³.

Both disorders share clinical and biological characteristics, such as those related to the neural circuit that regulates emotions⁴; however, there is no consensus regarding whether they are two different manifestations of the same disease, or they are two independent entities⁵.

The objective is to describe the differences in cortical thickness, brain volumetry, the history of adverse childhood experiences between both disorders and explore the correlation between these experiences and cortical thickness.

Methods

Participants

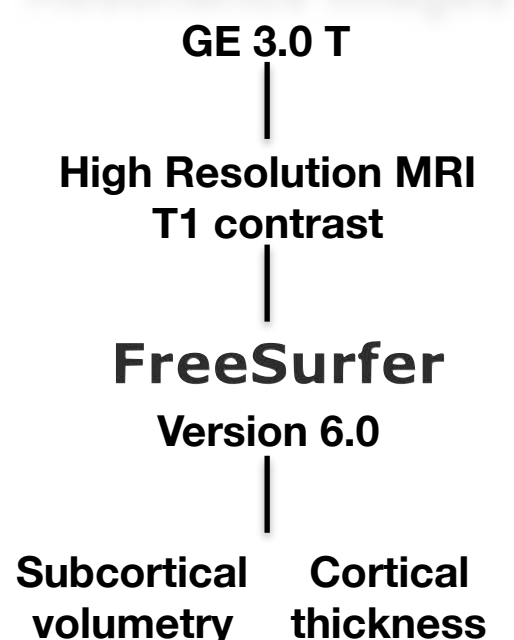
	CTRL (20)	MDD (19)	BPD (18)
Gender	5 M; 15 W	5 M; 14 W	8 M; 10 W
Age	34.8 ± 10.9 years	48.6 ± 14.0 years	36.4 ± 11.0 years

ACE-IQ⁶ Adverse Childhood Experiences International Questionnaire

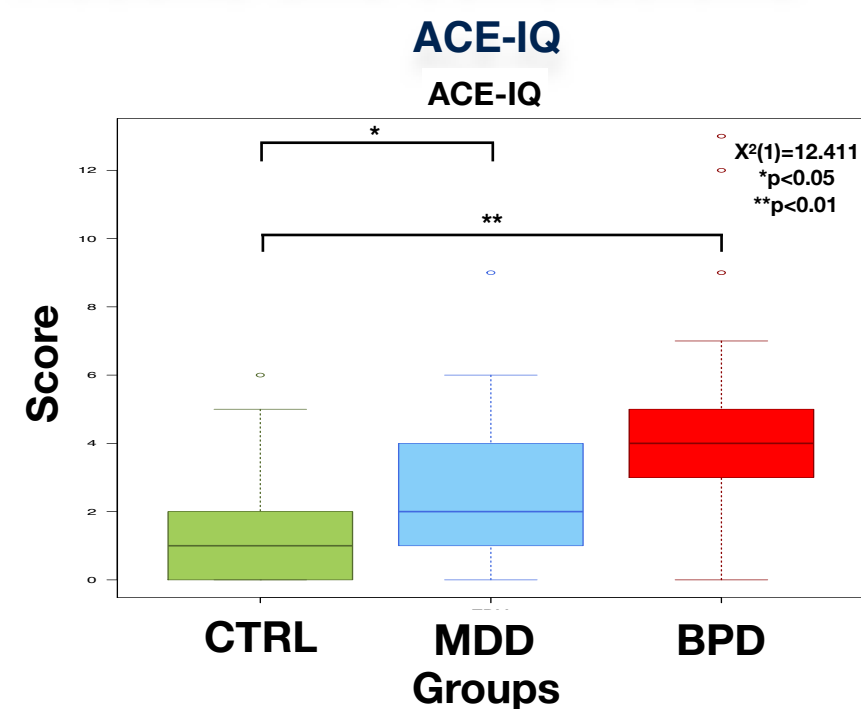
Adverse Childhood Experiences (ACE) refer to some of the most intense and frequent sources of stress that children may suffer at an early age; include multiple types of abuse, negligence, violence between parents or caregivers, other types of serious domestic dysfunction, such as alcohol and substance abuse, and peer violence or violence in their community.

The ACE-IQ is intended to measure ACEs in people over 18 years of age. The greater the adversity in childhood, the higher the score and the greater the risk of subsequent health problems.

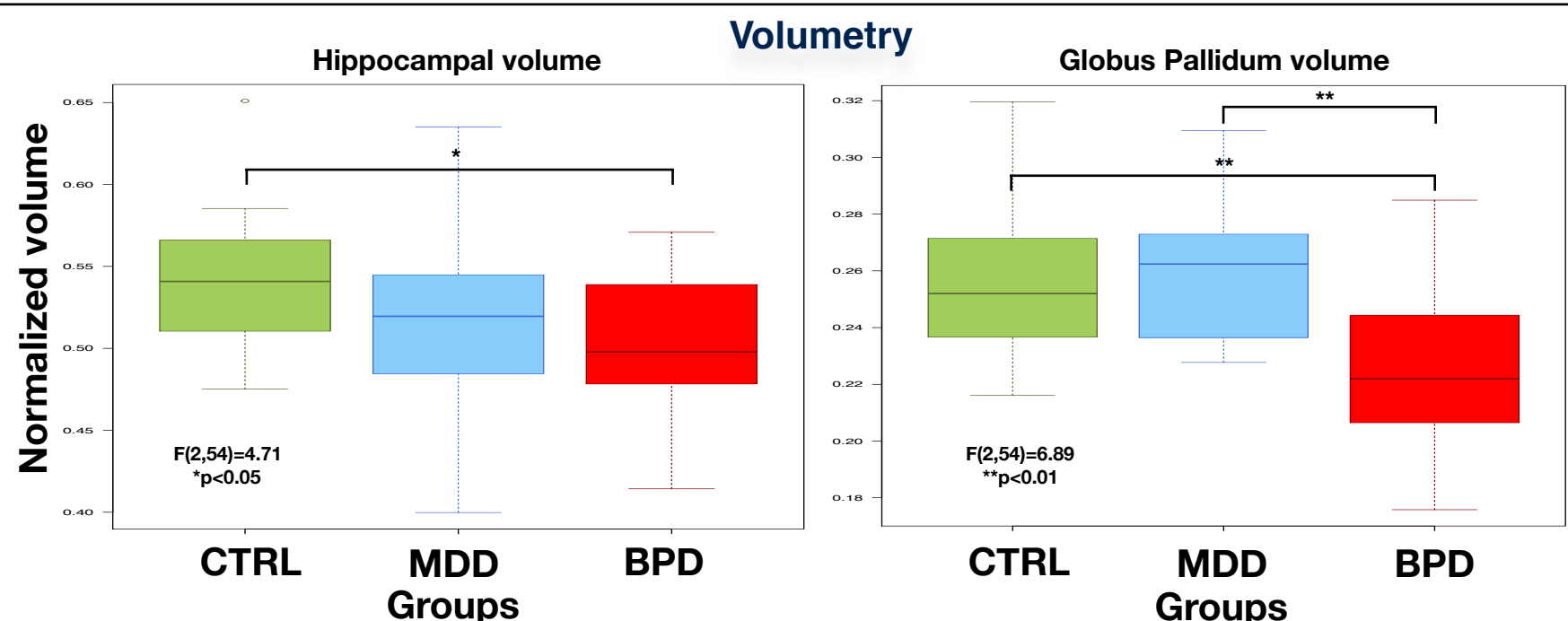
Magnetic Resonance Images



Results and conclusions



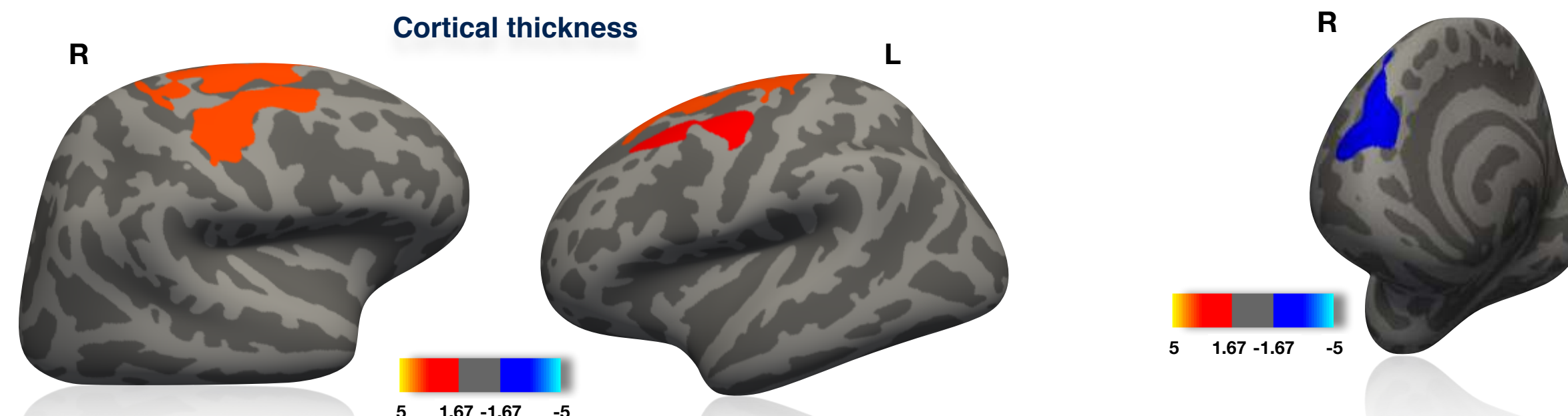
Kruskal Wallis showing significant differences in ACE-IQ score.



ANOVA showing significant differences in hippocampal volume.

ANOVA showing significant differences in globus pallidum volume.

Correlation: Cortical thickness and ACE-IQ



MDD patients have smaller cortical thickness compared to the control group. Right hemisphere: precentral region. Left hemisphere: superior frontal.

In the colored region, there is a negative correlation between ACE-IQ score and cortical thickness in the BPD patients: a high score, smaller cortical thickness.

Conclusions

- The ACE-IQ score suggest the influence of ACE on the development of both disorders.
- The globus pallidum volume could be an indicator that differentiates both disorders.
- MDD patients have smaller cortical thickness.
- ACE could influence anatomical changes.

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