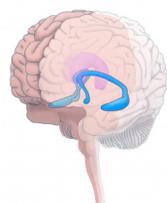


¹Rachel Van Boxtel, ¹Caitlin E. Millett, ¹Katherine E. Burdick
¹Mood and Psychosis Research Program, Department of Psychiatry, Brigham and Women's Hospital, Boston, MA.

Introduction

- Early-life trauma is very prevalent in bipolar disorder (BD) and plays a major role in pathophysiology of the illness¹
- This stress can impact cognitive regions of the developing brain, particularly hippocampal circuitry²
- Cognitive deficits are another hallmark feature of bipolar disorder, namely in executive functioning and working memory³
- Prior work—with modest sample sizes—has shown childhood abuse is associated with neurocognitive impairment in adult patients with BD⁴



Aim

- Examine whether a history of childhood abuse affects various aspects of neurocognitive performance in patients with bipolar disorder

Methods

Participants: 259 adults with DSM-IV remitted BD-I and BD-II recruited from Brigham and Women's Hospital and Icahn School of Medicine at Mount Sinai Hospital. Diagnostic eligibility confirmed using SCID-V.

Task Procedure:

- Participants given neurocognitive assessments: MATRICS Consensus Cognitive Battery (MCCB), Stroop color and word test, the Controlled Oral Word Association Task (COWAT) and Reading Mind in the Eyes (RME) task
- Participants completed the Childhood Trauma Questionnaire (CTQ)



Analysis:

- **Multivariate analysis of covariance** to assess strength and significance of associations between childhood abuse and performance on neurocognitive measures (controlled for education)
- Further analyses to determine the direction of these effects

Results

Figure 1. Abuse prevalence in BD patient sample

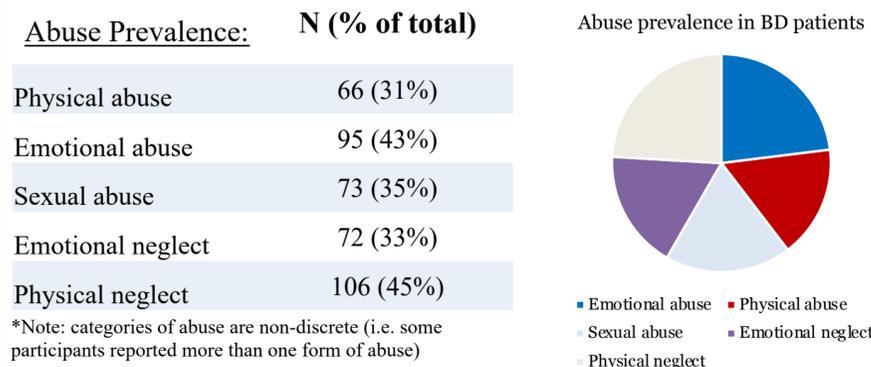


Table 1. Multivariate Tests

	F	Hypothesis df	Error df	P-value
CTQ PA*	2.3	11	207	0.01
CTQ EA*	2.1	11	207	0.02

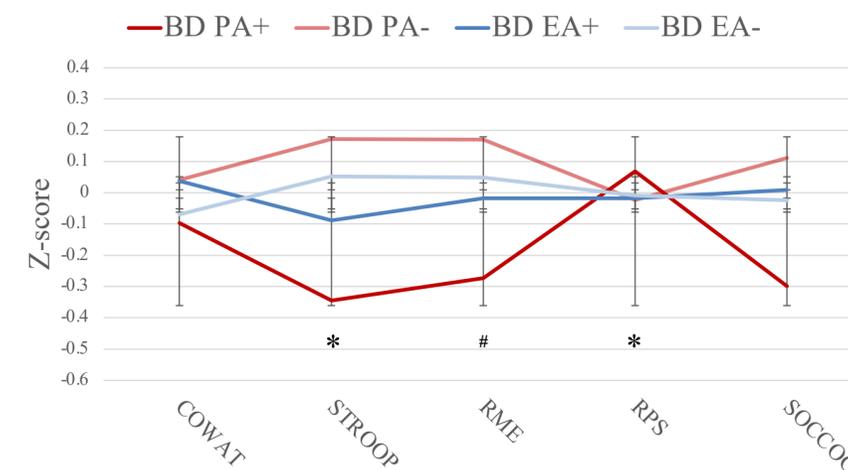
*controlled for education

- Physical Abuse (PA) and Emotional abuse (EA) history associated with cognitive performance across neurocognitive domains
- After controlling for **sex, age, race** (dichotomized), and **current mood severity** (HAM-D and YMRS), only PA remained a significant predictor of cognition (p = 0.02)

Table 2. PA associated with cognition in BD

Z-scored off HC	Type III Sums of Squares	Mean Square	F	P-value
Stroop	5.7	5.7	7.4	0.01
Reading Mind in Eyes	2.3	2.3	3.5	0.06
Reasoning and Problem Solving	3.8	3.8	4.3	0.04

Figure 2. Effects of PA and EA on performance on neurocognitive tests



Covariates: education, sex, age, current mood severity. Verbal Fluency: Controlled Oral Word Association Test (COWAT); Social intelligence: Reading Mind in the Eyes (RME), Social Cognition (SOCCOG). MATRICS Reasoning and Problem Solving (RPS). *p<0.05, #p<0.1

Results Summary

- A sizable portion of our participants with BD (N=259) reported a history of abuse on the CTQ
- **Multivariate analysis** revealed significant effects of **physical abuse** (F (11, 207) =2.2, p=0.02)
- **Physical abuse** history negatively associated with Stroop and RME and positively correlated with RPS
- **Emotional abuse** history positively correlated with Social Cognition, but this result was no longer significant after controlling for sex, age, race, and current mood severity (HAM-D and YMRS)

Discussion and Future Directions

- BD patients with self-reported severe childhood abuse have marked differences in neurocognitive performance, particularly with physical abuse where the effects are well-controlled
- How can this information help inform care to mitigate altered cognitive performance?

References

1. Daruy-Filho, L., Brietzke, E., Lafer, B., & Grassi-Oliveira, R. (2011). Childhood maltreatment and clinical outcomes of bipolar disorder. *Acta Psychiatrica Scandinavica*, 124(6), 427–434.
2. Chen, Y., & Baram, T. Z. (2016). Toward Understanding How Early-Life Stress Reprograms Cognitive and Emotional Brain Networks. *Neuropsychopharmacology*, 41(1), 197–206.
3. Bourne C, Aydemir O, Balanza-Martinez V, Bora E, ... Goodwin GM. (2013). Neuropsychological testing of cognitive impairment in euthymic bipolar disorder: an individual patient data meta-analysis. *Acta Psychiatr Scand*. 128:149–62.
4. Bücker, J., Kozicky, J., Torres, I. J., Kauer-Sant'anna, M., Silveira, L. E., Bond, D. J., ... Yatham, L. N. (2013). The impact of childhood trauma on cognitive functioning in patients recently recovered from a first manic episode: Data from the Systematic Treatment Optimization Program for Early Mania (STOP-EM). *Journal of Affective Disorders*, 148(2–3), 424–430.

Contact Rachel Van Boxtel at rvanboxtel@bwh.harvard.edu

Acknowledgement: Funded by R01MH100125 to KEB