Examining the role of early life trauma in the endocrine dysregulation and cognitive biases observed in depressed adolescents: a study prospectus

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BACKGROUND

Endocrine dysregulation and cognitive biases in memory and attention have been linked to the development of depression in adolescents. These constructs have also been linked to early traumatic experiences, such as abuse, neglect, and natural disasters. The neuroendocrine system as well as cognitive processing is largely shaped by experiences during the first 5 years of life. Furthermore, many adolescents who have developed depression have a history of early life trauma, thus the relationship between psychopathology related endocrine dysregulation and cognitive biases has not clearly been delineated. Our hypothesis is that psychopathology related endocrine dysregulation will be strongly associated with early life trauma. Likewise, we hypothesize that cognitive biases will be associated with cortisol reactivity and therefore related to early trauma. The purpose of this study is to compare participants with a history of early trauma to those without in order to parse out the unique contribution of early life traumas in the development of stress-related psychopathology and their correlates.

HYPOTHESES

1. Individuals with a severe trauma history will demonstrate dysregulated stress reactivity through greater cortisol response to a stressor and delayed regulation of cortisol during regulation when compared to their peers with minimal to no trauma history.
2. Individuals with a severe trauma history will demonstrate cognitive biases in both Attention Disengagement and Memory that favor negatively valenced stimuli when compared to youth with a minimal trauma history.

PARTICIPANTS

- 80 youth (age 9-16).
- participants and their parents will participate in a full psychiatric interview (ISCA-D) to determine diagnostic eligibility for the study.
-Exclusion criteria: any participant who meets criteria for a developmental disorder (PDD, Autism), Bipolar Disorder, presents with psychotic symptoms, PTSD, or suffers from a major medical condition (cancer) will not be eligible for the study.

	Severe Trauma History	Minimal to No Trauma History
MDD, Dysthymia	20	20
No Internalizing Disorders (controls)	20	20

MEASURES

-Interview Schedule for Children and Adolescents-Diagnostic Version (Sherrill & Kovacs, 2000): semi-structured clinical assessment for current and past symptoms of mood, anxiety, psychosis, eating, and disruptive behavior disorders based on the DSM-IV.

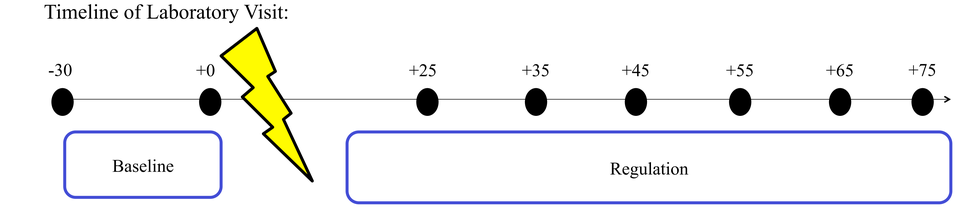
-Early Trauma Inventory (Bremner, Vermetten, & Mazure., 2000): assessment of childhood physical, emotional, sexual abuse as well as general traumas (e.g. natural disaster).

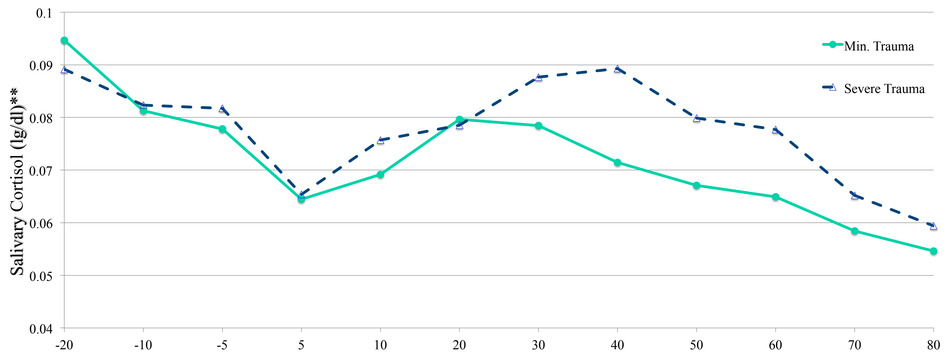
-Salivary cortisol

-Socially Evaluated Cold Pressor Test (Schwabe, Haddad, & Schachinger, 2008)

PROCEDURES: STUDY 1

Timeline of Laboratory Visit:



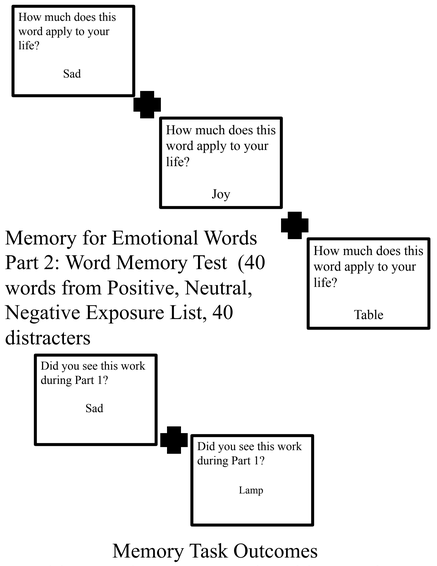


**This graph represents the expected results of the stress reactivity task. Data for this figure was taken from Kuhlman, Olson, & Lopez-Duran (manuscript in preparation).

PROCEDURES: STUDY 2

Memory for Emotional Words

Part 1: Exposure to 80 positive, negative, and neutral words. (4second exposure)

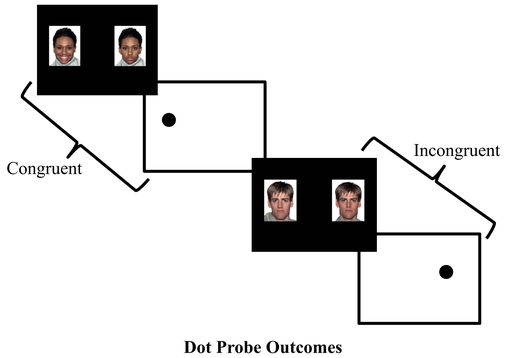


Memory for Emotional Words Part 2: Word Memory Test (40 words from Positive, Neutral, Negative Exposure List, 40 distracters

Memory Task Outcomes

- Positive Word Memory: total positive words recognized
- Negative Word Memory: negative words recognized
- Memory Bias Score : Negative Word– Positive Word

Attention Disengagement from Affective Facial Expressions (Dot Probe)



Dot Probe Outcomes

-Dot Probe:
- -A -Average RT to Pos. Trials w/ CONGRUENT Probe
- -B-Average RT to Neg. Trials w/ CONGRUENT Probe
- -C-Average RT to Pos. Trials w/ INCONGRUENT Probe
- -D-Average RT to Neg. Trials w/ INCONGRUENT Probe
- -Pos. Attention Disengagement Score (PADS) = (C-A)
- -Neg. Attention Disengagement Score (NADS) = (D-B)
- -Total Attention Bias Score (TABS) = NADS – PADS

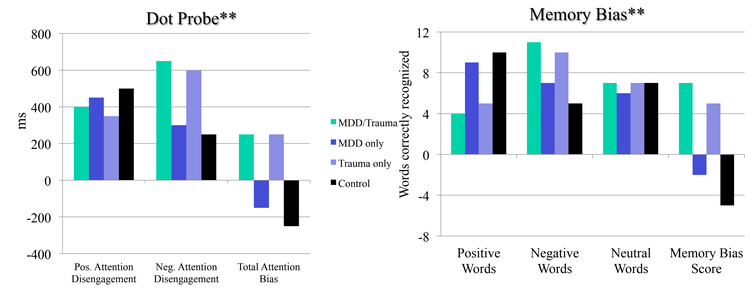
DATA ANALYSIS

Study 1: Repeated Measures ANOVA with planned group contrasts on indices of cortisol reactivity profile.

	Baseline	Mins. to Peak	Peak	Peak Slope	AUC	Regulation Slope	Regulation
MDD/Trauma		**	**		**		
MDD only							
Trauma only		**	**		**		
Controls							

We expect to find that participants in the MDD/Trauma & Trauma Only groups will demonstrate significantly greater Time-to-Peak as well as Peak cortisol values than the MDD only and control groups. If this hypothesis is confirmed, we can conclude that exposure to trauma early in life contributes to the development of a poorly regulating HPA-axis, and that this dysregulation, which is currently associated with child-onset MDD, may be driven by early adverse experience.

Study 2: MANOVA between group comparison across Dot-probe & Memory Task Performance



**Data are estimated based upon expected hypotheses.

SIGNIFICANCE

This study will be a significant contribution to our understanding of stress-related psychopathology by illustrating the role of early trauma in the lifelong functioning of physiological and cognitive systems as well as the clinical importance of addressing traumatic experiences for the promotion of lifelong well- being.. Results from this study have potential to inform three domains within developmental psychopathology and clinical intervention.

Developmental: This study may provide further support that both cognitive (attention and memory) and endocrine mechanisms related to the maintenance of depression are influenced by early life experience and the childhood environment.

Diagnostic: This study will provide support for the use of comprehensive developmental history assessments, specifically of trauma history, during diagnostic assessments of mood disordered adolescents.

Treatment: This study will provide support for the use of trauma-focused interventions (TF-CBT) for adolescents clients with a history trauma as a treatment for symptoms of depression.

QUESTIONS FOR LIFE FACULTY

1. Conceptualization of trauma (dichotomous, continuous)
2. Data analysis input

ACKNOWLEDGEMENTS

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