

# Associations Between Complex Trauma Exposure and Psychiatric Diagnoses in Children in Mental Health Treatment in an Urban Setting

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## Introduction

We know that psychological trauma has pervasive effects on child health.<sup>1-9</sup>

There are two main types of studies:

- Single exposure studies
- Cumulative or aggregate trauma index studies

More recently there has been a shift toward:

- Complex trauma exposure studies

Arguably, focusing on single types of maltreatment fails to address the frequent co-occurrence of multiple forms of childhood abuse and household dysfunction. This study intends to highlight the complexity of highly interrelated traumatic experiences, and gain an understanding of the association between specific trauma exposures and psychiatric diagnoses.

## Objectives

This study aimed to examine:

- (1) The prevalence and comorbidity of both trauma exposure and psychiatric illness in a clinical population;
- (2) The association between particular types of traumas and psychiatric illness with, and without, adjustment for age, race, and gender; and
- (3) The moderating effects of demographic characteristics on psychiatric illness and trauma exposure.

## Methods

**Table 1. Demographic Characteristics** (Total N=1036)

Age	
Pre-school (< 6 years)	139 (13.4%)
School Age (6-12 years)	455 (43.9%)
Teen (13-17 years)	174 (16.8%)
Unknown	268 (25.9%)
Gender	
Male	540 (52.12%)
Female	496 (47.88%)
Race	
African American	538 (51.9%)
Unknown	415 (40.1%)
Other	83 (8.0%)
Trauma Exposure	
No trauma exposure	254 (24.5%)
Any trauma exposure (1 or more)	782 (75.5%)

Cross-sectional sample of 1036 children treated at a Community Mental Health Center in Baltimore City between 2005 and 2010.

### Methods:

- Clinician assessed psychiatric illness (DSM-IV)
- Caregiver report on trauma exposure over lifetime (56% moms; 25% dads and 20% Department of Social Services)

### Analysis: Multiple Logistic Regression Modeling

- Outcomes: Attention Deficit Hyperactivity Disorder (ADHD) (28%), Oppositional Defiant Disorder (ODD) (19%), Depression (17%), Post-Traumatic Stress Disorder (PTSD) (16%), Anxiety (16%)
- Exposures: loss (60%), neglect (25%), sexual abuse (23%), physical abuse (20%) and exposure to domestic violence (14%)
- Controlling for: age, sex, and race

## Results

### Objective 1:

#### Comorbid Trauma Exposure

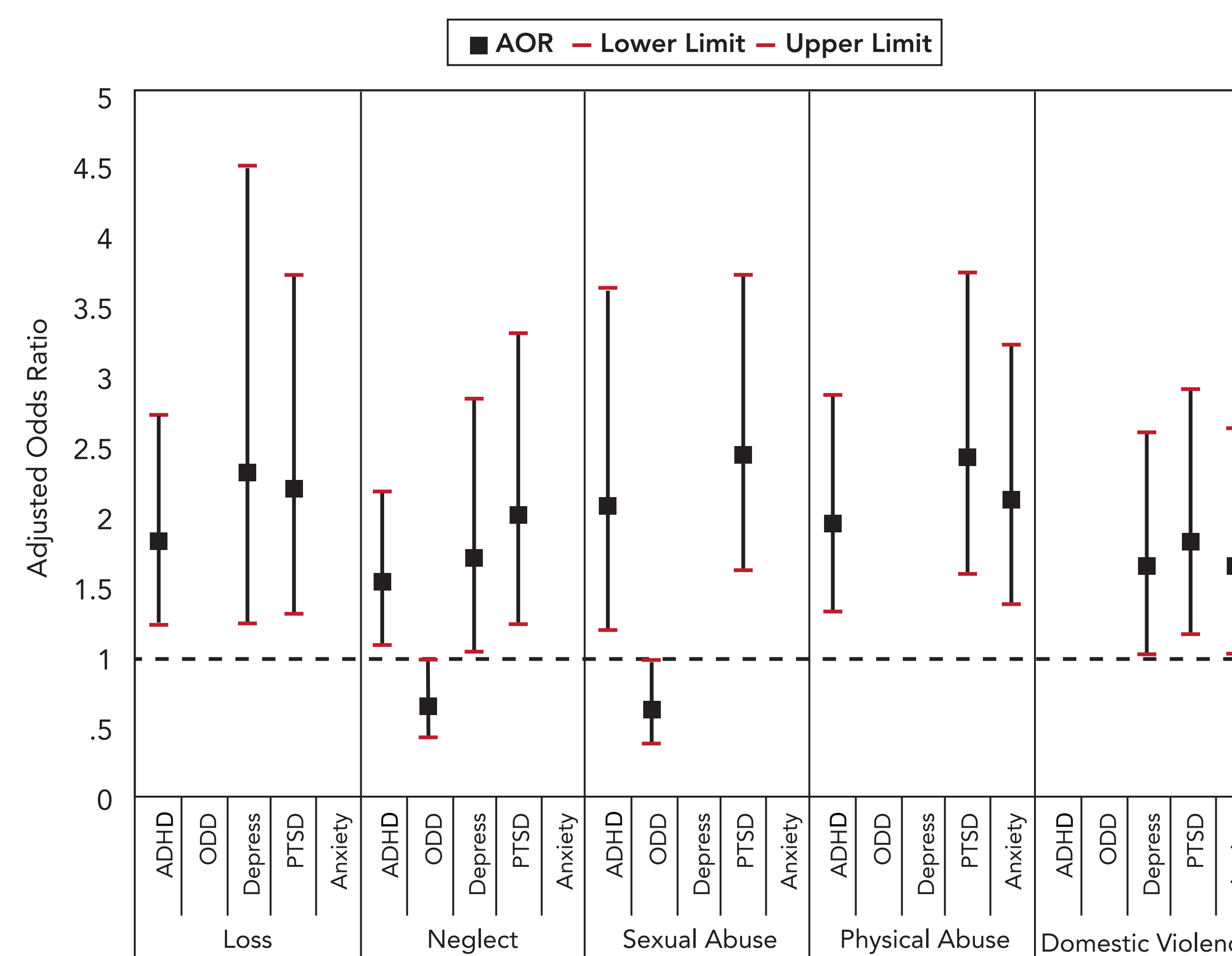
Children who were exposed to domestic violence on average experienced 1.79 additional traumas, followed by physical abuse (1.76 additional traumas), neglect (1.67 additional traumas), sexual abuse (1.48 additional traumas), and loss (1.06 additional traumas).

#### Comorbid Psychiatric Illness

The mean number of additional psychiatric diagnoses was highest for children with anxiety (with an average of 1.52 additional diagnoses), depression (average of 1.29), ADHD (average of 1.26), PTSD (average of 1.23) and ODD (average of 1.13).

### Objective 2:

Adjusted Associations Between Trauma Exposure and Psychiatric Diagnosis



### Objective 3: Table 2. Moderating Effects

IV	DV	AOR	Moderating	Interaction term <sup>^</sup>	Difference in OR
Sexual Abuse	ADHD	2.08**	Race	SexualAbuse*Race	OR African American < OR unknown/other
Loss	Depression	2.32*	Age	Loss*Age	OR school age > OR other age categories
Neglect	Depression	1.71*	Age	Neglect*Age	OR school age > OR other age categories
Neglect	PTSD	2.02**	Age	Neglect*Age	OR school age > OR other age categories

Note – \*p<.05. \*\*p<.01.

Abbreviations - IV: Independent Variable; DV: Dependent Variable; AOR: Adjusted Odds Ratio; M: Moderating Variable

<sup>^</sup>All interaction terms were found to be statistically significant with p-value of <.05.

## References

- Crusto, C. A., Whitson, M. L., Walling, S. M., Feinn, R., Friedman, S. R., Reynolds, J., et al. (2010). Posttraumatic stress among young urban children exposed to family violence and other potentially traumatic events. *Journal of Traumatic Stress, 23*(6), 716-724.
- English, D. J., Marshall, D. B., & Stewart, A. J. (2003). Effects of family violence on child behavior and health during early childhood. *Journal of Family Violence, 18*(1), 43-57.
- Enlow, M. B., Blood, E., & Egeland, B. (2013). Sociodemographic risk, developmental competence, and PTSD symptoms in young children exposed to interpersonal trauma in early life. *Journal of Traumatic Stress, 26*(6), 686-694.
- Johnson, R. M., Katch, J. B., Catellier, D. J., Winsor, J. R., Dufort, V., Hunter, W., et al. (2002). Adverse behavioral and emotional outcomes from child abuse and witnessed violence. *Child Maltreatment, 7*(3), 179-186.
- Margolin, G., & Vickerman, K. A. (2007). Posttraumatic stress in children and adolescents exposed to family violence: I. overview and issues. *Professional Psychology: Research and Practice, 38*(6), 613-619.
- Lieberman, A. F., Van Horn, P., Ozer, E. J. (2005). Preschooler witnesses of marital violence: Predictors and mediators of child behavior problems. *Development and Psychopathology, 17*(02), 385-396.
- Miller-Graff, L. E., & Howell, K. H. (2015). Posttraumatic stress symptom trajectories among children exposed to violence. *Journal of Traumatic Stress, 28*(1), 17-24.
- Mongillo, E. A., Briggs-Gowan, M., Ford, J. D., & Carter, A. S. (2008). Impact of Traumatic Life Events in a Community Sample of Toddlers. *Journal of Abnormal Child Psychology, 37*(4), 455-468. doi:10.1007/s10802-008-9283-z
- Reynolds, M. W., Wallace, J., Hill, T. F., Weist, M. D., & Nabors, L. A. (2001). The relationship between gender, depression, and self-esteem in children who have witnessed domestic violence. *Child Abuse & Neglect, 25*(9), 1201-1206.

## Results Overview

- Co-occurring trauma exposure was frequent
- Co-morbidity of diagnosis was high
- Trauma Exposure increased the odds of psychiatric diagnosis:
  - Loss increased the odds of ADHD, depression, and PTSD
  - Neglect increased the odds of ADHD, depression, PTSD, and anxiety, but was associated with decreased odds of ODD
  - Sexual assault increased the odds of ADHD and PTSD, but was associated with decreased odds of ODD.
  - Physical abuse increased the odds of ADHD, PTSD, and anxiety.
  - Exposure to domestic violence increased the odds of depression, PTSD, and anxiety.
- Age and race were found to substantially moderate association in four of the models

## Conclusions

This study was one of the first to examine the prevalence and comorbidity of trauma exposure and psychiatric illness, and the associations between multiple interpersonal, and non-interpersonal, trauma exposures and psychiatric diagnosis in a population of children living in an urban environment.

### Major findings were as follows:

- Co-occurring trauma exposure was frequent in this young population;
- The majority of children had at least one comorbid diagnosis; and
- Trauma exposure (loss, neglect, physical abuse, sexual abuse, exposure to domestic violence) in many cases increased the odds of diagnosis of ADHD, depression, PTSD, and anxiety after controlling for age, gender, and race, though the association between exposure and ODD was unclear.

Taken together, the findings of this study demonstrate that different types of trauma exposure are associated with different psychiatric diagnoses. A future study calls for an investigation of additional, non-interpersonal trauma exposures to investigate whether these exposures (in comparison to interpersonal traumas) cluster around particular diagnoses (i.e., externalizing vs. internalizing).

## Acknowledgements

Special thanks to Dr. Harolyn Belcher, Dr. Beth Marshall, Dr. Anne Riley, and Dr. Christopher L. Smith and the Maryland Center for Developmental Disabilities for their mentorship and contributions to this project.



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