



ADVANCING HEALTH EDUCATION & RESEARCH

AVA Research Reviews provides AVA members with recent published, peer-reviewed articles in a broad array of violence and abuse topics. The goal is to highlight and disseminate violence and abuse research in a timely fashion, and to enhance healthcare providers' practice by fostering the educational mission of AVA

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# AVA Research Review

## ADVANCING HEALTH EDUCATION & RESEARCH

**Review Title:** Investigating the Association between Childhood IPV Exposure and Cortisol Trajectories Across Early Childhood – Does Maternal Sensitivity Play a Role?

**Reviewer:** Megan H Bair-Merritt, MD, MSCE; Division of General Pediatrics and Adolescent Medicine, Johns Hopkins School of Medicine

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**Article:** Hibel LC, Granger DA, Blair C, Cox MJ and The Family Life Project Key Investigators. Maternal Sensitivity Buffers the Adrenocortical Implications of Intimate Partner Violence Exposure during Early Childhood. *Development and Psychopathology* 2011; 23: 689-701.

### Article Summary:

#### ***Brief overview***

Few elements of the family environment have the potential to impact children's physiological stress response more than exposure to intimate partner violence (IPV). IPV exposure represents a unique threat to children for three reasons: 1) in infancy and early childhood, IPV exposure is prevalent, and is more common than either child abuse or community violence exposure. Over 15 million children in the United States are exposed to IPV each year, and children less than five are disproportionately represented in homes with IPV; 2) young children are completely dependent on their primary caregiver; as such, their immediate safety may be threatened by IPV, and direct exposure to violence against a primary caregiver is distinctly traumatic; and 3) in homes with IPV, caregiving relationships are often disrupted.

The interplay between toxic stressful stimuli, such as IPV exposure, and a person's subsequent physical health is complex. Social experiences such as IPV exposure "calibrate" the physiology of the stress response. In particular, the development of the hypothalamic-pituitary-adrenal (HPA) axis is under strong social regulation throughout early childhood. Because of rapid growth and maturation, infancy may represent a period of increased vulnerability to stress-related physiologic dysregulation. Alterations in the HPA axis is one important mechanism potentially linking IPV exposure to poor physical health.

Specifically, when a child feels threatened or scared, his or her body mounts a "fight or flight" response. This is how one's body responds to seeing the proverbial bear in the woods and prepares to escape. When such a threat is present, neurotransmitters and hormones such as cortisol are released; heart rate and blood glucose increase. These changes are adaptive in the short term, but repeated activation of the stress response system can lead to pathological changes over time which then increases risk for myriad health problems across the lifespan.

### ***Aims/ goal of the article and methods***

The authors sought to determine the impact of IPV exposure on cortisol reactivity and regulation in a population of low-income, rural infants and toddlers. Specifically, the authors conducted a secondary data analysis, using data collected for a larger parent study entitled the "Family Life Project." A sample of 1102 mother-child dyads from rural North Carolina and Pennsylvania participated in home visits when the index child was 7 months, 15 months and 24 months. At each home visit, women reported their experiences with IPV using the Conflict Tactics Scale. Also during the home visits, mothers were instructed to play with their child and mother-child interactions were recorded and coded for degree of maternal sensitivity. Finally, the study interviewer, mother and child participated in standardized tasks designed to elicit child frustration and fear. Saliva samples for cortisol were taken before these tasks, and then 20 and 40 minutes after completion of all tasks. Reactivity was defined as the change in cortisol value between the pre-task and 20-minute post task samples. Regulation was defined as the change in cortisol value between the 20-minute and 40-minute post task samples. In their analyses, the authors

considered the impact of concurrent versus cumulative IPV exposure (across all three time points) on cortisol reactivity and regulation. They also examined at what age cortisol reactivity and regulation diverged between IPV exposed and non-exposed children, and the moderating impact of maternal sensitivity in this association.

### ***Relevant findings***

The socio-demographic characteristics of the sample were as follows: 59.5% of the mothers were White and 40.3% were African American; 54% had annual incomes that were 200% below the poverty line; 41% of mothers were unmarried but the majority had romantic partners.

Cortisol reactivity was similar for children at the 7 month and 15 month interviews. However, at 24 months, children with high levels of cumulative IPV exposure had significantly greater cortisol reactivity as compared to children with no/low levels of IPV exposure. The authors then examined the moderating role of maternal sensitivity in the IPV exposure-cortisol reactivity association. High levels of early maternal sensitivity (i.e. during infancy) were protective such that only children with low levels of early maternal sensitivity and high levels of IPV exposure

demonstrated greater cortisol reactivity at 24 months.

Across all three time points, there were no differences in cortisol regulation between IPV exposed and non-exposed children.

### ***Authors' conclusions***

In this study, differences in HPA reactivity in IPV exposed children first appeared at 24 months. The authors hypothesize that it might take this amount of time for the “wear and tear” of IPV exposure on the HPA axis to emerge. Over time, non-IPV exposed children may develop some level of comfort with stressful tasks and may be able to modulate their stress response. Children exposed to IPV, however, may constantly be in “fight or flight” mode such that any stressor elicits heightened reactivity. Persistent heightened cortisol reactivity has been associated with adverse physical and emotional health.

Interestingly, IPV-exposed children were protected from this heightened cortisol response if there had been high levels of maternal sensitivity during infancy. This highlights the essential role of caregiving in programming biological response to stressors and represents an important target for interventions – if mothers experiencing abuse can be supported as parents, the

adverse impact on their child may be mitigated.

### **Reviewer's Comment:**

This article offers an extremely important contribution to our growing understanding of the impact of early childhood toxic stressors, specifically IPV exposure, on children's developing neuroendocrine physiology. Strengths include its robust statistical methods, large sample size, and longitudinal data.

Additionally, this article offers insight into possible targets for intervention in families experiencing IPV. Providing parenting support for women may have significant impact on current and future child health.