Childhood Exposure to Violence and Pregnancy-to-Postpartum Viral Load of US Women with HIV

Deborah Kacanek[1], Jessica Lee[1], Carly Broadwell[1], Claire Berman[1], Emily Barr[2], Ellen Chadwick[3], Mariam Davtyan[4], Toinette Frederick[4], Lisa Haddad[5], Kathleen Powis[1,6], Jennifer Jao[3], Liz Salomon[1], Kimbrae Sanders[7], Renee Smith[8], Lynn Yee[3], Kathleen Malee[3] for the Pediatric HIV/AIDS Cohort Study (PHACS)

[1]Harvard T.H. Chan School of Public Health, Boston, MA, USA; [2]University of Texas Health Science Center at Houston Cizik School of Nursing, Houston, Texas, USA, [3]Northwestern University Feinberg School of Medicine, Chicago, Illinois, USA, [4] University of Southern California Keck School of Medicine, Los Angeles, California, USA, [5]Population Council, New York, New York, USA, [6]Massachusetts General Hospital, Boston, Massachusetts, USA, [7]Baylor Texas Children's Hospital, Houston, Texas, USA, [8]University of Illinois Chicago, Chicago, Illinois, USA

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— BACKGROUND —

- Experiences of childhood physical and sexual assault are prevalent among people living with HIV.
- Relationships of childhood physical assault (CPA) and/or childhood sexual assault (CSA) to viral load (VL) during pregnancy and postpartum are understudied.
- We evaluated this relationship among participants in the Women's Health Supplement of the Surveillance Monitoring for ART Toxicities (SMARTT) study.

— METHODS —

- **Study Design:** Prospective observational study
- **Study Population:** SMARTT enrolled pregnant women with HIV at 21 clinical sites in the US and Puerto Rico.
  - Eligibility:
    - At least 18 years old
    - Pregnancies between 2013-2018 in Women's Health Supplement
  - Sample: 518 pregnancies of 459 women with HIV
- **Data Collection:**
  - VL from 3 months prior to conception through 15 months postpartum abstracted from medical records.
  - History of childhood physical and/or sexual assault assessed via Client Diagnostic Questionnaire interview.
- **Exposure:** Childhood Physical and/or Sexual Assault (CPA/CSA): Any "Yes" response to
  - CPA: *Have you ever experienced physical assault or abuse as a child?* ***OR***
  - CSA: *Have you ever experienced sexual assault or rape as a child?*
- **Outcomes:** Unsuppressed VL: HIV RNA ≥50 copies/mL
  - At each time point: based on the VL obtained closest to
    - Conception (Last menstrual period (LMP) date)
    - Delivery
    - 1-year Postpartum
  - During Pregnancy: At least one VL ≥50 copies/mL
  - During Postpartum: At least one VL ≥50 copies/mL within the first year (up to 15 months) postpartum;
- **Statistical Analysis:**
  - Locally estimated scatterplot smoothing (LOESS) plots of pregnancy through postpartum $\log_{10}$ RNA trajectories by CPA/CSA.
  - Log binomial regression models with generalized estimating equations fit to estimate relative risks (RR) and 95% confidence intervals (CIs) for unsuppressed VL comparing those exposed vs. unexposed to CPA/CSA.

Childhood physical and/or sexual assault was common among 33% of pregnant women with HIV and associated with **elevated risk of unsuppressed VL in the postpartum period.**

— RESULTS —

Table 1: Sample Characteristics by Childhood Physical and/or Sexual Assault (N=518 Pregnancies)

		Childhood Physical and/or Sexual Assault	
	Total (N=518)	Yes (N=176)	No (N=342)
Age (yrs) at conception, median (IQR)	28.7 (24.6, 33.8)	28.7 (24.6, 33.4)	28.7 (24.6, 33.8)
High School Graduate/GED	76%	74%	77%
Latina/Latino Ethnicity	30%	25%	33%
Site Region			
Northeast	23%	16%	26%
Midwest	12%	17%	9%
South	39%	44%	36%
West	21%	23%	20%
Puerto Rico	5%	1%	8%
Learned HIV diagnosis during pregnancy	11%	12%	10%
Living with perinatally acquired HIV	17%	17%	17%
Asian	<1%	<1%	1%
Black or African American	70%	71%	69%
White	27%	25%	29%
American Indian	<1%	<1%	<1%
More than one race	2%	4%	1%

Figure 1: Prevalence of Childhood Physical and/or Sexual Assault

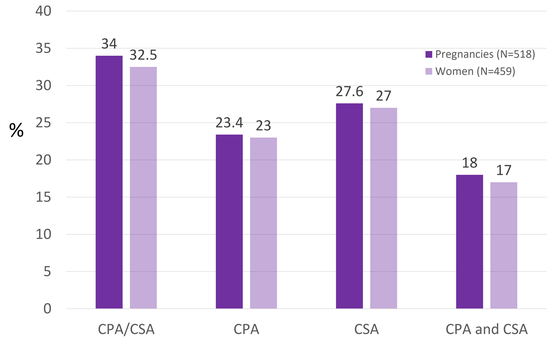
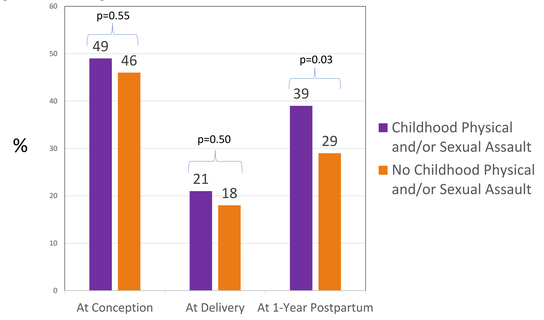


Figure 2: Unsuppressed VL in Pregnancies of Women with HIV, by Childhood Physical and/or Sexual Assault (CPA/CSA)



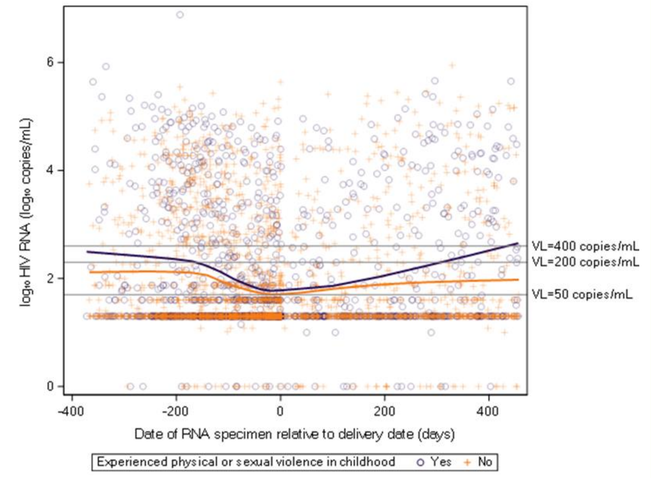
- In pregnancies of women with vs. without CPA/CSA, the frequency of unsuppressed VL was similar at conception (49% vs 46%) and delivery (21% vs 18%), but higher at the 1-year postpartum time point (39% vs. 29%) (Figure 2).
- Unsuppressed VL at any point over the first year postpartum was more frequent in women with CPA/CSA (53%) than in those without CPA/CSA (43%).

Table 2: Relative Risk of Unsuppressed VL Comparing Those with Childhood Physical and/or Sexual Assault and Those with No Childhood Physical and/or Sexual Assault

	RR (95% CI)	p	aRR (95% CI)*	p
At Conception	1.07(0.87,1.32)	0.50	1.07(0.88,1.30)	0.47
At Delivery	1.12(0.73,1.70)	0.60	1.12(0.73,1.70)	0.61
At 1-Year Postpartum	1.35 (1.01,1.79)	0.04	1.29 (0.98,1.70)	0.07
During Pregnancy	1.05 (0.88,1.24)	0.62	1.03 (0.87,1.21)	0.76
During Postpartum	1.22 (0.98,1.52)	0.08	1.22 (1.00,1.50)	0.05

*aRR=Adjusted Relative Risk; *Adjusted for maternal age at conception; No experience of childhood sexual or physical assault is the referent category.*

Figure 3: LOESS Plot of $\log_{10}$ HIV RNA from 3 Months Prior to Date of LMP to 15 Months Postpartum in Pregnancies of Women with HIV by Experience of Childhood Physical and/or Sexual Assault (CPA/CSA)



— CONCLUSIONS —

- Childhood physical and sexual assault was prevalent and reported among 33% of women with HIV;
- A history of childhood physical and/or sexual assault was associated with elevated risk of postpartum unsuppressed VL;
- Trauma informed approaches are needed and may help maintain care engagement and viral suppression postpartum.

— AUTHOR CONTACT INFORMATION —

Deborah Kacanek: dkacanek@sdac.harvard.edu

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