

Causal Mechanisms of the Hospital-Based Antifragility Initiative Among Black and Latinx Youth in Preventing Violent Recidivism, Juvenile Delinquency, and Poor Academic Outcomes

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Background: Black and Latinx youth bear an unequal burden of adversity and trauma, including violence, assault, poverty, incarceration, and marginalization in the United States.^{1,2} In the U.S., gun violence among youth has reached alarming rates with Black youth killed at significantly higher rates than any other race/ethnicity.³ Youth who survive are then at higher risk of returning to the hospital with another violent injury, continuing the cycle of violence.⁴ Hospital-based violence intervention programs (HVIPs) have emerged to address severe violence.

In the City of Cleveland, youth violence is a pressing problem. In 2019, a pediatric hospital-based violence intervention program known as the “Antifragility Initiative” started at University Hospital’s Rainbow Babies & Children’s Hospital (Voith et al., 2023)⁵. Any youth ages 4-17 entering the emergency department with a severe assault or gunshot wound was eligible for the program. The program focused on early engagement, navigating systems, promoting resilience and post-traumatic growth (see Figure 1). Partnering with the Center on Trauma and Adversity and the Center on Poverty and Community Development at Case Western Reserve University, the program effects were tested.

Sample: Youth included in the study were:

- 13.5 years old on average
- Black (94.5%)
- 58.2% Boys
- Presented with a severe assault (80.6%), gunshot wound (16%), or both
- Reported nearly 5 adverse childhood experiences

The objective of this study was to test the effectiveness of the Antifragility Initiative (AI), a pediatric hospital-based violence intervention program

Primary Outcome:

Violent re-injury during 12 month follow-up

Secondary Outcomes:

Juvenile delinquency during 12 month follow-up

Academic outcomes in academic year following initial injury

Tested Variables:

Adverse Childhood Experiences

Resilience

Post Traumatic Growth

This study is the first to advance a trauma and resilience framework using a robust longitudinal, integrated dataset to improve the behavioral and health promotion of youth of color in pediatric emergency care

Key Findings

The Antifragility Initiative contributed to reducing violent reinjury among youth.

Youth who consented to the AI intervention had a lower rate of reinjury compared to non-program-involved youth.

Resilience may be an important quality to focus on to break the cycle of violence among youth.

Project Goals

Aim 1:

Examine program effectiveness on violent re-injury with youth ages 4–17 years enrolled in the program compared with a comparison group at 12 months post hospital admission.

Aim 2:

To assess the effect of adverse childhood experiences (ACEs), resilience, and post-traumatic growth on key outcomes with youth ages 4–17 years old enrolled in the Antifragility Initiative.

Aim 1.

Methodology: Examined program effectiveness (N = 600) on violent reinjury at 12 months post hospital enrollment with 201 youth ages 4–17 years old enrolled in the program compared to a retrospective comparison group of 399 youth. Effects on secondary outcomes were also examined. Logistic and linear regression models were used to examine odds ratios of outcomes based on receiving program services, controlling for age, race, sex, injury type, and social complexity score. A prior event rate ratio (PERR) analysis was used with a subgroup (n = 50) of this sample.

Selected Results

Youth who received program services experienced **61% lower odds of violent re-victimization** one year after their initial injury compared to youth who did not receive services.

Youth who consented to the AI intervention experienced a **lower rate of reinjury** (15.50 recidivisms per 100 person-years) than youth who did not consent to the program (28.88 recidivisms per 100 person-years).

Though the PERR estimate of .67 (95% CI -1.44, 0.75) would indicate that those who consented in the AI intervention experienced a lower risk of violent recidivism compared to non-consented youth, the estimated 95% confidence intervals render it unclear whether this is a true effect or due to random chance. Notably, this analysis is likely underpowered.

Aim 2.

Methodology: Examined how ACEs, resilience, and post-traumatic growth affected violent reinjury 12 months after the initial injury of youth aged 4-17 enrolled in the Antifragility Initiative between July 2019 and December 2020. Effects on secondary outcomes (juvenile court and academic metrics) were also examined. Logistic and linear regression were used.

Selected Results

Every additional point higher of *resilience* was associated with **56% lower odds of violent revictimization** when controlling for ACEs and Post-Traumatic Growth.

ACE and resilience scores at the time of injury were significantly associated with youth's violent reinjury and standardized testing scores (English/Language Arts) in the 12 months following the violent injury.

To read about this study in greater depth, please see our forthcoming manuscripts:

Voith, L.A., Xia, T., Russell, K.N., Thomas, T. Barksdale, Jr., E., & Berg, K. Breaking the Cycle of Youth Violence: Examining Program Effects of a Pediatric Hospital-based Violence Intervention Program.

Voith, L.A., Montoya, C., Withrow, A., Thomas, T., Barksdale, Jr. E., & Berg, K. Exploring adverse childhood experiences, resilience, and post-traumatic growth among predominantly Black youth exposed to severe violence.

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Resources

¹Sacks V, Murphey D. The prevalence of adverse childhood experiences, nationally, by state, and by race or ethnicity. Child Trends, 2018;2.

²Fowler KA, Dahlberg LL, Haileyesus T, Gutierrez C, Bacon S. Childhood firearm injuries in the United States. Pediatrics. 2017;140(1):e20163486.

³Cunningham RM, Carter PM, Ranney M, et al. Violent reinjury and mortality among youth seeking emergency department care for assault-related injury: a 2-year prospective cohort study. JAMA Pediatr. 2015;169(1):63-70.

⁴Kaufman E, Rising K, Wiebe DJ, Ebler DJ, Crandall ML, Delgado MK. Recurrent violent injury: magnitude, risk factors, and opportunities for intervention from a statewide analysis. Am J Emerg Med. 2016;34(9):1823-1830.

⁵Voith, L. A., Russell, K. N., Lee, H., Atwell, M. S., McKinney, S. J., Thomas, T., & Barksdale Jr, E. M. Using grounded theory to develop a theory of change for a violence intervention program. Evaluation and Program Planning. 2023;99, 102303.



Center on Trauma and Adversity



CONTRIBUTIONS

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Families

Youth, caregivers, and families healing from violence

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