

Building Blocks of Ballistic Trauma: Investigating How Childhood Opportunity Index Influences Pediatric Gunshot Fracture Outcomes



Annelise Juneau, Hallie Berndt, Mia Casabat, Jacob Chaisson, Antoinette Gladney Jessica Rivera
Louisiana State University School of Medicine, New Orleans, LA

Introduction

- Pediatric gunshot injuries are devastatingly prevalent with over 13,000 pediatric gunshot wound cases presenting to the emergency department annually.¹
- The resulting sequelae has profound impacts on the individual's development and mental health. With this, there is a profound gap of studies regarding injury outcome as they relate to social determinants of health.
- Childhood opportunity index (COI) provides a composite score that is a measure of a neighborhood opportunity level specific to pediatric populations considering a variety of domains including but not limited to education, health, and environment, and social and economic.
- Lower COI within a community has been found to be associated with pediatric gunshot violence. Socioeconomic challenge is also associated with poorer outcomes following trauma and surgery.^{2,3}

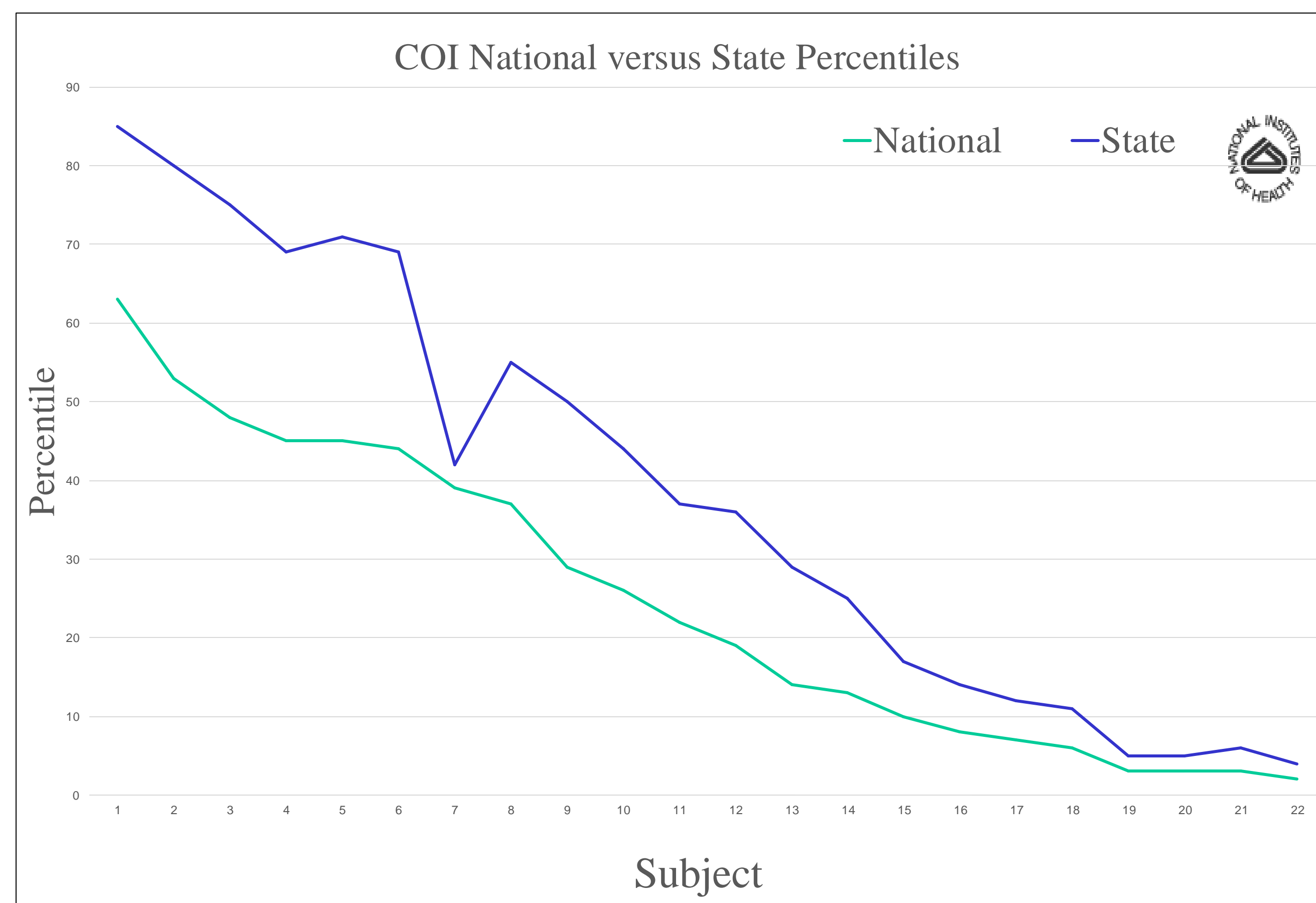
Methods

- Retrospective cohort study of patients under the age of 18 diagnosed with an extremity, spine, or pelvis ballistic fracture from the Children's Hospital of New Orleans (CHNOLA) trauma registry between January 2018 and June 2023
- Medical records were then queried for demographics, social determinants of health, injury characteristics, and outcomes.
- National and state level percentile COI was collected based on patient census track using publicly available data from <https://www.diversitydatakids.org/child-opportunity-index>.

Objective and Significance

This study aims to investigate how COI may influence the outcomes of pediatric patients who sustain bone fractures secondary to ballistic trauma in the New Orleans region.

Figure 1



Results

- Twenty-two records are included in these preliminary results.
- On average, subjects were 13.5±4.2 years of age, 82% (18/22) male, and twenty (91%) of subjects were African American.
- Only two complications were identified including one wound infection and one reoperation. This low complication rate precluded analysis for associations.
- The state percentile mean COI was 38.2+/-5.7.
- The national percentile mean COI was 24.5+/-4.1.
- The national percentile was statistically lower than the state percentile (p<0.0001).

Conclusion

- The observed divergence in state and national COI highlights the socioeconomic challenges faced by Louisiana patients relative to the rest of the Nation.
- Data collection is ongoing to increase sample size needed for analysis of outcome-based correlations.
- This conclusion opens the door for further studies regarding the underlying causes in which Louisiana has significantly diverged from the nation with regards to COI and provide insight to potential strategies to bridge this gap for children in Louisiana.

References

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