

Psychiatric Consequences of Accidental Gunshot Related Fractures in Children: A Propensity Matched Retrospective Study

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INTRODUCTION: Firearm related violence, injuries, and mortality is increasingly common in the United States. While mass shootings dominate news headlines, accidental firearm discharges impart a massive burden, resulting in substantial morbidity and mortality. Further, the consequences of GSWs may extend beyond physical injury and may have lasting psychological impact on victims. This study aims to assess the impact of accidental GSW related fractures on psychiatric outcomes in the pediatric population.

METHODS: This study utilized the TriNetX Research network to retrospectively review pediatric patients diagnosed with an accidental GSW related fracture, and compare mental health diagnoses relative to those with non-GSW related fractures. Data was drawn from years 2003 through 2023, with a minimum of 1 year follow up for all patients. Outcomes of interest were recorded for up to three years following the index event.

RESULTS: A total of 2,660 children with accidental GSW related fractures were successfully matched with children who had non-GSW related fractures. The mean age was 14.9 and 82% were boys, 62% were Black, and 14% were Hispanic. Patients with accidental GSW related fractures had greater hazard of anxiety disorders (HR 5.001 (4.030, 6.208) p<0.001), mood disorders (HR 2.692 (2.098, 3.454) p<0.001), substance use disorders (HR 3.705 (3.078, 4.460) p<0.001), psychotic disorders (HR 2.464 (1.342, 4.526) p=0.004), and insomnia (HR 2.345 (1.749, 3.145) p<0.001) relative to patients with fractures unrelated to GSWs.

DISCUSSION AND CONCLUSION: Children with accidental GSW related fractures may suffer psychiatric sequelae - ranging from anxiety and mood disorders to substance abuse - from these injuries, with greater risk compared to non-GSW related fractures. This study highlights the expansive and lasting impact of firearm related injuries on children.

