

**TITLE:** Effects of Mechanism of Injury and Insurance Status on Behavioral and Clinical Sequelae in Pediatric Trauma Patients

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**BACKGROUND:** The complex behavioral impairments of children after traumatic brain injury (TBI) have been described, but behavioral outcomes following traumatic spinal cord injury (SCI) and multi-trauma (MT) are less studied, especially in comparison with each other. This study aims to describe the effects of socioeconomic status, psychosocial stressors, and mechanism of injury on behavioral and clinical sequelae of pediatric trauma patients with a focus on insurance status, parent compliance, and primary diagnosis.

**METHODS:** A retrospective review was performed of patients  $\leq 18$  years admitted to an inpatient rehabilitation (IPR) program after traumatic injury from January 2018-December 2020. Post-traumatic behavioral and clinical sequelae was assessed among TBI, SCI, and MT patients using Fisher's exact analysis and Chi-squared tests.

**RESULTS:** Our study consisted of 97 patients within the inclusion criteria, with 62.0% diagnosed with TBI, 19.6% SCI, and 18.6% MT. There was a significant difference in initial trauma diagnosis between patients with public versus private insurance. Patients who had private insurance were more likely to have sustained TBI than SCI or MT (70.5% vs 30.6%,  $p=0.041$ ). Patients who had public insurance were less likely to have sustained TBI than SCI or MT (36.3% vs 63.7%,  $p=0.041$ ). There was also a significant difference in mechanism of injury among initial trauma diagnosis ( $p=0.011$ ). SCI was significantly more likely in children with GSW (68.4%,  $p=0.011$ ) than TBI (19.4%,  $p=0.011$ ) or MT (1.67%,  $p=0.011$ ). TBI was more likely in restrained/partially restrained passenger MVC and unrestrained MVC (31.3%,  $p=0.011$ ) than SCI (21.1%,  $p=0.011$ ) or MT (8.33%,  $p=0.011$ ). MT was significantly more likely in pedestrian vs vehicle (25%,  $p=0.011$ ) when compared to TBI (11.9%,  $p=0.011$ ) or SCI (0%,  $p=0.011$ ). There was no significant difference in number of readmissions ( $p=0.266$ ) or number of procedures performed ( $p=0.874$ ) after discharge from inpatient rehabilitation between initial trauma diagnoses.

**CONCLUSIONS:** These results demonstrate that mechanism of injury and insurance status may both play a role in initial trauma diagnosis and clinical outcomes following inpatient rehabilitation. There is no evidence of correlation between hospital readmissions or procedures performed after discharge and initial trauma diagnosis.