

# Effect of Preoperative Psychiatric Disorder on Postoperative Outcomes after Posterior Spinal Fusion in Children

Nesa Milan, Abhishek Tippabhatla<sup>1</sup>, David A Momtaz, Mehul Manoj Mittal, Pooya Hosseinzadeh<sup>2</sup>

<sup>1</sup>Washington University In St. Louis School of Medic, <sup>2</sup>Washington Univeristy Orthopedic Surgery

## INTRODUCTION:

Children undergoing posterior spinal fusion suffer from higher rates of depression than the average. It has been shown that these children with depression and anxiety require longer hospitalizations and experience longer duration of pain symptoms, but the causality between underlying psychiatric conditions and postoperative outcomes among these patients is unknown. This matched cohort study distinguishes postoperative outcomes between children with an underlying psychiatric diagnosis (PD) to those without.

**METHODS:** This large retrospective study is conducted using a comprehensive federated network analyzing health records from 55 healthcare organizations. Children that underwent posterior spinal fusion were identified, and propensity score matching was performed comparing patients with underlying psychiatric diagnosis with those without, while simultaneously adjusting for patient demographics and underlying medical diagnosis. Complications including nature of pain and its duration, hospital visits, and psychiatric emergencies were analyzed temporally. Data compilation and analysis were conducted.

**RESULTS:** An initial 5,832 patients were identified. After matching, 1,880 patients in each cohort were analyzed. Mean patient age was 11 years, and 64% were female. Patients in the PD cohort were more likely to experience psychiatric exacerbations (HR=4.143, 95% CI [3.719-4.616], P<0.0001), ICU admissions (HR=2.811, 95% CI [2.410-3.279], P<0.0001), ED visits (HR=2.252, 95% CI [2.013-2.519], P<0.0001), opioid use (HR=1.165, 95% CI [1.089-1.246], P<0.0001), overall pain (HR=1.324, 95% CI [1.196-1.466], P<0.0001), acute pain (HR=1.219, 95% CI [1.078-1.378], P-Value = 0.0010), and chronic pain (HR=1.970, 95% CI [1.433-2.709], P<0.0001).

## DISCUSSION AND CONCLUSION:

Children with underlying psychiatric diagnosis that undergo posterior spinal fusion are susceptible to adverse postoperative outcomes including higher rates of psychiatric exacerbations, ICU admissions and ED visits, and acute and chronic pain events. These findings emphasize the need for providing preoperative engagement with mental health resources coupled with comprehensive postoperative psychiatric care that addresses unique challenges faced by these pediatric patients.

