

Impact of Psychiatric History on Outcomes Following Surgical Management of Traumatic Thoracolumbar Fractures: A Retrospective Cohort Study

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INTRODUCTION: The objective of this study was to evaluate the impact of documented psychiatric history on postoperative outcomes in patients undergoing surgical management for traumatic thoracolumbar fractures. We hypothesize that patients with a psychiatric history will have increased hospital length of stay (LOS), decreased long-term follow-up, and higher rates of postoperative complications.

METHODS: After IRB approval, a retrospective review of an institutional registry identified 131 patients who underwent fusion, with or without decompression, for traumatic fractures from T9 to L5 at a Level 1 trauma center from 2017-2024. Data collected include demographics, psychiatric history and treatment, and postoperative outcomes. Psychiatric history was defined as the presence of a documented active or historical diagnosis in the medical record and/or the use of home psychiatric medications at the time of admission. Psychiatric diagnoses include anxiety disorders, depressive disorders, psychotic disorders, substance use disorders, eating disorders, attention-deficit/hyperactivity disorder (ADHD), obsessive-compulsive disorder (OCD), and autism spectrum disorder (ASD). Complications and readmissions were recorded within 90 days; reoperations were tracked up to 1 year. Patients who died or documented transition of care within 6 months were excluded from follow-up data. Statistical analyses were performed using Python (Matplotlib), with p-values calculated using Chi-square or Fisher's exact test for categorical variables and student's t-test for continuous variables. Multivariate logistic regression analyses were used to evaluate associations between psychiatric history and both LOS at ≥ 20 days and length of follow-up at ≥ 270 days, controlling for gender, Charlson Comorbidity Index (CCI), and Injury Severity Score (ISS).

RESULTS SECTION: A total of 131 patients (90 male, 41 female) met inclusion criteria. Of these, 51.9% (n=68) had a documented psychiatric history at the time of injury, and 67.5% of those (n=46) were actively taking psychiatric medication. The most common psychiatric disorders include depressive disorders (55.9%), anxiety disorders (54.4%), and substance abuse (35.3%). Demographic and injury comparisons showed no significant differences between patients with and without psychiatric diagnoses in terms of age (p = 0.793), CCI (p = 0.310), or ISS (p = 0.854). However, patients with psychiatric diagnoses were more likely to be female (39.7% vs. 22.2%, p = 0.031).

A univariate analysis revealed patients with psychiatric history had a significantly longer hospital LOS (15.71 \pm 17.42 vs. 10.56 \pm 5.76 days, p = 0.013), shorter follow-up duration (179.50 \pm 207.14 vs. 259.02 \pm 257.50 days, p = 0.049), and a higher incidence of pneumonia (11.76% vs. 1.59%, p = 0.034) compared to patients without psychiatric diagnoses. No statistically significant differences were observed between groups in other outcomes, including mortality at 30 days, 90 days, and 1 year, reoperation, readmission, deep vein thrombosis, pulmonary embolism, surgical site infection, delirium, or urinary tract infection (p > 0.05).

In a multivariable logistic regression controlling for sex, CCI, and ISS, psychiatric history was independently associated with longer hospital stays (LOS ≥ 20 days; OR 3.19, 95% CI 1.02–10.04; p = 0.046) and lower likelihood of follow-up at or beyond 270 days (OR 0.37, 95% CI 0.17–0.82; p = 0.031). Injury Severity Score also predicted prolonged LOS (OR 1.13 per point, 95% CI 1.015–1.138; p = 0.014), while gender and CCI showed no significant effects.

DISCUSSION: Our findings demonstrate that psychiatric history independently predicts both extended length of stay and shorter follow-up duration when controlling for gender, CCI, and ISS. These results, along with the high prevalence of psychiatric comorbidities among thoracolumbar trauma patients, highlights the need for integrated, multidisciplinary care in traumatic spine injuries. Further prospective studies are warranted to evaluate ways to best care for these vulnerable patients.

SIGNIFICANCE/CLINICAL RELEVANCE: Our findings highlight the importance of recognizing and addressing psychiatric history in thoracolumbar surgery patients to best optimize post-operative care and follow-up.

IMAGES AND TABLES:

Table 1, Multivariable Logistic Regression Results Predicting Extended Length of Stay ≥ 20 Days.

Variable	OR	95% CI	p-value
Psychiatric History	3.19	1.02-10.04	0.05
Gender (Male)	1.28	0.39-4.19	0.68
CCI	1.14	0.99-1.21	0.06
ISS	1.07	1.02-1.14	0.01

Table 2, Multivariable Logistic Regression Results Predicting Extended Follow-Up ≥ 270 Days.

Variable	OR	95% CI	p-value
Psychiatric History	0.40	0.17-0.92	0.03
Gender (Male)	1.21	0.48-3.02	0.69
CCI	0.93	0.78-1.11	0.43
ISS	0.99	0.94-1.04	0.58