

## Does Marital Status Impact Postoperative Outcomes After Lumbar Fusion?

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**INTRODUCTION:** Marital status has been identified as a social determinant of health that may influence surgical outcomes through mechanisms related to social support and adherence to postoperative care. Married patients often experience improved recovery, lower complication rates, and reduced mortality following major surgery, likely due to the benefits of spousal support in facilitating care and early recognition of complications. Conversely, unmarried patients face higher risks of adverse outcomes, prolonged hospitalization, and increased readmissions. These patterns suggest that marital status may serve as a proxy for social support networks influencing surgical recovery. While the influence of marital status on surgical outcomes has previously been investigated<sup>1-4</sup>, no prior study has specifically examined the relationship between marital status and lumbar fusion outcomes. The authors hypothesize that unmarried patients will have a higher incidence of postoperative complications following lumbar fusion than married patients.

**METHODS:** A retrospective review was conducted of patients aged 18-85 years who had undergone lumbar fusion (L1-L5) due to degenerative and traumatic indications at a single tertiary academic medical center between January 2013 and September 2025. This group comprised 403 total patients (45% male, 55% female). Exclusion criteria included malignancy of the spine, pregnancy, rheumatologic disease, polytrauma, and prior failed fusion. Included procedures were ALIF, OLIF, DLIF, TLIF, and PLIF. Patients were stratified by marital status at the time of surgery (married vs not married). Recorded outcomes included postoperative medical and surgical complications; ED visits; readmissions; postoperative length of stay; change in VAS pain score, and discharge disposition. Analyses included single-variable logistic regression, the Wilcoxon rank-sum test for continuous outcomes, and pairwise Fisher's exact tests for categorical outcomes. Statistical significance was defined as  $p \leq 0.05$ .

**RESULTS:** A total of 403 patients were included in the final analysis, of whom 251 (62.3%) were married and 152 (37.7%) were unmarried at the time of surgery. Baseline characteristics were largely similar between groups. Married patients had lower odds of all-cause readmission (13.9% vs. 22.4%; OR 0.56, 95% CI 0.33–0.95;  $p = 0.031$ ) and neurological complications (2.0% vs. 7.2%; OR 0.26, 95% CI 0.08–0.73;  $p = 0.014$ ). Length of stay (LOS) was significantly longer among unmarried patients (median 4.0 days [IQR 3.0] vs. 3.0 days [IQR 2.5];  $p = <0.001$ ). Married patients were significantly more likely to be discharged home (85.3% vs. 59.2%; OR 0.25, 95% CI 0.15–0.41;  $p = <0.001$ ), whereas unmarried patients were more frequently discharged to a skilled nursing facility (SNF) (11.8% vs. 1.6%; OR 8.25, 95% CI 2.65–34.21;  $p = <0.001$ ) and to acute rehabilitation (25.7% vs. 12.4%; OR 2.44, 95% CI 1.40–4.29;  $p = 0.001$ ). Change in VAS pain scores did not differ between married and unmarried patients. Non-significant differences in surgical and medical complication rates favored the married cohort.

**DISCUSSION:** To the best of our knowledge, this is the first study to examine the impact of marital status on spinal surgery outcomes, specifically lumbar fusion. Married patients had lower odds of readmission and neurological complications, shorter hospital stays, and were more frequently discharged home, while unmarried patients were more likely to require post-acute rehabilitation or skilled nursing care. These results are consistent with prior findings of marriage being associated with improved postoperative outcomes in other surgical fields<sup>1-3</sup>, suggesting that it plays a meaningful role in surgical convalescence. Overall, marital status appears to be an important social determinant influencing lumbar fusion recovery.

**SIGNIFICANCE/CLINICAL RELEVANCE:** These findings underscore the importance of incorporating marital status and its implications of social support into perioperative planning and discharge optimization. Preoperative assessment of social determinants such as marital status may inform discharge planning by helping to identify at-risk patients who could benefit from targeted interventions to improve social support.

**REFERENCES:** [1] Gulack et al. J Surg Res. 2017. [2] Roubion et al. J Arthroplasty. 2016. [3] Singh et al. Arch Orthop Trauma Surg. 2022. [4] Tang et al. Front Oncol. 2023.

### TABLES:

**Table 1.** 1-Year Postoperative Outcomes in Married vs Unmarried Patients (Univariate Log Regression)

Outcome	Married	Unmarried	p-value
Readmission (all cause)	35 (13.9%)	34 (22.4%)	0.031
Readmission – surgical	27 (10.8%)	26 (17.1%)	0.070
Readmission – medical	8 (3.2%)	8 (5.3%)	0.306
Neurological complication	5 (2.0%)	11 (7.2%)	0.014
Cardiovascular complication	7 (2.8%)	3 (2.0%)	0.612
Post-op surgical complication	36 (14.3%)	31 (20.4%)	0.115
Post-op medical complication	14 (5.6%)	10 (6.6%)	0.681
ED visit	34 (13.5%)	27 (17.8%)	0.254

**Table 2.** Median  $\Delta$ VAS Pain Score and Length of Stay

Outcome	Married	Unmarried	p-value
LOS (days)	3.0 (IQR 2.5)	4.0 (IQR 3.0)	<0.001
$\Delta$ VAS Pain	0.0 (IQR 7.5)	0.0 (IQR 6.0)	0.587

**Table 3.** Discharge Location by Marital Status (Fisher's Exact Test)

Discharge Location	Married	Unmarried	p-value
Home	214 (85.3%)	90 (59.2%)	<0.001
SNF	4 (1.6%)	18 (11.8%)	<0.001
Acute rehabilitation	31 (12.4%)	39 (25.7%)	0.001
Other	2 (0.8%)	5 (3.3%)	0.109