

Persistent Post-Surgical Pain Following Outpatient Total Joint Replacement Surgery: A Retrospective Study

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OBJECTIVES: This retrospective study aimed to evaluate the incidence of persistent post-surgical pain (PPSP) in patients undergoing outpatient total joint replacement and identify risk factors for its development.

BACKGROUND:

- PPSP after total joint replacement (TJR) surgery occurs in 10–20% of patients
- Most data comes from inpatient populations who have higher risk factors for development of PPSP
- TJR is increasingly being performed in outpatient settings in free-standing ambulatory surgery centers
- Outpatient surgery patients may have lower risk for PPSP due to better health profiles
- The incidence of PPSP in outpatient TJR patients is not well documented

METHODS:

- Data from patients who had elective TJR at a free-standing surgery center (May 2023 – April 2024)
- Pre-operative and 3-month post-surgery data collected including PROMIS-10 Global Health Short Form (Mental & Physical health T-scores)
- Persistent post-surgical pain defined as pain score ≥ 5 on a 0-10 scale

DATA ANALYSIS:

- Incidence of PPSP analyzed with Pearson Chi-Square
- Associations with pre-op and 3-month mental/physical health T-scores analyzed using logistic regression

RESULTS:

- 754 patients, 601 with complete data for analysis:

Procedure	Number of Cases	Cases with Pain ≥ 5	Incidence (%)
Partial Knee Replacement	136	14	10.3
Total Knee Replacement	300	39	13.0
Total Hip Replacement	148	5	3.4
Total Shoulder replacement	17	2	11.8

- Incidence of PPSP differed significantly across procedure types (Pearson Chi-Square = 13.69, $p = 0.008$)
- Procedure type was the only significant predictor of persistent post-surgical pain (logistic regression)
- Total hip replacement patients were less likely to report pain scores ≥ 5 at 3 months
- $B = -1.281$, $p = 0.035$, $OR = 0.28$
- There was a significant change in both physical and mental health T-scores at 3 months post-surgery:

PROMIS T-Score	Pre-op Mean (SD)	Post-op Mean(SD)	P-value
Physical Health	42.0 (5.6)	47.4 (5.8)	<0.01
Mental Health	52.6 (7.9)	53.4 (7.6)	<0.01

DISCUSSION:

- PPSP incidence in outpatient population similar to inpatient populations
- Screening for low comorbidity, high functional capacity, and mental illness did not reduce PPSP risk
- Incidence in partial knee replacement similar to total knee replacement, likely due to similar surgical trauma affecting the medial knee
- Significant improvement in Physical Health T-scores from pre-op to 3 months reflects recovery in physical functioning, consistent with surgery goals
- Mental Health T-scores showed significant but modest improvement suggests mental health recovery influenced by factors beyond surgery
- Total hip replacement patients had significantly lower risk of PPSP, in line with clinical observations

FUTURE DIRECTIONS:

- Findings highlight the need for continued psychosocial support to improve surgical outcomes
- Further studies needed to confirm findings and explore strategies to reduce PPSP after outpatient TJR
- Longitudinal studies important to assess long-term impact of PPSP on quality of life and healthcare use
- Investigate cost-effectiveness of integrated
- Psychosocial care models for broader implementation
- Future studies should focus on developing standardized care pathways for consistent patient support

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