

# Impact of Preoperative Depression and Antidepressant Use on Postoperative Outcomes Following Knee Arthroscopy: A Retrospective Cohort Study

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**Disclosures:** The authors report no relevant financial disclosures.

**INTRODUCTION:** Psychiatric comorbidities such as depression may influence surgical outcomes, yet their role in orthopedic recovery with particular attention to patients undergoing knee arthroscopy remains under-investigated. The influence of antidepressant use in this population is also unclear. The objective was to evaluate the impact of preoperative depression and antidepressant use on short- and long-term postoperative complications following knee arthroscopy.

**METHODS:** This retrospective cohort study utilized data from the TriNetX research database to identify adult patients who underwent knee arthroscopy between February 2002 and February 2022. Patients were divided into three cohorts: (1) those with depression and documented antidepressant use within one year of surgery (Cohort 1), (2) those with depression and no documented antidepressant use within one year (Cohort 2), and (3) those without a depression diagnosis (Cohort 3). Propensity score matching was used to control for confounders including demographics, comorbidities (e.g., diabetes, substance use), and depression severity. Matched cohort sizes varied by outcome and follow-up time. For both 90-day and 3-year outcomes, Cohort 1 vs. Cohort 2 included 9,893 patients and Cohort 1 vs. Cohort 3 included 15,581 patients. For Cohort 2 vs. Cohort 3, the matched sample included 10,345 patients at 90 days and 10,307 patients at 3 years. Chi-square testing was performed to compare outcomes at 90 days and 3 years postoperatively, and significant associations were reported using odds ratios (ORs) and p-values.

**RESULTS SECTION:** At 90 days, compared to patients without depression, those with depression but not on antidepressants had higher odds of postoperative infection (OR 2.05, p=0.0018), orthopedic aftercare (OR 1.47, p<0.0001), emergency department visits (OR 1.39, p<0.0001), sleep disorders (OR 2.34, p<0.0001), falls (OR 2.22, p=0.0003), urinary tract infection (OR 1.51, p=0.048), and acute kidney injury (OR 2.42, p=0.003). Patients with depression on antidepressants had increased risks of postoperative infection (OR 1.87, p=0.0002), acute postoperative pain (OR 1.36, p=0.0001), knee stiffness (OR 1.29, p<0.0001), orthopedic aftercare (OR 1.09, p=0.027), pulmonary embolism (OR 1.88, p=0.008), ED visits (OR 1.82, p<0.0001), alcohol abuse (OR 3.18, p<0.0001), opioid abuse (OR 3.04, p=0.0008), noncompliance (OR 2.34, p=0.003), sleep disorders (OR 2.81, p<0.0001), falls (OR 1.97, p<0.0001), delirium (OR 2.03, p=0.015), constipation from opioids (OR 2.36, p=0.008), septic knee arthritis (OR 1.76, p=0.041), UTI (OR 1.57, p=0.003), and AKI (OR 1.73, p=0.009). Additionally, patients with depression on antidepressants compared to untreated depression had higher odds of knee stiffness (OR 1.44, p<0.0001), ED visits (OR 1.27, p<0.0001), alcohol abuse (OR 2.00, p<0.0001), and sleep disorders (OR 1.44, p=0.0025).

At 3 years, compared to those without depression, patients with depression but not on antidepressants had increased odds of knee arthroplasty (OR 1.29, p<0.0001), arthrocentesis/injection (OR 1.10, p=0.030), alcohol abuse (OR 1.57, p=0.001), delirium (OR 2.23, p<0.0001), and cannabis/hallucinogen abuse (OR 2.04, p<0.0001). Patients with depression on antidepressants (n=15,581) had higher risks of opioid abuse (OR 2.13, p<0.0001), persistent knee pain (OR 1.63, p<0.0001), revision arthroscopy (OR 1.27, p<0.0001), arthrocentesis/injection (OR 1.41, p<0.0001), knee arthroplasty (OR 1.31, p<0.0001), alcohol abuse (OR 2.31, p<0.0001), delirium (OR 2.10, p<0.0001), and cannabis/hallucinogen abuse (OR 2.25, p<0.0001). In addition, patients with depression on antidepressants compared to untreated depression had higher odds of opioid abuse (OR 1.50, p=0.025), persistent knee pain (OR 1.64, p<0.0001), revision arthroscopy (OR 1.27, p<0.0001), arthrocentesis/injection (OR 1.32, p<0.0001), knee arthroplasty (OR 1.16, p=0.012), alcohol abuse (OR 1.54, p=0.0002), and delirium (OR 1.37, p=0.013).

**DISCUSSION:** Preoperative depression is independently associated with increased postoperative morbidity after knee arthroscopy. Antidepressant-treated patients exhibited distinct risk patterns compared with untreated depression, including higher rates of thromboembolic, renal, and psychiatric complications. These findings highlight the complex interplay between psychiatric disease, pharmacologic management, and surgical outcomes. Limitations include retrospective design and reliance on database coding accuracy.

**SIGNIFICANCE/CLINICAL RELEVANCE:** Depression is a common comorbidity among surgical patients, yet its impact on knee arthroscopy outcomes remains underrecognized. This study demonstrates that depression, particularly with antidepressant use, predicts adverse short- and long-term outcomes after knee arthroscopy, emphasizing the importance of preoperative mental health screening integration into surgical risk assessment and perioperative planning.