

Is there a Change in Anxiety and Depression following Total Knee Arthroplasty?

Krishna Raj Tripuraneni, Mike Anderson¹, Jason Michael Cholewa, Edward James Quilligan², Steven L Barnett³

¹Zimmer Biomet, ²Hoag Orthopedics, ³Hoag Orthopedic Institute

INTRODUCTION: Improvements in health-related quality of life with total knee arthroplasty (TKA) are ubiquitous across surgical techniques and implant devices. Some 80% of total joint arthroplasty patients (TJA) have high expectations related to psychological well-being improvements, however, only 50% of TJA patients report their psychological well-being expectations met at 12 months postoperative. The primary purpose of this study was to investigate if anxiety and depression change following TKA. A secondary objective was to explore the association between preoperative variables and changes in anxiety and depression.

METHODS: This was a prospective cohort multicenter study. Subjects (n=1,852) completed the Euro-Qol 5-Dimension 5-Level (EQ5D-5L) preoperatively, and at one- and three-months postoperative. Fulfillment of physical activity expectations were assessed at three-months as was preparedness to resume daily activities and physical recreation. The anxiety/depression dimension was analyzed using Pareian classification profile changes and compared with the sign Fisher's exact test. Logistical regression was used to analyze the relationship between age, sex, BMI, preoperative anxiety/depression, patient activity expectations, patient preparedness to resume activities, and changes in anxiety/depression.

RESULTS: Patient demographics were 64.2 ± 8.7 years of age, 31.3 kg/m^2 BMI, 1.0 ± 1.3 modified Carlson Comorbidity Index, and 61.7% female. The percentage of patients reporting Level 1 (no anxious or depressed feelings) significantly ($p < 0.0001$) increased from preoperative (62.2%) to three-months (77.1%) postoperative, while levels 2 through 5 (slightly through extremely anxious or depressed) all decreased. There was a non-significant ($p = .0543$) trend for greater rates of worsening anxiety and depression in patients with unmet physical activity expectations (9.15% vs. 6.15%). The percentage of worsening anxiety and depression was significantly ($p < 0.0001$) greater in patients who were not-well prepared to resume activities of daily living (ADL) (17.7% vs. 4.4%) and physical recreation (12.9% vs. 3.9%). Preoperative anxiety and depression (OR 52.27, 95% CI: 34.98, 80.67), EQ5D-5L (OR: 2.55, 95% CI: 1.04, 6.34), ADL (OR: 1.57, 95% CI: 1.19, 2.06), and BMI (OR: 1.05, 95% CI: 1.02, 1.08) were significant ($p < 0.05$).

DISCUSSION AND CONCLUSION: Anxiety and depression decrease following TKA and these changes appear heavily dependent on a patient's preoperative psychological well-being and postoperative preparedness to resume daily activities. Physician's awareness of preoperative patient psychological wellbeing and management of patient preparedness and expectations to resume physical activity may modulate postoperative anxiety and depression.