

Temporal Trends in Primary Total Hip and Knee Arthroplasty Preoperative PROMs from 2013-2021

Jackson Hamersly¹, Evan Deckard², R. Michael Meneghini^{2,3}, Kevin Sonn^{2,3}

¹ Indiana University School of Medicine; ² Indiana University School of Medicine, Department of Orthopaedic Surgery; ³ Indiana University Health Hip & Knee Center

Background: Patient reported outcome measures (PROMs) are utilized in total joint arthroplasty (TJA) to objectively evaluate patient function and track progress over time. Limited data exists on temporal trends of preoperative PROMs and any specific effect of COVID-19 on preoperative functional status. The objective of this study was to identify changes in preoperative PROMs over time, and determine the influence of COVID-19 on patient function prior to TJA.

Methods: All patients undergoing unilateral primary total hip (THA) or total knee arthroplasty (TKA) by a single surgeon from 2013-2021 were retrospectively reviewed. Joint-specific preoperative PROMs and relevant covariates were compiled and evaluated. Time series, univariate, and multivariate analyses were performed to identify predictors of preoperative PROMs.

Results: After exclusions, 1,105 THAs and 1,909 TKAs were available for analysis. Preoperative activity level steadily increased from 2015 to 2021 for THA patients. For TKA patients, PROMs similarly increased from 2015 to 2019, however, a decrease in activity level occurred in 2020. No time series differences were observed for HOOS JR or Knee Society “knee normal” scores. KOOS JR scores increased from 2016 to 2019, then decreased in 2020 and 2021. Knee pain with level walking and stair climbing steadily increased from 2013-2019 with an increase in 2020 for both scores. The COVID-19 era (cases performed from 2020 onward) was a significant predictor of higher UCLA scores for THAs ($p=0.020$); and worse pain with level walking, and KOOS JR scores for TKAs in multivariate analysis ($p\leq 0.038$).

Conclusion: This study demonstrated detrimental effects of COVID-19 on preoperative patient functional status, particularly for TKA patients. Providers should consider the effects of surgical delays and how trends in preoperative PROMs are changing over time. These include rising activity levels of preoperative TJA patients overall and worsening knee pain and function in TKA patients during the COVID era.