

Factors Influencing Utilization of Primary Total Hip Arthroplasty: An Analysis of 796,116 Elective and Nonelective Surgeries in the American Joint Replacement Registry

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INTRODUCTION:

Prior studies have shown disparities in utilization of primary total hip arthroplasty (THA). However, little is known about patient population differences associated with elective and nonelective surgery. Therefore, the aim of this study is to explore factors that influence primary THA based on surgery indication.

METHODS:

Data was obtained from 796,116 patients who had primary THA from 2012-2021 in the American Joint Replacement Registry (AJRR). THA was classified as “elective” or “nonelective” if the patient had an ICD code associated with osteoarthritis or hip fracture, respectively.

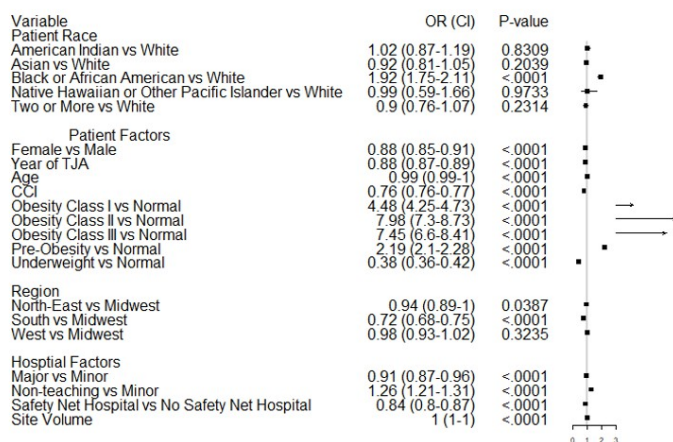
RESULTS:

A total of 29,045 (3.6%) patients had nonelective THA and 767,071 (96.4%) patients underwent THA for elective indications. Among the elective THA cohort, 90.6% of patients were White, 6.4% were Black, and less than 2% were American Indian, Asian, Native Hawaiian, or Other Pacific Islander. After multivariable logistic regression, Black patients were more likely to receive elective THA compared to Pacific Islander patients (OR=1.94, Bonferroni adjusted p<.0001), White patients (OR=1.92, Bonferroni adjusted p<.001), and those with two or more races (OR=2.13, Bonferroni adjusted p<.0001). Patients who were female sex (OR=.88, 95% CI = .85-.91), underweight BMI class (OR=.39, 95% CI = .36-.42), of increased CCI (OR=.76, 95% CI=.76-.77), and had a later year of THA (OR=.88, 95% CI=.87-.89) were less likely to undergo elective THA (all, p<.0001). The Southern region of the United States had significantly more nonelective surgeries compared to the Northeast, West, and Midwest (Bonferroni adjusted p<.0001). Compared to minor hospitals, non-teaching hospitals were more likely to perform THA due to arthritis (OR = 1.26, 95% CI=1.21-1.31, p<.0001). Safety net (OR=0.84, 95% CI=.8-.87) and major hospitals (OR=.91, 95% CI=.87-.96) were less likely to perform elective THA compared to non-safety net hospitals and minor hospitals, respectively (all, p<.0001). Increased site volume was also associated with an increased likelihood of elective THA (p<.0001).

DISCUSSION AND CONCLUSION:

This is the largest study to date to explore factors that influence the utilization of primary THA based on surgery indication. Using data obtained from 796,116 patients who had primary THA from 2012-2021 in the AJRR, our study demonstrates that demographic, regional, and hospital factors play a significant role in the utilization of THA due to elective and nonelective etiologies. Overall, the study highlights the need to consider multiple factors when determining the utilization of THA and suggests that efforts to reduce disparities in THA utilization may need to target specific patient populations and regions.

FIGURE 1. Logistic regression results predicting elective THA



THA, total hip arthroplasty; TJA, total joint arthroplasty; CCI, Charlston Comorbidity Index