

Racial and Ethnic Disparities in Health Care: An Examination of State Inpatient Databases in the Utilization of and Outcomes following Total Knee Arthroplasty



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Introduction

- ❖ One area of medical care in which racial disparities have been identified is total knee arthroplasty (TKA)—an efficacious and cost-effective treatment option for individuals with advanced arthritis of the knee.
- ❖ Previous studies have documented that racial and ethnic minorities tend to have higher rates of adverse health outcomes and face more barriers utilizing the procedure. However, these studies predominantly focused on black and white disparities and were limited to Medicare patients or veterans.
- ❖ The number of TKA procedures more than doubled from 329,000 in 1997 to 719,000 in 2010 yet the Agency for Healthcare Research and Quality (AHRQ) still considers disparities in TKA utilization a key focus area for research^[1,2].
- ❖ As TKA can potentially improve the health of many Americans, there is a great need to understand, track and resolve racial/ethnic disparities in its utilization.

Objective

- ❖ This study aimed at examining racial disparities in TKA utilization and perioperative health outcomes using nationally representative data.

Methods

- ❖ Administrative were examined from State Inpatient Databases (SID)—a comprehensive inpatient database maintained by the Healthcare Cost and Utilization Project under AHRQ—from eight racially diverse states between 2001 and 2008.
- ❖ The main outcomes examined were the rate of TKA; utilization of hospitals with higher TKA volumes; in-hospital mortality (died vs alive); and in-hospital complications (any vs no complication).
- ❖ Patient race was examined as the primary independent variable of interest and was categorized according to the SID: whites, blacks, Hispanics, Asians, Native Americans and mixed-race.
- ❖ Unadjusted odds ratio (OR) and 95% confidence intervals were generated for the association between the primary outcomes and race.
- ❖ Patient characteristics and hospital-level information were controlled for in adjusted analyses using logistic regression models for in-hospital mortality, morbidity and rate of utilization, and multinomial logistic regression model for use of high TKA volume hospitals.
- ❖ The study also analyzed time trends in TKA utilization by race to assess whether access to TKA improved over time.
- ❖ The significance level was set at $\alpha=0.05$.

Conclusion

- ❖ In this study of nationally administrative data collected for the SID from eight states between 2001 and 2008, we found that minorities had higher rates of adverse outcomes (mortality and complications) and lower rates of TKA utilization. Minorities were also less likely to undergo TKA in high-volume hospitals compared to whites.
- ❖ Most of the racial disparities found in unadjusted analyses remained significant in adjusted analyses, implying that differences in patient demographics, health conditions and socioeconomic status, and health care system characteristics explained only some racial disparities in utilization of and outcomes after TKA^[3, 4].
- ❖ Prior studies indicate that behavioral and culturally-based factors (such as patient preferences for other forms of complementary treatments or patient expectations for the procedure) could play a critical role towards influencing one's decision to seek medical care and overall health outcomes^[5, 6].
- ❖ Patient and provider level factors (such as physician referral patterns, hospital distances, and patient willingness to travel) could also contribute toward the observed disparities in TKA use^[7].
- ❖ Future studies that consider specific patient-level information with psychosocial and behavioral factors are needed.

Results

- ❖ We identified a total of 547,380 admissions between 2001 and 2008 during which a TKA procedure was performed.
- ❖ In comparison with whites (4.65 per 1,000 population per year), blacks (3.90), Hispanics (3.71), Asians (3.89), Native Americans (4.40) and mixed-race (3.69) had lower rates of TKA utilization ($P<0.0001$). In addition, minority groups were significantly ($p<0.0001$) less likely to go to high-volume hospitals and had significantly ($p<0.0001$) higher rates of in-hospital mortality and complications across the study period in comparison with whites. (Figure 1)
- ❖ After adjusting for patient and health care system characteristics, minority groups had significantly ($p<0.0001$) lower rates of TKA utilization rates, were significantly ($p<0.0001$) less likely to undergo TKA in high-volume hospitals, and had significantly ($p<0.0001$) higher risk of perioperative mortality and complications compared to whites. (Figure 2)
- ❖ In general, disparities in TKA utilization rates worsened over 2002-2008 for minorities compared with whites. (Figure 3)

Figure 1 – Unadjusted Analyses of Study Outcomes and Race

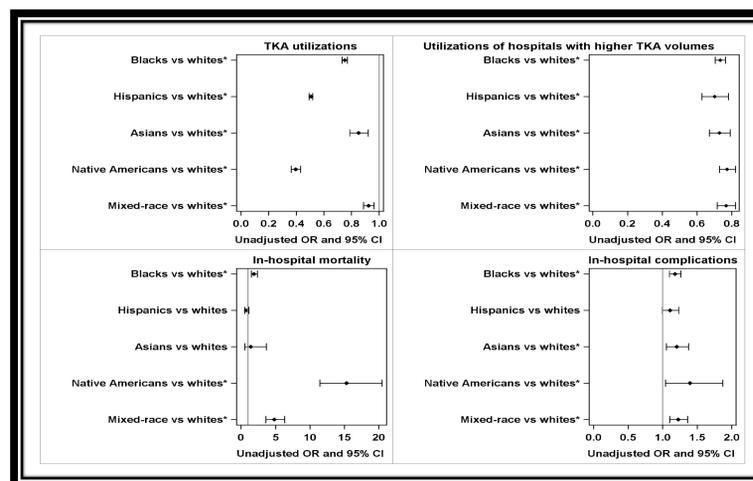


Figure 2 – Adjusted Analyses of Study Outcomes and Race

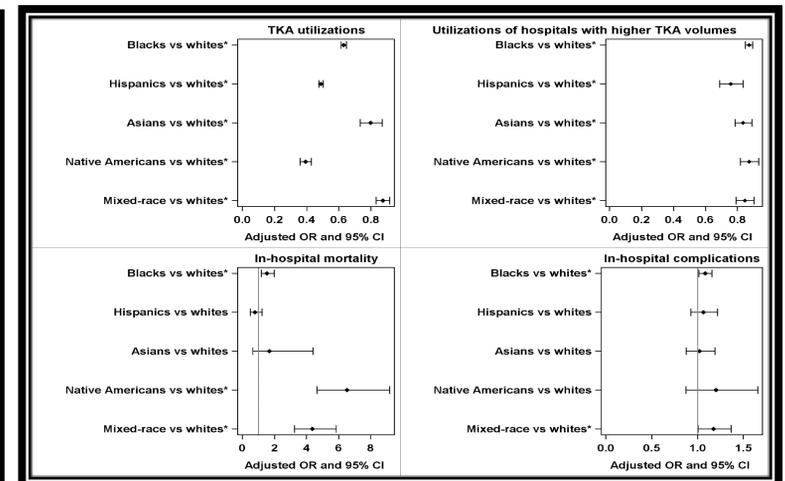
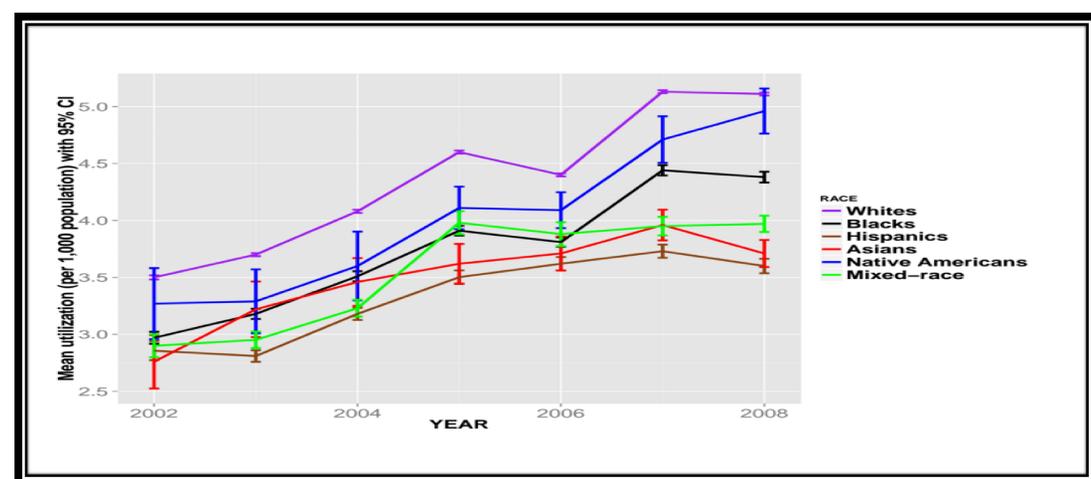


Figure 3 – Time Trends in TKA Utilization from 2002-2008



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