

## **Associations between Primary Language and Patient Engagement: Preoperative Class Attendance and Patient-Reported Outcome Measure Completion in Total Knee or Hip Arthroplasty**

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### **INTRODUCTION:**

Existing literature indicates that non-English speaking patients have worse outcomes after total knee or hip arthroplasty (TKA/THA). However, limited orthopaedic research has examined the impact of language on healthcare participation. Our study aimed to assess the association between primary language and patient engagement, specifically via preoperative patient education class ('joint class') attendance and completion of patient-reported outcome measures (PROMs). Both of these metrics have timely implications for health systems' participation in value-based care models. We hypothesized that patients whose primary language is not English may experience language barriers that may lead to lower participation.

**METHODS:** We conducted a retrospective cohort study that included primary elective TKA or THA patients from 2018 to 2021 at two hospitals in a single academic health system. Hospitals were analyzed separately given different care processes in each. For example, Hospital #1 had optional preoperative 'joint class' attendance while Hospital #2 had mandatory preoperative 'joint class' attendance for a portion of the study period. Multivariable logistic regression models examined the associations between primary language and preoperative class attendance, preoperative PROM completion, and 1-year PROM completion. We report adjusted odds ratios (OR) and 95% confidence intervals (CIs).

**RESULTS:** Hospital #1 included 2,272 patients (median age 67 years, 61% female, 52% Medicare/Medicare Advantage, 50% TKA), of which 3.8% reported Spanish as a primary language and 2.0% reported other non-English languages. Hospital #2 included 3,774 patients (median age 65 years, 62% female, 47% Medicare/Medicare Advantage, 62% TKA), of which 7.3% reported Spanish as a primary language and 2.7% reported other non-English languages. Compared to those with a primary language of English, those with any non-English primary language had significantly decreased odds of attending the preoperative 'joint class' in Hospital #1 (OR 0.48, 95% CI 0.26-0.91, P=0.02), but not in Hospital #2 (OR 0.75, 95% CI 0.44-1.26, P=0.27). Regarding PROM completion, those with a non-English primary language had significantly decreased odds of preoperative PROM completion at both hospitals (Hospital #1: OR 0.62, 95% CI 0.42-0.92, P=0.02; Hospital #2: OR 0.50, 95% CI 0.40-0.63, P<0.001). Findings were similar for 1-year PROM completion, with significantly lower completion for patients with a non-English primary language (Hospital #1: OR 0.38, 95% CI 0.18-0.78, P=0.01; Hospital #2 OR 0.31, 95% CI 0.16-0.63, P=0.001).

**DISCUSSION AND CONCLUSION:** Language-based differences for preoperative class attendance varied by hospital and were specifically not seen in Hospital #2, which had mandatory preoperative class attendance. While mandating attendance may increase participation, the level of benefit that patients receive from attendance may be reduced without language-based adaptations to ensure comprehension. Regarding PROMs, completion was significantly lower for patients who spoke languages other than English across both timepoints and hospitals, highlighting the need for validated measure translations as well as language support for administration platforms to ensure representation of these patients in PROM data.