

Increased Social Vulnerability Index Score Increases Odds of Emergency Room Visits and Readmission

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INTRODUCTION: Social vulnerability index is a metric that has been used in arthroplasty patients to raise concerns about variances in care. The purpose of this study was to determine if social vulnerability index influenced clinical outcomes of knee arthroplasty patients in a multi-surgeon large hospital system cohort.

METHODS: A retrospective cohort of knee arthroplasty patients undergoing surgery between January 1, 2020, and February 28, 2024, was extracted from the electronic medical record. Social vulnerability scoring of patients was assessed by home zip code and then stratified into quartiles where Quartile 1 was least vulnerable, and Quartile 4 was most vulnerable. Primary outcome measures were secondary procedure, complications, and readmissions. Outcomes were compared using logistic regression or quantile regression.

RESULTS: The cohort included 8,938 knee arthroplasty patients meeting inclusion criteria. Stratified quartiles included 1067 patients in Quartile 1(Q1), 2148 patient in Quartile 2(Q2), 2395 patients in Quartile 3(Q3), and 3322 patients in Quartile 4(Q4). When adjusted for ASA score, BMI and diabetes, odds ratio for return to emergency room at 14 days [Q3=1.67 (1.24,2.28), Q4=1.58 (1.19,2.14)] and odds ratio for readmission within 30 days [Q3=1.39 (1.09,1.79), Q4=1.41 (1.11,1.79)] were increased when compared to Q1. Access to robotics was highest in Q3 [1.39 (1.17,1.67)]. No statistically significant difference was noted in complication rates.

DISCUSSION AND CONCLUSION: The results of this cohort suggest that increased social vulnerability can increase risk of return to emergency room and readmission. Additional studies are needed to determine if social vulnerability in knee arthroplasty results in decreased long-term clinic outcomes.