Socioeconomic Status Not Associated with Outcomes Following Revision Total Joint Arthroplasty

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INTRODUCTION: Socioeconomic disparities are known to affect outcomes after primary total hip and knee arthroplasty. Revision procedures, which inherently carry higher complication rates, may be similarly influenced, though this relationship remains unclear. This study examined the association between socioeconomic status (SES), measured by the Distressed Communities Index (DCI), and outcomes following revision total hip (rTHA) and knee arthroplasty (rTKA).

METHODS: This retrospective cohort study included 851 consecutive revision arthroplasties (502 rTKAs, 349 rTHAs) performed between January 2018 and January 2025, with at least 6 months of follow-up. Inclusion criteria consisted of patients having undergone a revision total knee or hip arthroplasty in the designated timeframe. Patients with incomplete demographic or outcome data were excluded. Preoperative data included age, sex, race, BMI, smoking status, baseline pain score, and Charlson Comorbidity Index (CCI). SES was assessed using DCI scores based on ZIP codes. Postoperative outcomes included 90-day medical and surgical complications. Single-level multivariate regression analyses were conducted, adjusting for demographic and clinical variables. Statistical significance was set at $p < 0.05$.

RESULTS: Higher CCI and estimated blood loss were associated with increased 90-day medical and surgical complications in both rTHA and rTKA ($p<0.001$). Younger age correlated with higher surgical complication rates in rTHA ($p=0.009$) and rTKA ($p=0.048$). Higher preoperative pain scores predicted surgical complications in rTHA ($p=0.048$). DCI was associated with increased postoperative opioid use in rTHA patients ($p=0.005$) and decreased 30-day readmission in rTKA patients ($p=0.005$). However, after adjustment, DCI was not independently associated with 90-day complications. Post-hoc analysis demonstrated adequate statistical power.

DISCUSSION AND CONCLUSION: SES, as measured by the DCI, was not independently associated with short-term postoperative complications following rTHA or rTKA. These findings suggest that DCI and similar indices may have limited utility in risk stratifying revision arthroplasty patients.

	Hip Revisions			Knee Revisions		
Predictors	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*
DCI Score (Higher = More Distressed)	1.001	0.989 – 1.013	0.853	0.997	0.988 – 1.007	0.541
Age	0.993	0.964 – 1.024	0.644	1.030	0.997 – 1.068	0.085
Sex: Female	1.186	0.607 – 2.341	0.619	1.014	0.583 – 1.768	0.961
CCI	1.314	1.180 – 1.473	**<0.001**	1.187	1.082 – 1.304	**<0.001**
Pre-OP BMI	0.975	0.923 – 1.027	0.352	1.031	0.988 – 1.076	0.154
Baseline Pain Score (0-10)	1.077	0.973 – 1.193	0.151	1.066	0.923 – 1.094	0.887
Operative Time	1.001	0.996 – 1.006	0.704	1.003	0.999 – 1.008	0.177
Esimated Blood Loss	1.001	1.000 – 1.002	**0.048**	1.000	0.999 – 1.001	0.594
Observations	349			502		
R^2 Tjur	0.155			0.083		

	Hip Revisions			Knee Revisions		
Predictors	*Odds Ratios*	*CI*	*p*	*Odds Ratios*	*CI*	*p*
DCI Score (Higher = More Distressed)	0.997	0.796 – 1.247	0.977	0.967	0.958 – 0.977	**<0.001**
Age	0.987	0.575 – 1.693	0.962	1.019	1.006 – 1.033	**0.005**
Sex: Female	0.004	0.000 – 591.054	0.361	0.017	0.001 – 0.483	**0.017**
CCI	3.522	0.621 – 19.967	0.155	1.375	1.351 – 1.401	**<0.001**
Pre-OP BMI	0.917	0.375 – 2.241	0.849	1.001	0.986 – 1.017	0.872
Baseline Pain Score (0-10)	2.759	0.703 – 10.832	0.146	1.464	1.436 – 1.493	**<0.001**
Operative Time	0.987	0.954 – 1.021	0.447	0.991	0.985 – 0.996	**<0.001**
Esimated Blood Loss	1.007	0.994 – 1.021	0.285	1.004	1.001 – 1.007	**0.016**