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Differential burden of musculoskeletal pain in Blacks and Whites at the time of total joint replacement surgery

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Introduction: The existence of racial disparities in total knee (TKR) and hip (THR) replacement outcomes is well established. The role of musculoskeletal co-morbidities among black and white TKR patients at the time of surgery were investigated in a prospective cohort enrolled in the FORCE-TJR consortium of 131 surgeons in 22 US states.

Materials & methods: Descriptive analyses were performed on 3,306 TKR and 2,439 THR patients. Data included sociodemographic factors (age, sex, race), BMI, comorbid conditions using the modified Charlson comorbidity scores, burden of musculoskeletal disease using the Knee/Hip injury and Osteoarthritis Outcome Score (KOOS/HOOS) in both knees and hips, emotional health based on the Short Form 36 (SF-36) Mental Component Score (MCS) and physical function based on the Physical Component Score (SF-36 PCS). Factors associated with pre-operative surgical joint pain and function were examined using multivariate stepwise linear regression models.

Results: Compared to Whites, Blacks (143 hips and 201 knees) reported worse surgical joint pain (mean pain: 39.3 vs. 49.2 (hip); 43.4 vs. 53.2 (knee)), poorer surgical joint function (mean function: 38.9 vs. 45.7 (hip); 45.9 vs. 53.4 (knee)), poorer global function (mean PCS: 30.0 vs. 31.6 (hip); 31.3 vs. 33.1 (knee)), and more non-operative joints pain. (All $p < 0.03$). In adjusted multivariable models, differences at the time of surgery in surgical joint symptoms and global function were explained by differences in musculoskeletal pain in the hips, knees, and low back.

Conclusion: Greater burden of musculoskeletal pain explains differences in pre-operative pain and function between Blacks and Whites and likely impacts rehabilitation and subsequent TJR outcomes.