

Prevalence of Race, Ethnicity, and Social Determinants of Health Reporting in Total Joint Arthroplasty Survey-Based Studies

Isaiah Freeman, BSc¹; Michelle Shimizu, MD¹; Muhammad Hamza Ilyas, MD¹; Sina Afzal, MD¹; Pengwei Xiao, PhD¹; Carlo Mannina, BSc¹; Oh-Joon Kwon¹; Hahn Kang, BSc¹; Margaret Arthur¹; William Sampson, BA¹; Oh-Jak Kwon¹; Zhijun Li, PhD¹; Young-Min Kwon, MD, PhD¹
¹Bioengineering Laboratory, Massachusetts General Hospital/Harvard Medical School, Boston, MA
 ymkwon@mgh.harvard.edu

Disclosures: Isaiah Freeman (N), Michelle Shimizu (N), Muhammad Hamza Ilyas (N), Sina Afzal (N), Pengwei Xiao (N), Carlo Mannina (N), Oh-Joon Kwon (N), Hahn Kang (N), Margaret Arthur (N), William Sampson (N), Oh-Jak Kwon (N), Zhijun Li (N), Young-Min Kwon (5- MicroPort; 5- Depuy; 5- Smith & Nephew; 5- Stryker; 5- Zimmer Biomet; 5- Medacta)

INTRODUCTION: Social determinants of health (SDoH) are essential in understanding outcome disparities and achieving equitable care across patient populations following total joint arthroplasty (TJA). Survey-based research is uniquely capable of elucidating nuanced, patient-centered factors of care that other study designs cannot. A systematic review of survey studies found that Black and Hispanic patients have a lower preference for TJA than White patients due to the belief that osteoarthritis is a natural course of aging, affinity for home remedies, cost, and more. These findings provide context for care disparities that would not have been identified without the use of surveys. While systematic review studies have assessed SDoH reporting trends in orthopaedic clinical trials, there is a paucity of literature analyzing reporting trends in survey-based TJA studies. Therefore, this study aims to evaluate the prevalence and trends of SDoH reporting in survey-based TJA research published between 2019 and 2024.

METHODS: A systematic review of all Cochrane Trials and PubMed-indexed journals was completed for arthroplasty- related survey-based studies between 2019 and 2024 (Figure 1). Journal information, publication month and year, country of study, surgery and survey type, and inclusion of race, ethnicity, education, insurance, and income were recorded.

RESULTS SECTION: Of 2,022 screened publications, 41 survey-based TJA studies met inclusion criteria. Among these, 20 (48%) reported at least one SDoH variable: 8 (20%) reported race, 3 (7%) ethnicity, 9 (22%) education, 2 (5%) insurance, and 1 (2%) income. Race was the only SDoH with a significant increase in reporting over time ($p = 0.002$). No significant differences in SDoH reporting were found across journal or surgery types. The most frequent survey topics were return to physical activity, return to work, and postoperative readmission. Five of the 20 (25%) studies that reported SDoH found associations with their outcome of interest.

DISCUSSION: Comprehensive SDoH reporting is essential for guiding research, informing clinical practice, and addressing disparities in arthroplasty care. Despite the importance of SDoH to patient outcomes, their reporting in survey-based TJA studies is suboptimal. These findings reflect similar SDoH reporting trends in other orthopaedic surgery study types.

SIGNIFICANCE/CLINICAL RELEVANCE: Social determinants of health reporting trends in survey-based total joint arthroplasty studies is insufficient and limits the generalizability of research findings.

Paper characteristic	Total N=	Race N (%)	Ethnicity N (%)	Insurance N (%)	Income N (%)	Education N (%)
Study date range						
Oct. 2019—Sept. 2020	10	0 (0%)	0 (0%)	1 (10%)	1 (10%)	2 (20%)
Oct. 2020—Sept. 2021	11	0 (0%)	0 (0%)	0 (0%)	0 (0%)	3 (27%)
Oct. 2021—Sept. 2022	10	3 (30%)	2 (20%)	0 (0%)	0 (0%)	3 (30%)
Oct. 2022—Sept. 2023	3	2 (67%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Oct. 2023— Oct. 2024	7	3 (43%)	1 (14%)	1 (14%)	0 (0%)	1 (14%)
Total	41	8 (20%)	3 (7%)	2 (5%)	1 (2%)	9 (22%)
P-value		0.002	0.192	0.722	0.227	0.601
Journal type						
Non-orthopaedic	15	2 (13%)	2 (13%)	0 (0%)	0 (0%)	7 (47%)
Orthopaedic	18	3 (17%)	1 (6%)	2 (11%)	1 (6%)	1 (6%)
Arthroplasty-specific	8	3 (38%)	0 (0%)	0 (0%)	0 (0%)	1 (13%)
P-value		0.349	0.469	0.261	0.520	0.014
Surgery type						
THA only	14	1 (7%)	1 (7%)	0 (0%)	0 (0%)	1 (7%)
TKA only	12	3 (25%)	2 (17%)	0 (0%)	0 (0%)	5 (42%)
THA and TKA	15	4 (27%)	0 (0%)	2 (13%)	1 (7%)	3 (20%)
P-value		0.431	0.255	0.162	0.411	0.103

Table 1. Social determinants of health reporting trends of eligible survey-based total joint arthroplasty studies.

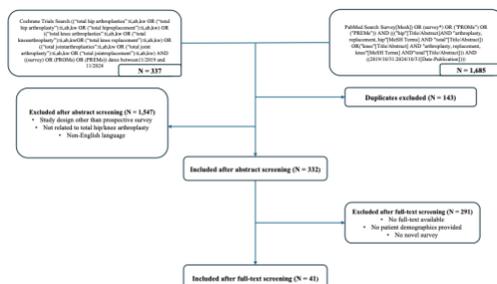


Figure 1. Flowchart with inclusion criteria for systematic review from search term to full-text screening.