

Lack of Demographic Information in THA/TKA Randomized Controlled Trial Publications



Katelynn Donnelly, MS, Hannah Theriot, BS, John Bourgeois, MPH¹, Andrew G. Chapple, PhD², Peter C. Krause, MD³, Vinod Dasa, MD³

1. Library reference department, LSUHSC 2. Biostatistics Program, School of Public Health, LSUHSC 3. Department of Orthopaedics, LSUHSC

Introduction

The impact of social determinants of health has been evident in orthopedic literature.^{1,2} They have been shown to play a role in the utilization as well as the outcomes of THAs (total hip arthroplasty) and TKAs (total knee arthroplasty).³⁻⁵ However, there is a lack of data on the inclusion of these variables in patient demographics reported in orthopedic studies. Our aim was to investigate how many THA and TKA randomized controlled trials report social determinants of health (SDOH) variables such as race, ethnicity, insurance, income, and education within the manuscript.

Methods

A search was conducted using PubMed for randomized controlled trials published from 2017-2019 in 4 major orthopedic journals which routinely publish on total joint arthroplasty: *JBJS*, *Journal of Arthroplasty*, *CORR*, and *Osteoarthritis and Cartilage*. This resulted in 312 publications. Data collected included year of publication, type of surgery, and if the manuscript included race, ethnicity, insurance, income, and education in either the discussion, table 1, or multivariable regressions. 72 publications met the inclusion criteria. Counts and percentages were used to summarize the variables. Additionally, Fisher's exact tests were used for comparisons of whether reporting any socioeconomic factor differed by journal name, publication year, and surgery type (THA vs TKA).

Results

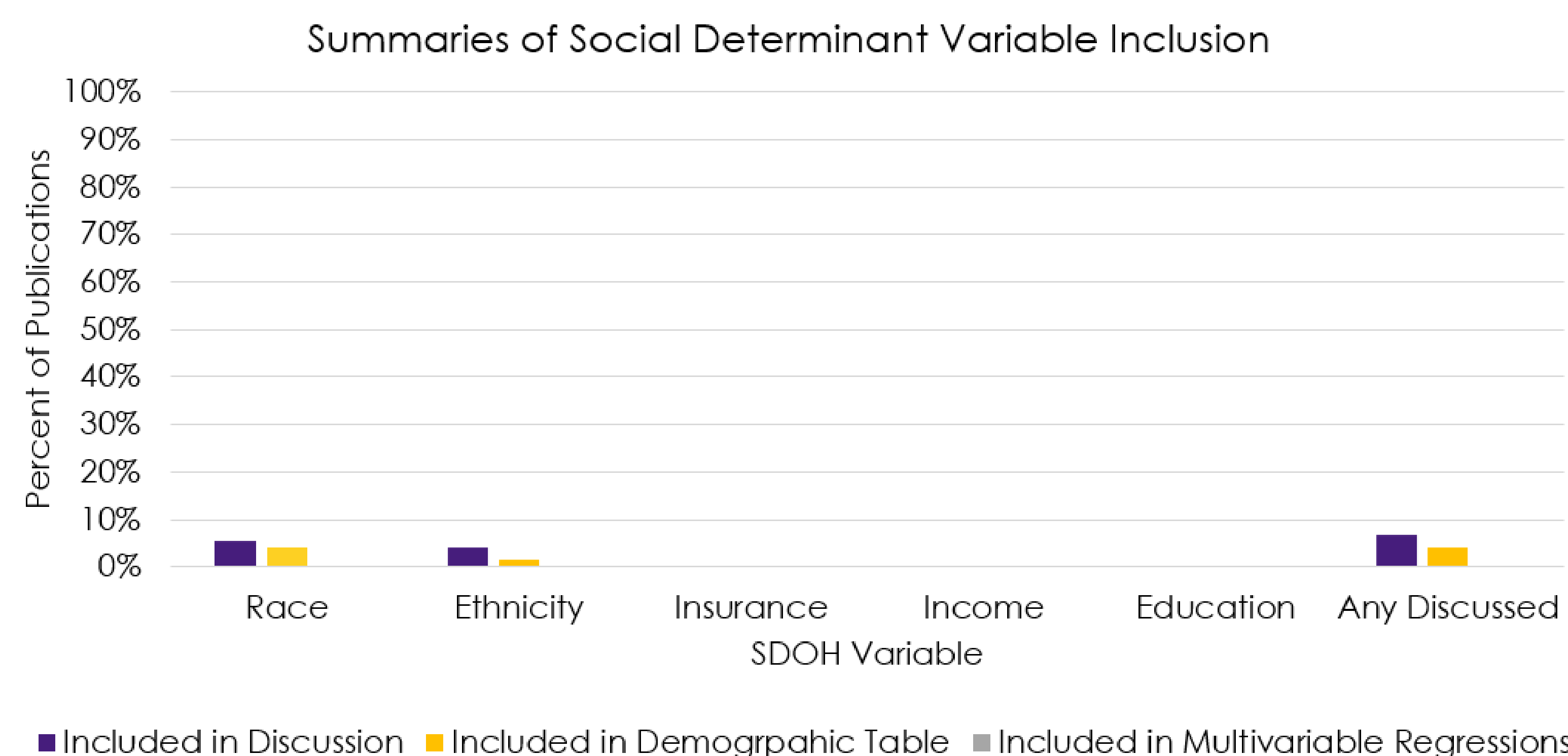


Figure 1 displays the summary of SDOH variables by sections within the reviewed manuscripts. 5.6% of the manuscripts mentioned race within the manuscript and 4.2% included race within table 1 and 1.4% included ethnicity in table 1. Insurance, income, and education were not included in any of the 72 publications. Overall, only 5 studies discussed any one of the socioeconomic variables studied, and none included any social determinants of health in their multivariable regressions.

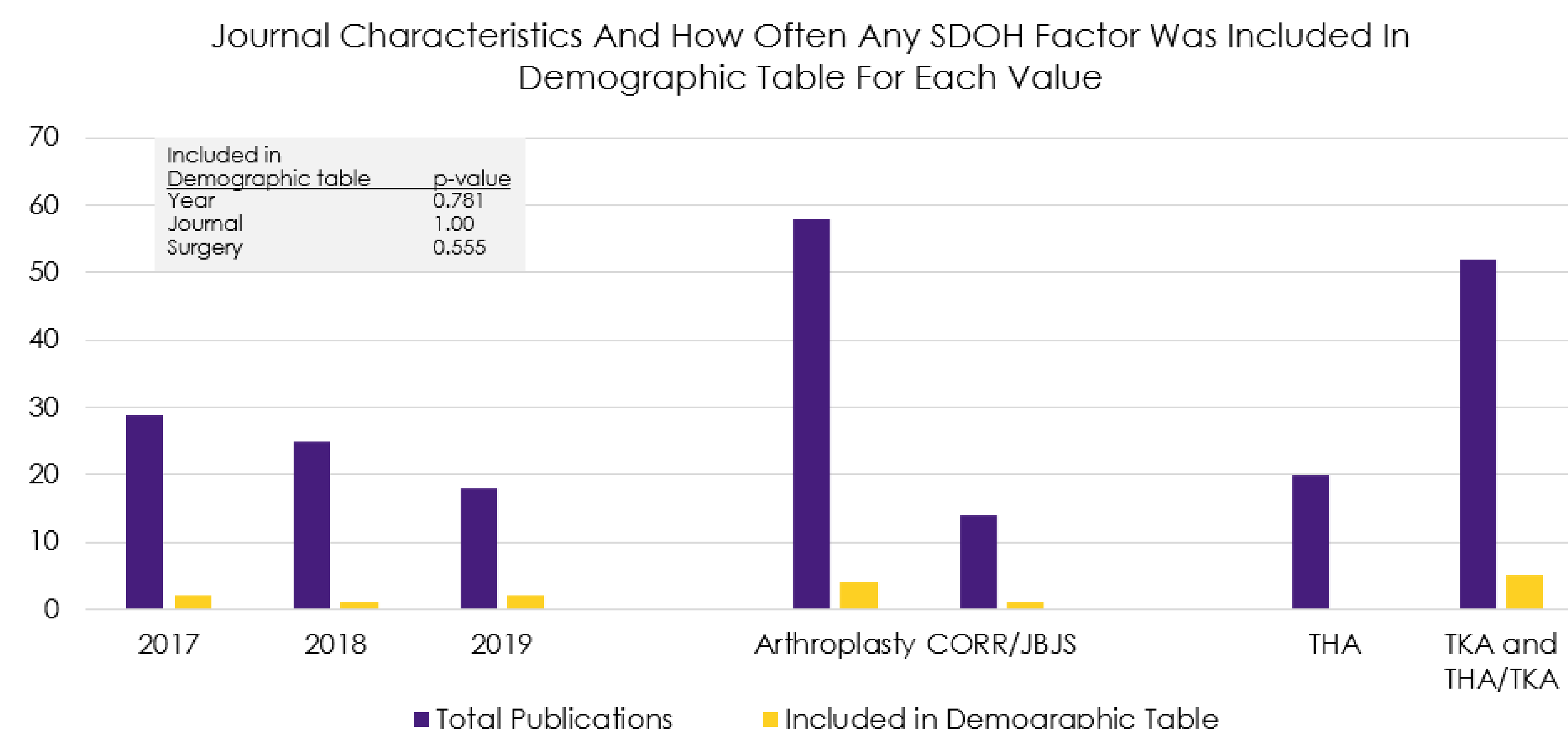


Figure 2 displays the summary of the journal characteristics for papers considered and those papers grouped by whether they reported any one of the demographics above. 58 publications were from *Journal of Arthroplasty*, 3 from *CORR*, and 11 from *JBJS*. No publications from *Osteoarthritis and Cartilage* met the inclusion criteria. Publications were also separated as THA or TKA, and there was one on both TKAs and THAs which was included in the table with TKAs. There were no statistically significant differences on whether any factor was reported across journal year (p-value = .781), journal name (p-value = 1.00), or based on whether hip or knee surgeries were of focus (p-value = .555).

Conclusion

This is the only study to our knowledge to look at the inclusion of SDOH variables such as race, ethnicity, insurance, income, and education in TKA and THA randomized controlled trial (RCT) publications. Our findings have identified a significant shortcoming in TKA and THA publications. Investigators have an active choice to consider social determinant as variables of interest when designing randomized controlled trials. There is growing evidence that SDOH variables impact a variety of outcomes and should be considered as consequential as gender and BMI. This would provide insight on the clinical applicability of RCT findings to various patient populations in clinical practice. Therefore, we advocate for investigators to standardize the inclusion of SDOH variables and report this data in their research because this body of evidence is collectively used when developing national standards and health policies. By not including this information, we may be indirectly perpetuating disparities. Research that does not use representative patient samples should be used with caution when creating health policies and national standards.

References

- Allen Butler R, Rosenzweig S, Myers L, Barrack RL. The frank stinchfield award: The impact of socioeconomic factors on outcome after THA: A prospective, randomized study. In: *Clinical Orthopaedics and Related Research*. Vol 469. Springer New York LLC; 2011:339-347. doi:10.1007/s11999-010-1519-x
- Beck JJ, Pandya NK, Carter CW, Mulcahey MK. Current Concept Review: Inclusion and Analysis of Diverse Study Populations in Orthopaedic Research. *J Am Acad Orthop Surg*. 2021;Online ahe. doi:10.5435/JAAOS-D-20-01087
- Nwachukwu BJ, Kenny AD, Losina E, Chibnik LB, Katz JN. Complications for racial and ethnic minority groups after total hip and knee replacement: A review of the literature. *J Bone Jt Surg*. 2010;92(2):338-345. doi:10.2106/JBJS.I.00510
- Weiss RJ, Kärrholm J, Rolfson O, Hailer NP. Increased early mortality and morbidity after total hip arthroplasty in patients with socioeconomic disadvantage: a report from the Swedish Hip Arthroplasty Register. *Acta Orthop*. 2019;90(3):264-269. doi:10.1080/17453674.2019.1598710
- Zhang W, Lyman S, Boutin-Foster C, et al. Racial and ethnic disparities in utilization rate, hospital volume, and perioperative outcomes after total knee arthroplasty. *J Bone Jt Surg - Am Vol*. 2016;98(15):1243-1252. doi:10.2106/JBJS.15.01009