

CORR Insights®: Is Social Deprivation Associated With Usage, Adverse Events, and Patient-reported Outcome Measures in Total Joint Arthroplasty? A Systematic Review

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Where Are We Now?

Perhaps the greatest innovations in arthroplasty during the past decade have been in the area of perioperative patient management. Patients arrive on the day of elective arthroplasty more informed, undergo shorter procedures and hospital stays, sustain less blood loss, endure less postoperative pain, and enjoy greater improvements in their symptoms and

function than ever before [2, 8, 15, 16]. Nevertheless, this is not the experience for all patients. Patients with lower metrics related to their social determinants of health who undergo arthroplasty are at increased risk of poor hospital-based measures such as prolonged length of stay, readmissions, and infections [12]. “Social determinants of health” is an umbrella term that refers to a combination of a patient’s race, gender or sex, ethnicity, income, insurance status, and employment [12]. The concept of social deprivation, defined as “limited access to society’s resources due to poverty, discrimination, or other disadvantage,” is a method of framing the social determinants of health in a quantifiable manner [1].

In an article in this month’s *Clinical Orthopaedics and Related Research*®, Karimi et al. [9] systematically reviewed articles published from 2000 to 2022 that used indices of social deprivation in patients undergoing primary total joint arthroplasty to determine any correlation between those indices and arthroplasty use, complications, and patient-reported outcomes. Although there was heterogeneity in the analyzed studies, the authors generally

noted that indicators of social deprivation are associated with lower arthroplasty use, nonhome discharge, and lower patient-reported symptom improvement from baseline. These conclusions are important because social deprivation is not widely studied among patients undergoing arthroplasty, but it represents an identifiable variable that can be used to improve arthroplasty care. This study highlights the ongoing need to develop a consensus definition of social deprivation for research, apply such a definition to future clinical investigations, and integrate our knowledge of social deprivation into clinical practice by better managing patient needs and expectations.

Where Do We Need To Go?

In their article, Karimi et al. [9] highlighted three key aspects of social deprivation as it relates to orthopaedic surgery and the field’s research. Foremost, social deprivation remains an undervalued variable in the perioperative treatment of patients undergoing arthroplasty and those undergoing orthopaedic surgery in general. Karimi et al. [9] demonstrated that few studies examining social deprivation in arthroplasty have been performed; only 19 studies met the inclusion criteria for their review, which spanned a 22-year period. Focusing on social deprivation

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might improve access to care, increase the use of helpful interventions, and decrease the risk of complications after those interventions. There is certainly potential for incorporating measures of social deprivation in more outcomes-based orthopaedic research. However, gathering sociodemographic data seems not to be a current priority in orthopaedic research.

Furthermore, Karimi et al. [9] demonstrated that a major obstacle to wider adoption of social deprivation metrics in outcomes research is the lack of a consensus definition. Cheng et al. [3] specifically sought to ameliorate this barrier by asking how we should measure social deprivation in patients with orthopaedic conditions. They concluded that patient insurance classification and/or national Area Deprivation Index should be included in statistical analyses of clinical outcomes data.

Additionally, by systematically reviewing the effects of social deprivation on arthroplasty outcomes, Karimi et al. [9] reinforced the reality that socioeconomic variables matter; because of this, measures of social deprivation should be incorporated into the preoperative evaluation. Although many variables contributing to social deprivation are non-modifiable, Karami et al. noted that managing expectations among patients who are socially disadvantaged and are candidates for arthroplasty may be an actionable means to decrease adverse events and improve patient-reported outcomes. Further research is needed to validate this hypothesis, but previous work has suggested that stratifying arthroplasty candidates by evidence-based indicators of social deprivation may represent a key opportunity for preventing outcomes such as prolonged length of stay, nonhome discharge,

and unplanned healthcare encounters [10, 11].

How Do We Get There?

There may be several variables contributing to the underuse of social deprivation in arthroplasty research. Certainly, this could be due to the lack of a consensus definition of social deprivation; however, a limited understanding of social deprivation may be the result of generally poor evidence regarding the effects of socioeconomic variables on arthroplasty quality metrics such as patient-reported outcomes, length of stay, and discharge disposition. Compared with other clinical fields, sociodemographic variables are woefully underused as covariates in prospectively designed research in orthopaedic surgery [6, 14]. Randomized controlled trials are considered the “gold standard” of clinical research, yet without routine integration of sociodemographic variables, such as race or insurance status, in trials conducted in the United States, progress in the care of patients with social deprivation will remain limited. Therefore, a practical solution is for researchers to standardize the inclusion of patient race and insurance status, at a minimum, in prospectively designed studies in orthopaedic surgery.

With regard to preoperative risk stratification based on social deprivation measures, there is a delicate balance between identifying patients who might benefit from additional support and risking patient alienation by assuming need. Current methods for identifying social deprivation are derived from population-level research, and there is currently limited knowledge on evidence-based methods for identifying patients with social deprivation in a clinical setting. Additional

research is needed to develop culturally, racially, and economically sensitive tools that can be used by surgeons and their staff to identify patients needing additional support in order for interventions to be enacted at the patient level.

There are certainly opportunities for immediate improvement. Surgeons can strive to improve care for patients with social deprivation by making broad modifications to their practice. For example, the readability of patient education materials in arthroplasty remains above recommended levels [7]. Arthroplasty clinics can assess the readability levels of materials presented in clinic and alter them so they do not exceed the recommended sixth grade reading level [5]. In a similar vein, surgeons can attempt to enhance patient-perceived involvement in their care by implementing shared decision-making strategies such as the AskShareKnow model [13]. Shared decision-making with patients undergoing arthroplasty has been associated with improved patient-reported outcomes [4], although this has not been specifically validated while controlling for social deprivation, and thus warrants further investigation. Nevertheless, an inclusive approach that mitigates the marginalization of patients with social deprivation is a practical initial step.

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