

Disparities in Social Determinants of Health Associated with Decreased Likelihood of Receiving Total Joint Arthroplasty

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INTRODUCTION:

Knee and hip osteoarthritis are common orthopaedic conditions that can be disabling. For refractory osteoarthritis, total joint arthroplasty (TJA) is the definitive treatment. There is increasing literature surrounding the relationship between social determinants of health (SDOH) and access to TJA. The impact of SDOH disparities is of increasing interest, especially as the Centers for Medicare & Medicaid Services (CMS) and the Joint Commission each recently published requirements to screen for and report SDOH data.

At our institution, SDOH screening requirements were implemented in 2020. The purpose of the current study was to identify whether patients with hip or knee osteoarthritis who screened positive for any SDOH hardship during routine screening were less likely to receive a subsequent TJA.

METHODS:

Adult patients with diagnoses of knee or hip osteoarthritis that underwent SDOH screening from 2020 to 2023 were identified from our institutional record. The dimensions of SDOH that were assessed in the screening questionnaire included financial strain, difficulty with transportation to medical appointments or transportation in daily living, food insecurity, and issues in housing quality. Patient factors recorded included age, race, ethnicity, sex, date of most recent total knee/total hip arthroplasty, and responses to SDOH screening questions.

The correlation of screening positive to individual SDOH questions on the likelihood of receiving TJA was assessed using univariable analysis. The study population was then divided into those who screened positive for at least one SDOH question, and those who were negative in all SDOH arenas. Patients with missing or refused answers were excluded. The incidence of TJA in these two cohorts were then evaluated using multivariable logistic regression controlling for age, gender, race, and ethnicity.

RESULTS:

A total of 5,917 patients were identified that met the study criteria. Of this population, 706 (11.9%) had hip or knee joint arthroplasty. 1,122 patients (19.0%) screened positive on at least one aspect of SDOH screening (SDOH positive), while 1,859 (31.4%) patients reported having no hardship in every SDOH domain (SDOH negative).

The SDOH positive group had a significantly lower rate of subsequent joint arthroplasty compared to the SDOH negative group (9.9% vs 14.8%, $p < 0.0001$) (Figure 1). The presence of any financial strain was associated with a significantly lower rate of joint arthroplasty compared with no financial strain at all (9.8% vs 26.0%, $p < 0.0001$), with a stepwise relationship between financial strain and likelihood of TJA (Figure 2). On multivariable analysis controlled for age, sex, race, and ethnicity, SDOH positive status was identified as an independent negative predictor for having TJA.

DISCUSSION AND CONCLUSION:

The most important finding in this study is that patients with knee or hip osteoarthritis who screened positive for SDOH disparities had decreased odds of having a subsequent TJA. Specific SDOH disparities, such as in financial strain, access to transportation, and ability to pay for food were found to be associated with a lower likelihood of having TJA. As screening for SDOH disparities becomes increasingly more common, these findings illustrate how SDOH disparities correlate with access to orthopaedic care and demonstrate the need for intervention in patients who screen positive, especially in the SDOH categories organizations have the ability to provide resources and support for, such as access to transportation and food.

Positive Results in SDOH Screening Associated With Decreased Likelihood of Receiving TJA

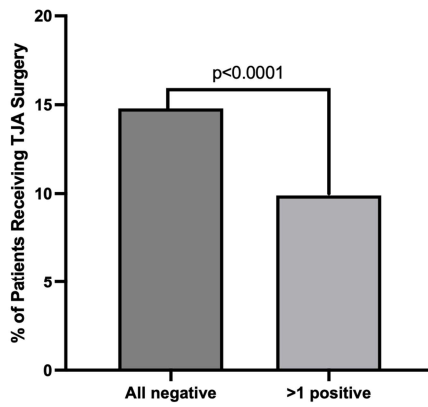


Figure 1: Osteoarthritic patients who screened positive for hardship in at least one SDOH domain were significantly less likely to receive total joint arthroplasty.

Increasing Financial Strain Associated With Decreased Likelihood of Receiving TJA

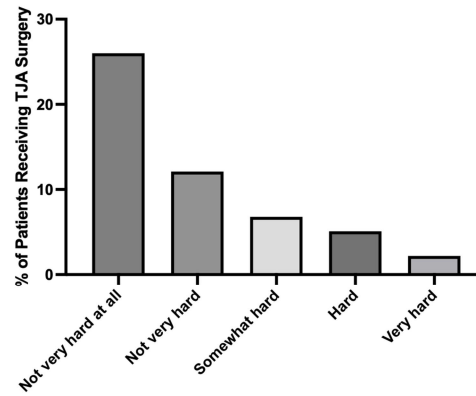


Figure 2: There was a stepwise relationship between degree of financial strain, one of the SDOH domains assessed, and likelihood of receiving total joint arthroplasty in osteoarthritic patients.