The Influence of Social Determinants of Health on Functional Outcomes Following Pelvic and Acetabular Fractures

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INTRODUCTION:
Social determinants of health (SDOH) are socioeconomic factors such as gender, income, and education that influence an individual's health by shaping the everyday circumstances in which people are born, grow, work and live. The impact of SDOH on clinical outcomes has been well studied in the arthroplasty literature, with low income status, low level of education, and black race found to be independently associated with worse patient-reported outcomes (PROs), greater mortality, and higher rates of complication, readmission, and reoperation. Despite our growing recognition of SDOH and the effect they have on patient outcomes, the influence of the SDOH has not been as thoroughly examined in the orthopaedic trauma literature. Therefore, the objective of this study is to assess the effect of SDOH on clinical outcomes following pelvic and acetabular fractures.
METHODS:
A retrospective review of our prospectively collected institutional database was performed for all pelvic or acetabular fractures treated at our institution between 1999 and 2019 (including both operative and non-operative cases) in patients aged 18 years and older with minimum 12-month follow-up. SDOHs of interest include gender, race, household income, education level, marital status, and employment status. Patient-reported outcome measures of interest include the Musculoskeletal Functional Assessment (MFA) and the 36-item Short Form Health Survey (SF-36) scores. Paired sample t-test was used to compare PROs at baseline versus one-year post-injury. Multivariate linear regression models was used to determine the effect of SDOHs of interest on PROs. Level of significance was set to 0.05 throughout the study. All statistical analyses was conducted using SPSS v27.
RESULTS:
A total of 491 patients were identified (284 pelvic ring, 194 acetabulum, 13 combined pelvis/acetabulum), of which 163 (33.2%) underwent operative treatment. The mean age was 50.2±19.9 years, 214 patients (43.6%) were female, and 376 patients (76.6%) were Caucasian. Approximately half (47.5%) of patients had a household income greater than $50,000, and 43% had an education level of college/university or higher. Approximately half (55.8%) of patients were married and 61.3% had full or part-time employment. Functional outcomes were worse at one-year post-injury compared with pre-injury baseline for both the mean MFA (38.4±19.9 vs. 16.2±9.3, $p<0.001$) and mean SF-36 (68.8±21.2 vs. 59.7±21.6, $p<0.001$) scores. On multivariate analysis, female sex ($P = 0.012$), non-Caucasian race ($P = 0.001$), household income <$50,000 ($P < 0.001$), lower than college/university education ($P = 0.005$), and unmarried (i.e., single or divorced) marital status ($P = 0.005$) were correlated with higher MFA scores (indicating inferior functional outcome).
DISCUSSION AND CONCLUSION:
Females, non-Caucasian race, low household income, low educational attainment and unmarried martial status are clear independent contributors to poor functional outcome following pelvic and acetabular fractures. Further research is required to determine how the role of social determinants of health can guide best-practice through a health equity lens.