

Correlation of social determinants of health disparities with outcomes following Bankart repair: A large database study

Joshua G Sanchez, BA¹, Katie M Zehner, BS¹, Julian Smith-Voudouris, MS¹, Jay Moran, MD¹, Jeremy Ansah-Twum, MD¹, Mitchell J. Christiansen, BA², Mary K. Mulcahey, MD², Jonathan N Grauer, MD¹

¹Yale Department of Orthopaedics and Rehabilitation, New Haven, CT, ²Department of Orthopaedic Surgery and Rehabilitation, Loyola University Medical Center, Maywood, Illinois
Presenting Author Email: josh.sanchez@yale.edu

Disclosures: Joshua Sanchez (N), Katie Zehner (Associate Editor of Visual Abstracts, *North American Spine Society Journal*), Julian Smith-Voudouris (N), Jay Moran (N), Jeremy Ansah-Twum (N), Mitchell J. Christiansen (N), Mary K. Mulcahey (Arthrex, Inc, Other Professional Activities; AANA, member of Education Committee and Fellowship Committee; AOSSM, member of Education Committee; ABJS, Chair of Membership Committee; ISAKOS, Member of Shoulder Committee and Membership Committee and Chair of Gender and Diversity Task Force Type; JBJS, AJSM, Arthroscopy Journal, AAOS OrthoInfo, Editorial or governing board), Jonathan Grauer (Editor-in-Chief, *North American Spine Society Journal*; Past Board Member, North American Spine Society; Deputy Editor, *Journal of the American Academy of Orthopaedic Surgeons*).

INTRODUCTION:

Bankart repair (BR) is a common surgical procedure for anterior shoulder instability. However, the correlation of social determinants of health disparities (SDHD) with outcomes after Bankart repair has not been well defined. Understanding these factors is important given the increasing emphasis on healthcare equity and the impact of SDHD on postoperative recovery. As such, the current study evaluated the association of SDHD with 90-day postoperative complications, healthcare utilization, and costs (measured by overall insurer-payments) following BR in a large, nationally representative dataset.

METHODS:

A retrospective matched cohort analysis was conducted using the PearlDiver M165 database, which contains patient data spanning January 2010 to October 2022. Adult (> 17 years of age) patients undergoing primary BR were identified with administrative coding. Exclusion criteria were infection or neoplasm within 90 days prior to the procedure, or < 90 days of postoperative database activity.

SDHD were identified within one year preoperatively using administrative codes for environmental, healthcare, social, educational, and economic factors. SDHD patients were matched (1:4) to non-SDHD patients by age, sex, surgery type (open or arthroscopic), and Elixhauser Comorbidity Index (ECI, a measure of comorbidity burden).

Ninety-day adverse events, physical therapy (PT) utilization, emergency department (ED) visits, and readmissions, were compared using multivariable logistic regression, which controlled for all matching variables. Overall 90-day insurer-payments for arthroscopic BR were abstracted and compared using a Wilcoxon rank sum test. Two-year postoperative shoulder stiffness (shoulder stiffness diagnosis or manipulation under anesthesia of the shoulder) and subsequent ipsilateral shoulder surgery were also compared with multivariable analyses. Significance was defined as $p < 0.05$.

RESULTS:

Of 142,594 BR patients, SDHD was noted for 4,946 (3.5%). After matching, 4,501 SDHD and 17,769 non-SDHD patients were identified.

SDHD patients had similar 90-day complication rates for all analyzed medical adverse events. However, SDHD patients demonstrated higher PT utilization (OR=1.22, 95% CI 1.14–1.30), more ED visits (OR=1.29, 95% CI 1.17–1.42), and greater 90-day insurer-payments (median: \$4,446 vs. \$3,388) within 90-days postoperative ($p < 0.0001$ for all). At 2-years postoperative, SDHD was also associated with increased shoulder stiffness (OR=1.49, 95% CI 1.34–1.65, $p < 0.0001$), but not subsequent ipsilateral shoulder surgery.

DISCUSSION:

The present study utilized a large, nationally representative dataset to demonstrate SDHD was not associated with 90-day medical complications following primary BR. However, SDHD patients experienced higher healthcare utilization (PT and ED visits), elevated costs (measured by insurer-payments), and greater long-term stiffness. These findings suggest that while social disparities may not correlate with short-term medical complications, SDHD correlate with recovery trajectories and healthcare utilization, potentially through barriers to timely rehabilitation, care coordination, or socioeconomic resources. Future research is warranted to explore targeted strategies, such as social support services or focused follow-up care, in attempt to mitigate the disproportionate issues associated with SDHD.

SIGNIFICANCE/CLINICAL RELEVANCE:

Although SDHD patients did not demonstrate higher 90-day complication rates, the increased healthcare utilization, insurer-payments, and long-term stiffness risk highlight important disparities in recovery following BR. Addressing these disparities may improve value-based care, reduce costs, and optimize functional outcomes in this patient population. Recognition of SDHD factors in clinical decision-making and postoperative planning is essential to promote equity in musculoskeletal care.