Health Disparities in Adult Clavicle Fracture Management

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Purpose: Disparities and barriers continue to limit patient access to orthopaedic care. Clavicle fractures are common injuries in the adult population and have varying rates of surgical and nonsurgical management. The purpose of this study was to identify if demographic measures of socioeconomic and health-care disparity are associated with different rates of operative versus nonoperative management.

Methods: Claims for adult patients (≥18 years old) diagnosed with an outpatient clavicle fracture were identified from 2011 to 2018 in the New York Statewide Planning and Research Cooperative System (SPARCS) database. Patients were followed for 6 months to identify whether they underwent surgery. Multivariable logistic regression was performed to evaluate the effect of patient demographic factors on the likelihood of patients receiving surgical versus nonsurgical management.

Results: 25,933 patients with clavicle fractures were identified and 2868 underwent surgery (11.1%). Increased age (odds ratio [OR] = 0.98, P≤0.0001), female sex (OR = 0.815, *P*≤0.0001), African-American race (OR = 0.427, *P*≤0.0001), other race (OR = 0.749, *P*<0.0001), Medicare (OR = 0.265, *P*≤0.0001), Medicaid (OR = 0.76, *P* = 0.0001), Workers› Compensation (OR = 0.778, *P* = 0.0429), self-pay (OR = 0.442, *P*≤0.0001), other payer (OR = 0.666, *P* = 0.0349), and those with a higher social deprivation index (SDI) (OR = 0.997, *P* = 0.0002) had a decreased likelihood of undergoing surgery (Table 1).

Conclusion: This study demonstrates that differences in management of clavicle fractures in adults is associated with multiple demographic and socioeconomic factors that suggest disparities in clavicle fracture management. Defining these disparities and promoting physician awareness of these biases may help guide appropriate operative and nonoperative clavicle fracture management.

Table 1: Odds of Receiving Clavicle Fracture Surgery After Initial Diagnosis, Adults

	Rate of Surgery (11.1%)	Odds Ratio (95% CI)	P-value
Age	-	0.98 (0.978 - 0.983)	**<.0001**
Sex			
Males	13.2	-	-
Females*	7.3	0.815 (0.741 - 0.897)	**<.0001**
Race			
White Race	12	-	-
Asian Race$^{\psi}$	10.2	0.841 (0.659 - 1.074)	0.1652
African American Race$^{\psi}$	5.3	0.427 (0.346 - 0.527)	**<.0001**
Other Race$^{\psi}$	9.6	0.749 (0.654 - 0.858)	**<.0001**
Ethnicity			
Non-Hispanic Ethnicity	11.2	-	-
Hispanic Ethnicity$^{\gamma}$	10.2	0.998 (0.863 - 1.154)	0.9777
Primary Insurance			
Private	15.8	-	-
Medicare$^{\delta}$	2.1	0.265 (0.217 - 0.322)	**<.0001**
Medicaid$^{\delta}$	11.8	0.76 (0.661 - 0.873)	**0.0001**
Worker's Compensation$^{\delta}$	12.4	0.778 (0.61 - 0.992)	**0.0429**
Self-Pay$^{\delta}$	7.9	0.442 (0.384 - 0.51)	**<.0001**
Other$^{\delta}$	12.4	0.666 (0.457 - 0.972)	**0.0349**
Charlson Score			
CCI = 0	12.1	-	-
CCI ≥ 1$^{\Phi}$	3	0.452 (0.361 - 0.567)	**<.0001**
SDI	-	0.997 (0.996 - 0.999)	**0.0002**

*compared to males
$^{\psi}$compared to white race
$^{\gamma}$compared to non-Hispanic ethnicity
$^{\delta}$compared to private insurance
$^{\Phi}$compared to CCI = 0