Social Disparities in the Management of Trigger Finger: an Analysis of 31,411 Cases

Peter G. Brodeur, MA[1], Devan D. Patel, MD[1,2], Jeremy E. Raducha, MD[1,2], Kang Woo Kim, BS[1], Cameron W. Johnson, BS[1], Elliot Rebello, BS[1], Aristides I. Cruz Jr., MD, MBA[1,2], Joseph A. Gil, MD[1,2]

1. Alpert Medical School, Brown University, Providence, RI, USA
2. Department of Orthopaedic Surgery at Brown University, Providence, RI, USA

Introduction

- Affecting approximately 2% of individuals—particularly adults aged 40-60—trigger finger (TF) is a common problem that can greatly hinder occupational functions as well as activities of daily living
- Cost and compliance are two factors that can significantly affect the outcomes of non-operative and operative treatment options and both may be influenced by social factors
- The impact of various social factors on the utilization of TF treatment options remains largely underexplored
- Social Deprivation Index (SDI) can better quantify social determinants of health
- The aim of this study was to evaluate the demographic factors and social determinants of health affecting whether a patient undergoes TF release after a diagnosis of TF

Methods

- Adult patients (≥18 years old) diagnosed with TF in the New York Statewide Planning and Research Cooperative System (SPARCS) database from 2011-2018
- Multivariable logistic regression analysis to determine the likelihood of having TF release (CPT: 26055)
- Variables included SDI, Charlson comorbidity index, age, sex, race, ethnicity, and insurance status to assess associations with non-surgical or surgical treatment
- SDI is an index from 1-100 based on: percent living in poverty, percent with less than 12 years of education, percent single parent household, percent living in rented housing unit, percent living in overcrowded housing unit, percent of households without a car, and percent non-employed adults under 65 years of age
- P-value ≤0.05 considered significant across all analyses

Table 1. Patient Demographics and Characteristics Associated with Treatment

	No Surgery n = 22,470	Surgery n = 8,941	P-value
Age, median (mean, SD)	59 (59.6, 12.6)	59 (59.7, 11.2)	0.9793
Sex, n (%)			
Female	15,803 (70.3)	6150 (68.8)	**0.0071**
Male	6,667 (29.7)	2791 (31.2)	-
Ethnicity, n (%)			
Non-Hispanic	16,346 (72.8)	7,390 (82.7)	**<.0001**
Hispanic	6,124 (27.3)	1,551 (17.4)	-
Race, n (%)			
White	7,912 (35.2)	5,591 (62.5)	**<.0001**
Asian	982 (4.4)	221 (2.5)	**<.0001**
African American	5,331 (23.7)	1,189 (13.3)	**<.0001**
Other	8,245 (36.7)	1,940 (21.7)	**<.0001**
Primary Insurance, n (%)			
Private	10,057 (44.8)	4,610 (51.6)	**<.0001**
Medicare	7,284 (32.4)	2,835 (31.7)	0.2252
Medicaid	2,472 (11)	743 (8.3)	**<.0001**
Worker's Compensation	331 (1.5)	343 (3.8)	**<.0001**
Self-pay	2,293 (10.2)	392 (4.4)	**<.0001**
Other	33 (0.2)	18 (0.2)	0.2794
Charlson Score, n (%)			
0	19,890 (88.5)	8,368 (93.6)	**<.0001**
≥1	2,580 (11.5)	573 (6.4)	-
SDI, median (mean, SD)	85 (74, 28.3)	59 (56.2, 32)	**<.0001**

Table 2: Multivariable Logistic Regression for the Odds of Receiving Trigger Finger Release After Initial Diagnosis

	Rate of Surgery	Odds Ratio (95% CI)	P-value
Age	-	0.993 (0.991 - 0.996)	**<.0001**
Sex			
Males	29.5	-	-
Females*	28	1.1 (1.04 - 1.164)	**0.0009**
Race			
White Race	41.4	-	-
Asian Race[ø]	18.4	0.445 (0.381 - 0.519)	**<.0001**
African American Race[ø]	18.2	0.508 (0.467 - 0.552)	**<.0001**
Other Race[ø]	19.1	0.532 (0.493 - 0.573)	**<.0001**
Ethnicity			
Non-Hispanic Ethnicity	31.1	-	-
Hispanic Ethnicity[γ]	20.2	0.958 (0.889 - 1.033)	0.2666
Primary Insurance			
Private	31.4	-	-
Medicare[δ]	28	0.847 (0.791 - 0.908)	**<.0001**
Medicaid[δ]	23.1	0.766 (0.698 - 0.841)	**<.0001**
Worker's Compensation[δ]	50.9	1.71 (1.454 - 2.011)	**<.0001**
Self-Pay[δ]	14.6	0.512 (0.455 - 0.575)	**<.0001**
Other[δ]	35.3	0.789 (0.437 - 1.424)	0.4318
Charlson Score			
CCI = 0	29.6	-	-
CCI ≥ 1[ϕ]	18.2	0.59 (0.535 - 0.651)	**<.0001**
SDI	-	0.988 (0.987 - 0.989)	**<.0001**

*compared to males
øcompared to white race
γcompared to non-Hispanic ethnicity
δcompared to private insurance
ϕcompared to CCI = 0

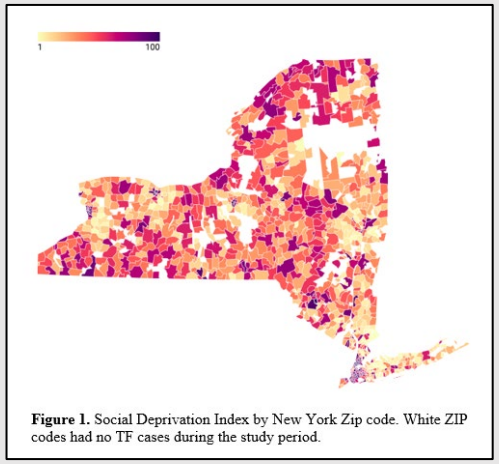

Figure 1. Social Deprivation Index by New York Zip code. White ZIP codes had no TF cases during the study period.

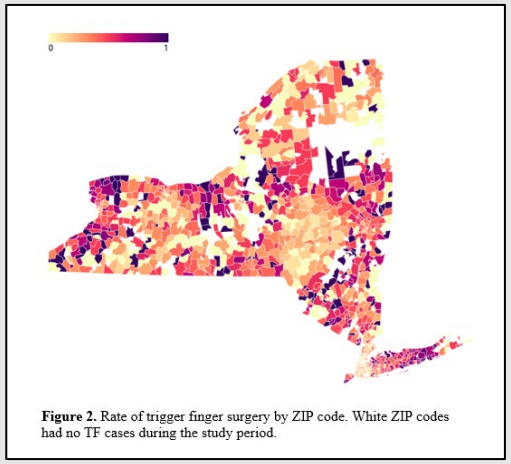

Figure 2. Rate of trigger finger surgery by ZIP code. White ZIP codes had no TF cases during the study period.

Results

Cohort Analysis

- 31,411 patients with TF; 8,941 (28.5%) patients received TF release
- No surgery group: higher social deprivation, increased incidence of female sex, Hispanic ethnicity, non-White race, Medicaid, Self-pay, and higher number of comorbidities
- White patients' surgical rate (41.4%), over twice rate of non-White races (range 18.2%-19.1%)

Disparities Analysis

- Females compared to males and worker's compensation compared to private insurance had increased odds of surgery
- Increased age had decreased odds of surgery
- Asian, African American, and Other races had decreased odds of surgery relative to White race
- Patients with Medicare, Medicaid, or self-pay insurance all had decreased odds of surgery compared to private insurance
- Higher social deprivation was also associated with decreased odds of surgery

Conclusions

- First study to utilize the SPARCS database to evaluate the demographic and socioeconomic differences between patients who did or did not undergo TF release after a diagnosis of TF
- Patients with non-private insurance, non-White race, and from areas with higher social deprivation scores had a decreased odds of receiving TF release
- SDI provides an example of one such strategy that could be used to highlight communities who are more at risk of health inequalities
- Considering the relationship between differential care and health disparities, it is critical to define the disparities involved and to increase physician awareness to promote appropriate management of TF