

Age Effects in Facial Fracture Trauma: Disparities in Multi-System Injuries in Non-Fall Related Trauma

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Background

- 7.5 Million facial fractures per year (2017)¹
- Often require complex care and highly specialized physicians
- Significant strain on rural populations with less access to highly specialized care
- Facial fracture incidence is highest in two populations: those from the ages of 5-20 and those older than age 70¹

Objective

To investigate differential facial fracture patterns and outcomes based upon age effects

Methods

A linear regression was performed to ascertain the effects of predictor variables on the likelihood that a facial fracture trauma patient would experience various age effects on injury patterns, mortality, and morbidity.

Study Period

July 2016 to February 2022

Data

Single-center Trauma Registry Data

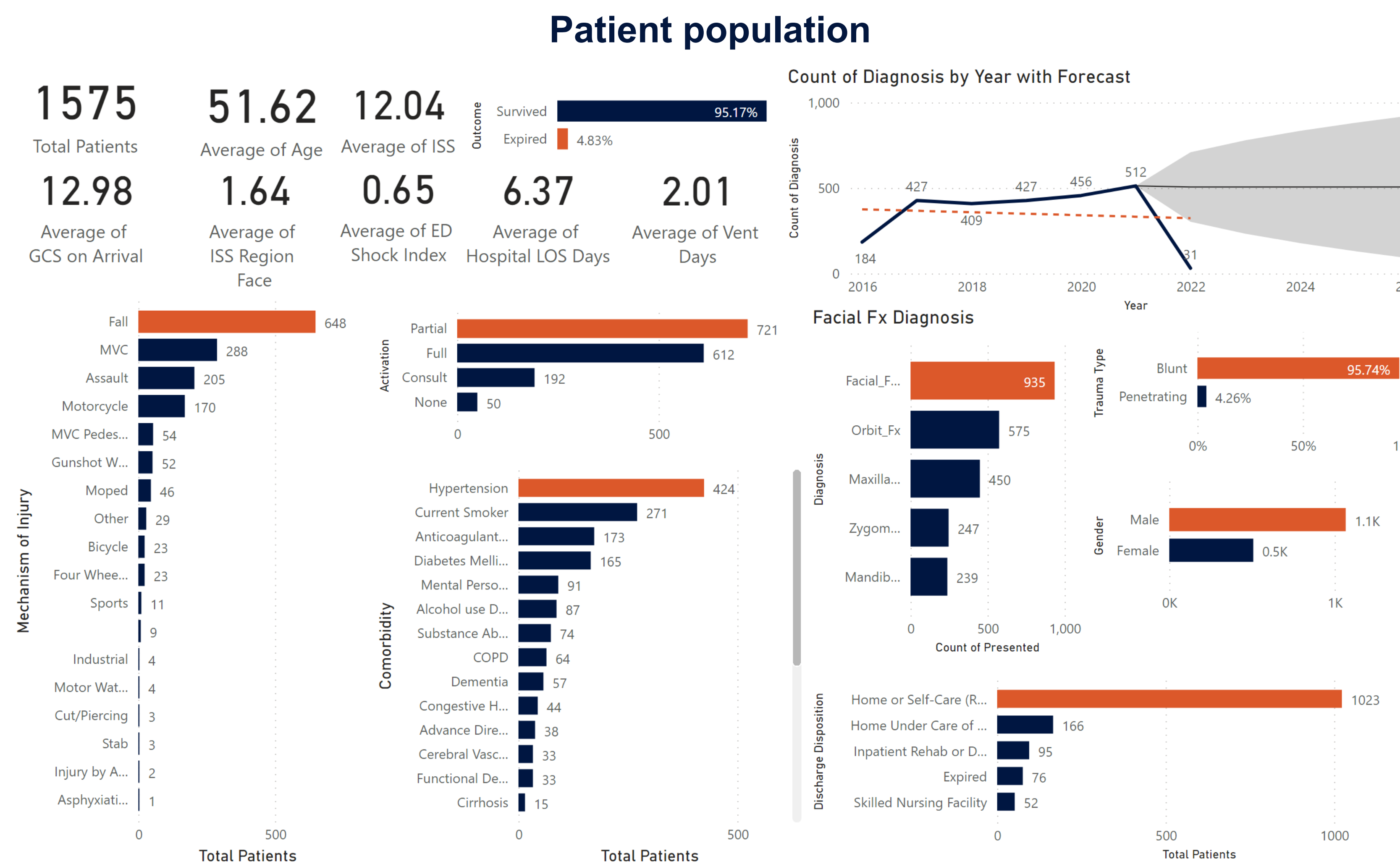
Analysis

Effects of predictor variables on likelihood of facial fracture via linear regression

Inclusion:

- ICD10 diagnosis of a facial fracture

Results



Full Descriptive Statistics + Linear Regression Analysis



EXAMPLE: Linear Regression Analysis of All Trauma Patients Diagnosed with a Facial Fracture, Inclusive Years July 1, 2016 to January 31, 2022 (N=1575)

Outcome/Dependent Variable: Age

	Unstandardized Coefficients					95% CI for B	
	B	Std. Error	Standardized Coefficients Beta	t	Sig.	Lower Bound	Upper Bound
Mode of Injury							
Assault	-12.43	1.35	-.18	-9.19	<.01	-15.08	-9.78
Bicycle	-5.85	3.29	-.03	-1.77	.07	-12.32	.61
Fall							
Four-Wheeler/ATV	-24.80	3.28	-.13	-7.54	<.01	-31.25	-18.35
GSW	-15.18	2.46	-.12	-6.16	<.01	-20.01	-10.34
Moped	-13.50	2.41	-.10	-5.59	<.01	-18.23	-8.77
MCC	-12.31	1.45	-.17	-8.48	<.01	-15.16	-9.46
MVC	-16.52	1.25	-.28	-13.19	<.01	-18.98	-14.07
Pedestrian Struck by MVC	-10.69	2.26	-.08	-4.72	<.01	-15.14	-6.25

Discussion

- When a patient required *full trauma activation* age **decreases** by 3.10 years on average
- As *AIS region of the face* increases by one unit, age **increases** by 2.21 years
- As *shock index ratio* increases by one unit, age **decreases** by 7.36 years
- *Zygomatic fracture patterns* impact **older** trauma patients on average by 2.57 years
- *Mandibular fracture patterns* impact **younger** trauma patients on average by 3.63 years
- *Female* facial fracture patients are **older** on average by 3.13 years when compared to males
- *African American* facial fracture patients are **younger** on average by 5.46 years compared to Caucasian patients
- Patients of *other race(s)* are **younger** on average by 8.66 years compared to Caucasian patients

Conclusions

- Younger facial fracture patients are more likely to experience more serious and complex trauma as compared to older patients
 - Older patients are more likely to have worse primary injuries to the face
- Older facial fracture populations had zygomatic fractures more often as compared to younger populations who suffered from mandibular fractures
- Caucasian women were older when experiencing facial fractures while African American men were younger on average

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