People of Color are Disproportionally Impacted by Assault-Related Firearm Injuries: A Local Look into a National Challenge

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Background

Firearm injuries are a major cause of morbidity and mortality in the United States.

There are well-established trends nationally about the burden of assault-related injuries versus injuries due to suicidal intent stratified by race. However, this has not been studied in the Denver metro area.

AIM: This study aims to update firearm injury data for patients from a single Level 1 trauma center.

Methods

Design: Cross-sectional study with data collected from the state trauma registry for a single Level 1 trauma center.

Population: 283 patients treated for assault-related or self-inflicted firearm injury from March 2018 to April 2022 who had complete data. We categorized patients by race– non-Hispanic white versus those who identify as any other race (people of color).

Analysis: Continuous variables were compared using Wilcoxon Rank Sum. Categorical data were compared using chi-squared or Fisher's exact test as appropriate. Alpha values set to less than 0.05.

Results

Of the 283 records include in the analysis, 91% (n=259) were assault-related firearm injuries, and of these, 90% (n=234) identified as people of color. Of the 8.4% (n=24) injuries related to SI, 62.5% (n=15) identified as non-Hispanic white.

	Overall	Assault	Suicide	p
n	283	259	24	
Age (median [IQR])	30 [20, 37]	30 [20.50, 37]	26.50 [19.25, 39]	0.802
Male (%)	252 (89.0)	229 (88.4)	23 (95.8)	0.441
Race (%)				<0.001
Black	123 (43.5)	121 (46.7)	2 (8.3)	
Hispanic	109 (38.5)	103 (39.8)	6 (25.0)	
White	40 (14.1)	25 (9.7)	15 (62.5)	
Other	11 (3.9)	10 (3.9)	1 (4.2)	
ICU Days (median [IQR])	0 [0, 2]	0 [0, 1.75]	0 [0, 5.25]	0.356
Hospital Length of Stay (median [IQR])	2 [1, 8]	3 [1, 8]	0 [0, 6.75]	0.02
AIS Head ≥ 3 (%)	52 (18.4)	31 (12.0)	21 (87.5)	<0.001
Dead (including DOA and deceased in hospital) (%)	62 (22.1)	45 (17.6)	17 (70.8)	<0.001
ISS (median [IQR])	10 [8.25, 25]	10 [5, 22]	25 [24.25, 26.75]	<0.001

Abbreviations: ICU (Intensive Care Unit), AIS (Abbreviated Injury Scale), ISS (Injury Severity Score), DOA (Dead On Arrival)

Discussion

From March 2018 to April 2022, we analyzed data from 283 patients who were treated for assault-related or SI-related firearm injuries at a Level 1 trauma center.

Consistent with national trends on firearm injuries, at this Level 1 trauma center, we find that people of color experience a greater burden of assault-related injuries and non-Hispanic white people make up a greater proportion of firearm injuries due to SI.

These data can be used to inform local hospital-based violence intervention programs (HVIPs). HVIPs have been shown to reduce outcomes such as repeat violence and likelihood of arrest, improve health and social goals of patients, improve quality-adjusted life-years, and increase cost-effectiveness for hospitals.

Future studies could explore the relationship between firearm injury intent and socioeconomic factors.

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