

## **RADIOLOGIC INJURY PATTERNS AT THE INTERSECTION OF INTIMATE PARTNER VIOLENCE AND SUICIDAL BEHAVIOR**

NOTE: Includes updated data.

### **PURPOSE**

Intimate partner violence (IPV) is an increasingly recognized risk factor for suicidal behavior. We seek to characterize the relationship between radiologic injury patterns and suicidal behavior in IPV victims, and how these interact to influence patient healthcare utilization.

### **METHODS AND MATERIALS**

Our case population consists of women  $\geq 18$  years old who reported IPV to the hospital from 2013- 2018 (n=1451), with 1-to-6 matching from our patient registry to build the controls (n=6679). All available radiology reports were reviewed by two experienced emergency radiologists blinded to IPV status (151,544 total). Using ICD-10 codes relevant to suicidal behavior (SB), which we defined as suicide attempt, self-harm, and/or suicidal ideation, we formed four study groups: IPV+/SB+ (n=84), IPV+/SB- (n=419), IPV-/SB+ (n=31), and IPV-/SB- (n=1207). Differences between groups for categorical data were analyzed with the chi-square test. Poisson regression was used to estimate incidence rate ratios (IRR) based on IPV and SB. All analyses were conducted with a significance level of  $p < 0.05$ .

### **RESULTS**

Suicidal behavior occurred in 84 out of 503 patients reporting intimate partner violence (16.7%) versus 31 out of 1,238 patients without a history of intimate partner violence (2.5%). Compared to IPV-/SB- patients, IPV+/SB+ patients had 6.2 times higher rates of head, face, and neck injuries, 3.6 higher rate of spinal fractures, 3.1 times higher rate of deep injuries, 2.7 times higher trunk injuries, 2.4 times higher rates of soft tissue swelling and upper extremity injuries, 1.8 times higher rate of non-spinal fractures. IPV+/SB+ patients also had 3.1 times higher rate of mild injuries and 1.8 times higher rate of severe injuries. IPV had a greater impact on head/face/neck injuries (3.34 vs. 1.85) whereas SB had a greater impact than IPV on the injury rate of upper extremity injuries (1.81 vs. 1.33), ( $p < 0.05$ ).

### **CONCLUSIONS**

Suicidal behavior was more common among patients reporting intimate partner violence. The co-occurrence of IPV and SB showed a synergistic increase in the frequency of injuries across multiple anatomic sites.

### **CLINICAL RELEVANCE/APPLICATIONS**

As suicide remains a leading cause of death worldwide, there is significant potential in understanding its intersection with IPV. Characterizing the interaction of IPV and SB in radiologic injury patterns can improve screening and facilitate early intervention to better protect these vulnerable populations.