



Intimate Partner Violence at a Level-1 Trauma Center During the COVID-19 Pandemic: An Interrupted Time Series Analysis

[Randi Smith](#), *Emory University*
[Afua Nyame-Mireku](#), *Emory University*
[Amy Zeidan](#), *Emory University*
[Azade Tabaie](#), *Emory University*
[Courtney Meyer](#), *Emory University*
[Vignesh Muralidharan](#), *Emory University*
[Rishikesan Kamaleswaran](#), *Emory University*
[Keneeshia Williams](#), *Emory University*
[April Grant](#), *Emory University*
[Jonathan Nguyen](#), *Emory University*

Only first 10 authors above; see publication for full author list.

Journal Title: AMERICAN SURGEON

Volume: Volume 88, Number 7

Publisher: SAGE PUBLICATIONS INC | 2022-04-14, Pages 1551-1553

Type of Work: Article | Final Publisher PDF

Publisher DOI: 10.1177/00031348221083939

Permanent URL: <https://pid.emory.edu/ark:/25593/vw8n3>


Final published version: <http://dx.doi.org/10.1177/00031348221083939>

Copyright information:

© The Author(s) 2022

Accessed March 4, 2024 5:56 AM EST

Intimate Partner Violence at a Level-I Trauma Center During the COVID-19 Pandemic: An Interrupted Time Series Analysis

The American Surgeon
2022, Vol. 88(7) 1551–1553
© The Author(s) 2022
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/00031348221083939
journals.sagepub.com/home/asu


Randi N. Smith, MD, MPH^{1,2}, Afua Nyame-Mireku², Amy Zeidan, MD¹, Azade Tabaie, PhD¹, Courtney Meyer, MD¹ , Vignesh Muralidharan, PhD¹ , Rishi Kamaleswaran, PhD¹, Keneeshia Williams, MD¹, April Grant, MD¹, Jonathan Nguyen, DO³, Stuart Hurst, MD¹ , Dustin Hanos, MD¹, Elizabeth Benjamin, MD¹, Richard Sola Jr, MD³, and Dabney P. Evans, PhD, MPH² 

Abstract

Risks of intimate partner violence (IPV) escalated during the COVID-19 pandemic given mitigation measures, socio-economic hardships, and isolation concerns. The objective of this study was to explore the impact of COVID-19 on the incidence of IPV. We conducted an interrupted time series analysis for IPV incidence at a single level I trauma center located in the United States. IPV cases were identified by triangulation of institutional data sources. There were 4,624 traumatic injuries of which 292 (6.3%) were due to IPV. IPV-related injury admissions increased 17% in the weeks following the COVID lockdown (RR = 1.17; 95% CI: 1.16, 1.19). Over a quarter of victims (27.4%) were male. Compared to before COVID, victims of IPV during the pandemic were younger ($p = .04$); no difference in mechanism or severity of injury was found. Our results suggest an ongoing need for universal IPV screening during health emergencies to avoid missed opportunities for IPV detection and referral to support services.

Keywords

covid, intimate partner violence, violence

Introduction

The COVID-19 pandemic unveiled deep-seated inequities in US health and healthcare. Individuals from historically racial and ethnic minority groups and other systematically oppressed populations suffered higher rates of hospitalizations and death from the virus when compared to whites.¹ Additionally, risks of other conditions in vulnerable persons, such as intimate partner violence (IPV), were escalated. Specifically, movement restrictions to minimize propagation of COVID-19, including shelter-in-place, quarantine, and isolation, resulted in a surge of IPV.²

In the United States, one in four women and one in ten men are victims of intimate partner violence. Intimate partner violence is defined as physical, emotional, psychological, financial, or sexual harm inflicted by a current or former partner in an intimate relationship.² Although any individual may experience IPV, economic distress is

a key contributor to this form of violence. Considering the socioeconomic turmoil that resulted from job loss/furloughs, workload decline, and unstable childcare due to COVID-19, it is unfortunate but not surprising that IPV was exacerbated during this time.

Following shelter in place orders in Atlanta, Georgia, domestic crimes increased by 11% during the early days of the pandemic when compared to the previous two years; additional increases were noted following the enactment of city and statewide shelter in place orders.³

¹Emory University School of Medicine, Atlanta, GA, USA

²Emory University Rollins School of Public Health, Atlanta, GA, USA

³Morehouse School of Medicine, Atlanta, GA, USA

Corresponding Author:

Randi N. Smith, Emory University School of Medicine, Glen Memorial Building, 69 Jesse Hill Jr. Drive SE, Suite 101 Atlanta, GA 30303, USA.
Email: randi.smith@emory.edu

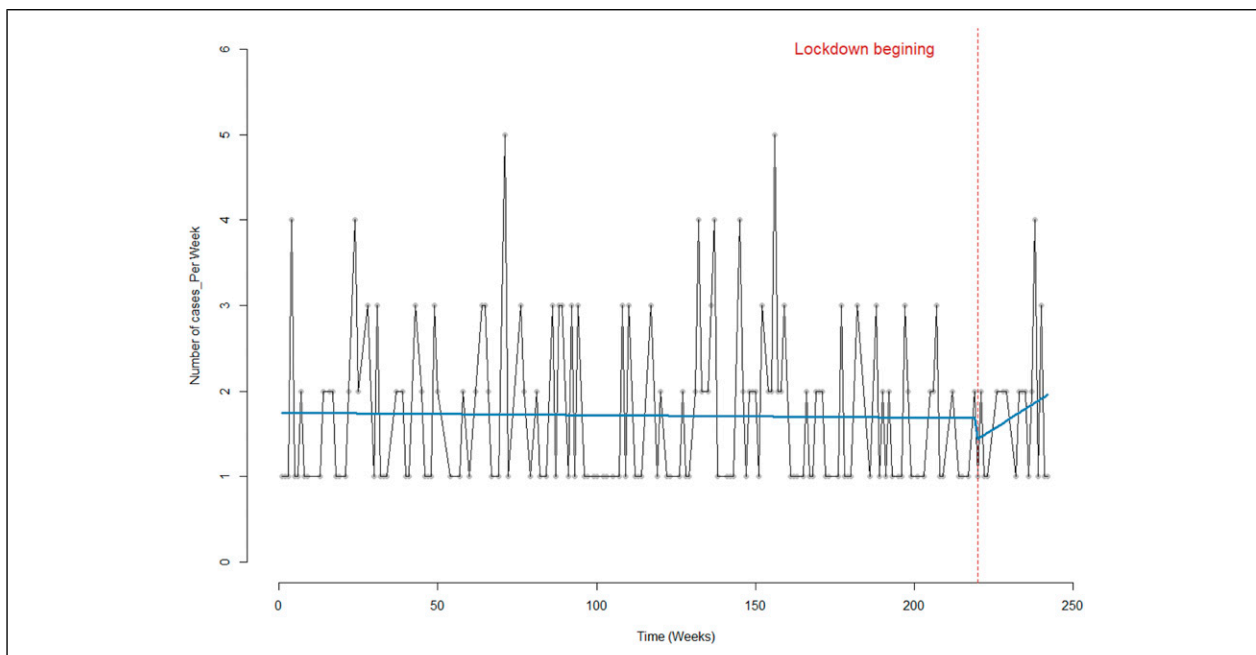


Figure 1. Time Series Analysis of IPV cases per week before and after COVID-19 lock down at a single Level I Trauma Center in Atlanta, Georgia.

However, acuity, severity, and the incidence of IPV in local hospitals overburdened by COVID-19 disease and policies remained poorly understood. Hence, the objective of this study was to measure the incidence of IPV during the COVID-19 pandemic at a single urban level 1 trauma center, paying special attention to the date of containment COVID-19 mitigations strategies (lockdown). We hypothesized that incidence, in addition to severity, of IPV-related injuries increased after lockdown.

We conducted an interrupted time series analysis for injury due to IPV between January 1, 2016 and December 31, 2020 at an urban level 1 trauma center. Interrupted time series analysis is a quasi-experimental design involving tracking a long-term period before and after an event or start of an intervention to assess the intervention's effect. IPV cases were identified by triangulation of institutional data sources; a novel natural language processing algorithm identified cases in the electronic medical record which were then cross-matched to our trauma registry of hospitalized trauma patients. The interruption variable of interest was the start of COVID-19 lockdown in Atlanta, Georgia (March 16, 2020). We assessed temporal associations between the time interruption and IPV cases using Poisson regression.

During the study period, there were 4,624 traumatic injuries of which 292 (6.3%) were due to IPV. The incidence of IPV in post-COVID 2020 (8.1%) was significantly greater than the incidence of IPV in pre-COVID 2019, 4.02% ($p < .01$). This corresponds to an upward trend in IPV counts per week following the lockdown

(Figure 1). The sustained effect is positive, indicating that for each week that passes after the intervention, the number of cases increases ($P = .4$). Our overall cohort of IPV victims had a median age was 36 years (IQR 28, 47). Most were black ($N = 216$, 74.3%) and female ($N = 212$, 72.6%). Unfortunately, victims were injured by a multitude of mechanisms of injury although the majority ($N = 217$, 74.3%) were blunt force (Figure 2). The mean injury severity score was none.

Compared to before COVID, victims of IPV during the pandemic were younger (pre-COVID %female = 71.5%; post-COVID %female = 81.3%, $P = .04$). Clinical presentation including Glasgow coma scale, vital signs, and injury severity score was similar between the two groups. Gender differences in outcomes following IPV were also explored. Males comprised 27.4% of the overall cohort. When compared to females, males tended to be older (mean age 41.8 vs 37.3, $P = .02$) and had longer lengths of stay in the intensive care unit (2.9 days vs .88 days, $P = .01$), a proxy for severity of illness. There was no difference in mortality between groups.

Our study illustrated IPV-related injury increased during the COVID-19 pandemic. To appropriately meet the healthcare needs of IPV survivors, hospitals must be aware of risks factors associated with IPV in order to screen and treat appropriately especially given existing the stigma and trauma that often accompanies IPV.

Our data showed continual increases from baseline in IPV in the weeks following COVID-related lockdown. It is prudent that we consider the implications of this

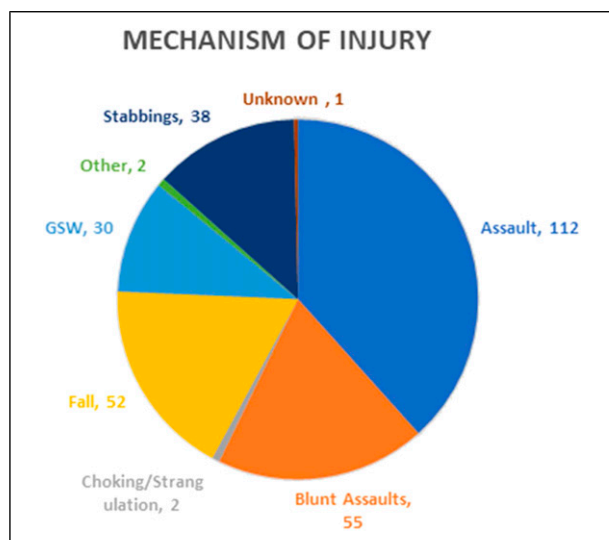


Figure 2. Mechanisms of Intimate Partner Violence at a Single Level I Trauma Center in Atlanta, Georgia, 2016-2020.

increase in the context of the ecosystem of an overburdened hospital during a health emergency. Limited hospital and community resources may have led to underestimates of the true incidence of IPV as attention was diverted from screening for violence or abuse to the urgent needs of virus-stricken individuals. Additionally, social services, such as safe shelter after hospital discharge, were likely reduced in order to uphold social distancing mandates and reduce COVID transmission.

Beyond mitigation measures, there are a myriad of plausible explanations for the increased risks of intimate partner violence (IPV) during the COVID-19 pandemic including socioeconomic hardships and associated stressors. In a study by Evans et al (2020), school closures, unemployment, unstable childcare, and poor social support may have worsened an already tumultuous circumstance.² Further, shelter-in-place allowed for fewer interactions with mandated reporters such as teachers, social workers, and clinicians that are trained to recognize the signs of abuse and report them to authorities.²

Regardless of age, race, ethnicity, or gender, the risks of IPV are pervasive. National averages of male IPV range from 10 to 11.5% according to the US Centers for Disease Control and Prevention (CDC). In our cohort, males comprised 27.4% of IPV victims, a number that is approximately 2.5% higher than the national average. Further, the large proportion of black victims (74.3%) in our study, consistent with the trends of other forms of violence in our hospital setting, must be noted. While blacks experience IPV more often than whites, underlying issues of racism and systemic oppression underlie this difference. Additionally, Cho and Kim (2012) describe racial minorities seek help and cope with IPV differently

than whites, often utilizing informal support from relatives or close friends rather than formal services, such as shelters or clinicians.⁴ These cultural differences are often unknown and/or overlooked in clinical settings, such as hospitals.

There are limitations to our study. It is a retrospective analysis at a single institution and therefore subject to bias with limited generalizability. Still, given the high volume of trauma cases per year in this setting, our report adds meaningful contextual data about the impact of IPV during the COVID-19 pandemic to the existing literature.

In conclusion, our results suggest there is ongoing need for universal IPV screening, regardless of age or gender, during emergencies to avoid missed opportunities for IPV detection and to increase referral to and allocation of support services.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was funded by the Woodruff Health Sciences Center Synergy Award.

ORCID iDs

Courtney Meyer  <https://orcid.org/0000-0002-1594-4157>

Vignesh Muralidharan  <https://orcid.org/0000-0001-5573-1685>

Stuart Hurst  <https://orcid.org/0000-0003-4676-253X>

Dabney P. Evans  <https://orcid.org/0000-0002-2201-5655>

References

1. Krouse HJ. COVID-19 and the widening gap in health inequity. *Otolaryngol Head Neck Surg.* 2020;163(1):65-66. PMID: 32366172. doi:10.1177/0194599820926463
2. Evans ML, Lindauer M, Farrell ME. A pandemic within a pandemic - intimate partner violence during covid-19. *N Engl J Med.* 2020;383(24):2302-2304. PMID: 32937063. doi:10.1056/NEJMp2024046
3. Evans DP, Hawk SR, Ripkey CE. Domestic violence in Atlanta, Georgia before and during COVID-19. *Violence Gen.* 2021;8(3):140-147. PMID: 34466626. [10.1089/vio.2020.0061](https://doi.org/10.1089/vio.2020.0061)
4. Cho H, Kim WJ. Intimate partner violence among Asian Americans and their use of mental health services: Comparisons with white, black, and Latino victims. *J Immigr Minor Health.* 2012;14(5):809-815. PMID: 22527745. doi:10.1007/s10903-012-9625-3