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## Gun violence during COVID-19 pandemic: Paradoxical trends in New York City, Chicago, Los Angeles and Baltimore



COVID-19 has been declared a pandemic by the World Health Organization (WHO). The structure of daily life for most individuals in the United States (US) has changed dramatically. Businesses, schools, and entire industries have been forced to substitute in-person activities for remote/virtual replacements in compliance with recommendations of social distancing from the CDC. This practice has decreased the COVID-19 transmission and is essential to the eventual resolution of this pandemic [1]. As people practice social distancing, the trends of traumatic injuries are changing as well, with fewer vehicle related crashes and injuries as people minimize their driving [2]. Trends in other types of traumatic injury are unclear. In 2017, the number of gun-related injuries/deaths surpassed the number of vehicle related injuries/deaths in the US [3]. We aim to investigate the trends of gun related violence in selected heavily populated US cities during the COVID-19 pandemic and discuss the implications.

We performed a cross-sectional analysis to investigate gun violence in New York City (NY), Chicago, Baltimore and Los Angeles since the beginning of the 2020. Data was gathered from the Police Departments (PDs) of each city and from the FBI. Trends were determined by comparing gun related incidents/victims/deaths where applicable to 2018 and 2019 to determine what effect, if any, COVID-19 has had on gun violence.

According to the NYPD, as of April 4 there has been 172 shooting incidents which represent an 11.7% increase compared to 2019 and an 18.6% increase compared to 2018 [4]. Similarly, the Baltimore PD reports 180 shooting incidents as of April 4, a 2.0% increase compared to 2019 [5]. In Chicago, the PD reports 516 shooting incidents since for 2020, a 23% increase compared to 2019 and a 6% increase compared to 2018 [6]. In contrast, Los Angeles PD reports a 9.3% decrease compared to 2019 but 10.3% increase compared to 2018 (Fig. 1) [7].

For the heavily populated cities of NY, Chicago and Baltimore, there is a paradoxical trend of increased gun related violence in the midst of the COVID-19 pandemic. We offer several possible explanations.

According to a report from the US Department of Labor, there has been a surge in number of unemployment claims during the pandemic [8]. Many companies are being forced to layoff workers in order to prevent financial bankruptcy, while other industries, such as restaurants and entertainment, are simply not open for business. Maryland has received 298,610 unemployment claims which represents 9.1% of the state's labor force since March 14, New York State 1,186,994 unemployment claims (12.4% of its' labor force), and Illinois 634,625 unemployment claims (9.9% of its' labor force) [8]. With an increasing number of people unemployed, it is possible that the chances of becoming

involved in a gun related incident correlates with the amount of time spent outside of the workplace. Another explanation is that as people with low socioeconomic status become unemployed and experience tremendous financial stress, they may resort to robbery for income, which is reflected in the increased robbery rates in NY (22.4%) and Chicago (10%) compared to 2019.

Another possible explanation for the increased gun violence is the increased sale and consumption of alcohol during this time period. Previous studies have shown that alcohol increases risk-taking behavior and probability of being in an altercation, and committing violent crimes [9]. The increased prevalence of alcohol consumption during the pandemic has prompted the WHO to issue a statement advocating for governments to restrict access to alcohol [10]. The increased sales and consumption of alcohol and the higher rates of unemployment may be a deadly combination that contributes significantly to increased rates of firearm violence.

For the first three months of 2020, the FBI conducted 9,245,857 background checks for firearm purchases, representing a 34.7% increase during this time period in 2019 [11]. A larger amount of guns may increase the chance of shootings just by mere prevalence of more guns being present in society and can serve as a contributing factor to the increased rates of gun violence.

The main limitation in this analysis is that we only analyzed the trends in gun violence during the January–April 2020 period. This analysis does not capture the trends during the entire pandemic, which is still playing out, however this research can serve as an important observation and a call for further studies, and an opportunity to create longitudinal interventions to reduce violence. Additionally reliable data earlier than 2018 was not available for every city evaluated and data for Baltimore in 2018 was also unavailable which prevents analysis of longitudinal trends.

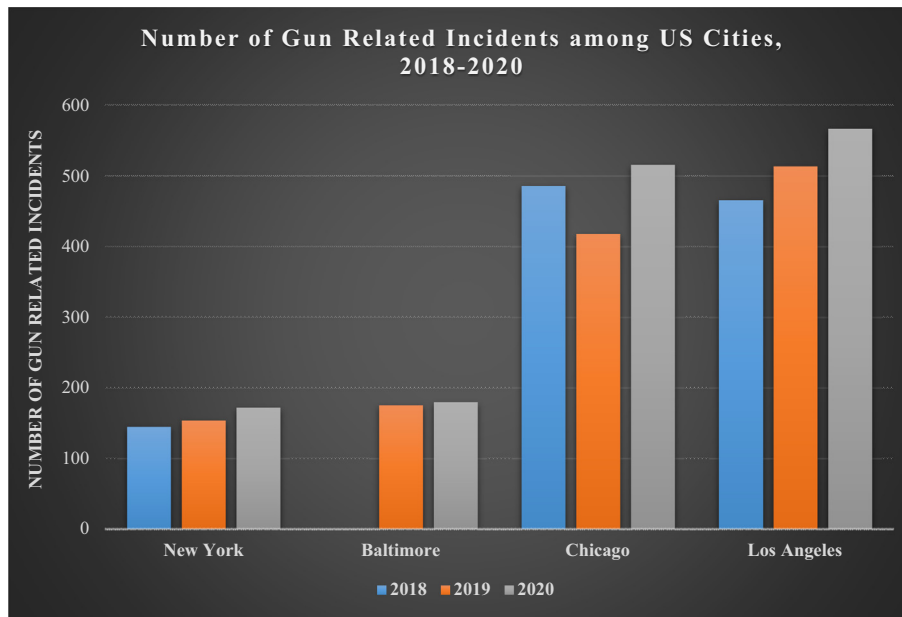
The implications of this data are that social distancing and stay-at-home orders may not decrease the rates of gun violence; in fact, the coronavirus pandemic is associated with increased rates. While multiple factors likely influence the rising number of gun incidents, unemployment, increased alcohol consumption, and increased firearm purchases are possible contributing factors. We recommend more thorough data collection and investigation as to what factors are most heavily influencing the higher rates of gun incidents in order to innovate long-term solutions to decrease gun related injuries/deaths across the United States and contribute to a safer, healthier society after the resolution of the COVID-19 pandemic.

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Authors declare no competing interests.



**Fig. 1.** Number of gun related incidents from 2018 to 2020 amongst New York, Baltimore, Chicago, and Los Angeles. It can be observed that Los Angeles has experienced the largest amount of gun incidents in 2020 (N = 567) while New York has experienced the least (N = 172). 2018 was not available for Baltimore.

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