The Impact of Race, Age and Sex on Gun Violence in Urban Settings

AP Research

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Literature Review

Introduction

In June of 2022, a slew of mass shootings in Buffalo (New York), Uvalde (Texas), and Tulsa (Oklahoma), killed 35 people and reignited national attention to America's gun problem (Lopez, 2022). Around that same time, roughly 2,300 people were either killed or injured by gun violence in other shootings across the U.S. Although the public is more accustomed to the stories of mass shooting victims, mass shootings only account for "less than 4 percent of gun homicides in a typical year" (Lopez, 2022). So, to better understand gun violence in America, and how to prevent it, the communities most affected by gun violence must be understood first. According to sociologists at the University of Connecticut, "most gun violence, with the exception of firearm-deaths by suicide, takes place in urban communities of color" (Bernstein et al., 2019, 1153-1154). In addition to this, youth of color-- specifically those under 18, are more susceptible to becoming victims of gun violence. Furthermore, the connection between victims of domestic violence and victims of gun violence is also examined to obtain a better understanding of the manifestations of gun violence within inner cities.

Gun Violence and Race

Gun violence in urban settings statistically affects more people on average than in any other setting (Bernstein et al., 2019). In Chicago for example, by the beginning of December 2022, there had been 600 homicides and 2,600+ shootings, even though the homicide rate was actually in decline from the 800+ homicides in 2021 (Masterson, 2023). However, violence in cities doesn't affect all residents in the same way. In fact, violence in cities is typically mainly concentrated within certain areas of said city. "Just 4 percent of city blocks account for the

majority of shootings across Chicago, according to the [University of Chicago] Crime Lab" (Lopez, 2022). Within cities, neighborhoods with the highest concentrations of violence also typically have majority minority populations. Therefore, people of color are much more likely to be victims of gun violence as well.

In 2022, over Memorial Day weekend, 51 Chicagoans were shot--a five year high, yet almost all the victims were Black and brown and the majority of those impacted were on the South and West sides of the city (Lopez, 2022). In the same year, three out of every four homicide victims in Chicago were Black (Masterson, 2023). And this disparity isn't only represented in major cities like Chicago; Black Americans as a whole are 10 times more likely to die by gun homicide in comparison to White Americans (Everytown Research & Policy, 2022). Even though this direct correlation between race and gun violence victimization is apparent, few researchers actually utilize race as a factor for understanding gun violence due to misconceptions. "The 'narrative of black criminality' attributes violence and crime committed by black Americans to some "flaw" in the black population, whereas White crime is perceived as individual failure, rather than as a problem related to whiteness" (Bernstein et al., 2019, 1156). Belief in this narrative has allowed researchers and the general public to see Black victims of gun violence as less worthy of attention, thus limiting the scope and impact that current research on gun violence has.

Gun Violence and Youth

In recent years, gun violence has threatened youth at an alarming rate. Youth firearm deaths during the pandemic rose sharply and were primarily driven by gun assaults. It is important to note that gun assaults refer directly to the intentional homicides and injuries by

firearm that this paper focuses on, while firearm deaths refer to both gun assaults and suicide by firearm. Over the pandemic, gun assault deaths soared the most amongst Black youth (with an 80% increase from 2019 to 2021) and Hispanic youth (with a 46% increase during the same period) (Panchal, 2022). Not only are Black and Hispanic youth most vulnerable to death by gun assaults, but youth across the board face significant issues when exposed to gun violence. According to established researcher and professor of Human Development, James Garbarino, "children exposed to gun violence may experience negative short- and long-term psychological effects, including anger, withdrawal, post traumatic stress, and desensitization to violence. All of these outcomes can feed into a continuing cycle of violence" (Garbarino et al., 2002, 73).

For those already predisposed to experiencing more gun violence because of their community, exposure to gun violence at a young age can encourage youth to add to their areas' gun violence problems as they grow older. Additionally, a recent study from the American Journal of Preventive Medicine, found that disparities in child exposure to gun violence have been exacerbated during the pandemic. This means that Black youth most likely to be exposed to gun violence have had more exposure since the pandemic, while White youth (who typically are less likely to be exposed to gun violence), have had less exposure since the pandemic (Garbarino et al., 2002, Panchal, 2022). Hence, there is a distinct connection between race and gun violence, but as youth gun violence assaults rise, these numbers are affected by race as well. Thus, an individual's race and age within an urban community will inevitably affect their experience with gun violence.

Gun Violence and Sex

In addition to race and age, an individuals' sex has an impact on their experience with gun violence. Before continuing, it is important to establish that for this paper, "sex" will not be used interchangeably with "gender". This paper follows a concept from the Journal of Applied Physiology that uses the word "sex" when referring to the sum of an individuals' reproductive organs, and uses the word "gender" to refer to the "behavioral, cultural, or psychological traits typically associated with one sex" (Torgrimson & Minson, 2005, 785-786). Because the majority of the data and research utilized in this paper refers to individuals' sex instead of their gender, this paper will do the same.

Amongst gun violence victims, men are more likely to be affected by gun violence. Across the country, male youth under 18 are over four times more likely to die by firearm-related deaths in comparison to their female peers (Panchal, 2022). In 2022, 87% of homicide victims in Chicago were male, and most of these victims were within their 20s (Masterson, 2023). But while a large portion of gun violence victims are male, female gun violence victims typically have different experiences with gun violence.

For female gun violence victims, their perpetrators are likely to be current or past partners. Each month, approximately 50 American women are killed with a gun by an intimate partner and many more are injured (recorded and unrecorded) (Everytown 2019). Intimate partner violence (IPV) disproportionately affects women, and it is believed that a combination of structural disadvantages in non-white neighborhoods and lack of trust in the criminal justice system drives victims to report abuse less. Additionally, in these same neighborhoods, poorly resourced social support (such as schools, housing, healthcare, etc) drives community violence, which is linked with higher rates of IPV "in large part because witnessing violence of any kind as

a child can normalize abuse and increase the chances that the child experiences or inflicts violence in their adolescent and adult relationships" (Everytown Research & Policy, 2022).

Essentially, race and community play a role in the likelihood that a woman will be harmed with a firearm during IPV. Additionally, these same incidents of IPV negatively affect children due to their close proximity to violence and firearm use.

Conclusion

While current researchers of gun violence typically ignore the intersections of race, sex, age and victimizations, this paper focuses on how and why these features should be integral to gun violence research. In many cities, gun violence is typically concentrated in majority minority neighborhoods, and thus people of color make up the majority of gun violence victims (Lopez, 2022). In addition to race, this paper examines how age and gender of gun violence victims intersect, specifically within cities, to better understand the people that gun violence impacts the most, and how/why.

Methodology

To best analyze why race, age and gender should be concurrent frameworks for understanding gun violence, actual data that includes all three features is necessary. Hence, utilizing a secondary data collection and analysis method is most effective for this paper. With a secondary data collection and analysis method, raw statistical data is collected and manipulated to be analyzed. Through importing existing data from the Chicago Data Portal (a government maintained website of databases), manipulating the dataset, and finally importing the dataset into a visual analytics platform, an interactive map was created for the purposes of analyzing and interpreting the data.

Procedure

1. *Raw data collection*

As mentioned above, collecting raw statistical data is the first step in completing a secondary data collection and analysis method. Statistically speaking, gun violence in America impacts urban areas the most in comparison to other (suburban or rural) settings. With the help of the Chicago Data Portal, a wide-range of information on gun violence in Chicago could be processed and analyzed for this paper. Within the portal, a dataset named “Violence Reduction - Victims of Homicides and Non-Fatal Shootings” was most supportive for this paper because the dataset included specifics about homicide victims within Chicago from 1991 to present. In addition to this, the dataset contains key information about victims including (but not limited to); if the victim were injured by a gunshot (or other), the approximate location of the crime, the victims’ age, sex and race, and more.

2. *Data manipulation*

For any data visualization endeavor, it is always easiest to pass in only the most important information. The original dataset had over 55,000 entries, each with over thirty columns of information. So to adjust the dataset to only include the specific needs of this paper (and allow the data visualization platform to work most efficiently), the original dataset was first filtered to only include data from the year 2022. Afterwards, all data that did not directly relate to the victim (for example classifications of the crime, descriptions of the location of the crime, etc), were parsed out. After cleaning the dataset, the only features left in were as follows:

Figure 1

Edited Dataset

FACTOR	DESCRIPTION
Case Number	Indicates the unique ID assigned by the Chicago Police Department (CPD) to each case
Date	Indicates the date and time of victimization
Block	Indicates the approximate address of where victimization occurred
Victimization Primary	Indicates the type of crime the specific victim experienced (either homicide, or for non-fatal incidents: aggravated battery, robbery, sexual assault, or “Non-Fatal” if CPD cannot discern which of the above crimes were committed)
Incident Primary	Indicates the type of crime the entire incident falls under (either homicide, or for non-fatal incidents: aggravated battery, robbery, sexual assault, or “Non-Fatal” if CPD cannot discern which of the above crimes were committed)
Gunshot Injury	Indicates whether or not a victim was injured by gunfire. Note that for the purposes of this paper only “Yes” fields were used.
Unique ID	Indicates the unique ID given to each victim

Zip Code	Indicates the zip code where the crime occurred (utilizing updated boundaries from 2021)
Community Area	Indicates the community area (based on CPD records), where the crime occurred
Age	Indicates the victims' age (grouped by decade)
Sex	Indicates the victims' sex
Race	Indicates the victims' race as either Black (BLK), White (WHI), Asian/Pacific Islander (API), Black Hispanic (WBH), White Hispanic (WWH), American Indian/Alaskan Native (I), or Unknown (UNKNOWN)
Location Description	Describes the location where the crime happened (i.e, alley, street, sidewalk, etc)
Longitude	Indicates the longitude of the victimization location (note: CPD did update all longitudes to be on some point within a block radius of the original longitude)
Latitude	Indicates the latitude of the victimization location (note: CPD did update all latitude to be on some point within a block radius of the original latitude)
Location	A slightly altered location of the victimization in a form that allows for mapping and other geographic analysis within the CPD data portal

3. *Platform manipulation for final product*

To actually turn the edited dataset into an interactive map, Tableau Public, a free platform to create data visualizations, was used. First, within the platform a new workbook was created and the previously edited dataset was imported as the main data source for this workbook. Next, after ensuring that Tableau properly imported all the features, different factors could be selected within the platform to output specific visualizations. To create a map, the longitude and latitude features of the dataset were input into the columns and rows feature of the platform in order to instruct the platform to output a map. At this point, the output is merely a map of the Chicago

area with a singular point. To add points onto the map, more features had to be added to the "Marks" section of the platform. Although all the features in **Figure 1** could have been added, to maintain precision, only Gunshot Injury, Case Number and Unique ID were passed in as features. With these three features, the data would showcase each specific victim from every case that were injured by a gunshot. Now that all relevant points to this paper were displayed, the Age, Sex and Race features were added to the "Filters" category so the data could showcase any mix of all three features.

Figure 3

Filter by Black Victims

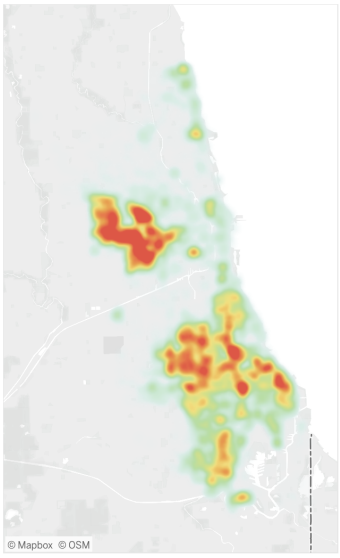


Figure 4

Filter by Black Youth Victims

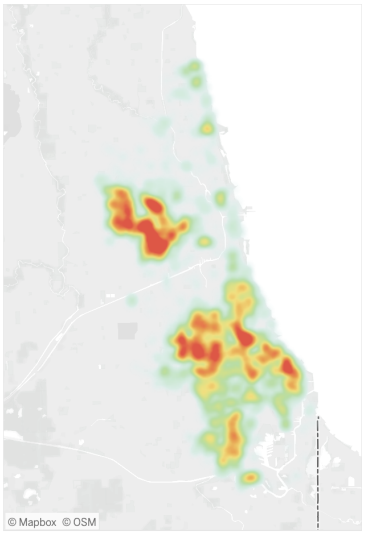


Figure 5

Filter by Black Male Youth Victims

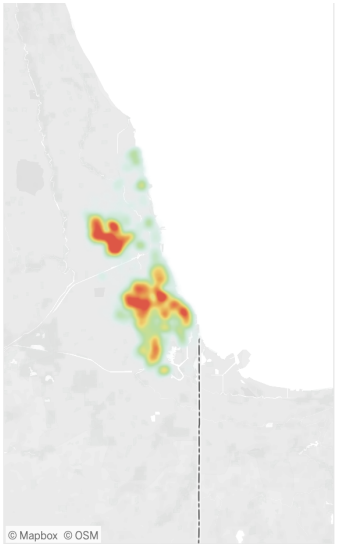


Figure 6

Filter by Black Female Youth Victims

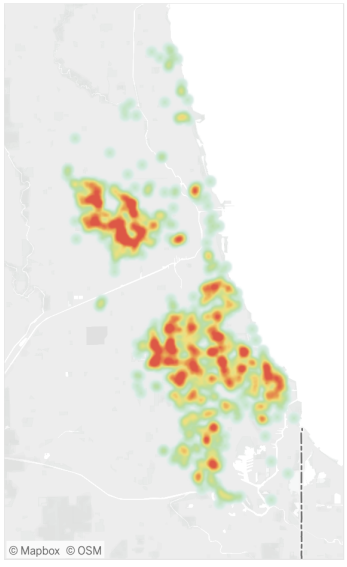


Figure 7

Filter by Black and Hispanic Victims

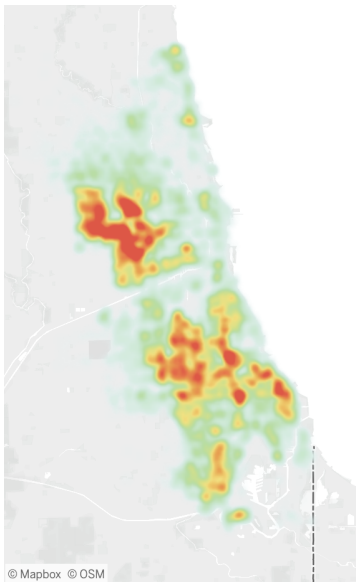


Figure 8

Filter by Hispanic Victims

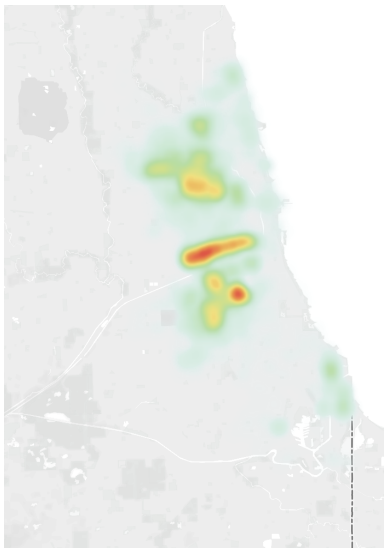


Figure 9

Filter by Hispanic Youth Victims

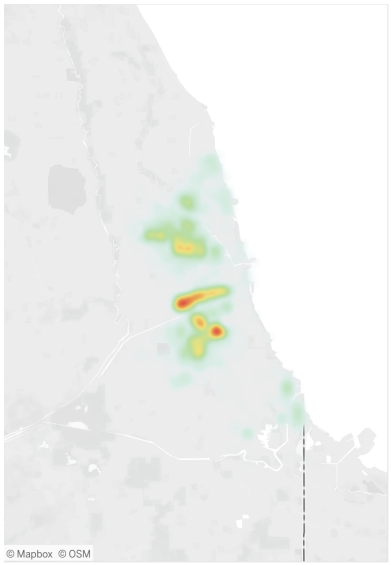


Figure 10

Filter by Hispanic Male Youth Victims

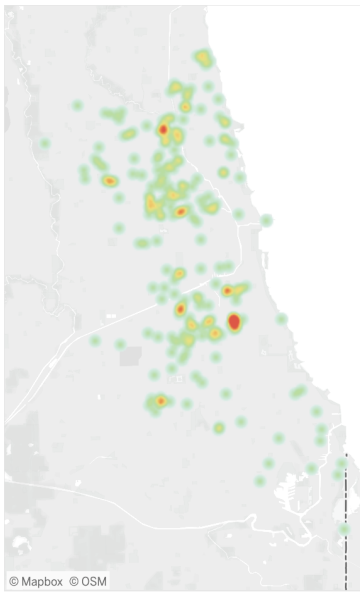


Figure 11

Filter by Hispanic Female Youth Victims

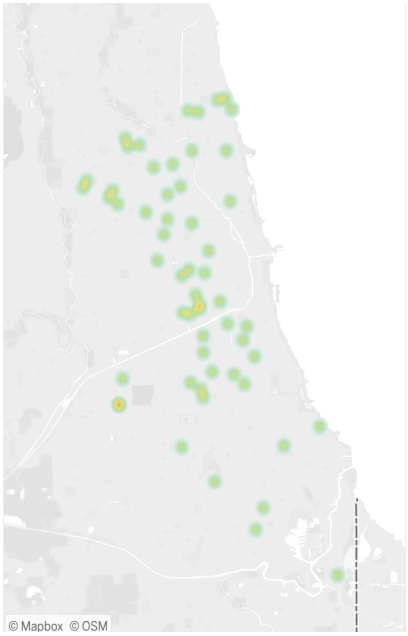


Figure 12

Filter by Black, Hispanic, and Asian Victims

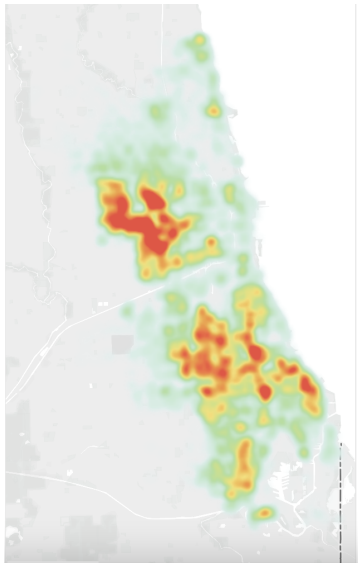


Figure 13

Filter by Asian Victims

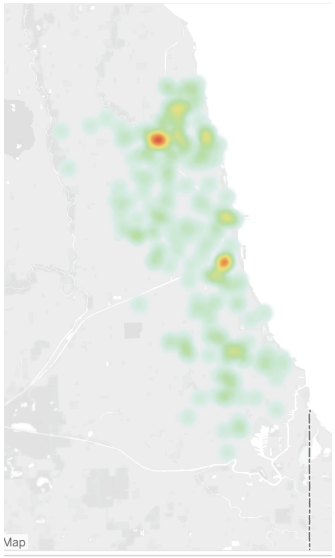


Figure 14

Filter by Asian Youth

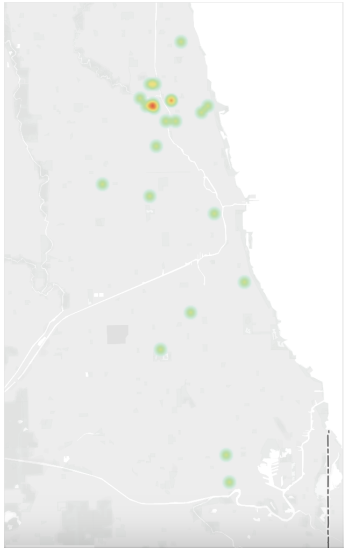


Figure 15

Filter by Asian Male Youth

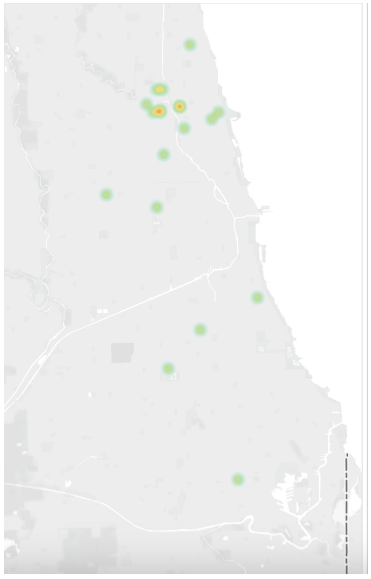


Figure 16

Filter by Asian Male Youth

Figure 17

Filter by White Victims

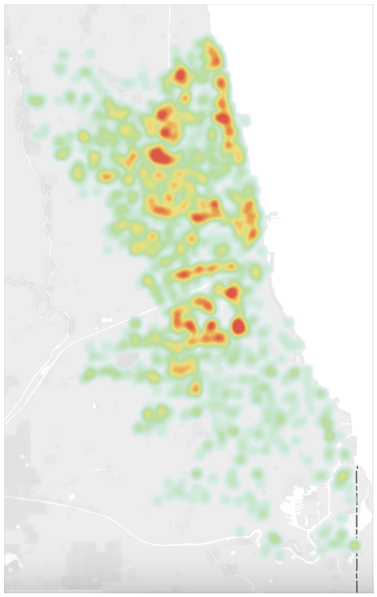


Figure 18

Filter by White Youth Victims

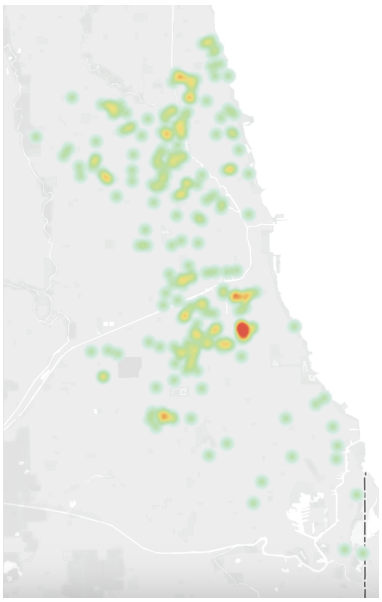


Figure 19

Filter by White Male Youth Victims

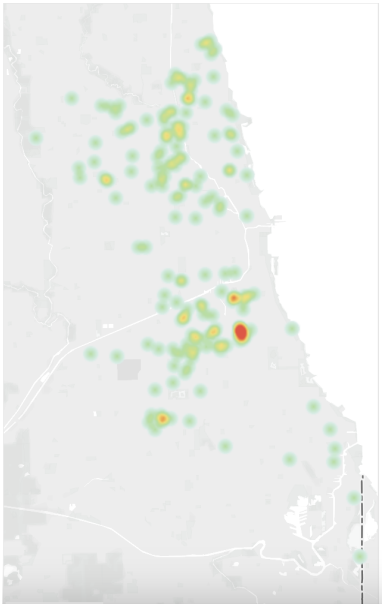
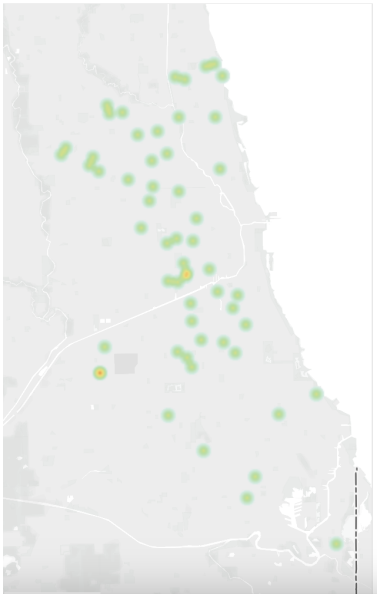


Figure 20

Filter by White Female Youth Victims



Findings and Discussion

In general, the South and West sides of the city are home to the most victimizations for all, but especially for Black and Hispanic victims. Meanwhile, the North and Northwest sides of the city host the most victimizations for White people. Additionally, for Black and Hispanic victims, the majority of victims are 19 and younger. For all races, in comparison to their demographic, youth of said demographic are more likely to have victimizations in closer proximity to one another. For Black and Hispanic youth in specific, hotspots for victimizations--or areas where multiple cases occur closely together, the circumference of these hotspots grew smaller, while the density didn't change. Essentially, in concentrated areas of crime, youth are most affected but only in a smaller subset of the larger area where crime is most concentrated. Lastly, the areas that are the largest hotspots for youth of any demographic, are also the areas with the largest hotspots for youth males of this demographic. This pattern highlights that for all demographics there are more young male victims than young female victims, and this pattern only disrupts for Black female youth, who actually have more expansive and denser hotspots of victimizations in comparison to their male counterparts.

Black Victims

When filtering the map to only display Black victims, the map produces high concentrations of victims on the South and Southwest sides of the city, as well as a cluster of victims on the West side of the city. Additionally, there is a scattering of victims on the far South, central and North sides (**see Figure 3**). When altering the map to only display Black youth (those between 0 and 19), the South side of the city is highlighted to about the same density, and the West side of the city is highlighted to the same density but with a smaller circumference (**see**

Figure 4). The slight changes in the map show that Black youth make-up the majority of Black victims in the areas where Black people are most victimized; basically Black youth are more likely to be victimized than Blacks of any other age.

When filtering by sex as well, the graph quickly lost the majority of its points, and of the points left, the highest density is on the West side of the city, and on the South side, there was less density with more expansiveness (**see Figure 5**). This pattern illustrates two important points: 1) Black male youth do not make-up the majority of Black youth victims, and 2) Black male youth victimizations are only concentrated in a few locations suggesting that a small sect of specific high-crime neighborhoods are particularly thereating for Black male youth.

Black female youth victims had a much more expansive range across the South and West sides of the city in comparison to Black male youth, as well as more density in various parts of the South side of the city (**see Figure 6**). This change in the graph reflects that of the Black youth victims, the majority of victims are female. Unlike Black male youth, certain sections of the city are not more threatening for Black female youth, but rather the entire city as a whole is likely dangerous to young Black women, and the areas with higher populations of young Black women also happen to have higher levels of crime.

Hispanic Victims

When filtering to only display Black and Hispanic victims, the same locations in **Figure 3** are highlighted, but now there's a higher concentration of victims in the West and South/Southwest sides. Additionally, with this new filter, the graph shows a bit more connectivity between all sides of the city, instead of having the South, West and North sides as isolated (**see Figure 7)**. This new connectivity without significant increases in density on the

South and West sides of the city show two things about Hispanic victims. For starters, this change in the graph shows that Hispanic victims are not victimized more or at the same rate as Black victims, because if so, the South and West sides would have almost double the density as they do when filtering for only Black victims (as seen in **Figure 3**), so because this change is not reflected, it's clear that Hispanic victims are not victimized more or at equal rates as Black victims. Additionally, the changes in **Figure 3** to **Figure 7** show that Hispanic victims are victimized on the outskirts of the South and West sides of the city, unlike Black victims, and this phenomena is reflected in the connectivity shown in **Figure 7** between the South and West sides of the city (a connectivity that does not exist in **Figure 3**).

When coding for Hispanic youth in specific, they were mostly affected on the West and Northwest sides, but with much less density in comparison to Black youth (**see Figure 9**). Additionally, when coding the graph to only display Hispanic youth, the graph doesn't change much from the figure directly above that displays only Hispanic victims (**see Figure 8**). This phenomena shows that while Hispanic youth make-up the majority of Hispanic victimizations, Hispanic victims in totality are victimized much less than Black victims. Hispanic male youth were afflicted on the West most portion of all sides of the city, making a C shape pattern of victims around the center of the city. In general though, this pattern has low-medium density and the most density is concentrated on the West and Northwest sides of the city (**see Figure 9**). For Hispanic female youth, there is pretty low density for victims, with the majority of victims landing on the Northwest or West sides of the city (**see Figure 10**). Therefore, the findings show that Hispanic male youth are victimized more than their female counterparts.

Asian Victims

When filtering for only victims of color (so Black, Hispanic and Asian/Pacific Islander victims), the map doesn't contain any obvious changes from **Figure 7** which only included Black and Hispanic victims (**see Figure 11**). While a majority of Asian victimizations spread along the East side of the city (so closer to Lake Michigan), from North to South (**see Figure 13**), these victimizations had a very low density in comparison to victimization graphs of previous racial groups, showing that in comparison to other racial groups, Asian were not victimized as much. While coding for Asian youth, the graph loses even more density and shows only a few incidents (mostly on the North side), where Asian youth were victimized (**see Figure 14**). These findings show a change in pattern of youth making up the majority of victimizations for their racial group-- unlike Black and Hispanic youth. Of the few Asian youth victimizations, Asian male youth had much higher density in comparison to their female youth counterparts, meaning that of all Asian youth, men continued to be victimized at higher rates than their female counterparts.

White Victims

Finally, when coding the filter to display only White victims, the map has the highest density in the North, Northwest and West sides of the city, with scatters of victims on the South side and farther in the Northwest (**see Figure 17**). Unlike victims of other race groups, White victimizations occur in multiple regions of the city at around the same density level, except for on the North side (which had higher density). These findings highlight that while more White people may live on the North side of the city, White victimizations occurred all over the city. Next, when altering the map to only display White youth victims, the map loses almost all previous points in the South, and holds the majority of density on the North, Northwest and West sides of the city (**see Figure 18**).

For White male youth in the city, there is a clearer pattern as White male victims are mostly found on the North and Far North sides of the city, as well as on the West sides of the city (**see Figure 19**). For White female youth in the city, there is no clear pattern between gun violence and specific areas of the city. Victims are scattered around the city with pretty low density (**see Figure 20**). Again, the data shows that for White victims, youth do not make up the majority of victimizations and that male youth make up the majority of youth victimizations in comparison to their female youth counterparts.

Evidence from the data visualization supports previously outlined research that highlights Black and Hispanic Americans as disproportionately affected by gun violence assaults. In addition to this, the data visualization also indicates that Black and Hispanic youth make-up a majority of Black and Hispanic gun violence victims in Chicago, whereas White and Asian youth do not make-up a majority of gun violence victims for their racial demographic. Lastly, this paper highlights an outlier within the data that is out of alignment with what previous research. In 2022, Black female Chicagoans under 19 were more likely to be victims of gun violence in comparison their Black male counterparts. This trend of women being victimized at higher rates does not continue for any other racial group, nor has this been acknowledged in previous research. While current research does acknowledge that mothers of color are particularly vulnerable to IPV, there is no current research to support why this irregularity may have occurred (Everytown Research & Policy, 2022).

Conclusion

While working to understand gun violence in America, one would be remiss to ignore the ramifications that race, age and sex have on victims living in areas with increased proclivity for gun violence. Cities and similar urban areas statistically experience more gun violence than say suburban or rural areas in America (Bernstein et al., 2019, 1153-1154). Research suggests that gun violence victims within these settings are most likely to be people of color living in majority minority spaces within their city. So, this paper created a data visualization map with manipulated data from the city of Chicago to better understand where gun victimizations were most frequent, what races and genders were victimized the most, and what connection, if any, was there between age and victimization. The results highlight that within Chicago during 2022, Black and Hispanic youth victims of gun violence make up the majority of victims, while the results are opposite for Asian/Pacific Islander and White victims of gun violence. Additionally, Black female youth are victimized in higher numbers and across more locations in comparison to their male youth counterparts. But for youth of every other race (Hispanic, White, and Asian/Pacific Islander), males are victimized at higher rates than their female counterparts.

Limitations

While the results of this research mostly aligned with previous research, obtaining data from Chicago specifically may have altered the findings of this research as a whole. The findings of this specific paper found that victims typically cluster within specific parts of the city, and these areas only really change when a different racial identity of victims is displayed. So, for the most part, Black and Hispanic victims were victimized on the South and West sides of the city, and White and Asian victims were mostly victimized on the North and Northwest sides of the

city.

But, Chicago is one of the most segregated cities in America and many educators within Chicago actually cite this intense segregation as a cause or at least an aggravator in disparities between communities (Singh & Almeida, 2022). While the city itself is roughly 29% Black and 29% Hispanic, the majority of "Black and Hispanic residents are concentrated primarily in neighborhoods on [the city's] south and west sides" (Singh & Almeida, 2022). The South and West sides of Chicago also have the highest rates of unemployment and crime, whereas the North and Northwest sides of the city have lower rates of unemployment, crime, and mostly Asian and White residents (Singh & Almeida, 2022). That being said, it's unclear whether the results of this paper are less representative of other cities due to the stark segregation of Chicago as a whole.

Implications

Nevertheless, the results of this research still add to current literature in the field of gun violence prevention. Following researchers at the University of Connecticut, this paper follows their outline of identifying efforts across America to prevent gun violence as the "Gun Violence Prevention" (GVP) movement (Bernstein et al., 2019). This movement is described as a social movement which is defined as collectives that organize with a level of continuity outside of institutional channels for the purpose of challenging or defending authority (Bernstein et al., 2019, 1155). In the context of this paper, the GVP movement can best be interpreted as a consistent organization by the public with the main intent of challenging current gun regulation in order to facilitate gun violence prevention.

Unfortunately, thus far activists within the GVP movement have largely been ignoring the

efforts of communities of color (Bernstein et al., 2019). In doing so, the GVP movement is separated into two racialized subtypes; one that mostly focuses on white victims (which manifests in focus on mass shootings), and one that focuses mostly on all non-white victims (which manifests in focus on urban violence). Not only does prior research provide evidence that this lack of inclusion has actually weakened the overall effectiveness of the gun violence movement, but this lack of inclusion prompts research in the field to exclude communities of color as well (Bernstein et al., 2019). In consequence, there is more literature on mass shootings and gun violence rather than urban communities and gun violence, even though the latter creates more victims.

Following the results of this paper, the GVP movement can utilize these findings as a basis for why de-racialization of the movement is necessary. Focusing on gun violence victims by quantity would be a more productive approach for better understanding victims and by extension gun violence as a whole, thus strengthening the GVP movement. In addition to the GVP movement, gun violence researchers in totality should follow similar reforms and include communities of color in their research. As seen in this research, communities of color are most affected by gun assaults and can thus provide gun violence researchers with more information.

Additionally, the results of this paper may be formative for the city of Chicago as a whole. Not only are the areas of the city with the highest levels of crime majority-minority neighborhoods, but as mentioned earlier, there is a correlation between unemployment rates and crime. Hence, the parts of the city with the most crime have more young victims of color and less employment amongst adults all throughout the area. To improve the situation, city officials might increase youth outreach programs that provide youth and young adults with jobs or career training in order to lower overall crime rates in places like the South and West sides of the city.

The next gap within gun violence research surrounds the type of homicides and gun assaults that affect specific identity groups the most. While this paper highlights who are most directly affected by gun violence in the areas of the US that are most affected by gun assaults, future research endeavors may center around categorizing gun violence further. Are victims within urban areas most affected by gang-related gun violence? Are victims most affected by IPV? Answering these vital questions can add way more to the conversation of gun violence, and current understanding of gun violence in America.

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