

What Police Violence Statistics Don't Tell You

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Abstract

The narrative of the Mainstream Media, educational institutions, and large swaths of state and federal government representatives is that law enforcement institutions in the United States are not only systemically racist, but, as a way to live out that racism, murder untold numbers of people, specifically black people, in cold blood. Organizations such as the Washington Post present data on this “systemic violence” in a way to further convince people of these claims. This report exists to shed light on the untold stories lying buried, or possibly covered up, in this data. There are simply too many confounding variables to declare that the police are “systemically racist” in the U.S. today.

Introduction

In the age of information, people are constantly bombarded with charts and graphs that support the agenda of the presenter. What's worse is when the presenter then proceeds to claim that due to their analysis, their conclusion is the unequivocal truth. Data is often collected, presented or analyzed in a biased way. People should be wary of this and come to conclusions on their own. This report will be a fact check on the claims that this database is often used to make. The specific claims the database owners give are not explicitly false. Instead, they mislead the reader to accept underlying, untrue assumptions.

Data

The website Mapping Police Violence has collected data since 2013 on every person known to have been killed by police in the United States. As of the authoring of this report, that data set includes 9037 individuals. The data set also includes many variables taken directly from a similar database from the Washington Post news organization. This database is the primary source used in this report. A secondary data set used is an grouped data set by U.S. state about the individuals in the first data set. The FBI keeps a database of crimes committed in the United States. A tertiary data set used in this report is a subset of this FBI database scraped from the FBI Crime Data Explorer. This data set contains information on the race and ethnicity of homicide offenders by state in the United States from 2009-2019.

The following variables from the Mapping Police Violence database are used in this report:

Variable Name	Variable Detail
Victim's name	Self explanatory
Victim's race	Self explanatory
State	U.S. State
A brief description of the circumstances surrounding the death	Self explanatory
Official disposition of death (justified or other)	self explanatory
Criminal Charges?	Whether or not criminal charges have been brought upon the officer involved
Link to news article or photo of official document	self explanatory
Armed/Unarmed Status	Whether or not the person killed was armed with a weapon
Alleged Threat Level (Source: WaPo)	The threat level the person posed at the time of their death.

The following variables from the aggregated U.S. state data are used in this report:

Variable Name	Variable Detail
State	U.S. State
# Black people killed	Black people killed by police
# Hispanic people killed	Hispanic people killed by police
# Native American people killed	Native American people killed by police
# Asian people killed	Asian people killed by police
# Pacific Islanders killed	Pacific Islanders killed by police
# White people killed	White people killed by police
# Unknown Race people killed	People killed by police with an unknown race

The following variables are used from the scraped data from the FBI Crime explorer site:

Variable Name	Variable Detail
State	U.S. State
Race Asian	Homicide offenders whose race is Asian
Race Native Hawaiian	Homicide offenders whose race is Native Hawaiian
Race Black	Homicide offenders whose race is Black
Race Native American/Alaskan	Homicide offenders whose race is Native American or Alaskan
Race White	Homicide offenders whose race is White
Race Unknown	Homicide offenders whose race is Unknown

Variable Name	Variable Detail
Ethnicity Hispanic	Homicide offenders whose ethnicity is Hispanic
Ethnicity Multiple	Homicide offenders whose ethnicity is Multiple
Ethnicity Not Hispanic	Homicide offenders whose ethnicity is Not Hispanic
Ethnicity Unknown	Homicide offenders whose ethnicity is Unknown

Analysis

Data Preparation and cleaning

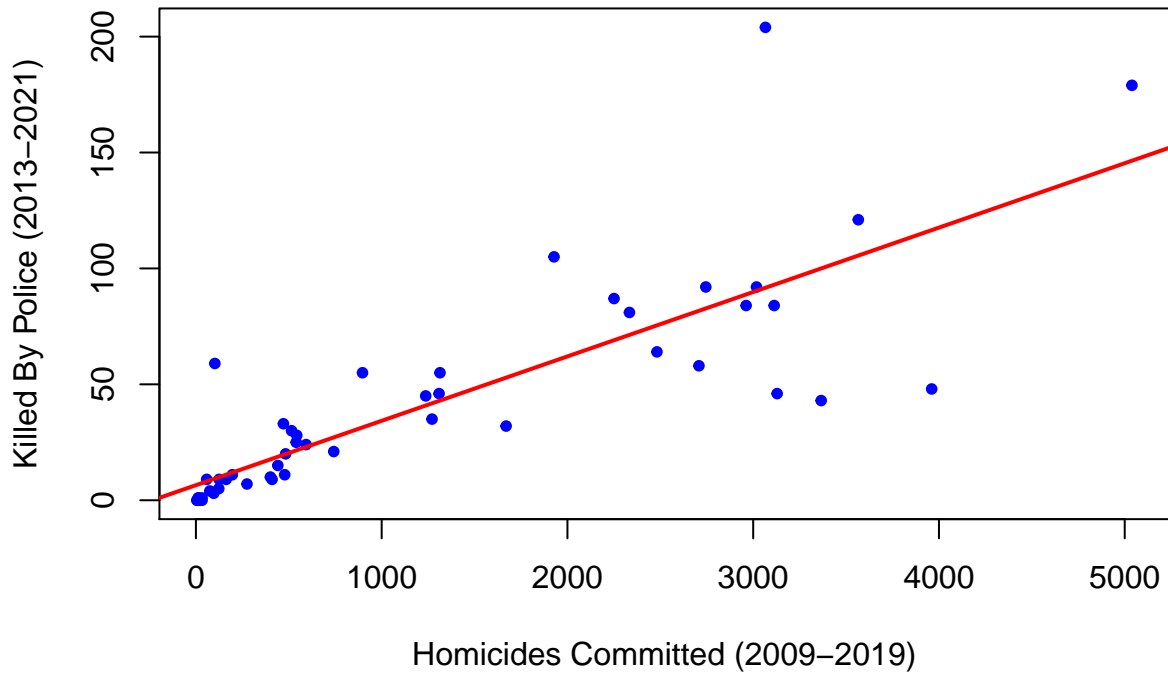
Throughout this report minor cleaning and formatting was performed to the databases. An exhaustive list is below.

- Subsetting grouped state data to include only variables used in the report.
- Replacing NA values in the state data with 0.
- Factor names for multiple variables from the individual police shooting data set had misspellings or non-uniform coding, these factors were collapsed into their appropriate group.
- Long and wordy variables from the individual police shooting data set were renamed while maintaining their original meaning.
- The `Alleged threat level` variable from the individual police shooting data set included many missing values. These values were eliminated when used in subsetting.

Claim One: Black people are three times more likely to be killed by police.

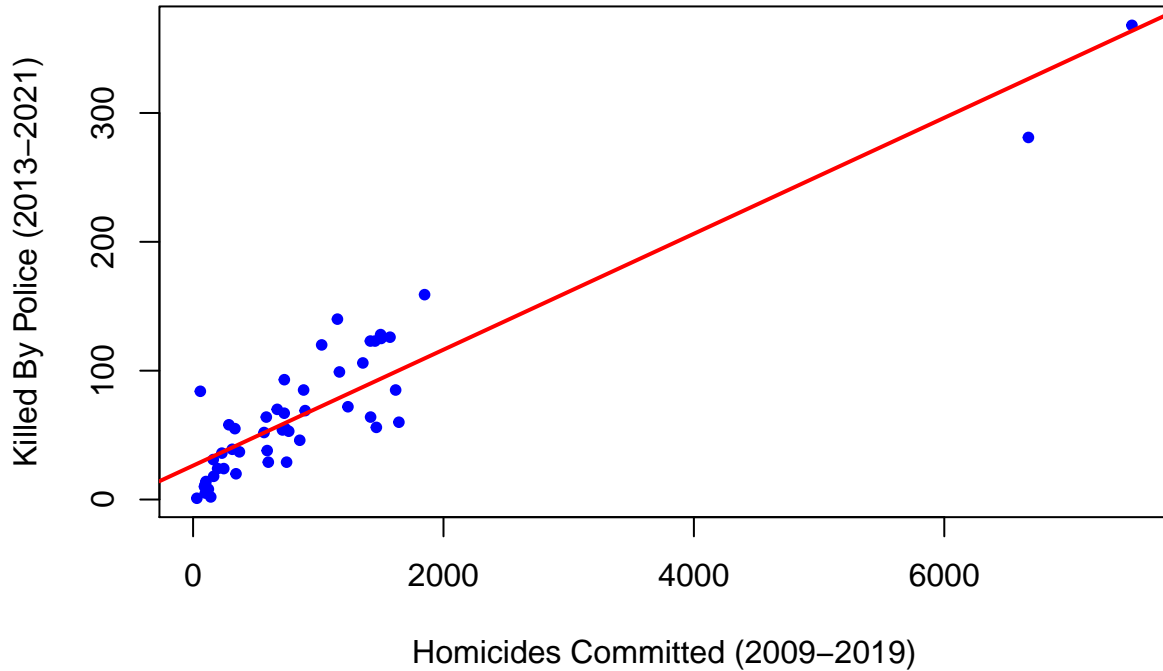
This claim is true based on this data. However, the underlying assumption that comes with this claim is that the *cause* of black people being killed by police at triple the rate of white people is because of systemic racism by police. This ignores the racial makeup and rate of crimes committed. Mapping Police Violence has one graph addressing this issue which shows that police killing rates and violent crime rates are *uncorrelated*. This graph does not distinguish by race though and only addressing major U.S. cities. When police murders and homicides committed are separated by race and regressed using simple linear regression, the graphs suddenly tell a different story. A summary statistics table is provided for each plot. (Data points on the graphs below represent U.S. states and the District of Columbia.)

Murderers Vs. Police Killings (Black)



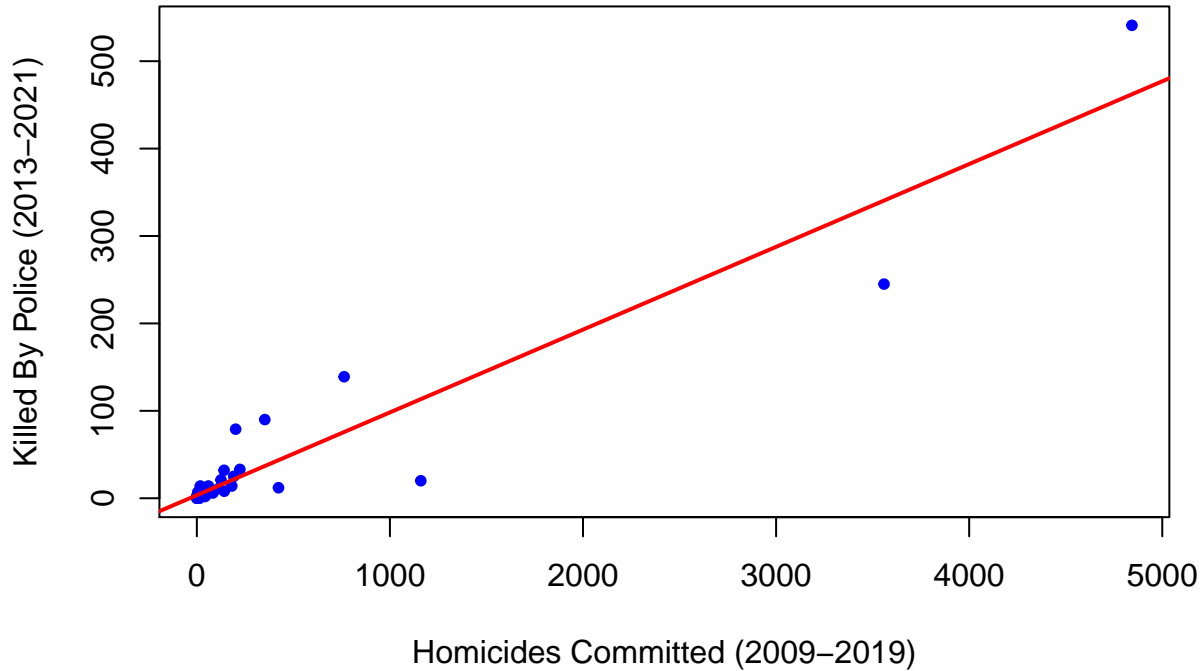
```
##
## Call:
## lm(formula = `# Black people killed` ~ `Race Black`, data = Crime_Murder)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -68.523  -6.973  -4.675   5.853 112.339
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  6.493503   4.958634   1.31   0.197
## `Race Black` 0.027778   0.002768  10.04 2.25e-13 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 25.91 on 48 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.6773, Adjusted R-squared:  0.6706
## F-statistic: 100.7 on 1 and 48 DF,  p-value: 2.247e-13
```

Murderers Vs. Police Killings (White)



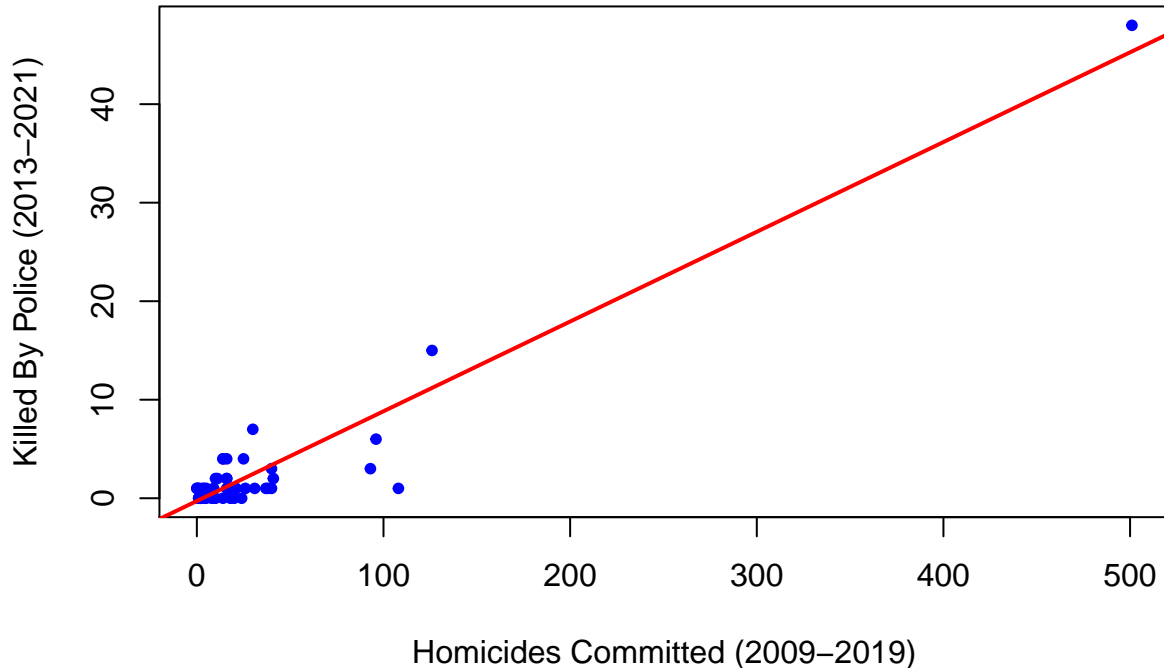
```
##
## Call:
## lm(formula = `# White people killed` ~ `Race White`, data = Crime_Murder)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -45.481 -19.985  -4.452  18.786  61.815
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)  26.312456   4.617346   5.699 7.21e-07 ***
## `Race White`  0.044989   0.002759  16.309 < 2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 26.44 on 48 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8471, Adjusted R-squared:  0.8439
## F-statistic:  266 on 1 and 48 DF,  p-value: < 2.2e-16
```

Murderers Vs. Police Killings (Hisp)



```
##
## Call:
## lm(formula = `# Hispanic people killed` ~ `Ethnicity Hispanic`,
##     data = Crime_Murder)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -95.558  -3.137  -2.452   2.973  78.848
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept)    3.522287   4.058135   0.868   0.39
## `Ethnicity Hispanic` 0.094699   0.004618  20.509 <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 27.37 on 48 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.8976, Adjusted R-squared:  0.8954
## F-statistic: 420.6 on 1 and 48 DF,  p-value: < 2.2e-16
```

Murderers Vs. Police Killings (Asian)



```
##
## Call:
## lm(formula = `# Asian people killed` ~ `Race Asian`, data = Crime_Murder)
##
## Residuals:
##      Min       1Q   Median       3Q      Max
## -8.5557 -0.9028  0.0997  1.1452  4.5492
##
## Coefficients:
##              Estimate Std. Error t value Pr(>|t|)
## (Intercept) -0.281847   0.330459  -0.853   0.398
## `Race Asian`  0.091089   0.004187  21.757 <2e-16 ***
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##
## Residual standard error: 2.155 on 48 degrees of freedom
## (1 observation deleted due to missingness)
## Multiple R-squared:  0.9079, Adjusted R-squared:  0.906
## F-statistic: 473.4 on 1 and 48 DF,  p-value: < 2.2e-16
```

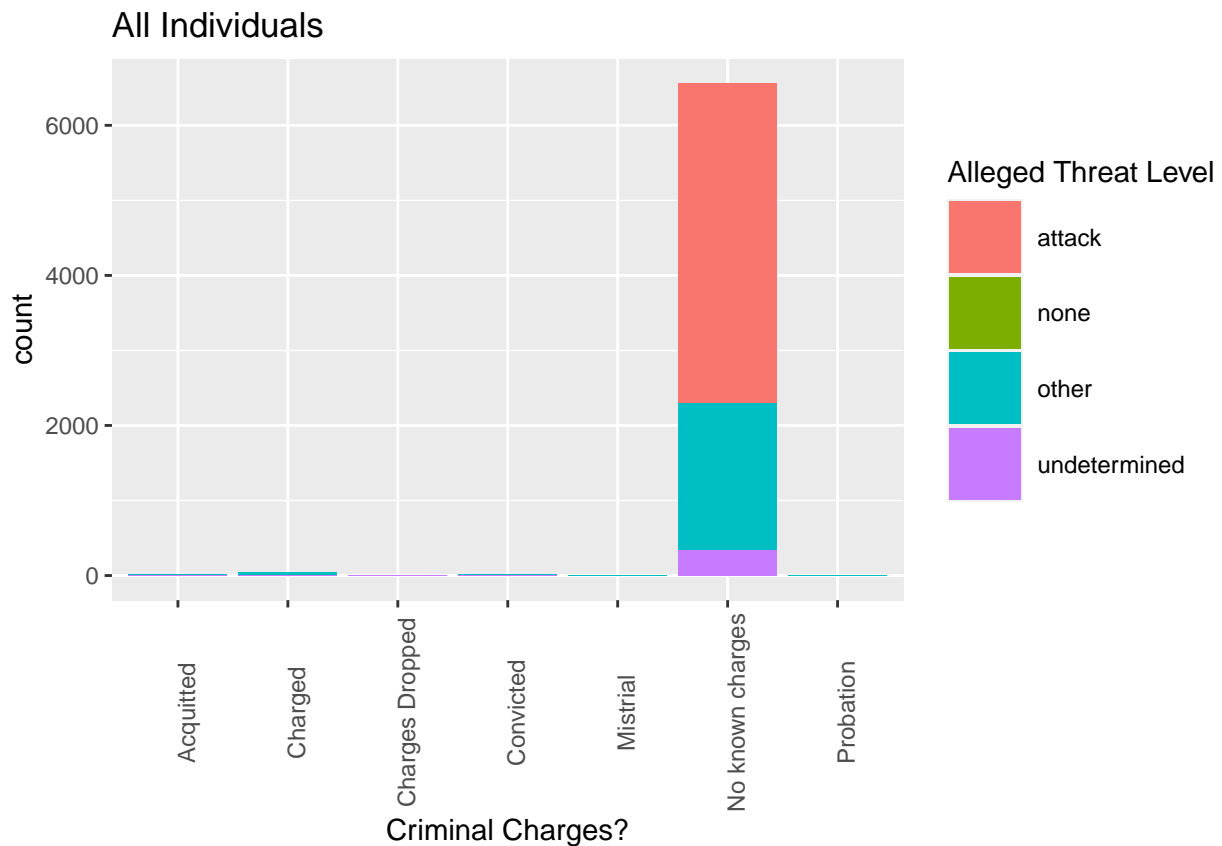
The plots and summaries above indicate a clear correlation between homicides committed and murders by police when separated by race and state. This is not to suggest that if someone kills someone the police have carte blanche to kill them, but, for Mapping Police Violence to suggest that police shooting rates have nothing to do with violent crime is misleading. For statistical significance, refer to Multiple R-squared values and corresponding p-values (all < 0.05 alpha level).

Claim Two: There is no accountability, 98.3% of killings by police from 2013-2020 have not resulted in officers being charged with a crime.

This claim is also true on its face. However this claim comes with the underlying assumption that the individuals behavior never warranted a police officer to shoot/taser/subdue the individual in the first place.

Below you will see a condensed proportion table and bar chart representing the different outcomes the criminal justice system provided to each individual case (with data available), layered with the threat level the individual posed at the time of their death. **According to The Washington Post, a threat level of attack indicated, "...the most direct and immediate threat to life."** While the category other is described as "including many incidents where the officers or others faced significant threats."

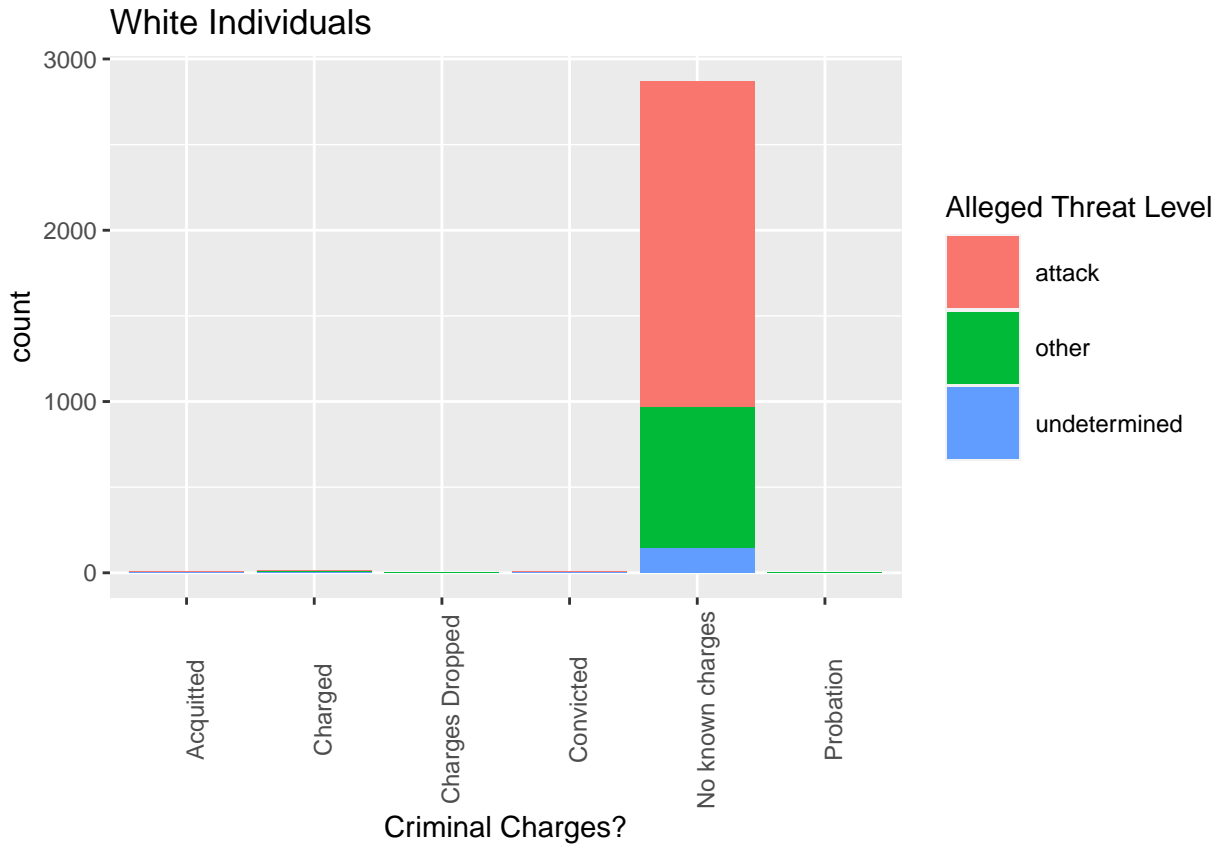
```
##
##           attack      none      other  undetermined
##  Acquitted    0.0006012325  0.0000000000  0.0016533894  0.0007515407
##  Charged      0.0018036976  0.0001503081  0.0048098602  0.0007515407
##  Charges Dropped  0.0001503081  0.0000000000  0.0004509244  0.0001503081
##  Convicted    0.0003006163  0.0000000000  0.0015030813  0.0007515407
##  Mistrial     0.0000000000  0.0000000000  0.0003006163  0.0000000000
##  No known charges 0.6413647978  0.0000000000  0.2932511649  0.0511047648
##  Probation    0.0000000000  0.0000000000  0.0001503081  0.0000000000
```



From the table and chart above, while 98.5% of cases resulted in no known criminal charges, in a full 64.1% of these cases the person who was killed had a threat level of **attack**, which remember, **“is meant to flag the highest level of threat.”** Another 29.3% of these cases had a threat level of **other**, which includes, **“many... significant threats.”** This leaves a total of just 5.1% of all cases where there was both no charges made and an undetermined threat level. In other words, this subset represents the group of “no accountability”.

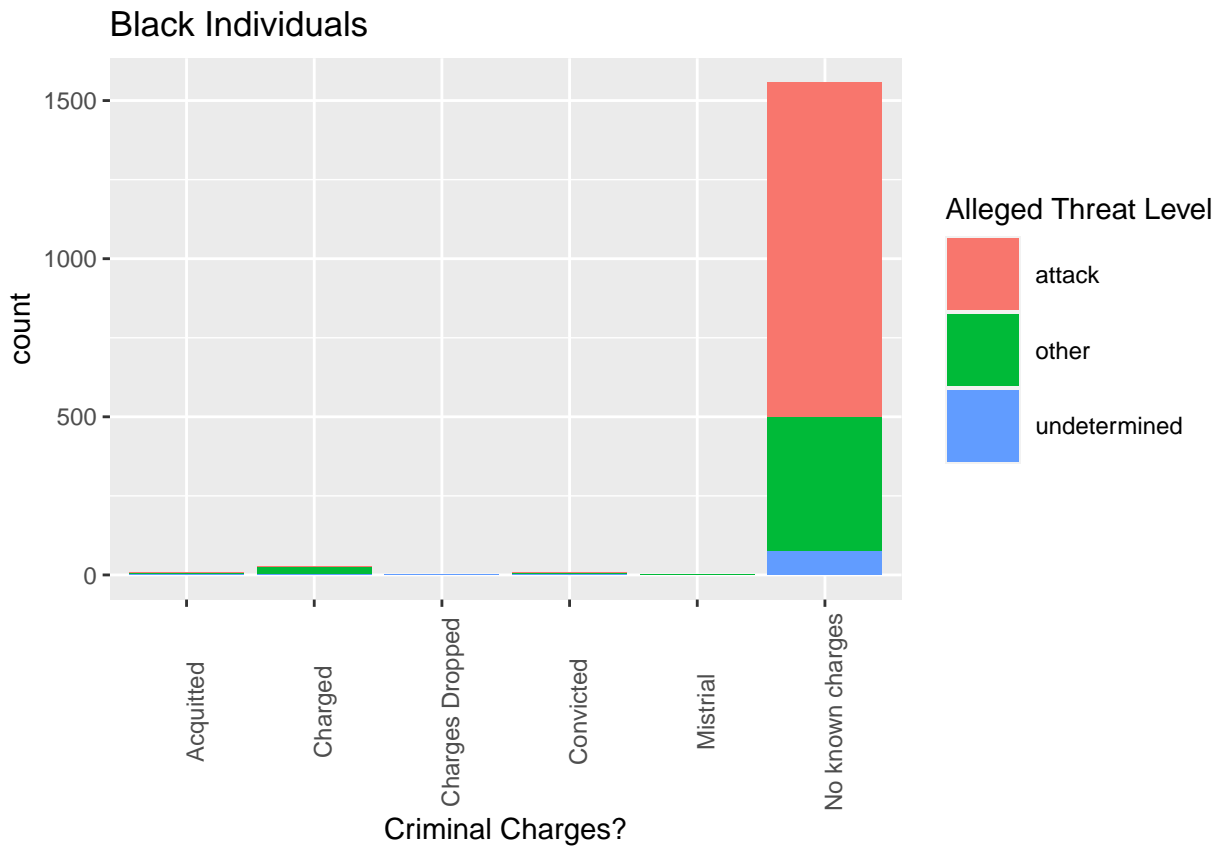
Perhaps when grouped by racial differences the story is different. After all, the overarching narrative is the racist aspect to policing in America. Below are two more sets of proportional frequencies tables and bar charts, this time separated into white and black individuals.

```
##
##           attack      other undetermined
##  Acquitted      0.0006884682 0.0013769363 0.0006884682
##  Charged        0.0024096386 0.0020654045 0.0006884682
##  Charges Dropped 0.0000000000 0.0003442341 0.0000000000
##  Convicted      0.0003442341 0.0017211704 0.0003442341
##  No known charges 0.6550774527 0.2846815835 0.0492254733
##  Probation      0.0000000000 0.0003442341 0.0000000000
```



```
##
##           attack      other undetermined
##  Acquitted      0.0012476606 0.0024953213 0.0012476606
##  Charged        0.0024953213 0.0124766064 0.0018714910
##  Charges Dropped 0.0000000000 0.0012476606 0.0006238303
##  Convicted      0.0006238303 0.0018714910 0.0018714910
```

```
## Mistrial          0.000000000 0.0012476606 0.0000000000
## No known charges 0.6593886463 0.2657517155 0.0455396132
```

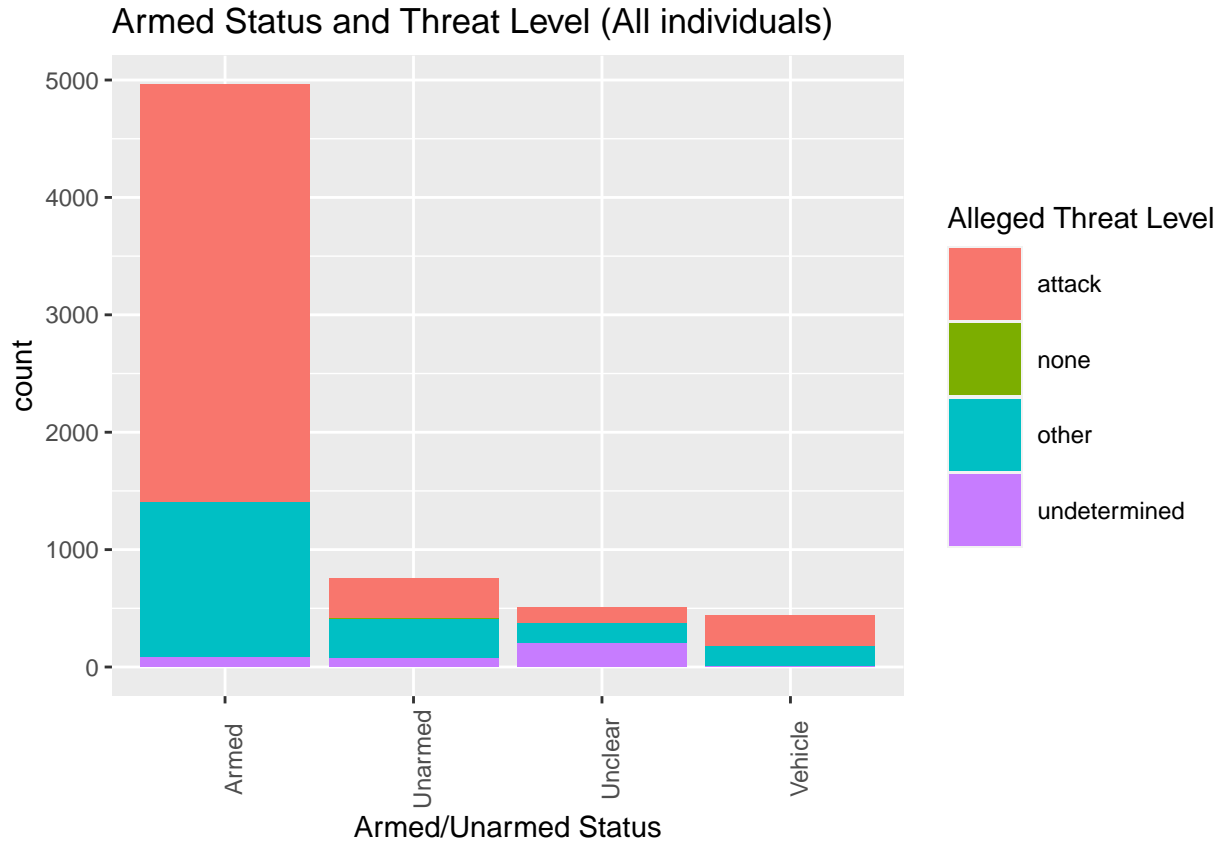


From the tables above, while the threat level is similarly distributed among the two racial groups, it can be seen that proportionally, officers who killed a black person were more often **charged with a crime and convicted for a crime**.

Claim Three: Black people are 1.3 times more likely to be killed by police while unarmed.

Once more, this claim is true on it's face. This time the underlying assumption is that 1) people never warrant being killed while unarmed and 2) that police specifically target black people in this way. This statistic is often brought up in the assertion that "unarmed black people are slaughtered in the streets".

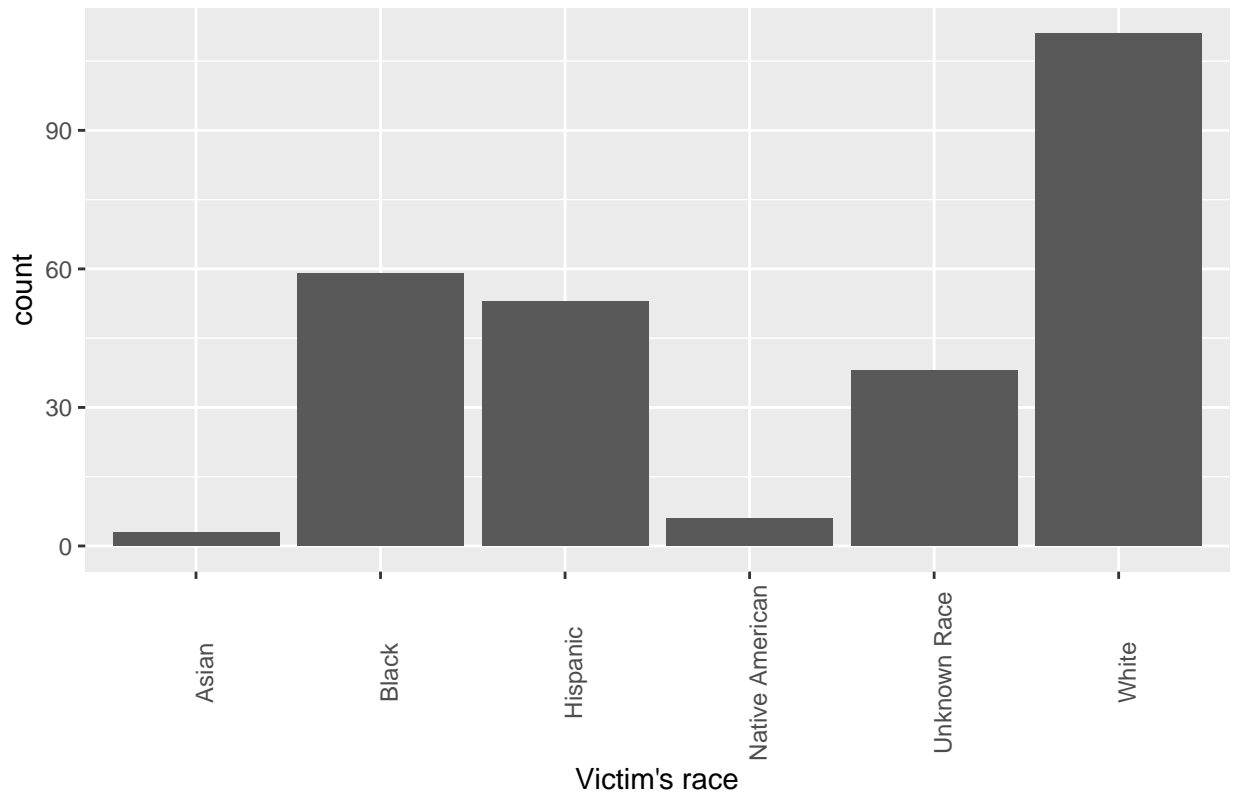
```
##
##          attack          none          other undetermined
## Armed    0.5339645326 0.0000000000 0.1991283439 0.0121731289
## Unarmed  0.0513976555 0.0001502855 0.0509467989 0.0106702735
## Unclear  0.0192365494 0.0000000000 0.0266005410 0.0297565374
## Vehicle  0.0395250977 0.0000000000 0.0255485422 0.0009017133
```



From the table and graph above, unarmed individuals who did not pose a the highest level of threat or a threat level that could not be determined account for 11.8% of individuals. When removing those individuals with a threat level of **other**, this group shrinks to 4%.

This group is shown below separated by race.

Individuals Killed with No Identifiable Threat



Discussion

It is a problem when the information people consume on a daily basis constantly reinforces the idea that the police and the U.S. in general is systemically racist. Using a left leaning database, this report sheds new light onto the facts surrounding police shootings. This is not to diminish the importance or the justice required of cases where the officer(s) involved unlawfully killed someone. Each and every one of those cases is a tragedy. In a perfect world, no person should lose their life immediately for *any* crime they commit. This is why we have due process and civil rights. Sadly we don't live in a perfect world. Individuals and officers alike sometimes make grave mistakes. Some law enforcement officers are probably racist as well. But to suggest that at the current number of police shootings in the U.S. proves a systemically racist institution is at work is absurd. To put this in one last perspective, the Bureau of Justice Statistics reports that in 2018, the police in the United States had 12.9 million interactions with black people. During that year 262 black people were killed by police and that doesn't take into account whether or not they were armed and/or a threat. Therefore, in 2018, black people were killed by police in 0.002% of all police contact with black people.

Author

My name is Vaughn Hilpp. I am an undergraduate senior at the University of Illinois at Urbana-Champaign studying statistics and econometrics. I am also the host of Where Liberty Dwells Podcast, a libertarian-

conservative minded show about politics and culture. I do not and will not claim to be objective, I have a conservative bias on many issues.

Sources

- FBI crime explorer
 - <https://crime-data-explorer.app.cloud.gov/pages/explorer/crime/shr>
- Mapping Police violence website and database
 - <https://mappingpoliceviolence.org/>
- Homicide data by state
 - <https://crime-data-explorer.app.cloud.gov>
- Washington Post Variable Details
 - <https://github.com/washingtonpost/data-police-shootings>