

ExpDataProj

2024-03-08

#Introduction

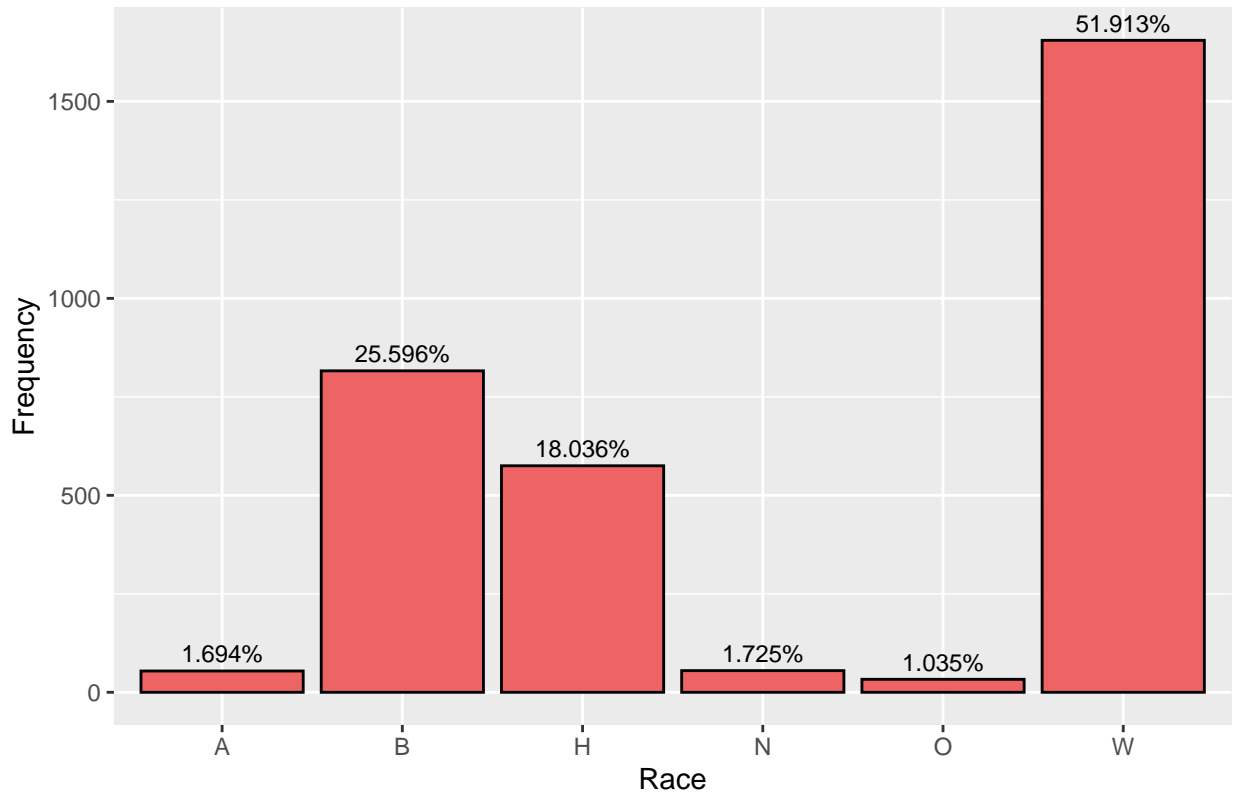
My goal of this exploratory data analysis project is to see if the number of fatal shootings is affected by multiple variables, including gender and the inclusion of a body camera vs without one.

```
library(readxl)
library(ggplot2)
police_shootings <- read_excel("/Users/isaiaholiver/Desktop/School/math130:rstudio/data/data-police-shootings.xlsx")
#police_shootings_male <- filter(police_shootings, gender == "M")
#police_shootings_female <- filter(police_shootings, gender == "F")
police_shootings_filtered <- na.omit(police_shootings)
```

#Univariate

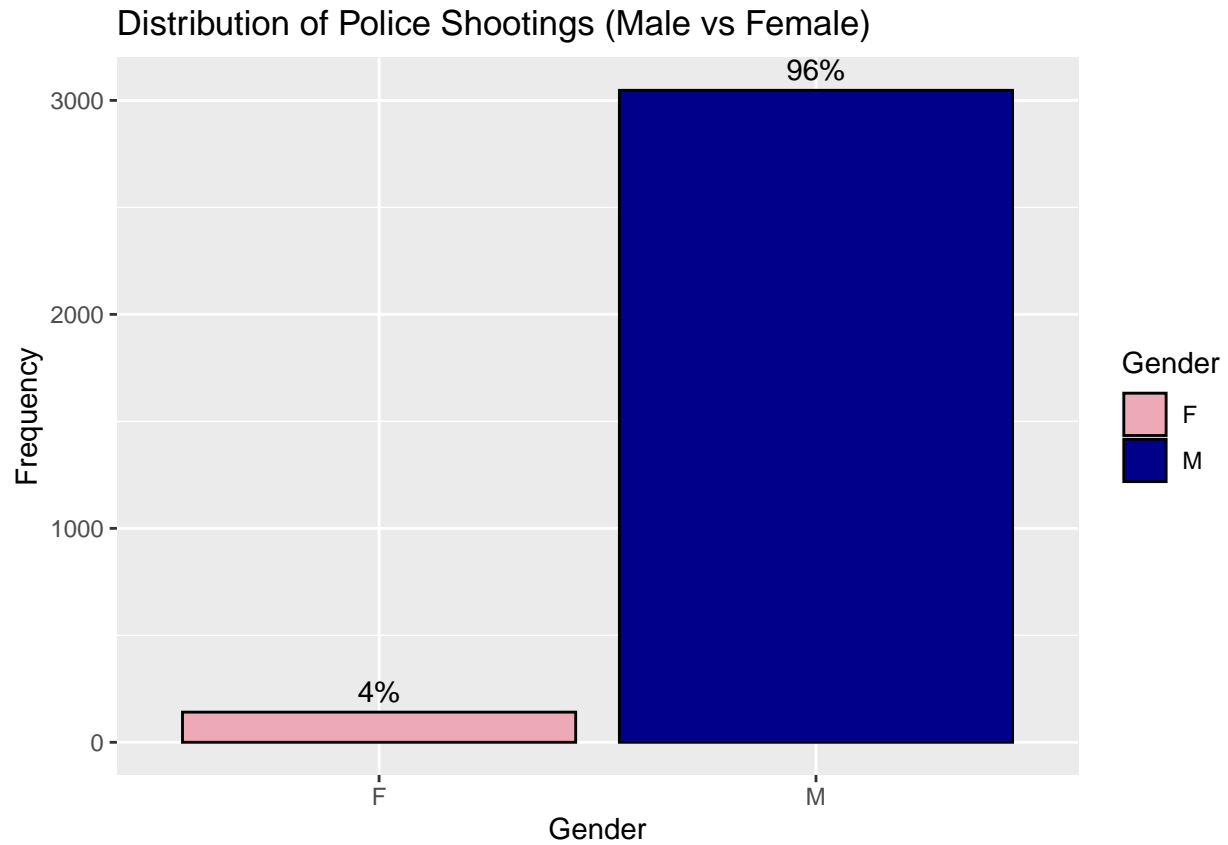
```
ggplot(police_shootings_filtered, aes(x = race)) +
  geom_bar(fill = "indianred2", color = "black") +
  geom_text(stat='count', aes(label=scales::percent(..count../sum(..count..)), vjust=-0.5), size=3) +
  labs(title = "Distribution of Races Involved in Police Shootings",
       x = "Race",
       y = "Frequency")
```

Distribution of Races Involved in Police Shootings



This chart shows a bar chart comparing the frequencies of the different races involved in police shootings side by side. As you can see, the highest proportion of people involved in the shootings belong to the “W” category, with group “B” being the next highest. The percentages are also displayed to show the portion of the total that each race takes up.

```
ggplot(police_shootings_filtered, aes(x = gender, fill = gender)) +  
  geom_bar(color = "black") +  
  geom_text(stat='count', aes(label=scales::percent(..count../sum(..count..)), vjust=-0.5), size=3.98) +  
  scale_fill_manual(values = c("pink2", "blue4"), name = "Gender") +  
  xlab("Gender") + ylab("Frequency") +  
  ggtitle("Distribution of Police Shootings (Male vs Female)")
```

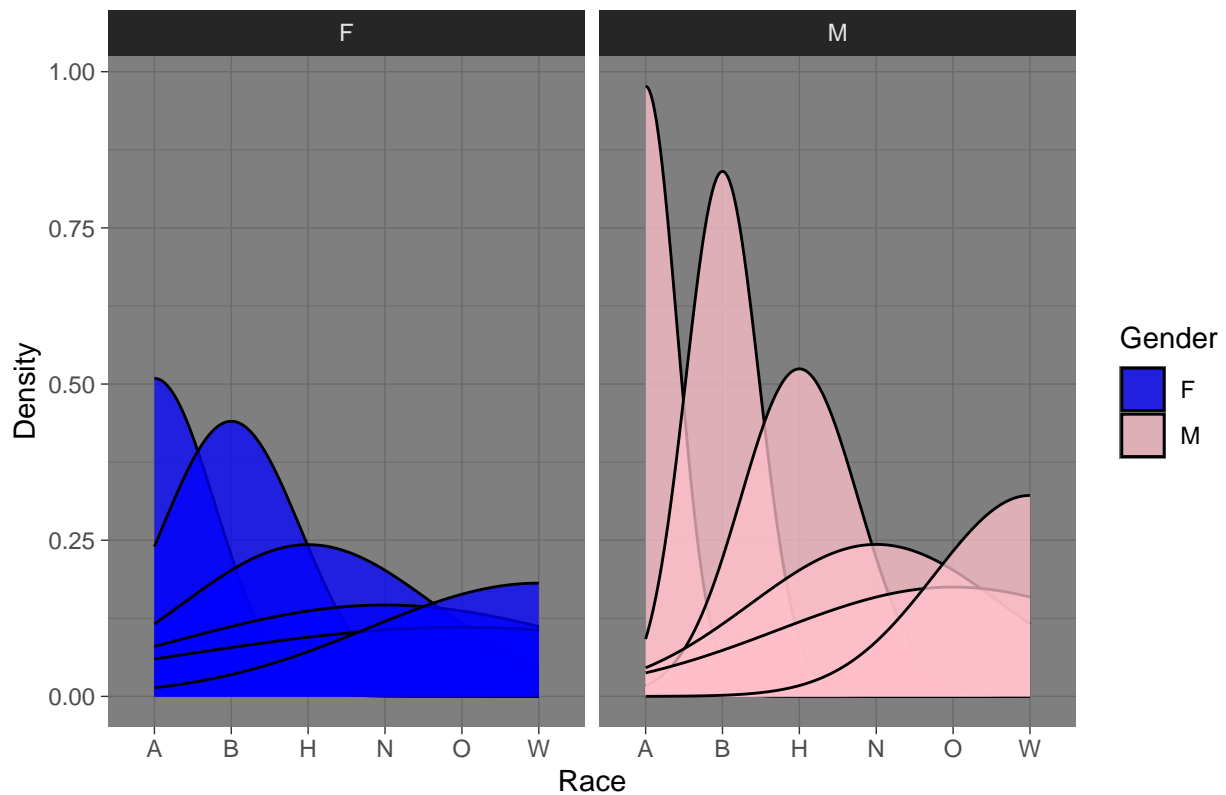


This is another barchart, but this time it is displaying the ratio of men involved in police shootings vs women. Is is easy to decipher that men are much more likely to be involved in these shootings.

#Bivariate

```
ggplot(police_shootings_filtered, aes(x = race, fill = gender)) +
  geom_density(alpha = 0.75) + facet_wrap(~gender) +
  scale_fill_manual(values = c("blue", "pink"), name = "Gender") +
  theme_dark() +
  xlab("Race") + ylab("Density") + ggtitle("Density Plot of Gender and Race in Police Shootings")
```

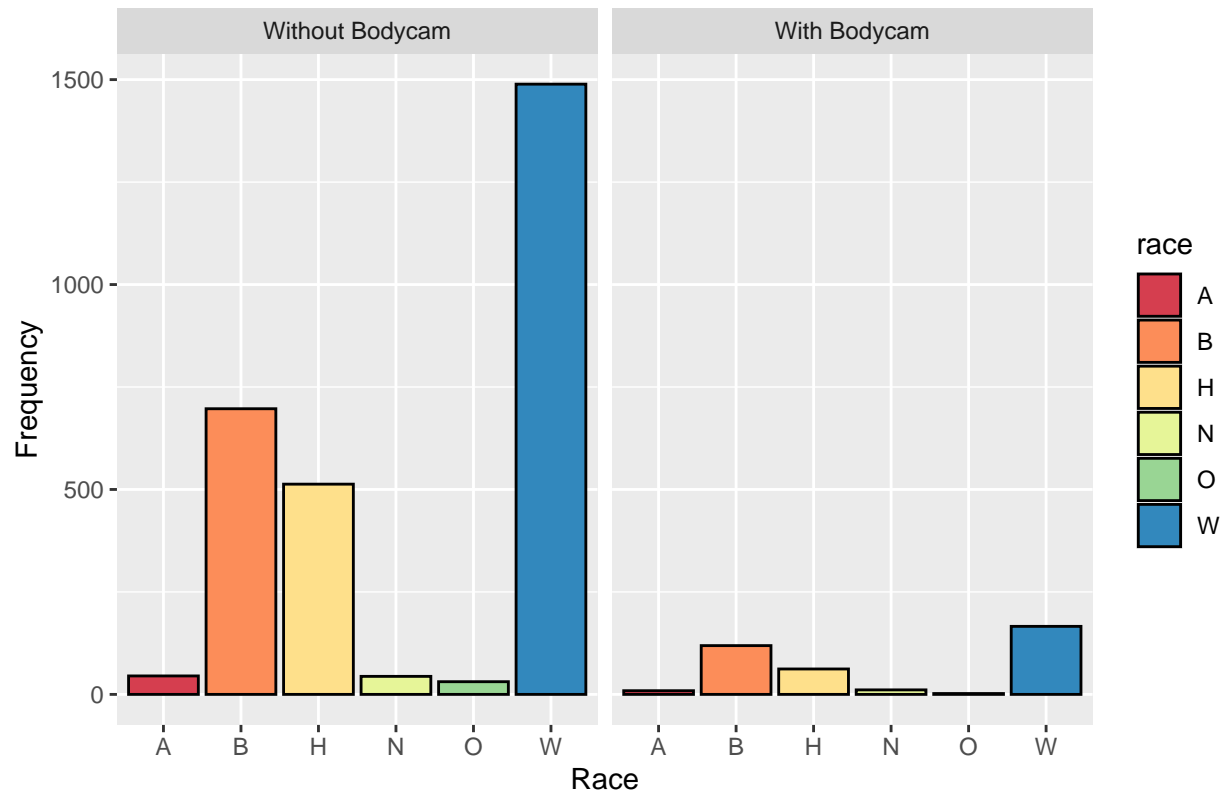
Density Plot of Gender and Race in Police Shootings



We can see that in these density graphs (one for male and one for female) that the frequency of males being involved in police shootings is much higher than that of females. The races that are involved the most in police shootings don't seem to change from male to female though, "W" still remains the most involved in the police shootings.

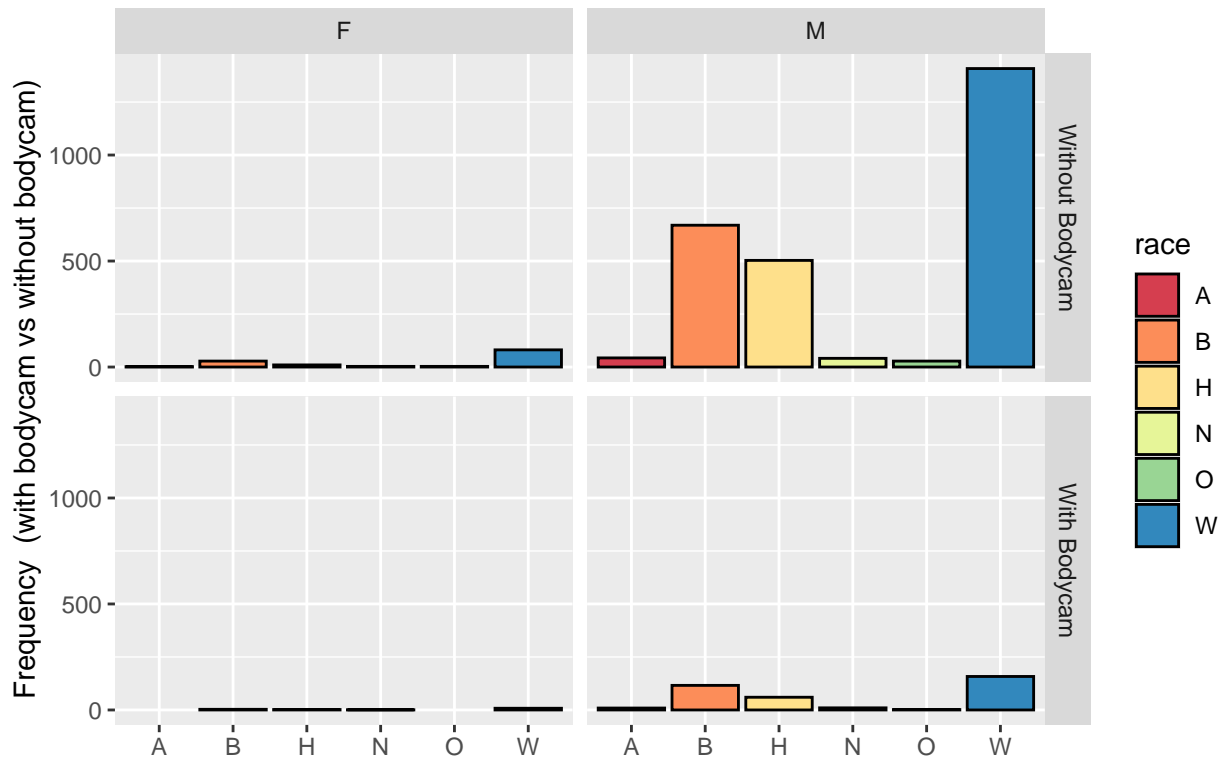
```
ggplot(police_shootings_filtered, aes(x = race, fill = race)) +
  geom_bar(color = "black") +
  facet_wrap(~body_camera, labeller = labeller(body_camera = c("TRUE"="With Bodycam", "FALSE"="Without Bodycam"))) +
  scale_fill_brewer(palette="Spectral") +
  xlab("Race") + ylab("Frequency") +
  ggtitle("Races Involved in Police Shootings")
```

Races involved in Police Shootings



```
ggplot(police_shootings_filtered, aes(x = race, fill = race)) +
  geom_bar(color = "black") +
  facet_grid(body_camera~gender, labeller = labeller(body_camera = c("TRUE"="With Bodycam", "FALSE"="Without Bodycam"))) +
  scale_fill_brewer(palette="Spectral") +
  ylab("Frequency (with bodycam vs without bodycam)") + xlab("Race") +
  ggtitle("Police Shootings (Male vs Female against w/bodycam and wo/bodycam)")
```

Police Shootings (Male vs Female against w/bodycam and wo/bodycam)



Next I will do a `facet_wrap()` to graph police shootings by race against bodycamera usage, and then in the second graph I will do the same thing but then use `facet_grid()` to also include gender on the graph alongside bodycamera. We can see that shootings are much more prevalent when there is not a bodycam in use, and it is much more common for males to be involved in the police shootings.

`#Conclusion`

In conclusion I have found that there is enough statistical evidence to show that there is a correlation between increased police shootings and them also not having bodycam footage available. I have also learned that it is much more probable for males to be involved in police shootings than it is for females.