Black Victims of Police Violence: Data Visualization Project

Katherine McGuire and Desirée Salis

Department of Psychology, York University

PSYC3031A: Intermediate Statistics

Dr. Monique Herbert

November 4th, 2020

Black Victims of Police Violence: Data Visualization Project

Historical and contemporary impacts of systemic racism are thought to be at the root of the disproportionate targeting and killing of Black people in America where the dominant groups have made use of deadly force as a method to perpetuate oppressive ideologies against marginalized groups (Darden & Godsay, 2018). The insidious nature of racist ideology is thought to have cultivated both explicit and implicit biases that have resulted in the structured inequalities, including within the criminal legal system where arrest, incarceration, and death penalty rates are higher for Black people than White people (Darden & Godsay, 2018). This is significant because of the inherent responsibility of police officers to "protect and serve" (Gray & Parker, 2019).

Though Black people comprise 13% of the population in America, they are more than twice as likely than White people to be killed by police whether they are armed or not (Darden & Godsay, 2018). It has been demonstrated that these findings are stable when variables such as age and mental illness are controlled (Darden & Godsay, 2018). A recent study found that minority groups were not only more likely than White people to be shot while unarmed, but they were also less likely than other civilians to attack police officers (Gray & Parker, 2019). Though it is argued by some scholars that there is a disproportionate use of deadly force against racial minorities by police officers, it has also been suggested that information on crime and interactions between police officers and civilians may not be included on the representations of racial groups (Gray & Parker, 2019).

It is necessary to consider the notions of White superiority that have contributed to the development and proliferation of racist ideology in the United States, both structurally and socially (Darden & Godsay, 2018). It is additionally worth noting that raising consciousness on

this one topic is vital, however must also be considered within the context of other systems of oppression including immigration, schooling, and housing (Darden & Godsay, 2018).

Area of Interest: Black Women, Mental Illness, and Police Brutality

The themes of toxic masculinity, social control and threat theory run rampant within the dialogue surrounding police brutality against Black lives (Carmichael & Kent, 2015). Work by Jacobs and O'Brien (1998) has demonstrated the use of lethal force by social control agencies such as police forces in allowing hegemonic power to thrive. Literature on police brutality has pointed to various explanations, including threat theory, which maintains that the use of extreme force by police increases as proportions of minority groups increase and acts as a form of coercive control (Smith & Holmes, 2014). Thus aggressive policing is a reflection of structural damage and social division of racial groups and the tendency for social control agencies to work in favor of the dominant group (Smith & Holmes, 2014).

Toxic masculinity and masculinity threat have been cited as explanations for individual predispositions in officers' likelihood of utilizing lethal force (Crenshaw, 2020). The suggestion is that an officer's racial bias is less important than their sense and understanding of their own masculinity in determining their likelihood of use of deadly force (Crenshaw, 2020). Accounts of force used on Black women are framed as consequences of Black women's bad behavior and justified accordingly, rather than being recognized for what they are: abuse of police power and the display of toxic masculinity (Crenshaw, 2020). When masculinity threat is contextualized within police brutality, the question centres around the type of threat that Black women apparently pose (Crenshaw, 2020).

In the discussion of gender differences in policing styles, it has also been argued that the increased hiring of female police officers has the potential to reduce the use of lethal force

(Carmichael & Kent, 2015). Female officers have a distinct set of skills, including increased empathy and decreased likelihood of using physical aggression; these gender differences have the potential to affect the culture of policing that has typically been marked by aggression (Carmichael & Kent, 2015).

Police brutality against Black women and girls must be seen as a social problem, as the innumerable accounts of documented violence attest to a problem requiring immediate acknowledgement (Crenshaw, 2020). The disparaging treatment of Black women and girls stems from a historical legacy in which they have been disadvantaged by way of their position at the intersection of their gender and race (Battle, 2016). The erasure of Black women stems, in part, from a legacy of social exclusion in the nineteenth century (Battle, 2016). Dubbed the "cult of true womanhood", more value was placed on White women above all other races (Welter, 1966) and the exclusion of Black women not only justified violence against them, but also the withholding of legal protection for them (Battle, 2016).

The histories and needs of Black women are diminished, in part, due to the focus on the Black, male victim (Cooper, 2014). The plight for recognition of the injustices against Black women seems impossible against the backdrop of a White, patriarchal society and the social, legal, and political institutions within it (Battle, 2016). The historical erasure of Black women carries through to the present context as the police brutality they face is by and large ignored; structural inequalities which favour individuals of the dominant class, sex, and race leave Black women out of the conversation. Creation of the #SayHerName movement in 2015 aimed to bring awareness to police violence against Black women (Borda & Marshall, 2020). While the #BlackLivesMatter movement had a large focus on Black men as victims of police violence,

#SayHerName provided the space for Black women in the narrative and highlighted their elimination from the discourse on police brutality (Borda & Marshall, 2020).

While little research has been conducted on police violence against individuals with mental illness, literature on the topic has demonstrated that such individuals are at a higher risk for victimization by police (Jun et al., 2020). Common justification of increased crime involvement cannot explain such levels of force and use of sexual and psychological violence (Jun et al., 2020). Police interactions with mentally ill individuals, such as during calls for service, have been presented as some of the most dangerous for the officer (Morabito & Socia, 2015). Such perceptions of increased threat to police are unsupported and perpetuated by officers themselves (Morabito & Socia, 2015). Common conceptions of mentally ill individuals being dangerous and more likely to commit crime are also unfounded; research shows that few officers sustain injury during contact with mentally ill individuals and crimes committed by mentally ill individuals are not typically crimes of violence (Morabito & Socia, 2015). Researchers looking at the National Study for American Life found African Amercian adults with psychiatric disorders to not only be at a higher risk of police violence, but such encounters exasperated individuals' mental illness and increased likelihood of suicidal ideation and suicide attempt (Oh et al., 2017). Thus, the concern for Black individuals with mental illness in police encounters is pressing and in need of increased attention.

Description of the Data

The data set fatal-police-shootings-data-2.csv contains the records of fatal shootings of civilians by police officers in the United States. There are 5716 recorded victims included in the data set along with variables including name, date of fatal shooting, the manner of death, and age. Of the 5716 records, the youngest age of a record is 6, the oldest is 91, and 258 records lack

data on age (SD = 13.08). The average age (M_{age} = 37.1) at time of death comprises both men and women from a variety of "racial" groups. Women account for 252 of the records, and 2595 of the recordings were for white people with 1345 for black people, and the remaining for other racial categories. This project focuses on the variables most relevant to the research question, and uses: gender, race, signs_of_mental_illness. Of the 16 variables total, only these 3 variables will be included due to necessity but it is worth noting that the original data set also contains the name of each victim, the date that they were killed, location, and whether the officer was wearing a body cam at the time of death.

- Gender: M (male), F (female) (categorical)
- Race: W (white), B (black), H, N, A (categorical)
- Signs_of_mental_illness: FALSE, TRUE (categorical)

This data set comes out of the work done by the Washington Post on documenting these shootings since January 1, 2015. The data is updated regularly as fatal shootings happen and are reported. It is significant to note that there is no systematic collection of data regarding police shootings and lethal force incidents in the United States, though some high-profile media accounts have resulted in the creation of new databases (Gray & Parker, 2019). The Fatal Force database created by the Washington Post is one of three comprehensive, yet unofficial, databases that attempt to accurately represent shootings of Black people in the US (Gray & Parker, 2019). Data collected by the FBI is considered to be an official source, however this data is known to be either inaccurate or to produce differences with the "unofficial data" presented by alternative databases (Gray & Parker, 2019).The Post's contribution intends to improve concerns over transparency and accountability for how implicit and explicit biases impact the use of lethal force

(Peeples, 2019). Though the dataset is imperfect and collection is ongoing, the insight gleaned demonstrates the widespread use of deadly force by police officers (Peeples, 2019).

Visualization Question

Based on the literature review, we expected that the data visualization would align with previous research and show that Black males were more likely than White males to be killed by police officers, regardless of mental illness. Most research on fatal shootings by police officers have focused primarily on Black males (Darden & Godsay, 2018), so an additional aspect to this design was visualizing whether Black women with mental illness were more likely to be shot than White women. We expected that data visualization would show that black women showing signs of mental illness would be killed more than white women with signs of mental illness. Our hypotheses were as follows:

H_0: Black males and white males were killed equally by police officers, regardless mental illness

H_1: Black males were more likely to be killed by police officers than white men, regardless of mental illness

H_0: White and Black women with mental illness were killed by police officers equally

H_1: White women with mental illness were killed more by police officers than white women

Goals and Outcomes of the Visualization

Our interest in this erasure of police brutality on Black women and girls results from the historical injustices they have faced and the continued elimination of their stories from mainstream media, research, and dialogue surrounding police violence. The history and disadvantages they have faced by way of their social position at the intersection of race and gender has been well-documented in the literature. Furthermore, considering the research on the police treatment of mentally ill individuals, we began hypothesizing that such an intersection of

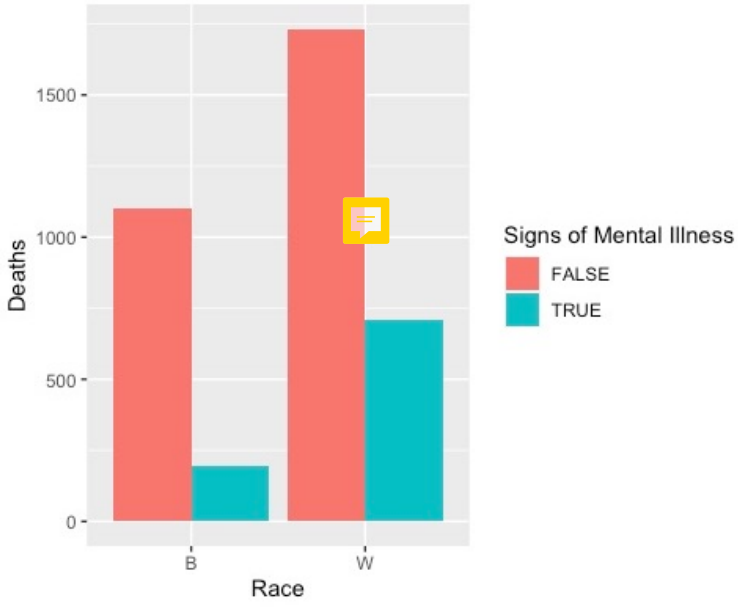
gender and race with mental illness would further disadvantage Black women and needs to be investigated.

Our goal for this visualization is to make a contribution to the body of research on Black women's experiences with police violence, given that it is currently under-researched and urgently in need of investigation. We also want to utilize the visualization to combat the erasure of Black women's experiences by showcasing the data that does in fact exist and provide an opportunity for dialogue surrounding this social issue. While it may be missing from the literature, a data set such as this one provides an opportunity to bring the information to light in a meaningful way. We aim to demonstrate the prevalence of police violence against Black women and Black women with mental illness.

The first hypothesis was that Black males were more likely to be killed by police officers than White men, regardless of mental illness. The visualization (see Figure 1) suggested that the data did not align with this hypothesis. Deaths for both Black and White men were higher without showing signs of mental illness, and the Black deaths were lower for each factor of signs

Figure 1

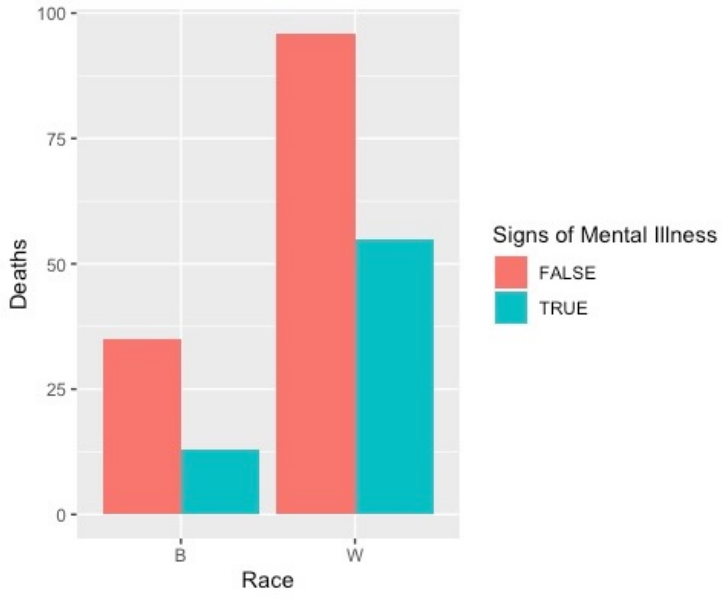
Deaths of Black and White Men with or without Signs of Mental Illness



of mental illness. This suggests that White men are killed more often than Black men, regardless of showing signs of mental illness. Possible reasons for this will be discussed in the limitation section of this paper.

Figure 2

Deaths of Black and White Women with or without Signs of Mental Illness



Our second visualization (see Figure 2) did not align with our goal of highlighting the deaths of Black women as being higher than the deaths of White women, both with and without signs of mental illness. In contrast, our visualization demonstrated the higher number of deaths for White women. While this did not align with either our goals or expectations, it may be a reflection of the underreporting of Black women's deaths, as we previously discussed. Further research would be required to investigate this and better understand the representation of Black women's deaths by police within data. Our visualization, however, functions as an opportunity to bring to light the deaths of Black women that are, in fact, documented. In this regard, it is well-aligned with our goal of providing an opportunity for not only a visual representation of these

deaths and a contribution toward the recognition of this social issue, but an avenue for which conversation can stem.

R Code

```
#get wd
getwd()
[1] "/Users/desireesalis/Documents/York U/Fall 2020/PSYC 3031 Intermediate Stats/RProjects/
Activities"

#load libraries for this project
library(car)
library(psych)
library(ez)
library(here)
library(tidyverse)

# library(car)
Loading required package: carData
# library(psych)

Attaching package: ‘psych’

The following object is masked from ‘package:car’:

    logit

# library(ez)
Registered S3 methods overwritten by 'lme4':
  method                          from
  cooks.distance.influence.merMod car
  influence.merMod                car
  dfbeta.influence.merMod         car
  dfbetas.influence.merMod        car
# library(here)
here() starts at /Users/desireesalis/Documents/York U/Fall 2020/PSYC 3031 Intermediate Stats/
RProjects/Activities
# library(tidyverse)
—— Attaching packages
————————————————————————————————————————— tidyverse 1.3.0
——
✓ ggplot2 3.3.2     ✓ purrr   0.3.4
✓ tibble  3.0.3     ✓ dplyr   1.0.2
✓ tidyr   1.1.2     ✓ stringr 1.4.0
```

```
✓ readr   1.3.1     ✓ forcats 0.5.0
── Conflicts ──────────────────────────────────────────────────────────────────
tidyverse_conflicts() ──
x ggplot2::%+%()   masks psych::%+%()
x ggplot2::alpha() masks psych::alpha()
x dplyr::filter()  masks stats::filter()
x dplyr::lag()     masks stats::lag()
x dplyr::recode()  masks car::recode()
x purrr::some()    masks car::some()

#import data
here("Data", “fatal-police-shootings-data-2.csv")
[1] "/Users/desireesalis/Documents/York U/Fall 2020/PSYC 3031 Intermediate Stats/RProjects/
Activities/Data/fatal-police-shootings-data-2.csv"

#import the data
police <- read_csv(file = here("data", “fatal-police-shootings-data-2.csv"))
Parsed with column specification:
cols(
  id = col_double(),
  name = col_character(),
  date = col_date(format = ""),
  manner_of_death = col_character(),
  armed = col_character(),
  age = col_double(),
  gender = col_character(),
  race = col_character(),
  city = col_character(),
  state = col_character(),
  signs_of_mental_illness = col_logical(),
  threat_level = col_character(),
  flee = col_character(),
  body_camera = col_logical(),
  longitude = col_double(),
  latitude = col_double(),
  is_geocoding_exact = col_logical()
)

#view the data
police
# A tibble: 5,715 x 17
      id name  date       manner_of_death armed   age gender race  city
   <dbl> <chr> <date>     <chr>           <chr> <dbl> <chr>  <chr> <chr>
 1  2407 Fran… 2017-03-08 shot            gun      91 M      W     Unio…
```

```
 2  4264 Jame… 2018-04-25 shot          gun      89 M      NA    Gran…
 3  6159 Robe… 2020-09-12 shot          gun      88 M      B     West…
 4   542 Raym… 2015-06-11 shot          gun      86 M      NA    Colu…
 5  1880 Euge… 2016-09-12 shot          gun      86 M      NA    Sara…
 6  3403 Raym… 2018-02-12 shot          gun      84 M      W     Home…
 7  4252 Amel… 2018-03-07 shot          unar…    84 F      W     Bexa…
 8  4100 Kay … 2018-10-12 shot          gun      84 M      W     Chan…
 9  5609 Laws… 2020-03-08 shot          gun      84 M      W     Apac…
10   357 Rich… 2015-04-12 shot          mach…    83 M      W     Okla…
# … with 5,705 more rows, and 8 more variables: state <chr>,
#   signs_of_mental_illness <lgl>, threat_level <chr>, flee <chr>,
#   body_camera <lgl>, longitude <dbl>, latitude <dbl>,
#   is_geocoding_exact <lgl>

#does the data need to be cleaned? Check for discrepancies
#check variable specifications
spec(police)
cols(
  id = col_double(),
  name = col_character(),
  date = col_date(format = ""),
  manner_of_death = col_character(),
  armed = col_character(),
  age = col_double(),
  gender = col_character(),
  race = col_character(),
  city = col_character(),
  state = col_character(),
  signs_of_mental_illness = col_logical(),
  threat_level = col_character(),
  flee = col_character(),
  body_camera = col_logical(),
  longitude = col_double(),
  latitude = col_double(),
  is_geocoding_exact = col_logical()
)

#are there any parsing problems?
problems(police)
[1] row      col      expected actual
<0 rows> (or 0-length row.names)

#check the data to be sure
view(police)

#generate descriptives for each variable - numerical
```

```
#don't forget that gender and race are both character variables
summary(police[,c(6,7,8)])
     age            gender             race
 Min.   : 0.0011   Length:5715        Length:5715
 1st Qu.:27.0000   Class :character   Class :character
 Median :35.0000   Mode  :character   Mode  :character
 Mean   :37.1323
 3rd Qu.:46.0000
 Max.   :91.0000
 NA's   :258

#use describe function to look at the descriptives for the variables gender, race, and signs of
mental illness
describe(police[,c(6,7,8)])
        vars    n  mean    sd median trimmed   mad min max range  skew
age        1 5457 37.13 13.08     35   36.13 13.34   0  91    91  0.70
gender*    2 5714  1.96  0.21      2    2.00  0.00   1   2     1 -4.44
race*      3 5108  4.26  1.84      6    4.35  0.00   1   6     5 -0.22
        kurtosis   se
age         0.12 0.18
gender*    17.71 0.00
race*      -1.77 0.03

#make a table showing how many men and women are represented in the data
table(police$gender)
  F    M
 252 5462

#make a table showing the breakdown of races
table(police$race)
   A    B    H    N    O    W
  94 1345  946   81   47 2595

#might need a few more packages for the plots
library(readr)   # parse_factor() function
library(dplyr)   # for easier subsetting and

# data manipulation
library(forcats) # create/mutate factors easier
library(ggplot2)

#create a dataframe that contains only the variables gender, race, and signs of mental illness
#filter to include only female from gender and black and white from race
police2 <- select(police, gender, race, signs_of_mental_illness) %#%
  dplyr::filter(gender == "F" & race %in% c("W" , "B"))
```

```
#create a dataframe that contains only the variables gender, race, and signs of mental illness
#filter to include only male from gender and black and white from race
police3 <- select(police, gender, race, signs_of_mental_illness) %>%
  dplyr::filter(gender == "M" & race %in% c("W" , "B"))

#check out the new data frame — should include only black and white women
police2

#check out the new data frame — should include only black and white men
police3

#make the chart for deaths of black and white women with or without signs of mental Illness
ggplot(data = police2,
       mapping = aes(x = race, fill = signs_of_mental_illness)) +
  geom_bar(position = position_dodge()) +
  scale_fill_discrete(name = "Signs of Mental Illness") +
  labs(y = "Deaths",
       x = "Race") +
  theme(plot.title=element_text(face="bold"))

#make the chart for deaths of black and white men with or without signs of mental Illness
ggplot(data = police3,
       mapping = aes(x = race, fill = signs_of_mental_illness)) +
  geom_bar(position = position_dodge()) +
  scale_fill_discrete(name = "Signs of Mental Illness") +
 labs(y = "Deaths",
       x = "Race") +
  theme(plot.title=element_text(face="bold"))
```

Limitations

There are limitations to both the data being used and the visualization created using the data. A major limitation of the data is the short timespan it covers; the data collection began in 2015 and thus would not include the countless women who experienced violence and disparaging police treatment prior to that year. Furthermore, the data includes deaths of women that have been reported or accounted for, though there are unfortunately innumerable Black women who have lost their lives during police encounters who are not included and remain

unseen. This limitation speaks directly to the historical exclusion and social systems that work to oppress certain individuals and favour others.

A noticeable limitation to the data set being used is the incompleteness of a large portion of the entries: 606 of the entries did not account for the individual's race. As such, they were eliminated from the data analysis and were not represented in our visualization. This impacted our visualization insofar as it reduced the accurate and full reflection of the data and had the potential of altering the outcome.

One aspect of the data set that may be a limitation is the lack of information about demographics. If the population in one state is majority White, then we would expect to see higher rates of altercations with police officers. The data set does show what state each individual was killed in, but the general demographics of those states are not included. This does not align with previous findings that indicate that Black people are twice as likely to be killed by police than White people, even thought they make up only 13% of the population (Darden & Godsay, 2018).

Conclusion

This project utilized a data set created by The Washington Post that documented deaths caused by police officers against United States citizens from 2015 to the present (Gray & Parker, 2019). The goal of this project was to contribute to the research on Black women who have been killed by police officers, which is a topic that has been historically underrepresented and has lacked adequate research. As mentioned previously, both the histories and needs of Black women exist in the shadow of the emphasis on Black men in the literature (Cooper, 2014). Our visualization was meant to give form to the concern over lacking representation of Black women, and to contribute to the conversation regardless of how quiet it is. Though our hypothesis was

not shown to be true, we feel that representing the deaths of Black women through this project is a vital endeavour.

Based on our literature review, we expected that both Black men and women would have been killed at rates higher than White men and women. The visualizations showed that this was not true, as discussed in our limitation section. Future research is required to better understand the experiences of Black individuals with police violence. Representations of data which take into account the demographic makeup of Black individuals are needed to adequately portray the urgency of this social issue.

References

Battle, N. T. (2016). From slavery to jane crow to say her name: An intersectional examination of black women and punishment. *Meridians*, *15*(1), 109–136. https://doi.org/10.2979/meridians.15.1.07

Borda, J. L., & Marshall, B. (2020). Creating a space to #SayHerName: Rhetorical stratification in the networked sphere. *Quarterly Journal of Speech, 106*(2), 133-155. https://doi.org/10.1080/00335630.2020.1744182

Carmichael, J. T., & Kent, S. L. (2015). The use of lethal force by Canadian police officers: Assessing the influence of female police officers and minority threat explanations on police shootings across large cities. *American Journal of Criminal Justice,* 40, 703–721.

Cooper, B. (2014). Does anyone care about black women? *Meridians: feminism, race, transnationalism*, *12*(2), 153-155.

Crenshaw, K. (2020). Naming the threat. *The New Republic*, *251*(1-2), 10-11.

Darden, T. M., & Godsay, S. (2018). Hands up, don't shoot: A community psychology perspective on unarmed police shootings of black people in America. *Community Psychology in Global Perspective, 4*(2), 9-21.

Gray, A. C., & Parker, K. F. (2019). Race, structural predictors, and police shootings: Are there differences across official and "unofficial" accounts of lethal force? *Crime & Delinquency, 65*(1), 26-45.

Jacobs, D., & O'Brien, R. (1998). The determinants of deadly force: A structural analysis of police violence. *American Journal of Sociology, 103*, 837–862.

Jun, H., DeVylder, J. E., & Fedina, L. (2020). Police violence among adults

diagnosed with mental disorders. *Health & Social Work, 45*(2), 81-89.

Morabito, M. S., & Socia, K. M. (2015). Is dangerousness a myth? Injuries and police encounters with people with mental illnesses. *Criminology & Public Policy, 14*(2), 253-276. https://doi.org/10.1111/1745-9133.12127

Oh, H., DeVylder, J., & Hunt, G. (2017). Effect of police training and accountability on the mental health of African American adults. *American Journal of Public Health, 107*, 1588–1590.

Peeples, L. (2019). What the data says about police shootings. *Nature, 573,* 24-26.

Smith, B. W., & Holmes, M. D. (2014). Police use of excessive force in minority communities: A test of the minority threat, place, and community accountability Hypotheses. *Social Problems, 61*(1), 83–104.

Welter, B. (1966). The cult of true womanhood: 1820-1860. *American Quarterly, 18(*2), 151-174.