

# Depression Analysis Project

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```
library(dplyr)
```

**03/09/2022**

```
##  
## Attaching package: 'dplyr'  
  
## The following objects are masked from 'package:stats':  
##  
##   filter, lag  
  
## The following objects are masked from 'package:base':  
##  
##   intersect, setdiff, setequal, union
```

```
library(ggplot2)  
library(forcats)  
library(knitr)  
library(sjPlot)
```

```
## Install package "strengjacke" from GitHub ('devtools::install_github("strengjacke/strengjacke")')
```

## Introduction

The data set I will be analyzing was gathered from adults living in Los Angeles. The study consisted of 294 observations and 37 variables. Of these 37 variables I have selected to focus on are income and sex. Is there a correlation between income and depression, sex and depression, and depression among sexes earning a certain income?

```
depression <- read.delim("/Users/Katelyn/Desktop/Math 130/Data/depress_081217.txt")
```

```
head(depression)
```

```
##   id sex age  marital      educat  employ income relig  c1 c2 c3 c4 c5 c6 c7  
## 1  1  1  68  Widowed   Some HS  Retired     4    1  0  0  0  0  0  0  0  
## 2  2  0  58  Divorced Some college    FT     15    1  0  0  1  0  0  0  0  
## 3  3  1  45  Married   HS Grad     FT     28    1  0  0  0  0  1  0  0  
## 4  4  1  50  Divorced   HS Grad   Unemp     9    1  0  0  0  0  1  1  0
```

```

## 5 5 1 33 Separated HS Grad FT 35 1 0 0 0 0 0 0 0
## 6 6 0 24 Married HS Grad FT 11 1 0 0 0 0 0 0 0
## c8 c9 c10 c11 c12 c13 c14 c15 c16 c17 c18 c19 c20 cesd cases drink health
## 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2
## 2 0 0 0 0 1 0 0 1 0 1 0 0 0 4 0 1 1
## 3 0 0 0 0 0 0 1 1 1 0 0 0 0 4 0 1 2
## 4 3 0 0 0 0 0 0 0 0 0 0 0 0 5 0 0 1
## 5 3 3 0 0 0 0 0 0 0 0 0 0 0 6 0 1 1
## 6 0 1 0 0 1 2 0 0 2 1 0 0 0 7 0 1 1
## regdoc treat beddays acuteill chronill
## 1 1 1 0 0 1
## 2 1 1 0 0 1
## 3 1 1 0 0 0
## 4 1 0 0 0 1
## 5 1 1 1 1 0
## 6 1 1 0 1 1

```

## Univariate Variables

The first variable being analyzed is income. To begin, the summary will give a general idea of the incomes earned by the adults in the study. The line graph represents the relationship between density and annual income earned. With density representing the proportion of the depressed population.

```
table(depression$income)
```

```

##
## 2 4 5 6 7 8 9 11 12 13 15 16 18 19 20 23 24 25 26 27 28 31 32 35 36 37
## 7 8 10 12 18 14 22 17 2 18 24 1 1 25 3 25 2 1 1 1 19 1 1 24 1 1
## 42 45 55 65
## 1 15 9 10

```

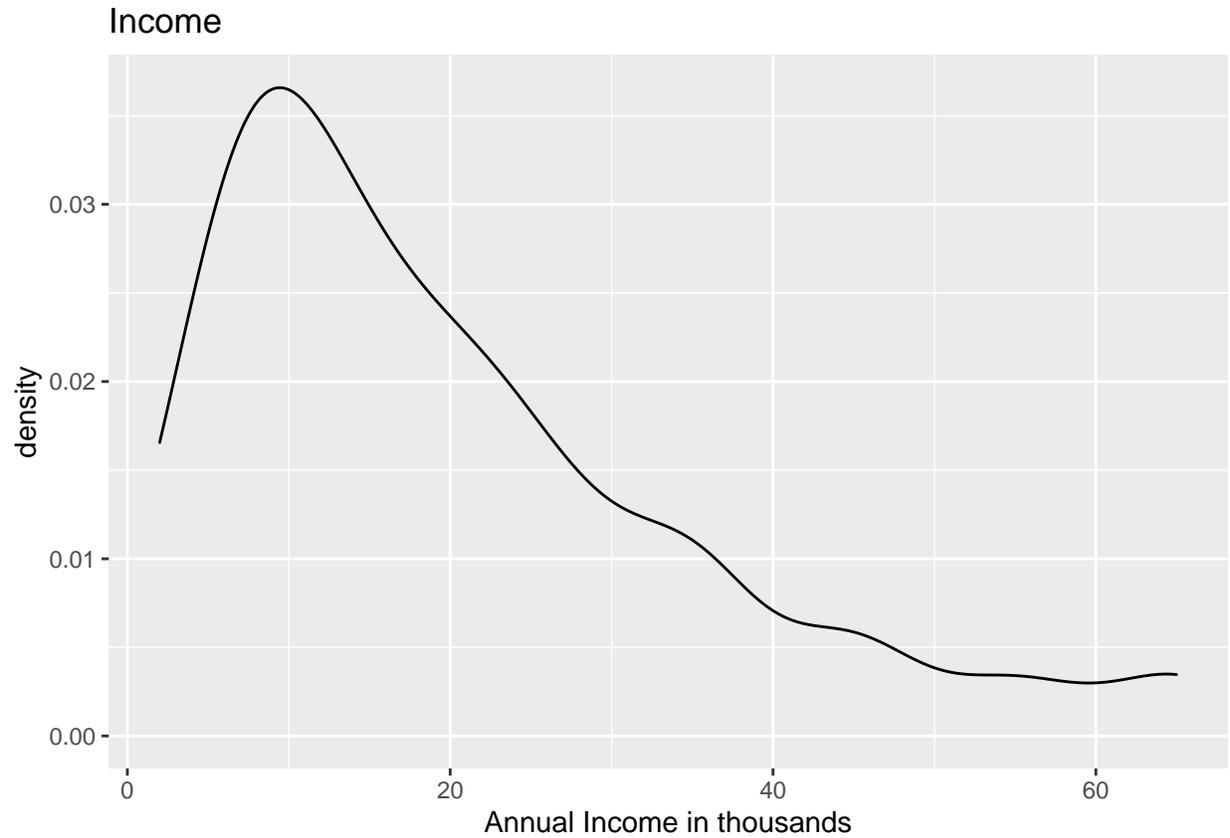
```
summary(depression$income)
```

```

## Min. 1st Qu. Median Mean 3rd Qu. Max.
## 2.00 9.00 15.00 20.57 28.00 65.00

```

```
ggplot(depression, aes(x=income)) + geom_density() + xlab("Annual Income in thousands") + ggtitle("Income")
```



The line graph shows that among this population depression rates decrease as annual income increases.

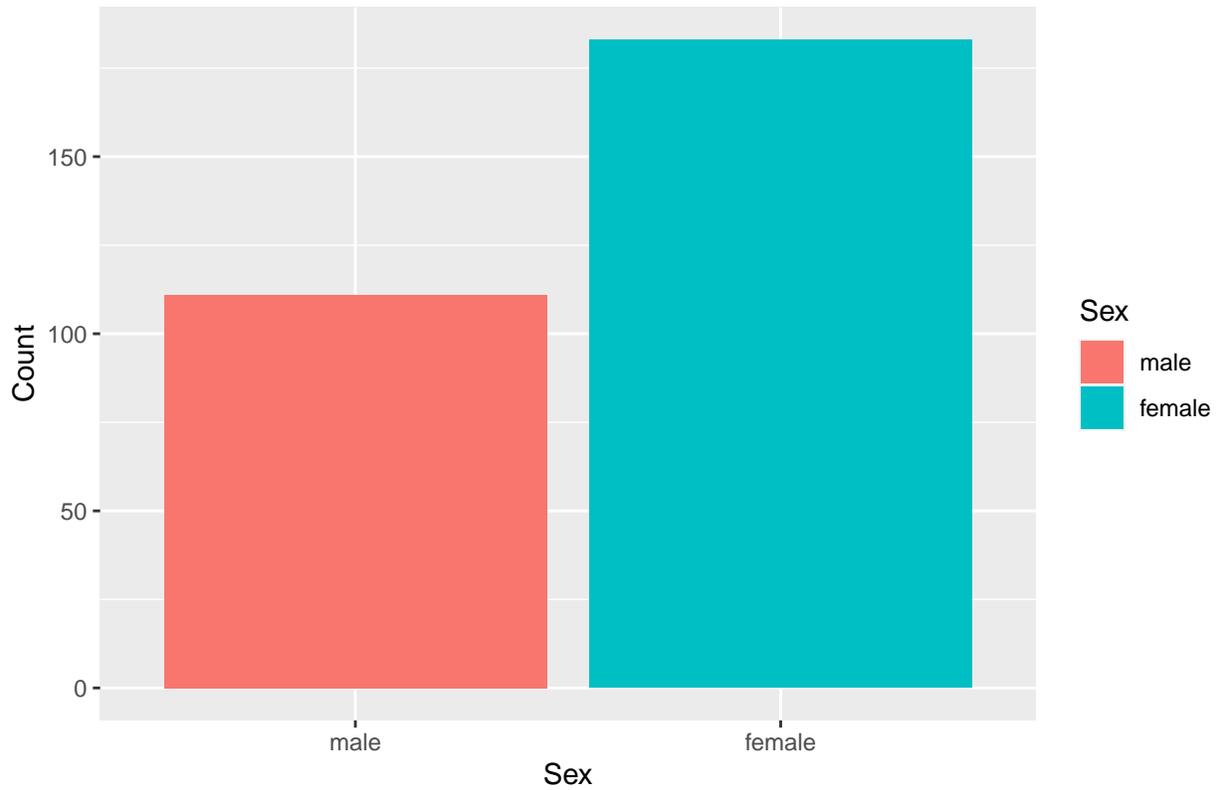
The next variable is sex. The bar graph compares depression rates among females and males.

```
depression$sexrename <- factor(depression$sex, labels=c( "male", "female"))
summary(depression$sexrename)
```

```
##  male female
##   111   183
```

```
ggplot(depression, aes(x=sexrename, fill=sexrename)) + geom_bar() + xlab("Sex") + ylab("Count") + ggtitle("Sex")
```

### Depression Rates between Females and Males



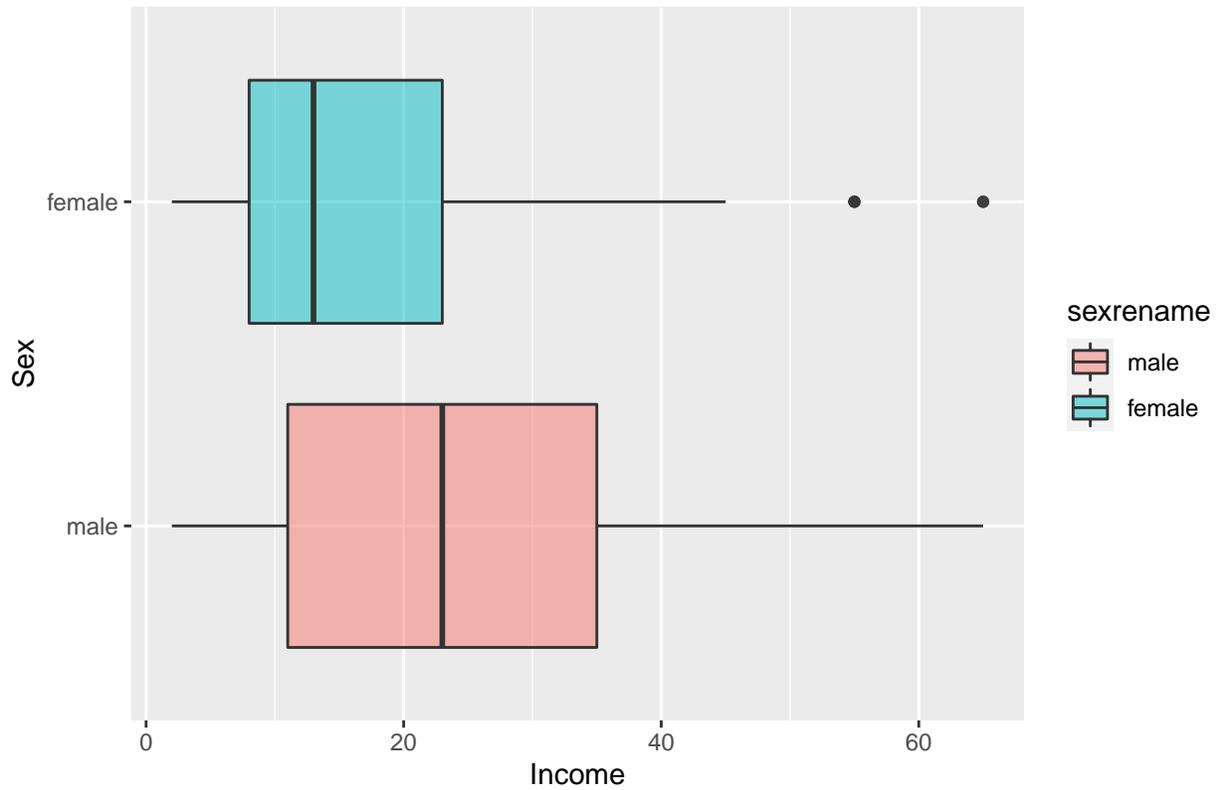
The bar graph shows that among this population there are more females with depression than males.

### Bivariate Exploration

This next graph shows income compared to sex.

```
ggplot(depression, aes(x=income, y=sexrename, fill=sexrename)) + geom_boxplot(alpha=.5) + xlab("Income")
```

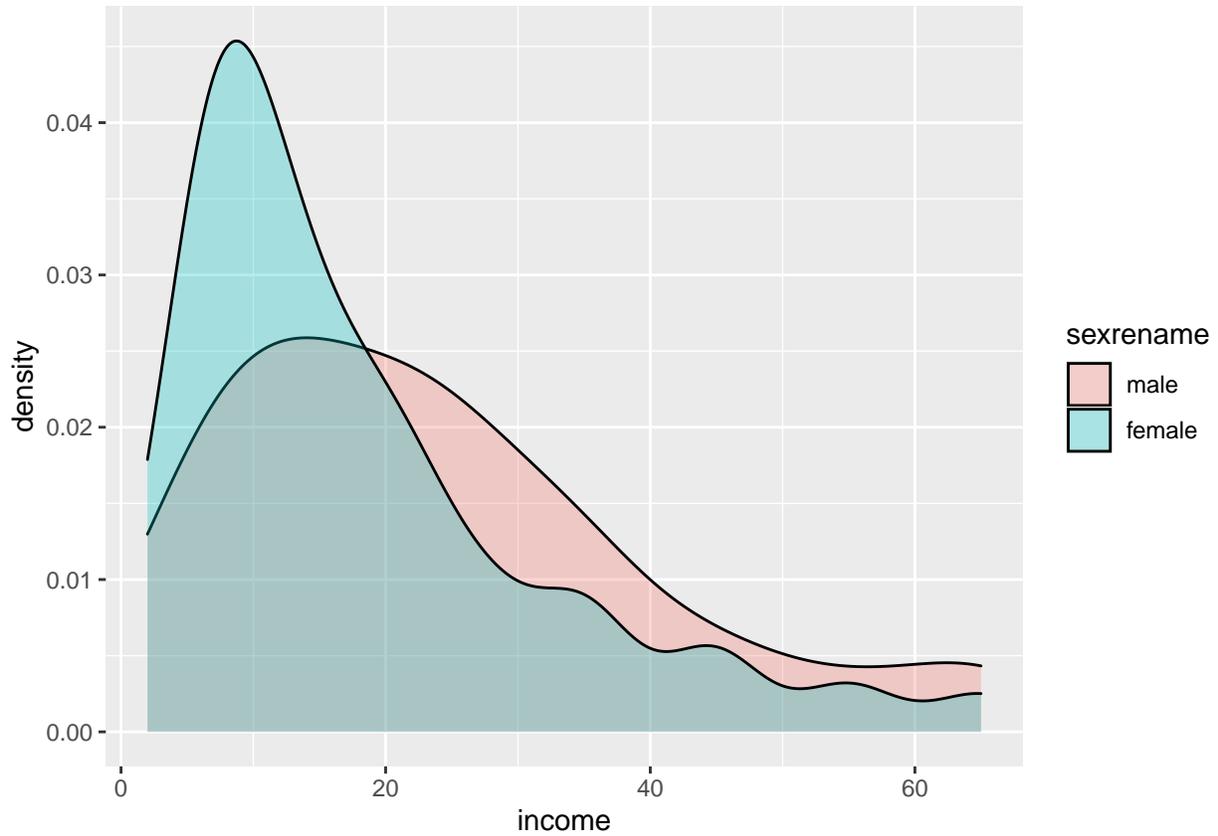
Income by Sex



The graph shows that males, on average have a higher annual income than females.

This final graph shows that when comparing sex and income depression decreases among males and as annual income increases.

```
ggplot(depression, aes(x=income, fill=sexrename)) + geom_density(alpha=0.3)
```



### Conclusion

The boxplot shows the income distributions for both sexes differs. The income histogram is skewed right which shows that most respondents have a much lower income than the other respondents. The income compared to sex shows that within the population surveyed males typically earn more and are less depressed.