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Do Men Have Higher Blood Pressure than Women?

Summary

The main purpose for this analysis is to assess whether men have a higher blood pressure compared to women. This study therefore uses dataset containing different blood pressure levels taken from different people from both genders. The study will perform an analysis to visualize the data with different plot so as to display the difference of blood levels between the men and women.

Introduction

A gender difference in hypertension is a long standing debate. It's generally agreed that that blood pressure may vary within gender and is usually assumed that blood pressure for women may differ with that for men (Song et al., 2020). In addition, hypertension awareness is more in women than in men (Reckelhoff, 2018). Based on that assumption, this study therefore aims at carrying out an analysis to know whether men have a higher blood pressure than men. Data collected from individual who were tested for blood pressure at different point in times with different people from different location will be used. The data consist of both men and women so as to know if the difference really exists. The R Studio analysis software will be used to carry out various analyses so as to visualize the differences before drawing up valid conclusions.

Data analysis

Data was imported the data from excel to RStudio the find the summary of the whole data. Data classification was then done to know which class the data each variable belonged in terms of integer and numeric variables. Data was then put the data in form of data frame followed by classification of the data to gender where 1 represented men and 2 represented

women. The summary blood pressure was calculated separately and then plotted a histogram and a boxplot to see the different in visualization between the two. This was to see if the visualization differed between men and women. The following R codes were used to conduct the analysis.

```
p<-read.csv(file.choose())

p

summary(p)

class(p)

str(p)

sex<-p$SEX

sexC<-as.character(sex)

sexF<-factor(sexC,levels=c(1,2),labels=c("men","women"))

class(sex)

class(sexC)

class(sexF)

head(p$SYBSP)

summary(p$SYSBP)

table(p$SEX)

hist(p$SYSBP,prob=T)

boxplot(p$SYSBP)
```

```
hist(p$SYSBP,freq=FALSE,main="Histogram",ylab="Probabilities",col="green")

boxplot(p$SYSBP,horizontal=TRUE,col="red")

boxplot(SYSBP~SEX,data=p)

library(tidyverse)

install.packages("tidyverse")

ggplot(p,aes(x=1,y=SYSBP))+geom_boxplot()

ggplot(p,aes(x=factor(SEX),y=SYSBP))+geom_boxplot()

ggplot(p,aes(x=factor(SEX),y=SYSBP,fill=SEX))+geom_boxplot()

ggplot(p,aes(x=factor(SEX),y=SYSBP,col=SEX))+geom_boxplot()
```

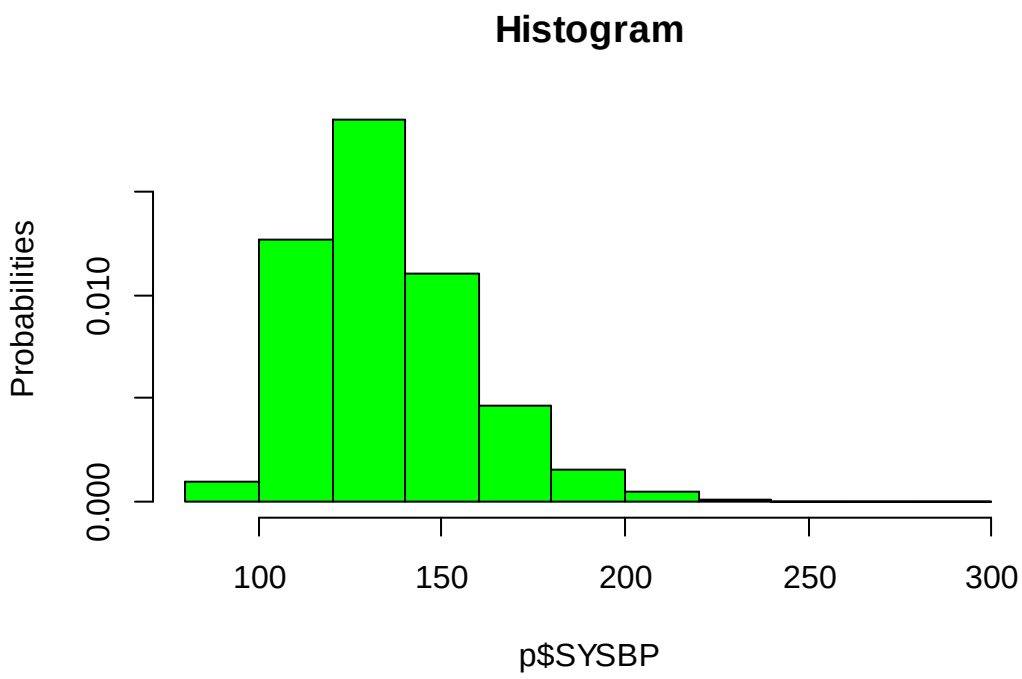
Results

After analyzing a data of 4269 men and 5338 women the study found that the blood pressure in men and women is the same. The summary statistics output displayed by blood pressure below

```
Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
  83.5   120.0   132.0   135.8   149.0   295.0
```

The mean is 132 median number is 135.8 the measures of central tendency are close.

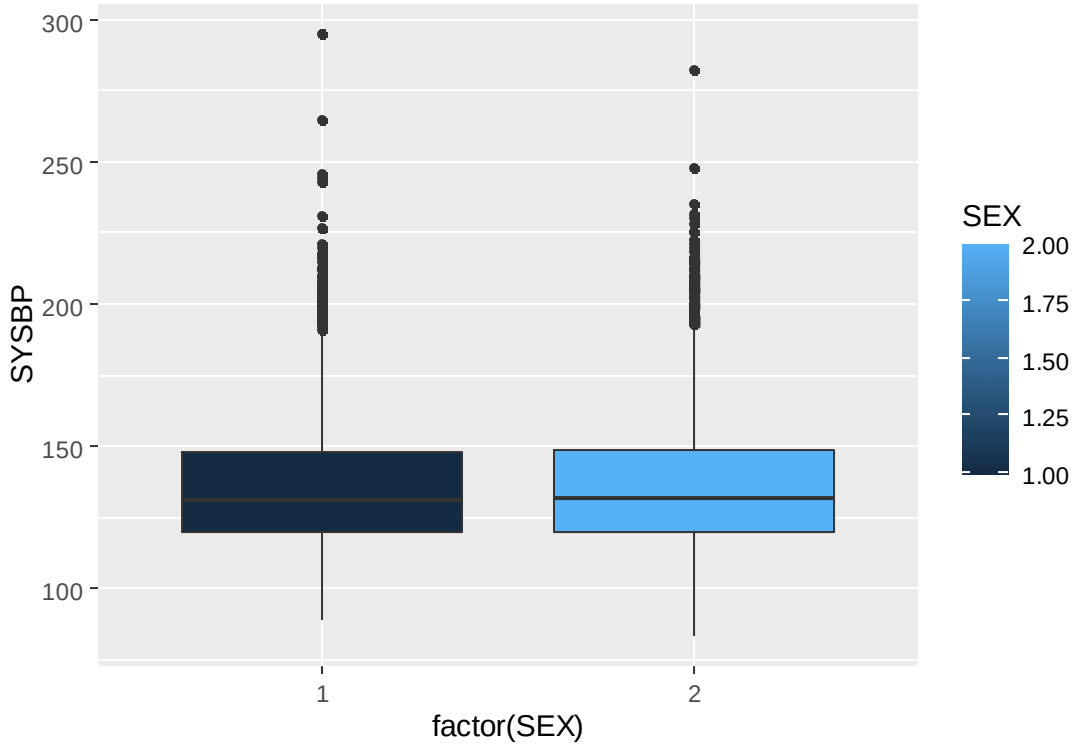
This is a histogram of blood pressure of both men and women.



Looking at the shape of the histogram, it was right skewed a little but its almost showing a normal distributed curve showing normality of the data plotted. Most of the blood level lies from 100 to 200 from the histogram.

Boxplot

In addition, the visualization of the data using a boxplot found out that the boxplot 1 and 2takes the same mean, median, quartiles when outliers are excluded. This shows that everything about men and women concerning blood pressure is the same. The visualization does not show that one is higher than the other. Hence this shows that there is the same blood pressure in men and women.



Conclusion

From the analysis the study concludes that blood pressure is not higher for men than for women. Blood pressure is the same for all individuals (Reckelhoff, 2018). This is because of the visualization displayed. Blood pressure levels seem to be the same for all men and women when we follow what the data says. Hence, people should know that gender does not determine the pressure for someone. It should be known from today that gender is not a factor to consider in determining the level of blood pressure in individuals.

References

Reckelhoff, J. F. (2018). Gender differences in hypertension. *Current opinion in nephrology and hypertension*, *27*(3), 176-181.

Song, J. J., Ma, Z., Wang, J., Chen, L. X., & Zhong, J. C. (2020). Gender differences in hypertension. *Journal of cardiovascular translational research*, *13*(1), 47-54.