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**HOMEWORK #1 COGS 536**

1. independent variables= names, gender ; dependent variables= rest, anticipation, exercise
2. **(1)** names = nominal, gender = nominal; these variables are nominal, representing a non-numeric measure. Also, they cannot be ordinal since there is no logical order between the values (for example, gender has no order). **(2)** rest = raito, anticipation=ratio, exercise=ratio. In an interval variable, the scale among the variables are equally distanced, as in the ratio variable. But in the heart rate example, these are ratio variables, since in these values 0 is meaningful; a heart rate which is 0 means a stopped heart. In the interval value there is no clear definition of the 0, but in ratio there is.
3. It is the within-subject design, since every participant experiences all the experimental conditions (rest, anticipation & exercise). But in the between-subject design, every participant experiences only one category of the experimental design.
4.

**Statistics**

heart rates at rest

| | | |
|---|---|---|
| N | Valid | 38 |
| | Missing | 0 |
| Mean | | 86,7368 |
| Std. Error of Mean | | 1,83055 |
| Median | | 84,5000 |
| Mode | | 82,00 |
| Std. Deviation | | 11,28425 |
| Variance | | 127,334 |

**Statistics**

heart rates in anticipation of exercise

| | | |
|---|---|---|
| N | Valid | 38 |
| | Missing | 0 |
| Mean | | 93,9211 |
| Std. Error of Mean | | 2,25456 |
| Median | | 92,0000 |
| Mode | | 76,00[a] |
| Std. Deviation | | 13,89805 |
| Variance | | 193,156 |

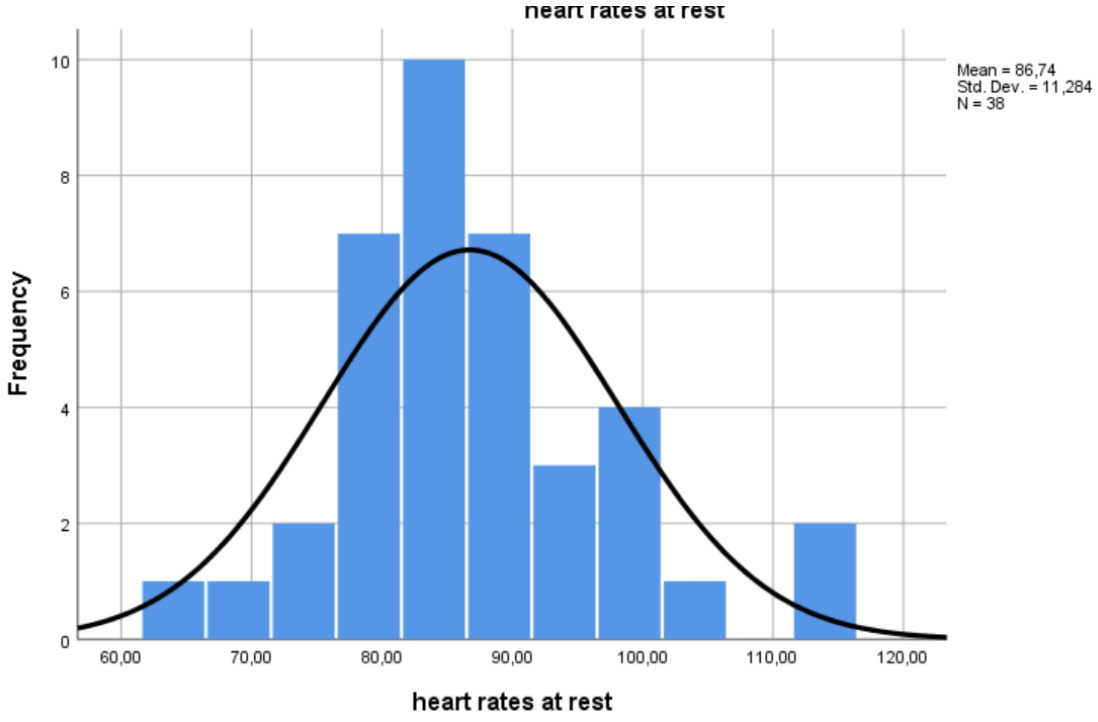
a. Multiple modes exist. The smallest value is shown

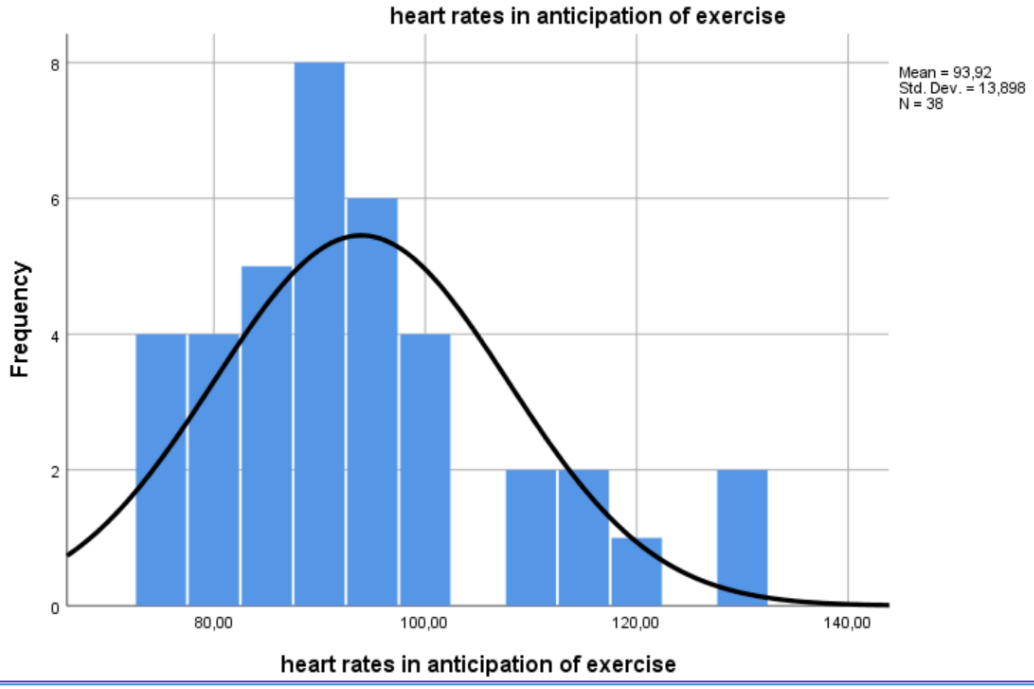
**Statistics**

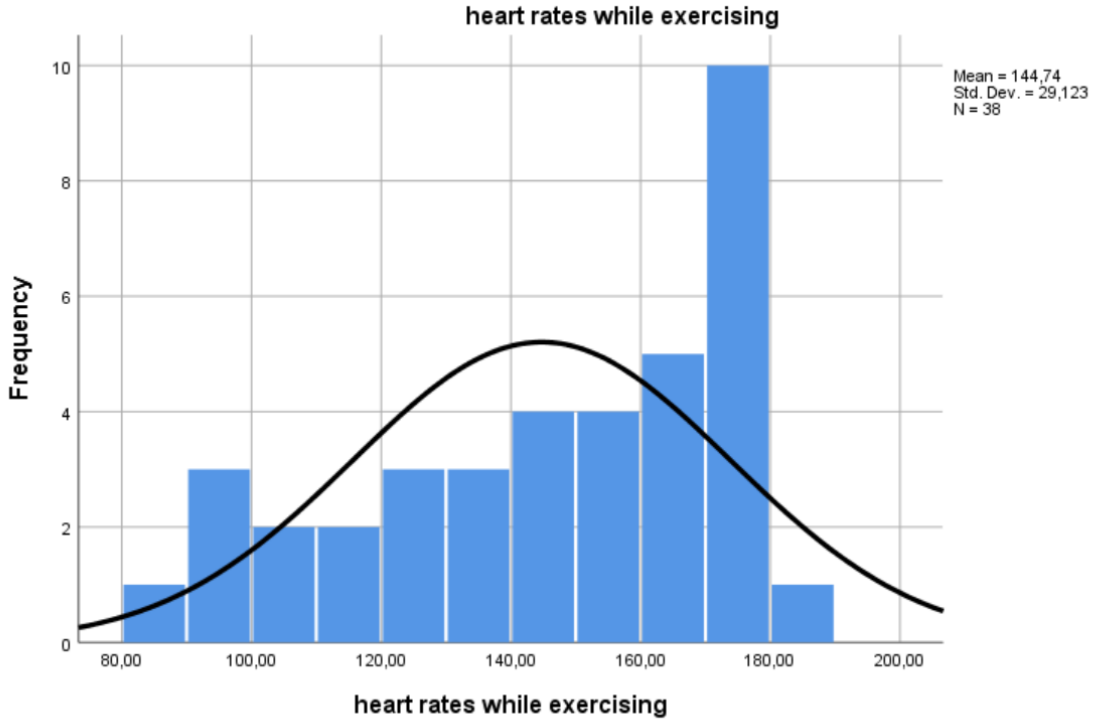
heart rates while exercising

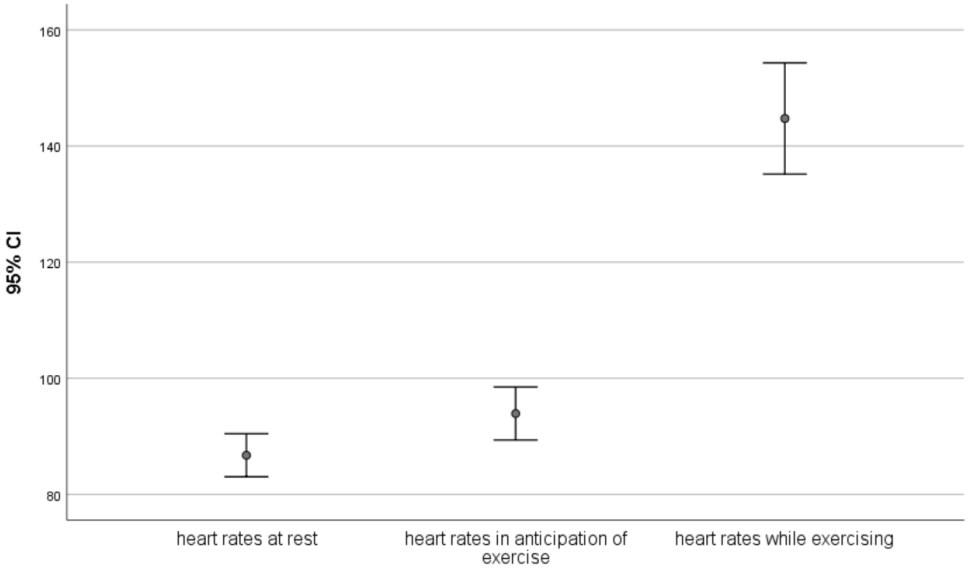
| | | |
|---|---|---|
| N | Valid | 38 |
| | Missing | 0 |
| Mean | | 144,7368 |
| Std. Error of Mean | | 4,72436 |
| Median | | 151,5000 |
| Mode | | 176,00 |
| Std. Deviation | | 29,12293 |
| Variance | | 848,145 |

5.


heart rates at rest
Mean = 86,74
Std. Dev. = 11,284
N = 38
Frequency
10
8
6
4
2
0
60,00
70,00
80,00
90,00
100,00
110,00
120,00
heart rates at rest


heart rates in anticipation of exercise
Mean = 93,92
Std. Dev. = 13,898
N = 38
Frequency
8
6
4
2
0
80,00
100,00
120,00
140,00
heart rates in anticipation of exercise

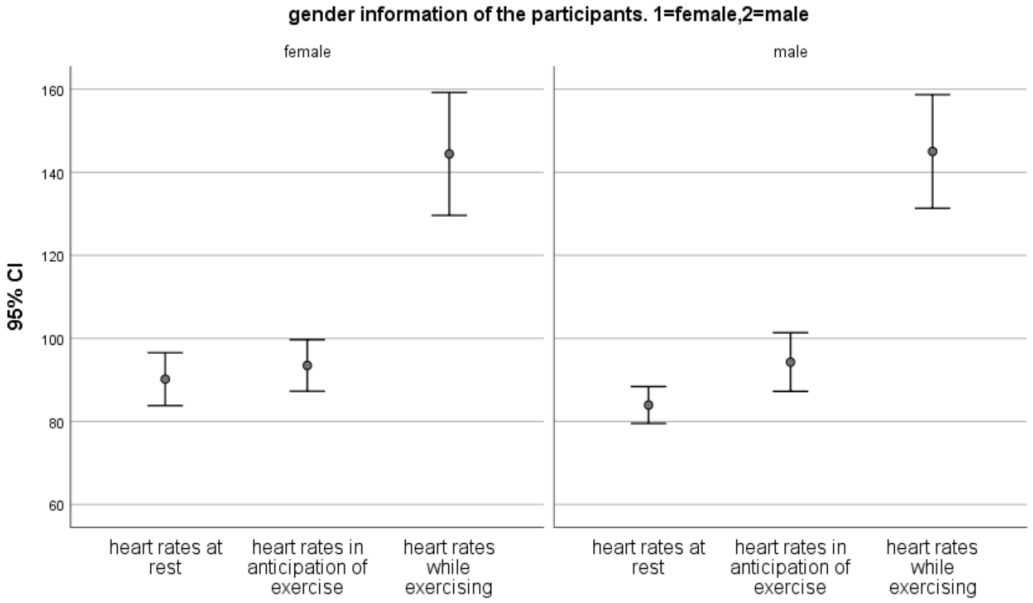



6. The most high heart rate is while exercising heart rate due to bar charts. Also,more deviations from the mean are in this category compared to the anticipation and rest categories. The deviations from the mean are low in rest and anticipation categories, and their means are lower than exercising. The least heart rate is found in the rest category.

7. Bar chart with error: the mean values of exercising and anticipating are close for males and females but in ret, the mean heat rates are more higher in females than males. Also, the deviation from the mean in exercising and rest in females are more bigger than the males.

The anticipation category has more deviations in males than females.




**** an additional chart: