# Question Answers

## 2) All columns have 452 observations except for awakening (432), Caffeine Cons. (427), Alcohol Cons. (436), and Exercise Freq. (446)

## 3) Awakenings is missing 20 observations, Caffeine 25, Alcohol 16, and Exercise 6. All other columns have no missing values.

## Male statistics by age group

A screenshot of a data table

Description automatically generated

Female stats:

A table with numbers and text

Description automatically generated

Both Genders:

A table with numbers and text

Description automatically generated

6) Answers: Female children sleep the most while male adults sleep the least. Male older adults wake the most, while female older adults wake the least.

7)

Female Children have the lowest sleep efficiency while male and females tie for max sleep efficiency. Male adults have max deep sleep%, while female teenagers have the min deep sleep%. Male Adults have min light sleep%, while female teenagers have the max light sleep%.

8) I conducted a correlation analysis between exercise and sleep. The results:

{'children\_Male': nan,

'teenagers\_Male': nan,

'young\_adults\_Male': -0.14,

'adults\_Male': 0.111,

'older\_adults\_Male': 0.649,

'children\_Female': nan,

'teenagers\_Female': nan,

'young\_adults\_Female': -0.011,

'adults\_Female': -0.2,

'older\_adults\_Female': -0.68}

For other groups, young adult males have somewhat of a positive correlation between exercise and total sleep, while older male adults have a negative correlation. All three adult female groups have a

seemingly notable positive correlation between sleep duration and exercis

When we look at the scatterplots, however, there don’t seem to be

A group of blue dots and squares

Description automatically generated with medium confidence

9) correlations between smoking and sleep duration:

{'children\_Male': nan,

'teenagers\_Male': nan,

'young\_adults\_Male': -0.05,

'adults\_Male': 0.032,

'older\_adults\_Male': 0.164,

'children\_Female': nan,

'teenagers\_Female': 0.25,

'young\_adults\_Female': -0.091,

'adults\_Female': 0.139,

'older\_adults\_Female': -0.805}

Interestingly, older female adults have most significantly negative correlation.

When we look at a scatterplot, we see that the four observations on the bottom right are likely generating the negative correlation.

A graph of smoking status

Description automatically generated

10) **Careful analysis of my tables reveals that for males, it is notable that older adults wake up more frequently than older adults, while female older adults wake up much less frequently. However, the high standard deviation associated with these values indicate that a high amount of variability obfuscates any clear conclusions.**

**In fact, for most of the features I don’t see any clear indication of differences between groups that promise to pass robust statistical hypothesis testing. Notable exceptions to this finding are perhaps the lower REM percentage of female teenagers, their lower deep sleep percentage, and their light sleep percentage in addition to their overall sleep efficiency.**