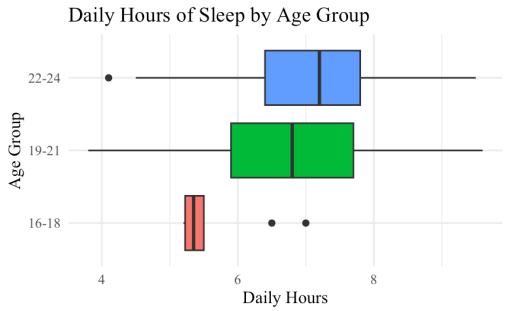
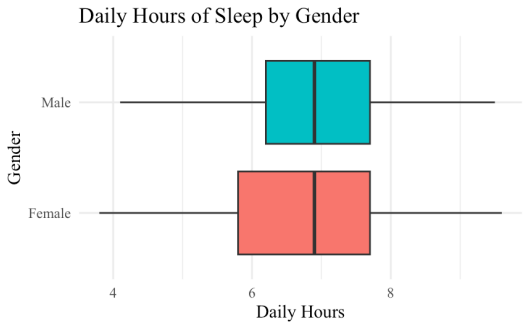
Introduction

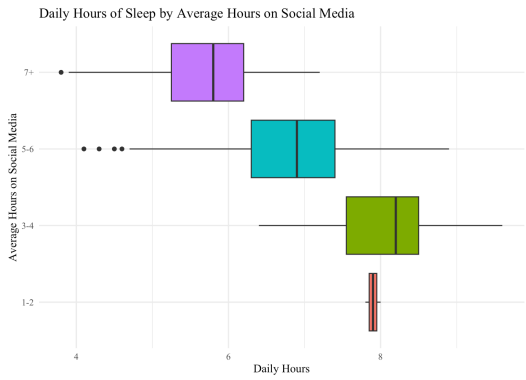
Sleep is important for students. However, when you ask any high school or college student, they will tell you they don't get enough sleep. What factors would affect how much sleep a student receives? We think social media time is the biggest factor. However, variables such as gender and age could all play a factor. We would expect social media time and sleep time to be negatively related. To check, we will control for factors of age and gender in our model. Our main question is how sleep hours per night are affected by average daily social media usage.

Data methods

To answer this question, I used data collected via an online survey from DataOne that was taken at the beginning of 2025. It targeted students ages 16-25. It included variables such as gender, time spent on social media, sleep, and age. However, it also included other variables, such as country and highest academic level, that we did not include in our test. To start our research, we made multiple box plots for each x variable, and the y variable being sleep.







These figures were used to get a general trend for each variable. The boxplots show us that more social media leads to less sleep; the older you get, the more you sleep, and that gender doesn't seem to be a huge factor.

Statistical methods

To answer the main research question, I'm going to use a regression model to predict the SleepHours using Social Media Hours, Age, and Gender of the person.

$$\text{SleepHours} = B_0 + B_1\ \text{SocialMediaHours} + B_2\ \text{Age} + B_3\ \text{Gender} + e$$

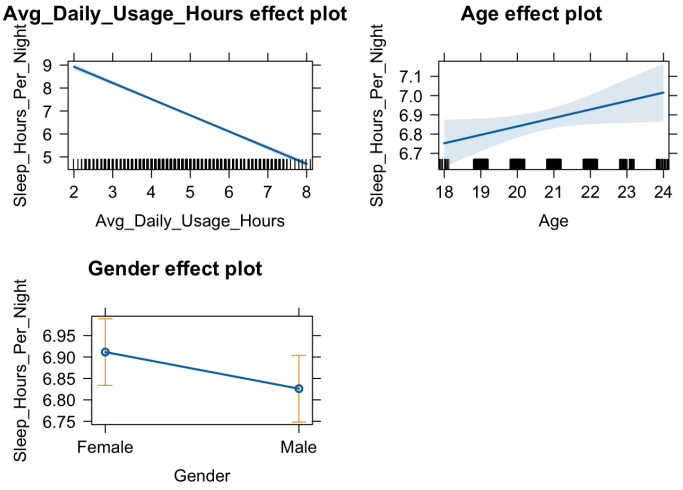


Figure 4 shows the relationship between the variables and sleep

Results

The linear regression produced the following output.

```
##
## Call:
## lm(formula = Sleep_Hours_Per_Night ~ Avg_Daily_Usage_Hours +
##     Age + Gender, data = data)
##
## Residuals:
##     Min      1Q  Median      3Q     Max
## -3.0804 -0.2253  0.2305  0.4374  1.5491
##
## Coefficients:
##                       Estimate Std. Error t value Pr(>|t|)
## (Intercept)            9.47375    0.45128  20.993   <2e-16 ***
## Avg_Daily_Usage_Hours -0.70545    0.02080 -33.914   <2e-16 ***
## Age                    0.04394    0.02145   2.048   0.0409 *
## GenderMale            -0.08551    0.05976  -1.431   0.1529
## ---
```

Our linear regression model provides evidence of a strong negative relationship between average daily social media usage and hours slept. The coefficient -0.71 represents that each additional hour spent on social media results in students sleeping about 42.6 minutes less per night, holding gender and age constant. It had a p-value of practically 0, meaning it is significant. Age also had a small positive effect, with each additional year for a student meaning that they would get roughly 2.4 more minutes of sleep. It was significant at the .05 significance level since its p-value is .04. For our model being a male, you get

on average 5 minutes less sleep than women. However, with a p-value of 0.1529, which is over the alpha level of 0.05, meaning that it is not statistically significant.

Conclusion

To answer our research question, we proposed at the beginning. Social media has a negative correlation with sleep. When taking age and gender into the equation, sleep is projected to decrease when social media hours increase.

Sources

- kaggle.com