Student Sleep Habits

A Data Analysis

WI24 | INFO 201 – AF2

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Project Overview

- **7 hours is the minimum amount of sleep that adults should get;** but 70% of college students attain insufficient sleep and 50% report feeling daytime sleepiness often (National Institutes of Health)

- **Explore more in the potential factors that are presumed to be affecting college student's sleep quality**

- **Focuses on the following four questions for our four team members:**
  - Does gender in different age groups have significantly different average sleep durations?
  - How does technology usage affect sleep quality?
  - Is there a correlation between academic performance (eg. performance index and GPA) and the amount of sleep a student gets?
  - Is there a correlation between a college student's mental wellbeing and the amount of sleep they get?

- **Why are we doing this?**
  - We're college students
  - Wanted to learn what might be influencing our sleep quality
  - See if we can find any conclusions that we can pass along to our fellow peers

Overview of Data

- **Dataset 1: "Sleep Efficiency"** – We chose this to figure out how age compares to the amount of sleep students are getting each night.

- **Dataset 2: "Sleep Study"** – We chose this dataset to find out whether pre-sleep phone usage had either a positive or negative impact on sleep quality.

- **Dataset 3: "Psychosocial Dimensions of Student Life" & "Nightly Sleep Duration"** – We chose this to see if there is any correlation between a student's academic performance and the amount of sleep they get.

- **Dataset 4: "Psychosocial Dimensions of Student Life"** – We chose to see if we could find a correlation between college-aged person's mental wellbeing and the amount of sleep they get.

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Number of observation in sleep efficiency dataset is   452
Total number of missing values in this dataset is   0

Number of observation in Psychosocial Sleep Study dataset is   104
Total number of missing values in this dataset is   2

Number of observation in Nightly Sleep Duration dataset is   634
Total number of missing values in this dataset is 3

Number of observation in Psychosocial Dimensions of Student Life dataset is   99
Total number of missing values in this dataset is   4
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Age Group v. Average Sleep Duration by Gender

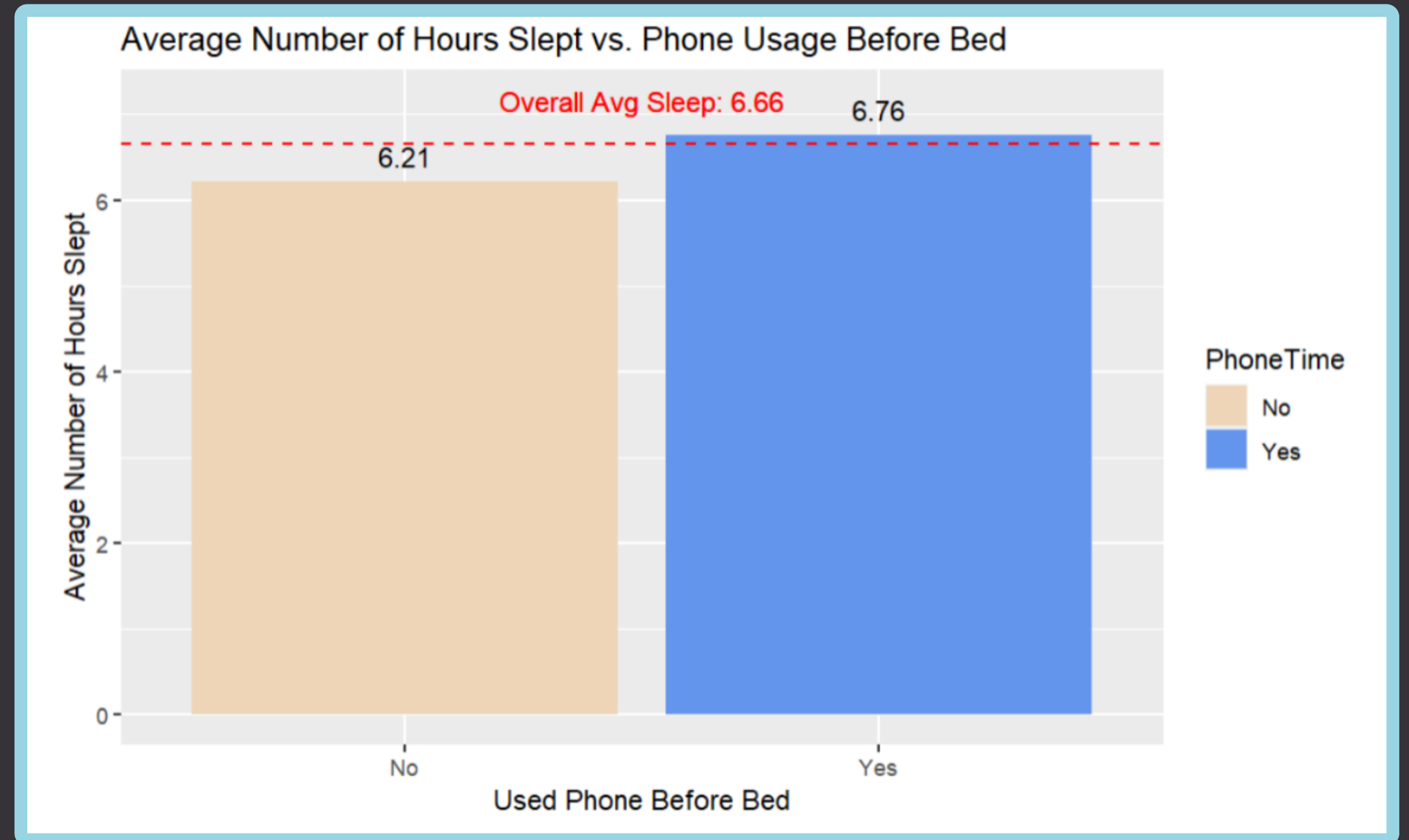Average Sleep Duration by Age Group and Gender
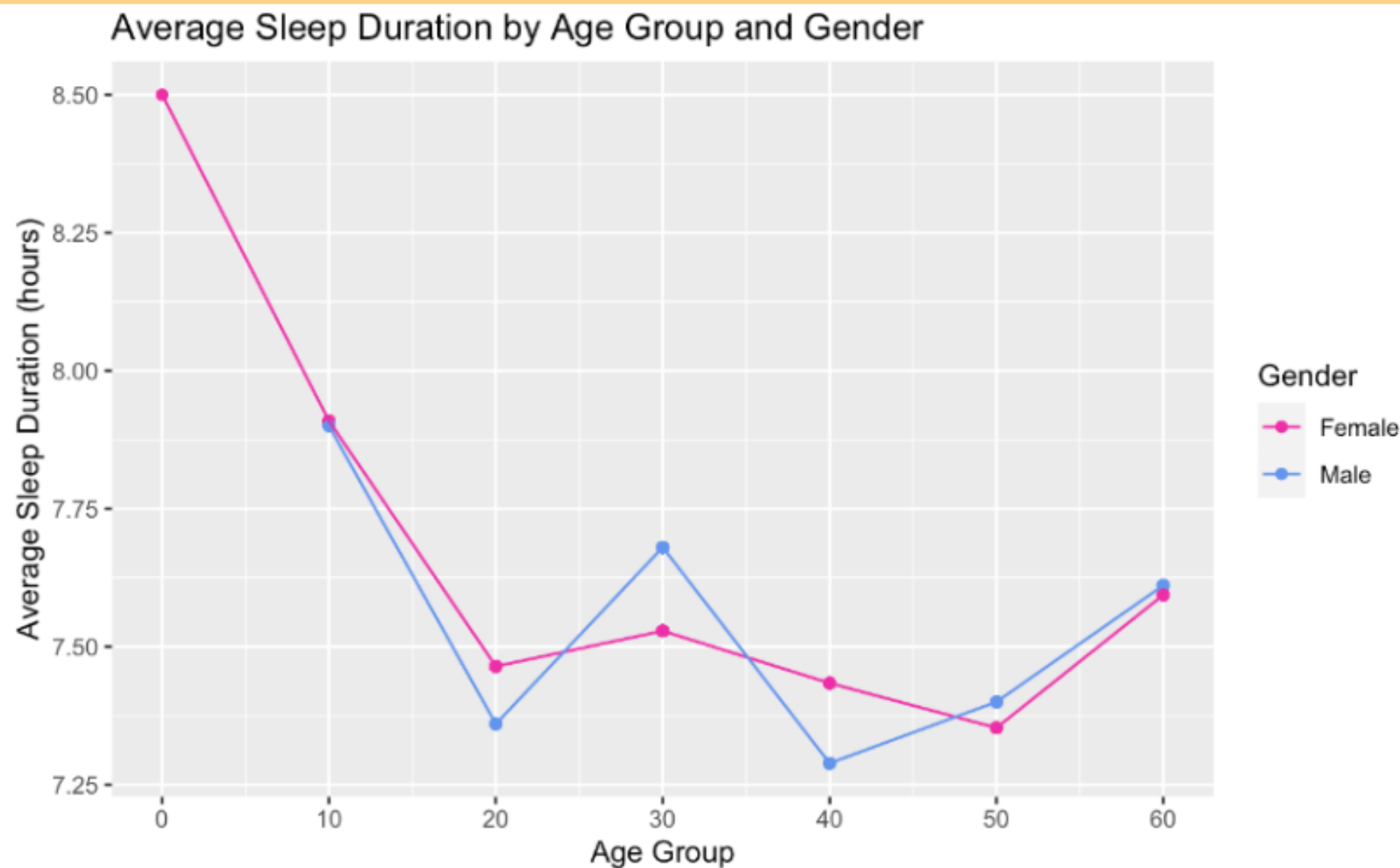
- First, we add two more variables – age group and average sleep duration to see the general trend between age, gender, and sleep duration.
- As a result, the graph indicates that gender differences in average sleep duration vary across different age groups.
- Both gender experience a sharp decrease in average sleep duration from the youngest age group to early adulthood, followed by fluctuations through middle age, and an upward trend in older age.
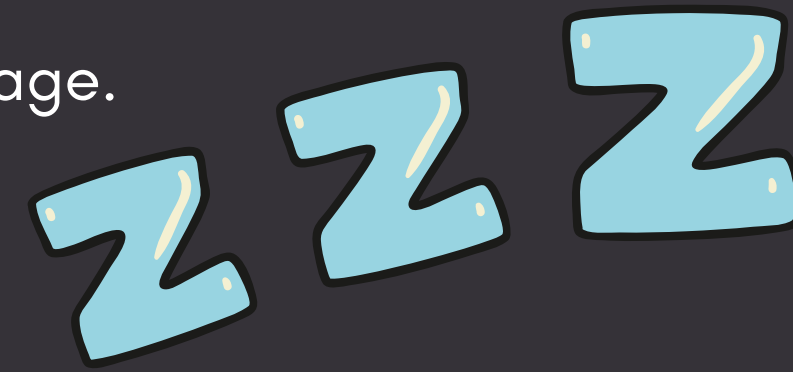
Average Number of Hours Slept v. Phone Usage Before Bed

- The group using phone before sleep actually sleep more than the overall average, this is against the common beliefs that it is harmful.

- The difference between the two groups is small but still noticeable thanks to the avg sleep line.

- This data in general suggests that the relationship between phone usage and sleep duration is more complex than we thought.

Average Number of Hours Slept vs. Phone Usage Before Bed

Overall Avg Sleep: 6.66   6.76

6.21

Average Number of Hours Slept

PhoneTime
No
Yes

No   Yes

Used Phone Before Bed

Academic Performance v. Average Amount of Sleep
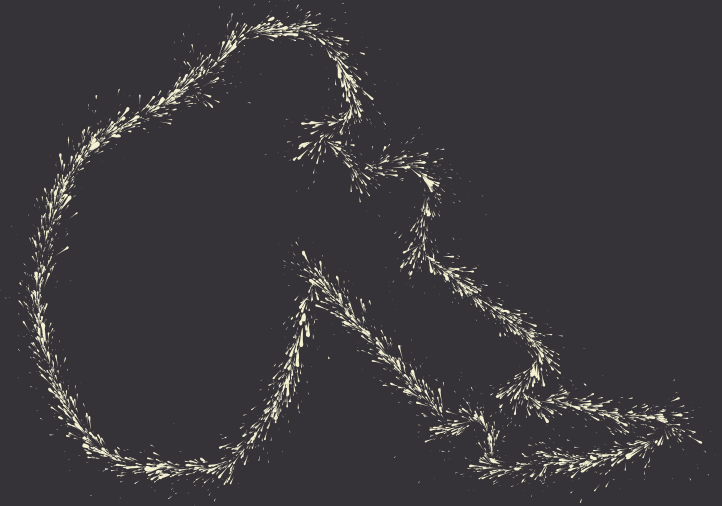
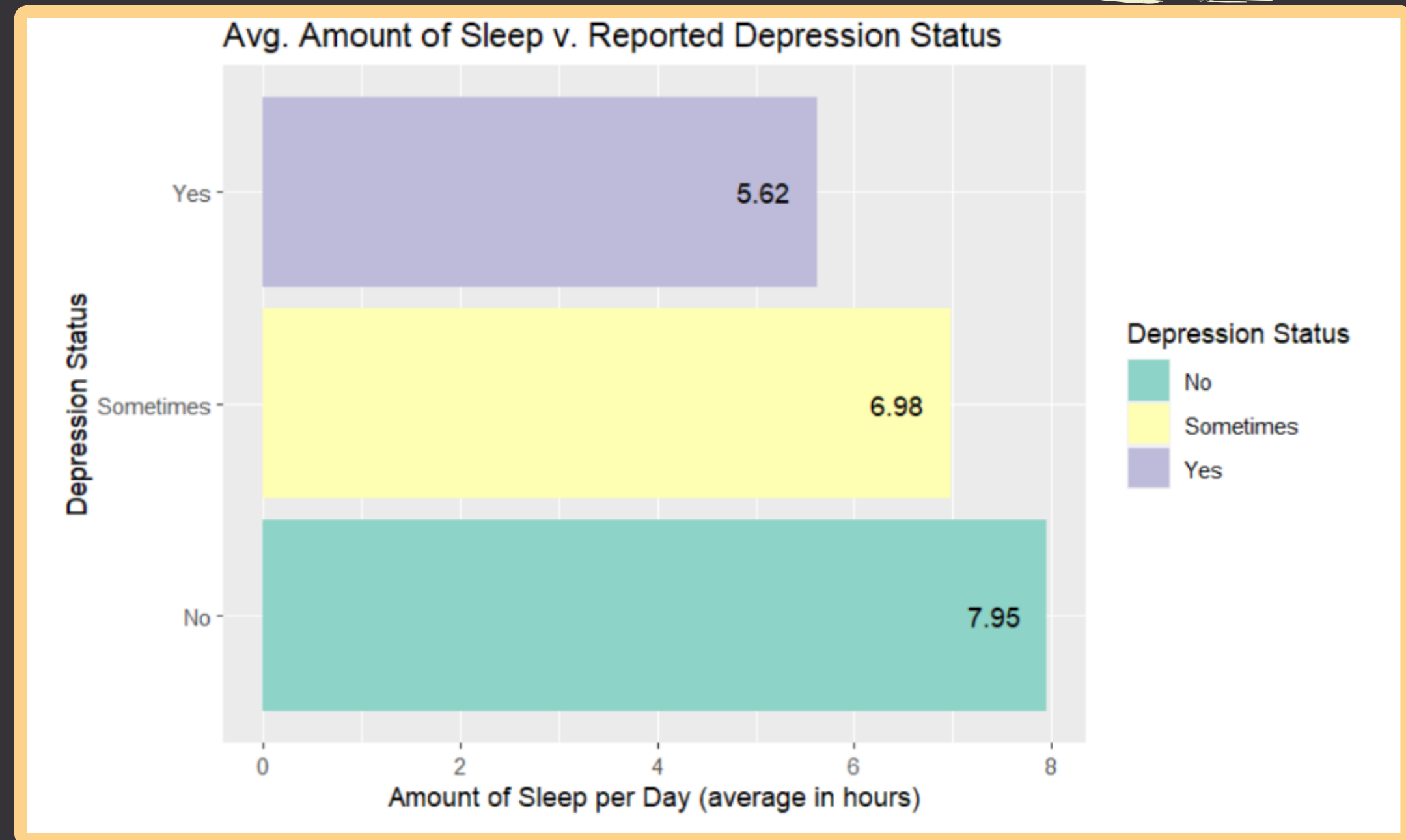

Academic Performance vs Average Sleep Duration
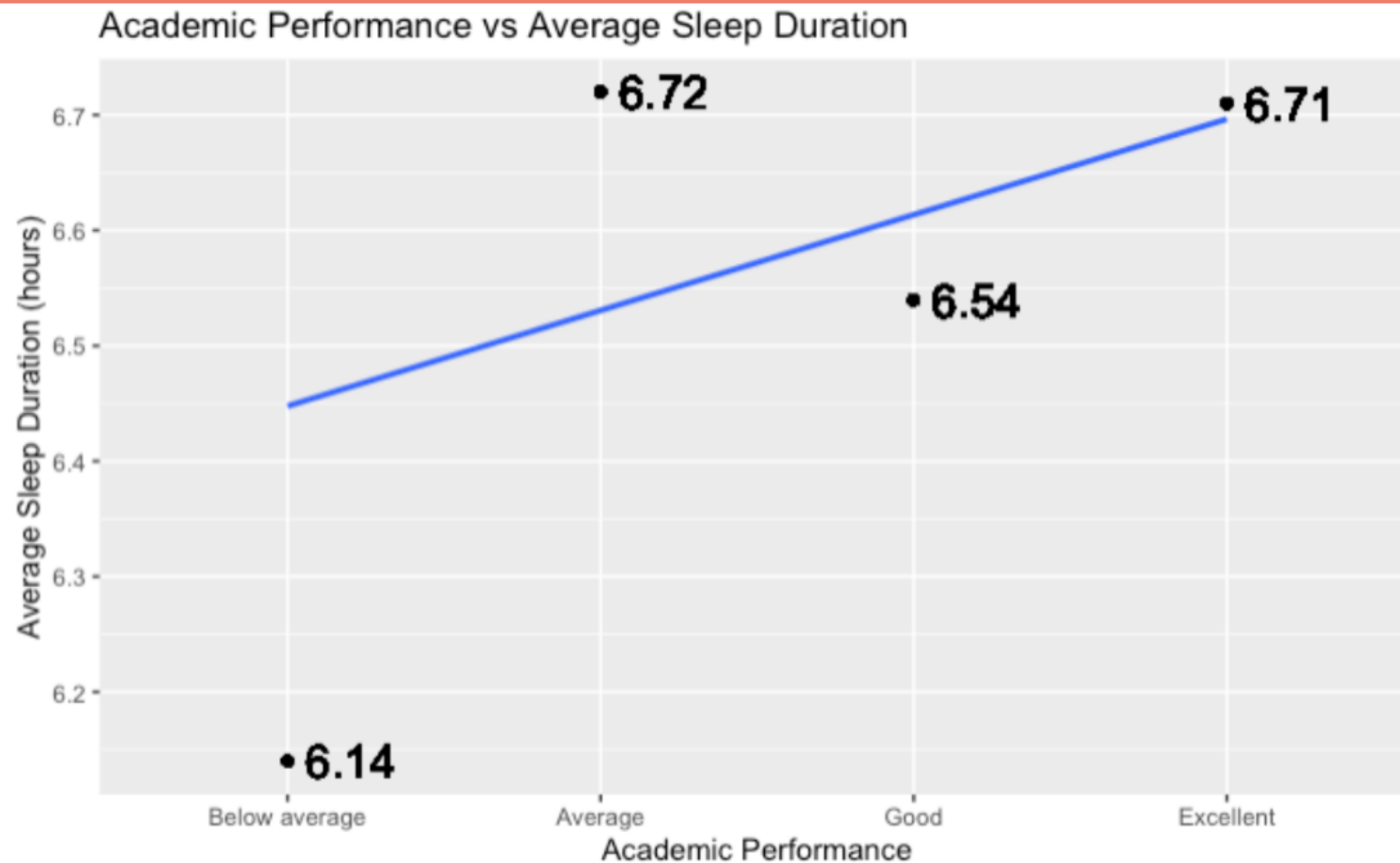
- Average sleep duration of student in each academic performance category

- Positive correlation --> more sleep does result to higher academic performance

- Difference between each average is small
  - Excellent: 6.71 – Below average: 6.14 = 0.57 hours = 34.2 minutes

- Academic outcome could be impacted by other factors

# Average Amount of Sleep by Reported Frequency of Depressive Symptoms

- Students who get the least sleep are those that report 'yes' to depressive symptoms, then 'sometimes', then 'no' with the most amount of sleep on average

- On average, only students who frequently experience depression fall under the recommended amount of sleep for college-aged students, 7-9 hours (Cornell Health)


Avg. Amount of Sleep v. Reported Depression Status

Depression Status: No, Sometimes, Yes

Yes — 5.62
Sometimes — 6.98
No — 7.95

Amount of Sleep per Day (average in hours)

Average Amount of Sleep v. Challenges Completing Academic Tasks

Avg. Amount of Sleep v. Challenges Completing Academic Tasks

- For students who frequently experience challenges completing academic tasks, the average amount of sleep they get daily is lower
- On average, students who frequently struggle with academic tasks AND have depression get less sleep than those who report to 'sometimes' struggle, and even less so than students who do not struggle with tasks
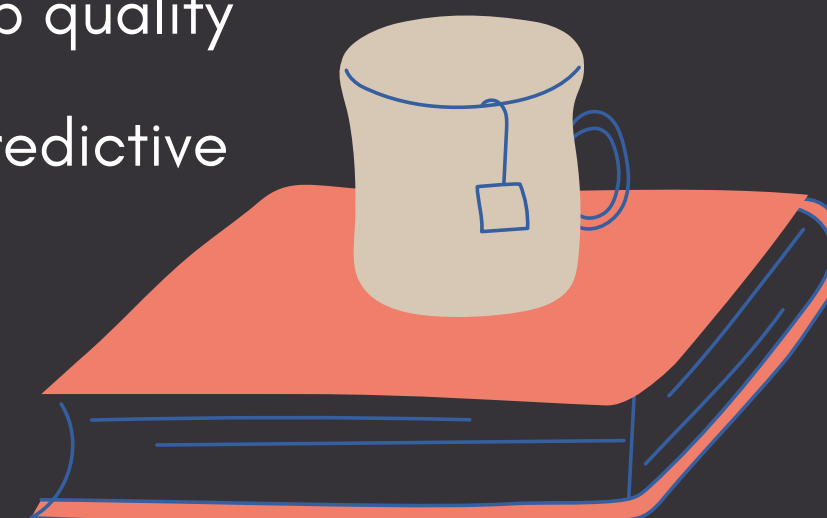- Students who struggle with academic tasks sleep the least on average overall
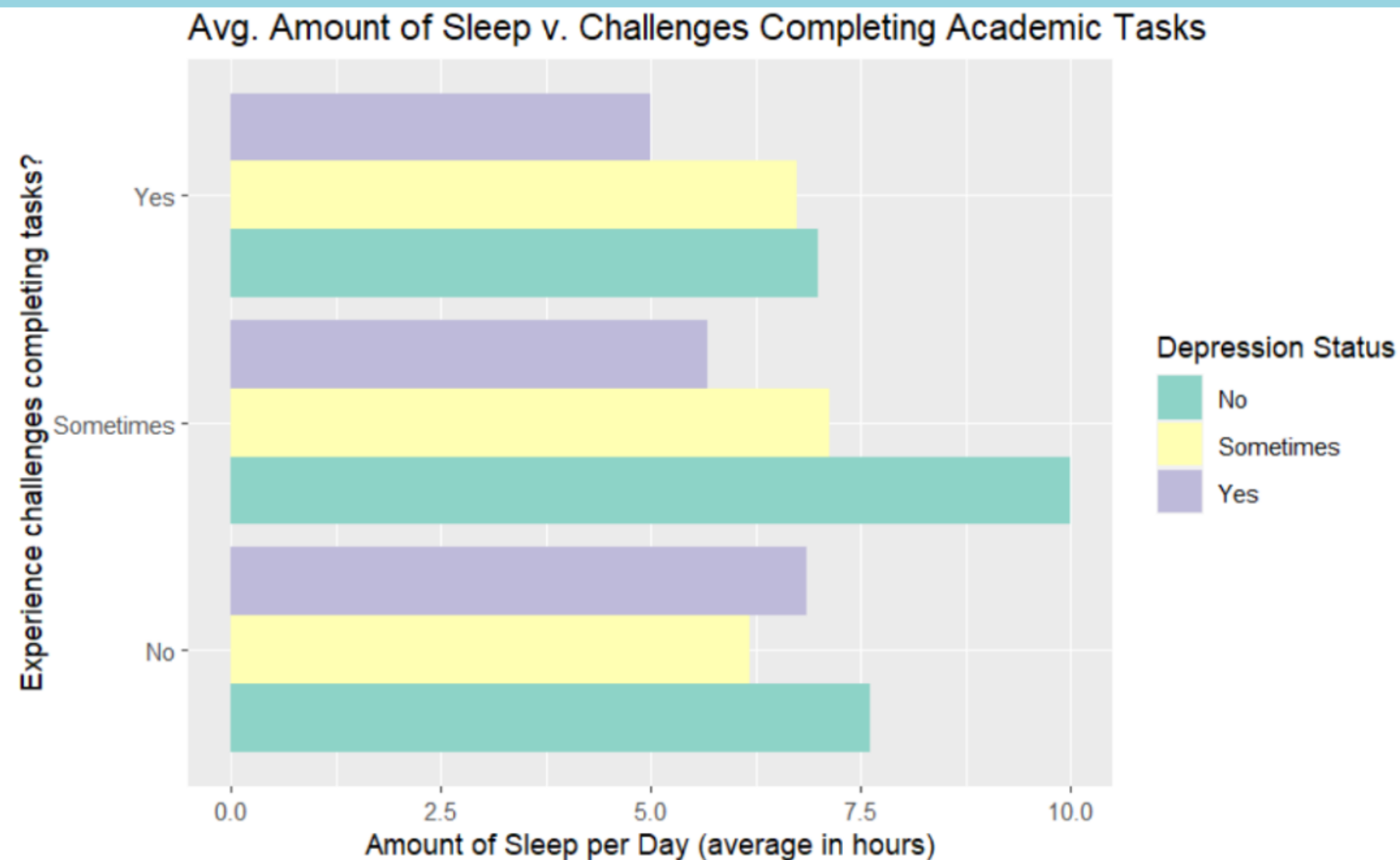
avg. sleep (hours) <dbl>	challenges w/ tasks? <chr>
6.884782	No
7.600000	Sometimes
6.250000	Yes
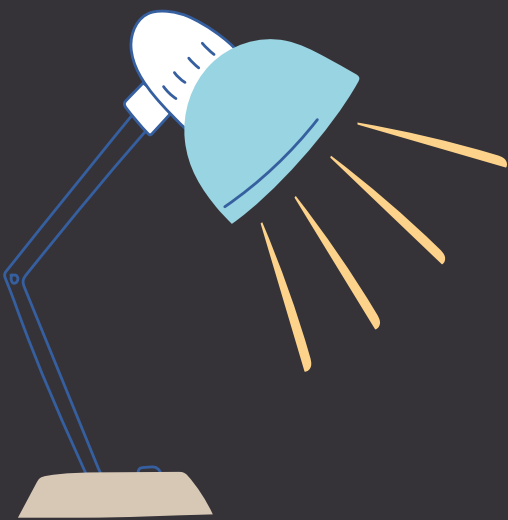
Conclusion

- Our multifaceted data analysis offers insights into the relationship between college students' sleep patterns and various aspects of their lives.

- Some findings challenge conventional beliefs, such as the impact of phone use before bed on sleep quality.

- However, our results suggest that inadequate sleep may detrimentally affect students' mental functioning, academic performance, and ability to complete tasks.

- It's crucial to acknowledge the limitations of our study, notably the constrained sample size, which may limit the statistical significance of observed trends.

- Future investigations should consider the multitude of factors influencing sleep quality and employ larger, more diverse datasets to validate findings and enhance predictive capabilities regarding the impact of sleep on students' lives.