Relationship Between Lack of Sleep and Depression

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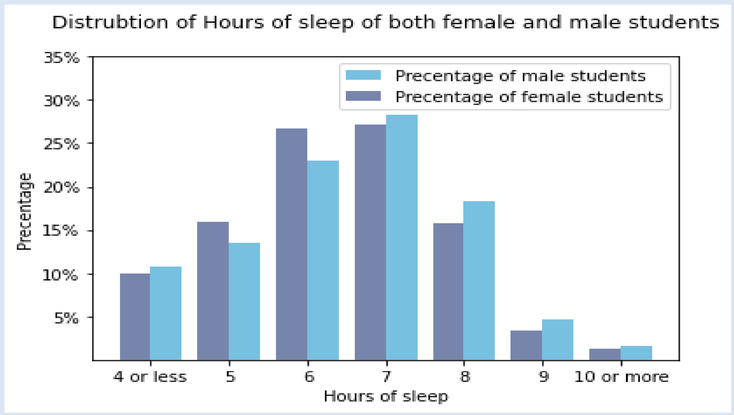
Background

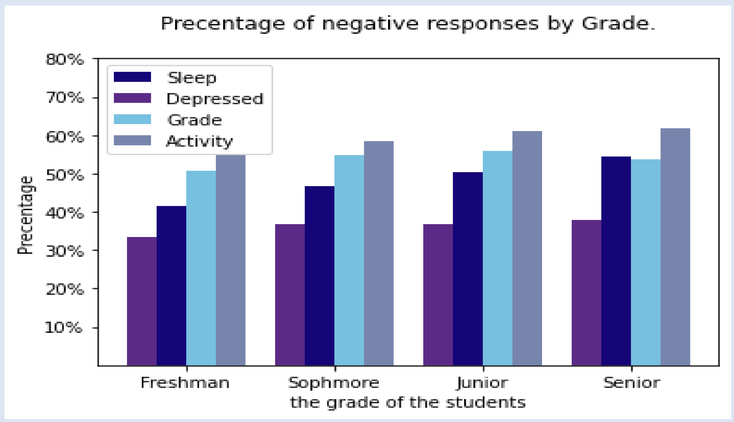
YRBS

The YRBS datasets are provided by the Centers for Disease Control. These Datasets were collected from surveys conducted from 1991-2019 nationwide across the United States. The purpose was to facilitate the data that required multiple year/multiple surveys together. This survey was given to students across numerous schools in America to collect data about them and their habits/lifestyles to find relationships and statistics. The survey was created to collect data on youth aged 10-18 years cross tab studies to create statistics of what seems to affect students more than another.

Description of your project

Our team chose to research the categorical data between the amount of sleep per high school student versus whether or not they feel sad or hopeless. Our goal in choosing these two questions of research is to find a correlation between lack of sleep and feeling hopeless or sad while also finding the same correlation between enough sleep and not feeling sad or hopeless. We used the 2019 YRBS Dataset in order to find the statistical relationship between sleep and sadness.





Research Question or Hypothesis

We wanted to determine if there was a relationship between the responses to question 25, that is whether the participants felt sad or hopeless and the responses to question 88, that is the amount of sleep a participant gets on an average school night.
The hypothesis below guided our work.
H0: Students who answered yes to feeling sad or hopeless have no relation to those who had less than 8 hours of sleep.
H1: Students who answered yes to feeling sad or hopeless are more likely to have had less than 8 hours of sleep.

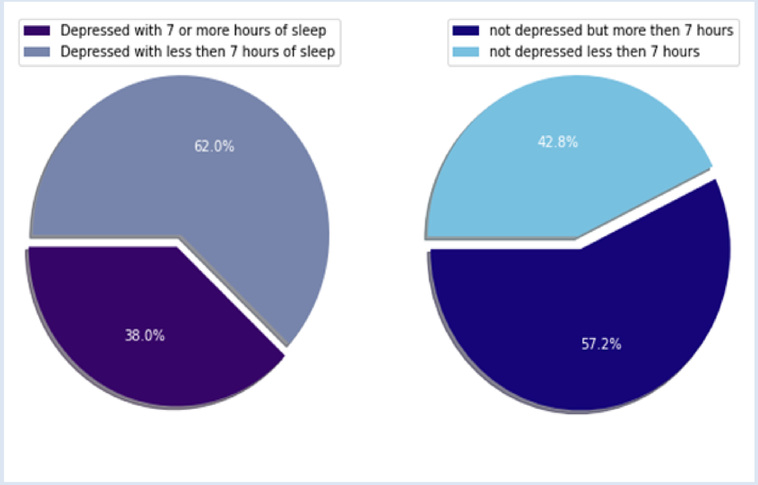
Data Retrieval & Winnowing

In order to retrieve the data from the YRBS dataset, we downloaded the dataset provided by the CDC. This included over 12 thousand responses. From there, we designed a query in Microsoft Access sheet using SQL view. This query contained the responses to the questions that indicated signs of having a relationship. Each specific question that we wanted to use, and then running the script. After running the script and attaining the desired questions, we saved the file as an Excel sheet and were able to solicit data there to our Python script.

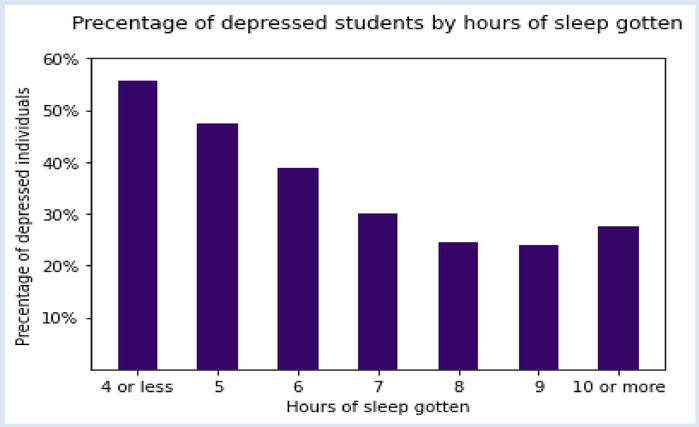
```
select q1 as age, q2 as gender, q3 as class, q4 as race, q25 as depressed, q26, q78 as activity, q88 as sleep, q89 as grade
from XXHq
```

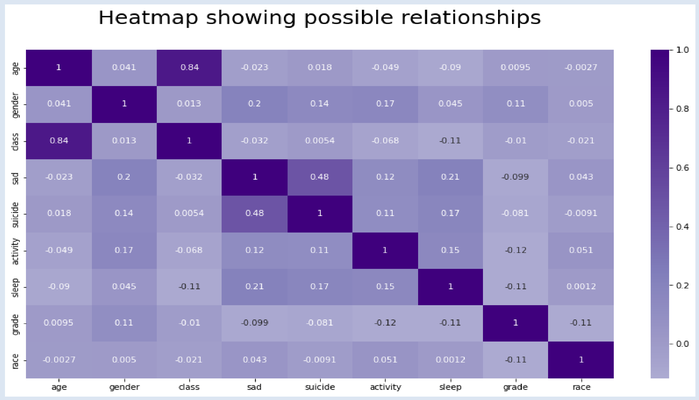
```
dataex = pd.read_excel(r"C:\Users\ac173\Documents\BI104FinalProjectData.xlsx")
df = pd.DataFrame(data=dataex) #take the excel into dataframe
df = df.fillna(0) #use zeros for nulls

```

Results



Results (continued)





Discussion & Implications

- These findings show a relationship between those who showed indicated signs of depression and those who did not sleep much on a prolonged bases.
- A continued look into this relationship could lead to improved depression diagnostics.
- Our findings that there is a relationship between sleep and depression agrees with Dr. Adrian J. published in his *Neurobiological bases for the relation between sleep and Depression.*

In Conclusion: we found that Students who answered yes to feeling sad or hopeless are more likely to have had less than 8 hours of sleep.

Reference List

- Centers for Disease Control and Prevention. (2020, October 27). *YRBSS*. Centers for Disease Control and Prevention. Retrieved November 16, 2022, from https://www.cdc.gov/healthyyouth/data/yrbs/index.htm
- Adrien, J. (2002). Neurobiological bases for the relation between sleep and Depression. *Sleep Medicine Reviews*, *6*(5), 341–351. https://doi.org/10.1053/smrv.2001.0200