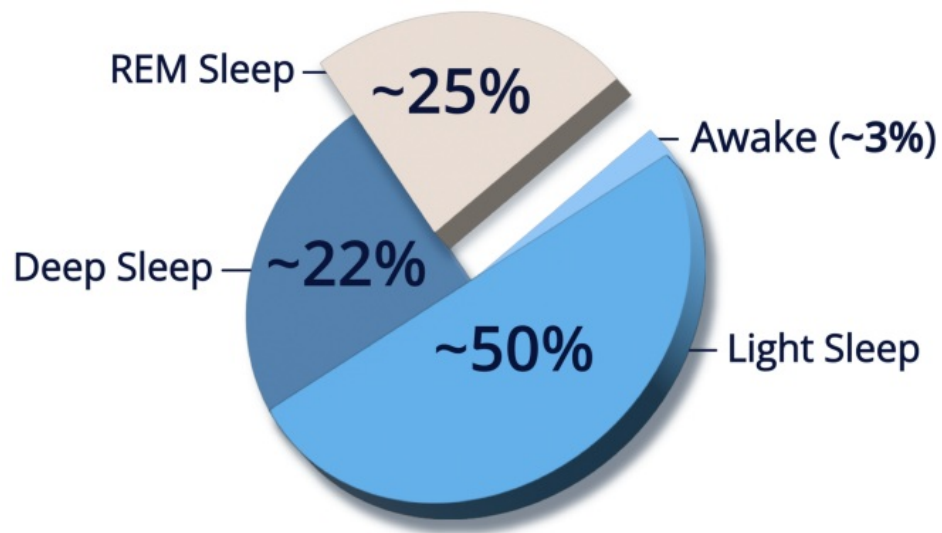# Bad Sleep Habits

Sleep Efficiency Dataset

Team Nap
by Naomi Vang and Hussain Ali

Sleep is foundational to a healthy functioning body.

Perfect Sleep Recipe

~ 7-9 hours of sleep
~ >85% sleeping time
~ Rem/Deep 20-25%
~ Light Sleep 50-60%

REM Sleep — ~25%
Awake (~3%)
Deep Sleep — ~22%
~50% — Light Sleep

ID	Overall Slee..	REM/DEEP Rating	Sleep efficiency	Sleep duration
1	Bad	0.00	88%	6.00
2	Bad	0.00	66%	7.00
3	Bad	0.00	89%	8.00
4	Bad	1.00	51%	6.00
5	Bad	0.00	76%	8.00
6	Bad	0.00	90%	7.50
7	Bad	1.00	54%	6.00
8	Bad	0.00	90%	10.00
9	Bad	0.00	79%	6.00
10	Bad	0.00	55%	9.00
11	Bad	0.00	92%	8.00
12	Bad	0.00	93%	7.50
13	Bad	0.00	93%	9.00
14	Bad	1.00	64%	8.50
15	Bad	0.00	54%	8.50
16	Bad	0.00	92%	7.50
17	Bad	1.00	54%	7.00
18	Bad	0.00	50%	7.50
19	Bad	0.00	98%	9.00
20	Bad	0.00	89%	7.00
21	Bad	0.00	83%	8.00
22	Bad	0.00	71%	7.50
23	Bad	0.00	84%	8.00
24	Bad	0.00	98%	8.00
25	Bad	0.00	88%	7.00
26	Bad	0.00	91%	6.00
27	Bad	0.00	95%	7.00
28	Bad	0.00	84%	7.00
29	Bad	1.00	65%	9.00
30	Bad	0.00	91%	7.00
31	Bad	1.00	57%	7.00
32	Bad	0.00	68%	8.00
33	Bad	1.00	55%	7.00
34	Bad	0.00	90%	7.00
35	Bad	0.00	94%	7.50
36	Bad	1.00	64%	7.00
37	Bad	0.00	87%	7.00
38	Bad	0.00	82%	9.00
39	Bad	0.00	87%	7.50
40	Bad	1.00	63%	7.00
41	Bad	0.00	83%	6.00

All 430 individuals rated bad for sleep quality.

Analysis Overview:

What influences bad sleep quality the most?
(What is the relationship between activities and sleep measures?)

What is the relationship to the time people go to bed?

Context on Data
Participants: 430
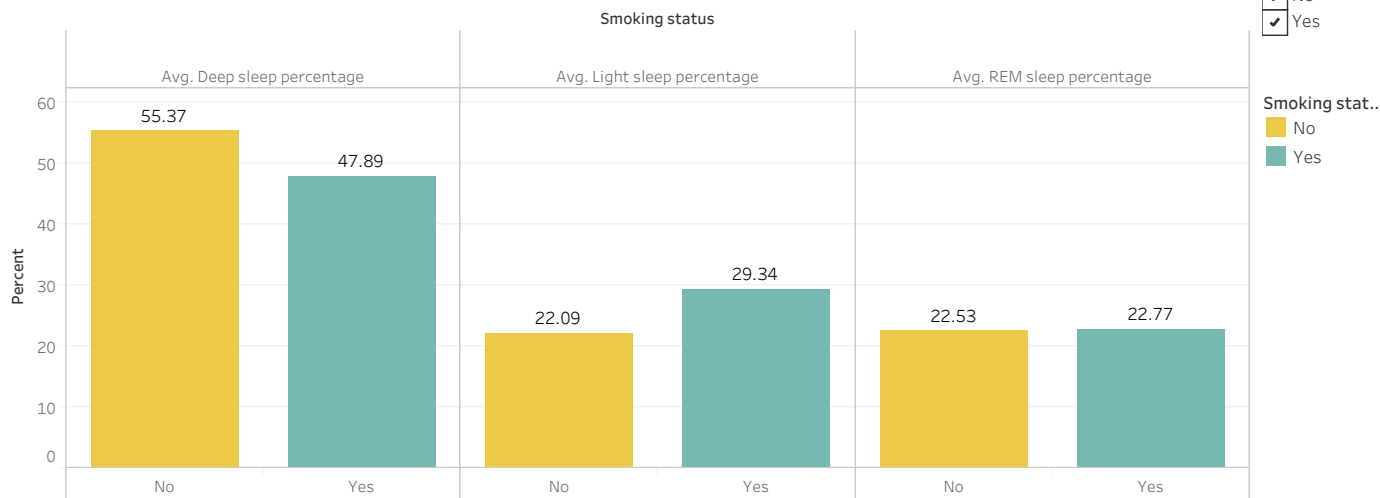Gender M/F: 50/50
Age distribution: 16-64 year olds

Sleep Measures:
~ Sleep Effiency Percentages
~ Sleep Duration (Hours)
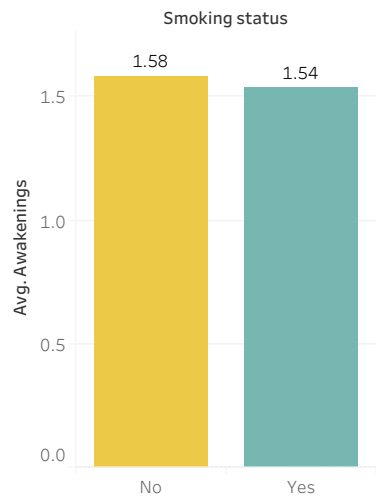~ REM/Deep/Light Sleep Percentages
~ Awakenings

Activity:
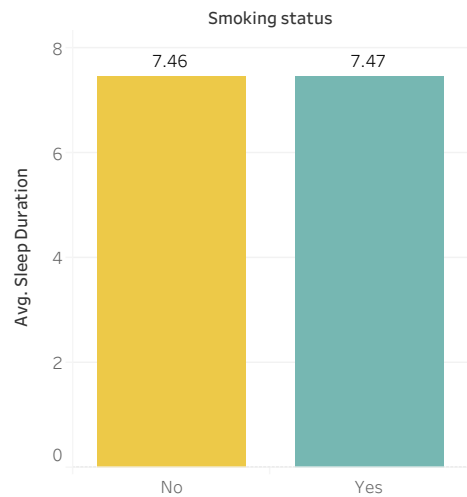~Caffeine (mg.)
~ Alcohol (oz.)
~ Exercise (weekly)
~Smoking (Y/N)

Smoking by Deep/Light/REM

Smoking stat..
☑ No
☑ Yes

Smoking stat..
🟨 No
🟩 Yes

Smoking status

Avg. Deep sleep percentage	Avg. Light sleep percentage	Avg. REM sleep percentage

55.37
47.89
22.09
29.34
22.53
22.77

Percent

No   Yes   No   Yes   No   Yes

Smoking by Awakenings

Smoking status

1.58   1.54

Avg. Awakenings

No   Yes

Smoking by Duration

Smoking status

7.46   7.47

Avg. Sleep Duration

No   Yes

Smoking by Efficiency

Smoking status

0.82   0.73

Avg. Sleep Efficiency

No   Yes
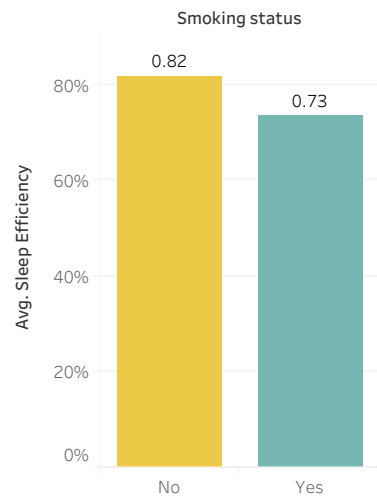
Effects of Activities on Sleep Efficiency Percentage

Caffeine
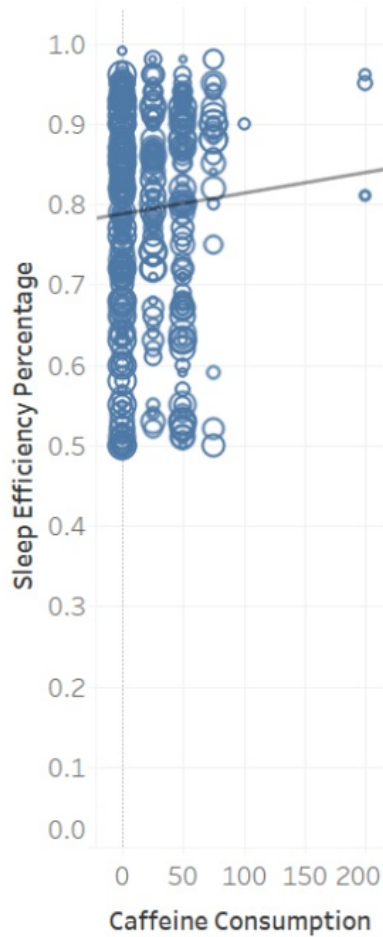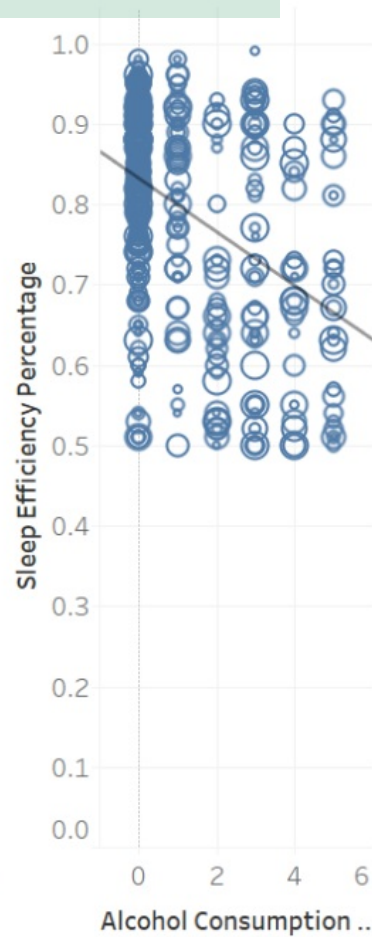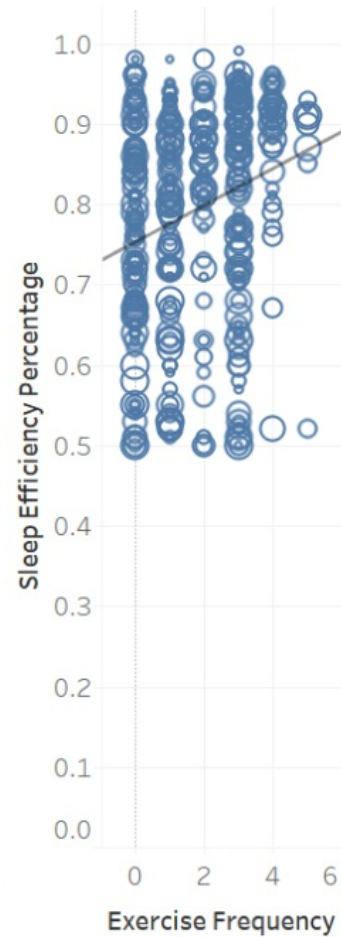
Alcohol

Exercise

Measure
Sleep Efficienc... ▾

Caffeine Consumption

Alcohol Consumption ..

Exercise Frequency

Effects of Activities on Sleep Duration Percentage

Caffeine

Alcohol

Exercise

Measure

Sleep Duration... ▾
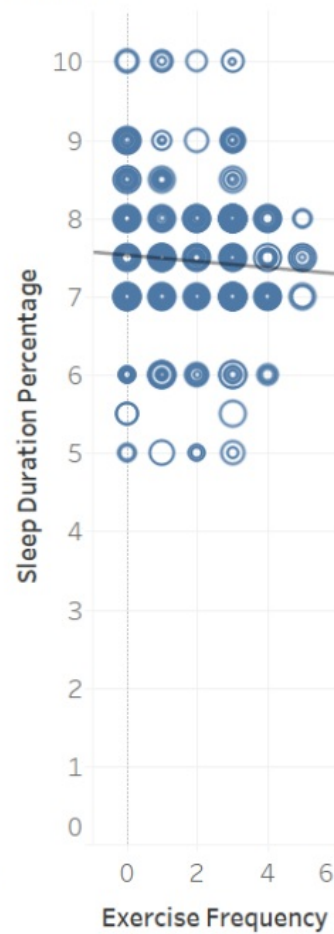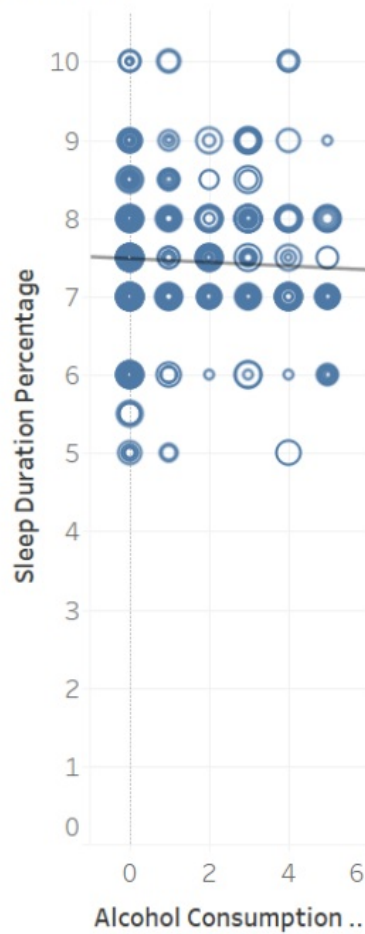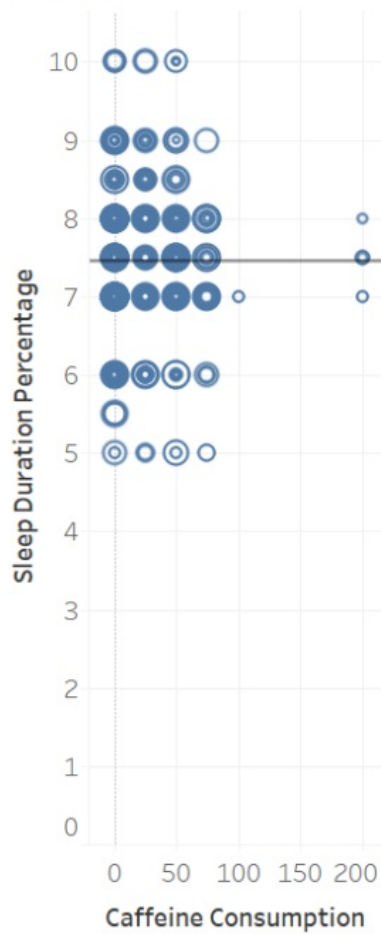
Effects of Activities on Rem Sleep Percentage

Caffeine • Alcohol • Exercise

Measure
Rem Sleep Per... ▾
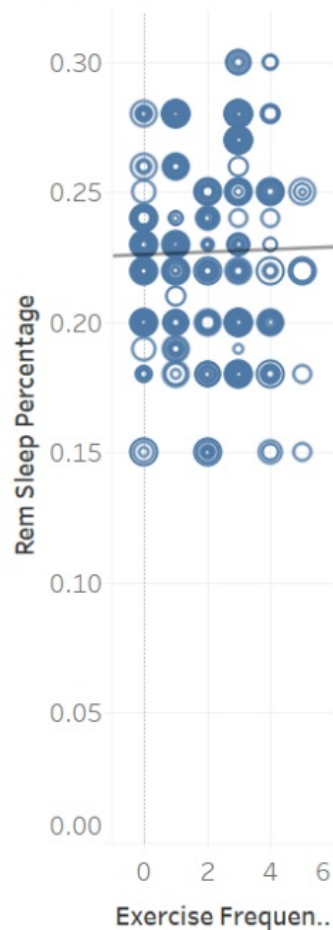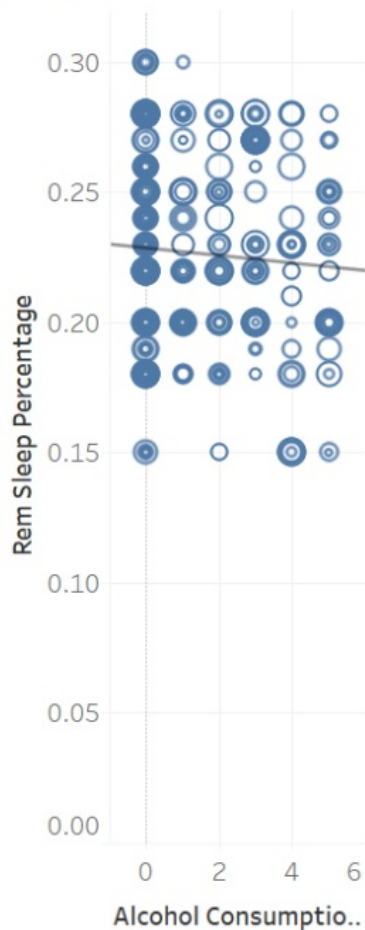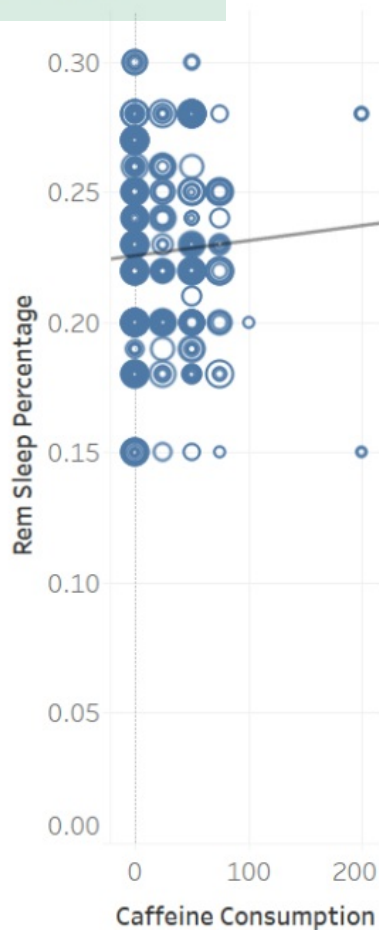
Effects of Activities on Deep Sleep Percentage

Caffeine

Alcohol

Exercise

Measure

Deep Sleep Per... ▼
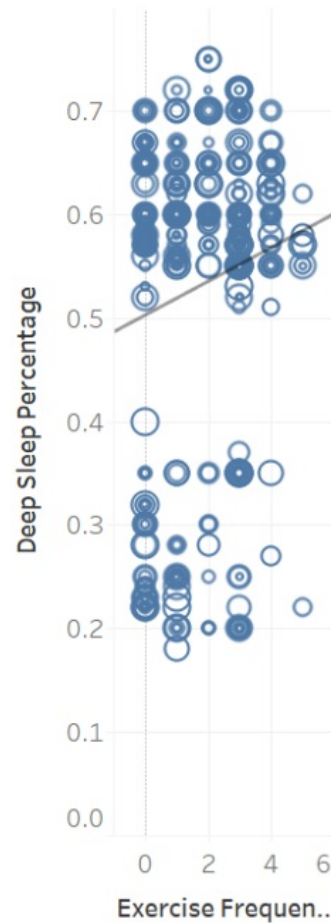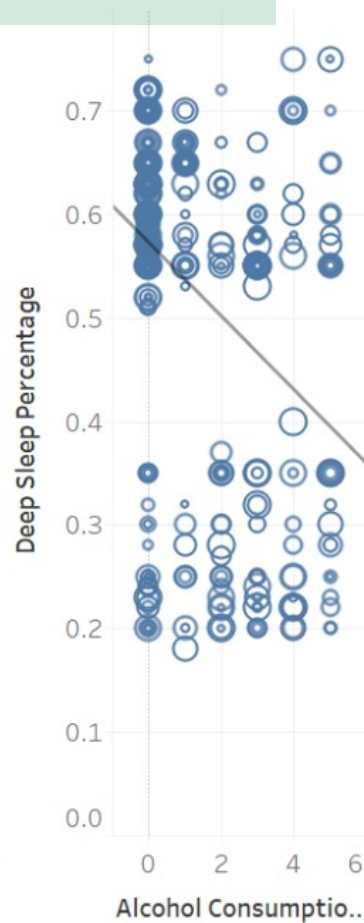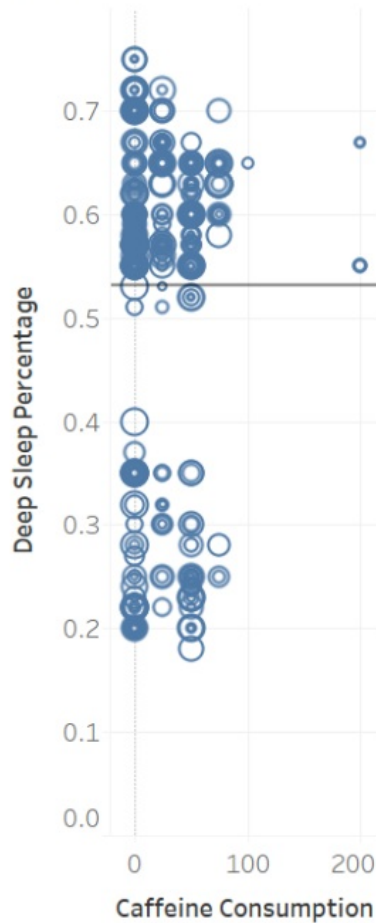
Effects of Activities on Light Sleep Percentage

Caffeine

Alcohol

Exercise

Measure
Light Sleep Per... ▾

Effects of Activities on Awakenings

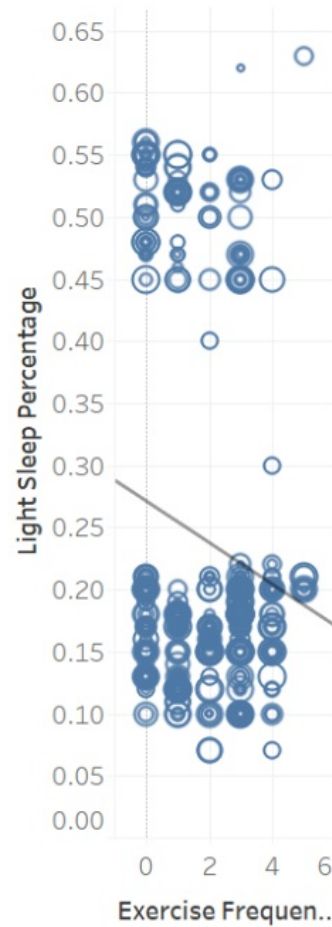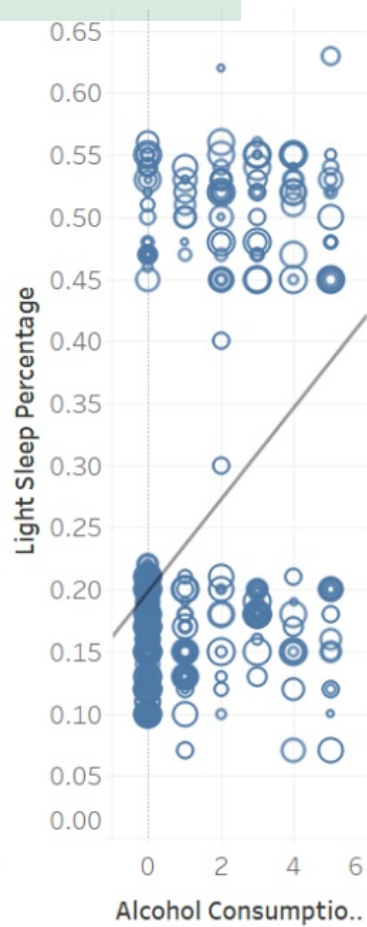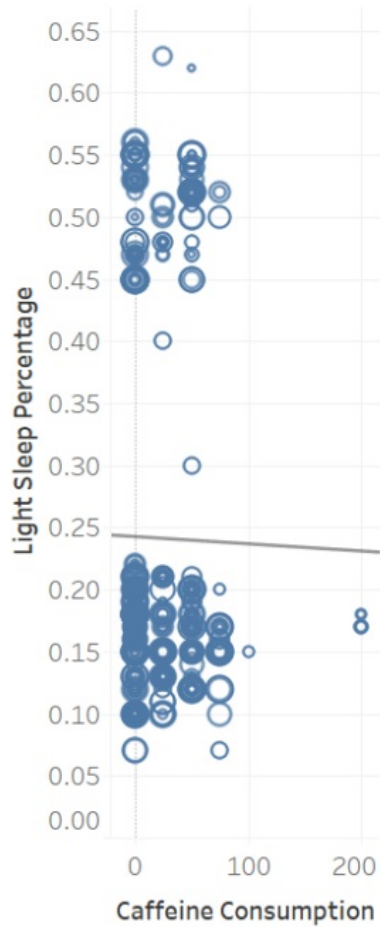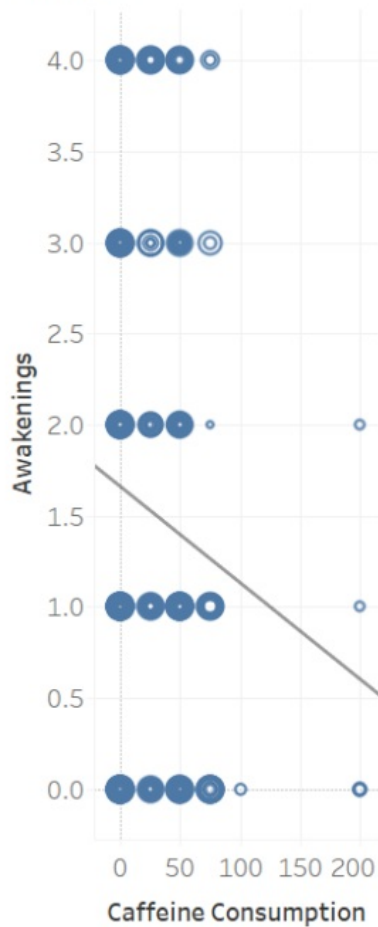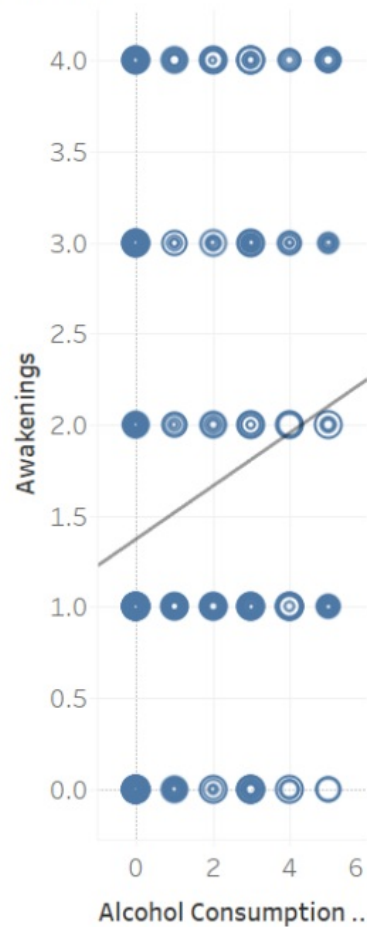Caffeine   Alcohol   Exercise   **Measure**
                                                                                   Awakenings ▾
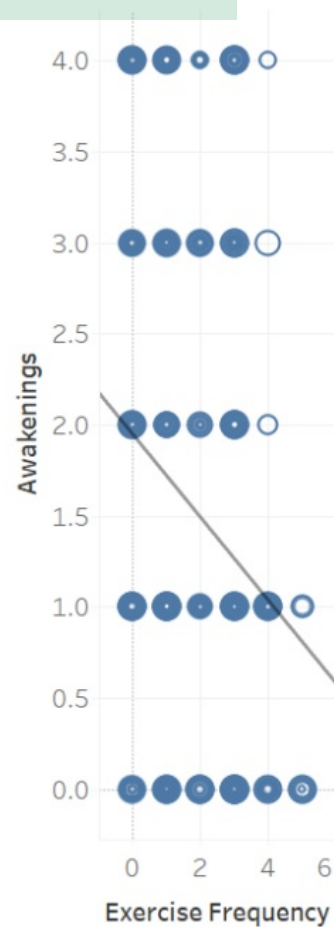
What impact do the activities have on the sleep measures?

Sleep Efficiency: People who drink more alcohol show lower sleep efficiency. People who exercise more have greater sleep efficiency.
Sleep duration: No noticeable influences
Rem sleep: No noticeable influences.
Deep sleep: People who drink more alcohol show higher deep sleep percentages. People who exercise more have a higher deep sleep.
Light Sleep: People who drink more alcohol reported higher light sleep. **Awakenings**: People who exercise more reported less awakenings. People who drank higher caffeine and alcohol reported more number of times awakenings.

Alcohol wins!

Overall, alcohol shows the strongest relationship trend with the most sleep measures.

Alcohol is bad for sleep.

Questions to answer
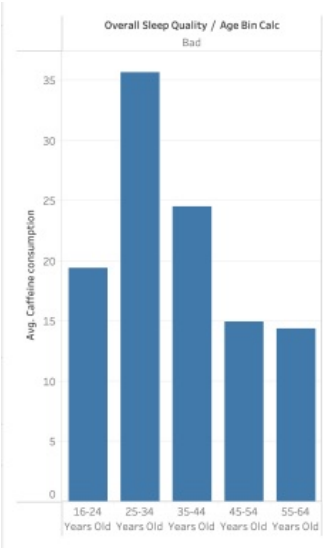
- How does caffeine intake affect bedtime?
- What is the quality of sleep once caffeine is take?
- How does alcohol consumption affect bedtime?
- What is the quality of sleep once alcohol is consumed?
- How does exercising affect sleep?

Bedtime hour

Bed time hr - 21:00
Avg caffeine consumption - 43.42

- The higher the caffeine intake the longer these individuals went to bed late.

Bedtime hr - 23:00
Avg caffeine consumption - 35.91

Bedtime hr - 0:30
Avg caffeine consumption - 30.71

Avg. Caffeine consumption

45
40
35
30
25
20
15
10
5
0

0:0   0:30   1:0   1:30   2:0   2:30   21:0   21:30   22:0   22:30   23:0

Overall Sleep Quality / Age Bin Calc
Bad

Avg. Caffeine consumption

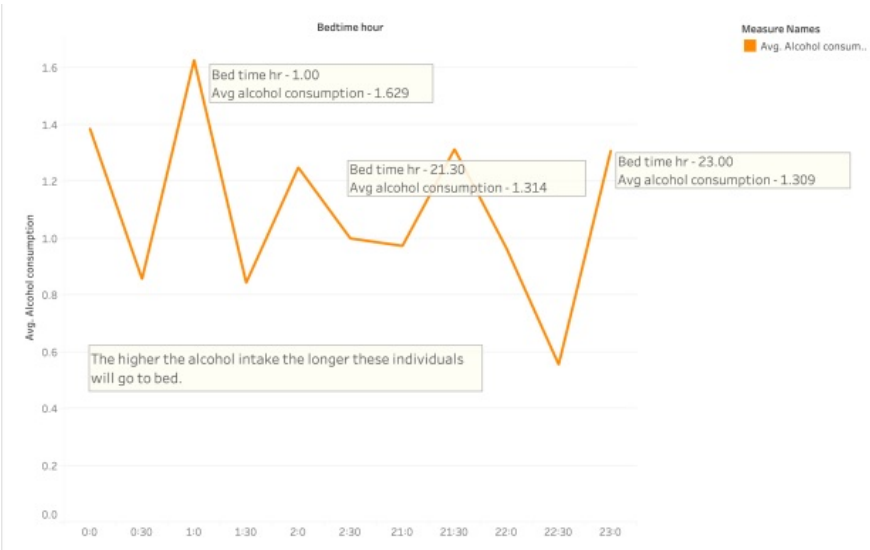16-24 Years Old | 25-34 Years Old | 35-44 Years Old | 45-54 Years Old | 55-64 Years Old

Age Bin Calc

- (All)
- 0-15 Years Old
- ☑ 16-24 Years Old
- ☑ 25-34 Years Old
- ☑ 35-44 Years Old
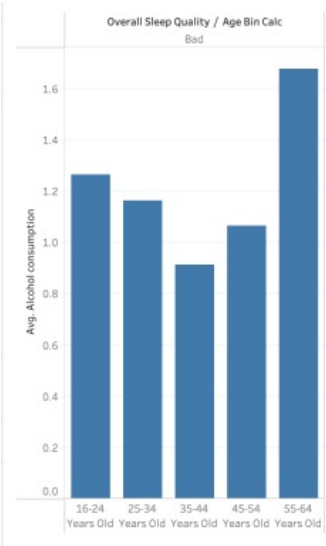- ☑ 45-54 Years Old
- ☑ 55-64 Years Old
- 65+ Years Old

- The bar graph is showing the average consumption level between different ages groups and their quality of sleep.

- People age 25-34 year old have a bad overall quality sleep and have the highest average caffeine consumption level of 35.68 than the 55-64year old with the level of 14.41 (lowest).

Bedtime hour

Measure Names
■ Avg. Alcohol consum..

Avg. Alcohol consumption

Bed time hr - 1.00
Avg alcohol consumption - 1.629

Bed time hr - 21.30
Avg alcohol consumption - 1.314

Bed time hr - 23.00
Avg alcohol consumption - 1.309

The higher the alcohol intake the longer these individuals will go to bed.

0:0 0:30 1:0 1:30 2:0 2:30 21:0 21:30 22:0 22:30 23:0

Overall Sleep Quality / Age Bin Calc
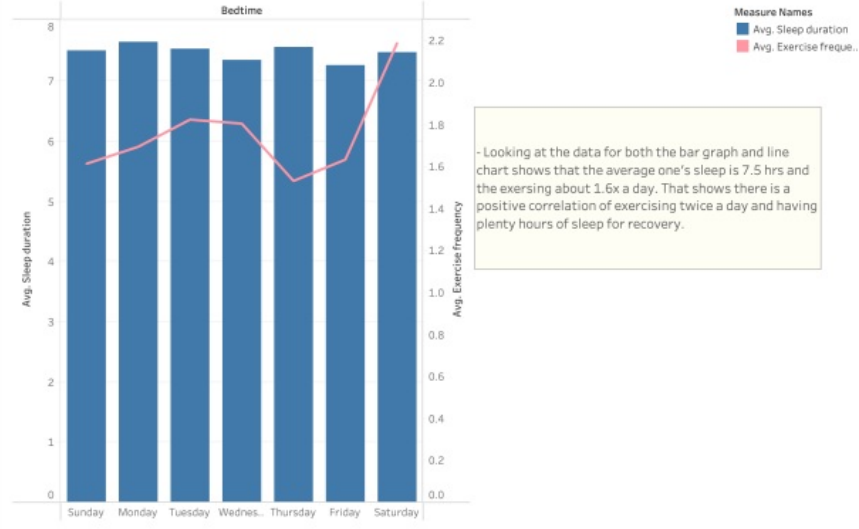
Bad

Avg. Alcohol consumption

- The bar graph is showing the average alcohol consumption level between different ages groups and their quality of sleep.

- People age 55-64 year old have a bad overall quality sleep and have the highest average alcohol consumption level of 1.6780 than the 35-44 year old with the level of 0.9143 (lowest)

Age Bin Calc

- [ ] (All)
- [ ] 0-15 Years Old
- [x] 16-24 Years Old
- [x] 25-34 Years Old
- [x] 35-44 Years Old
- [x] 45-54 Years Old
- [x] 55-64 Years Old
- [ ] 65+ Years Old

Bedtime

Measure Names
- Avg. Sleep duration
- Avg. Exercise freque..

- Looking at the data for both the bar graph and line chart shows that the average one's sleep is 7.5 hrs and the exersing about 1.6x a day. That shows there is a positive correlation of exercising twice a day and having plenty hours of sleep for recovery.

Recomendations for a better quality sleep

1. Healthier Sleep Practices
- Sticking to a consistent sleep schedule even on weekends
- Creating a bedtime routine/activity. I.e; reading, stretching and meditation an hour before sleeping.
- Limiting screen time usage before an hour sleeping. I.e; phones, tablets and TVs

2. Limiting alcohol usage *(avoid completely if possible)*
- Alcohol interfers with REM sleep and causes early awakenings
- Can cause sleep apnea and breathing problems
- Cut off alcohol usage 4-6 before bed

3. Caffeine Intake:
- Caffeine is a stimulant drug that can remain the system for 6-10 hours once taken.
- Limit to only mornings particularly before noon.

4. Other alternatives to alcohol and coffee:
- Herbal teas
- Warm milk
- Juices

5. Day habits for a better sleep:
- Daily sunshine when outside for circadian rhythm and vitamin D efficiency
- Regular exercising

Sources:
"How much deep sleep do you need?" https://www.healthline.com/health/how-much-deep-sleep-do-you-need#takeaway.
"Stages of Sleep" https://www.sleepfoundation.org/stages-of-sleep.
"REM Sleep and the 4 Stages of Sleep" https://nordic-paradise.com/rem-sleep-and-the-4-stages-of-sleep/