Team 2 WFH

**Background**

This study was conducted over the course of 6 months, where a total of 70 participants with full-time jobs worked remotely, using the computer at least 4 hours a day, and periodically recorded their progress. Participants were also given a Garmin watch to wear which "pinged" them three times a day to share information such as their current location, musculoskeletal discomfort, and the number of breaks they took. This project aims to study the effects of remote work on overall health, and any findings from the data given can potentially provide insight on the future of remote work.

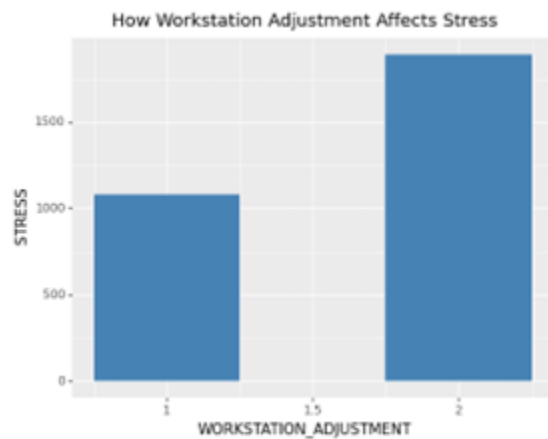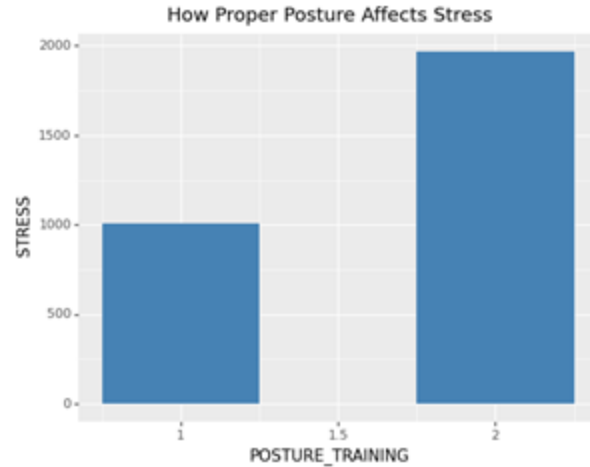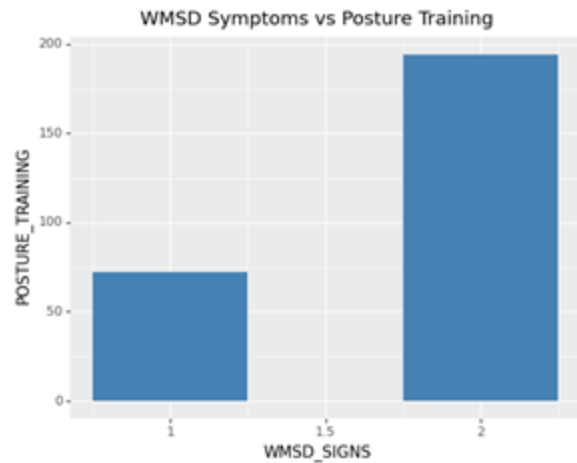**Preliminary Analysis of Data Collected**

In order to gain a better understanding of the participants that helped conduct this study, we have decided to also factor in their age and occupation into our data. Collecting the participants' demographic data can ultimately provide us with a more comprehensive understanding of how different variables affect a participant's mental health.
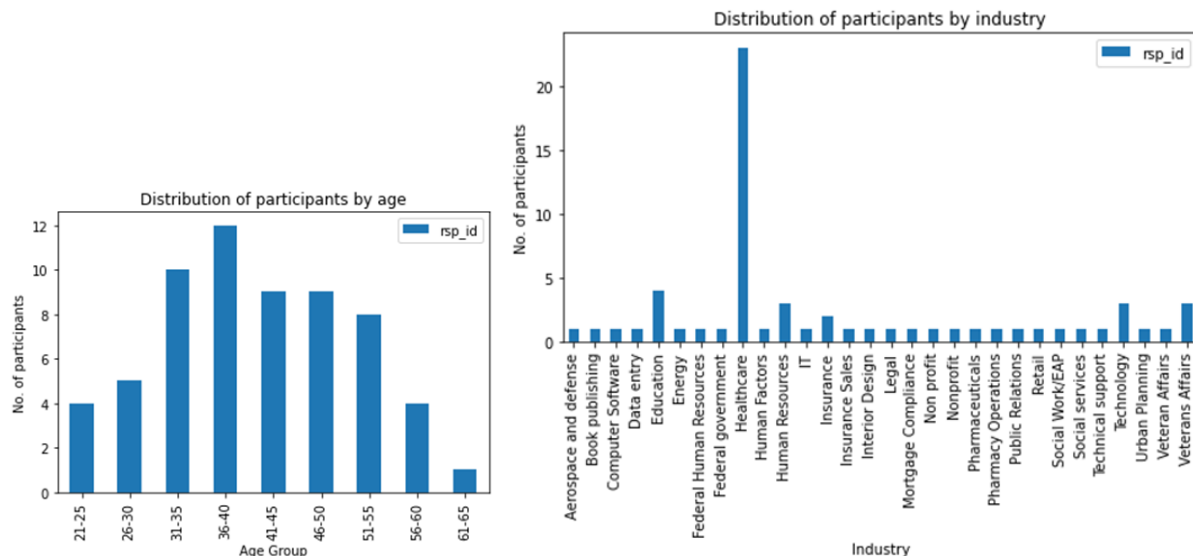

Our team collected data from the 6-month data for the final report. Based on information gleaned from correlation heatmaps of the Computer Workstation and Friday AM data, we found new correlations we decided to look into as to how these factors, in addition to the number of locations each participant worked each week, affected overall mental and physical health.

Hypothesis: Participants will work from an average of three different locations per week (including different rooms of the same house).

Shown above is the correlation heatmap used to analyze the Computer Workstation data. We found that posture_training, methods_training, wmsd_signs (Work-related Musculoskeletal Disorders), and workstation_adjustment (where workers were taught when and how to adjust their workstations to avoid musculoskeletal discomfort) were closely related and plotted it against information about stress to see how the presence of these types of practices and symptoms affected it.

WMSD Symptoms vs Posture Training

How Proper Posture Affects Stress

How Workstation Adjustment Affects Stress

In all three barplots, where 1 is "True" and 2 is "False" for the presence of signs or prior training in proper posture and work methods, we can see that stress tends to be lower when the worker did receive proper training and higher when the worker did not receive proper training.

Correlation Heatmap
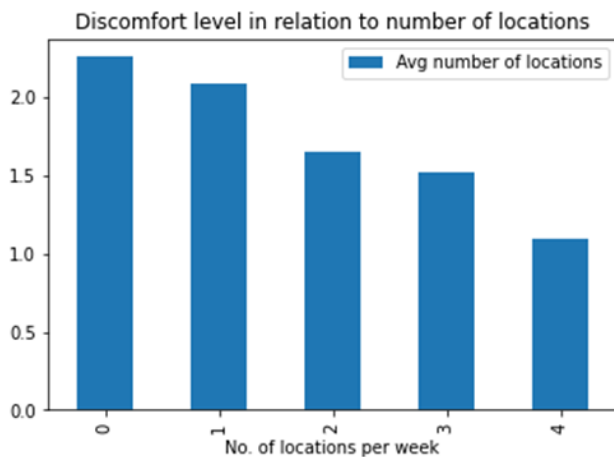
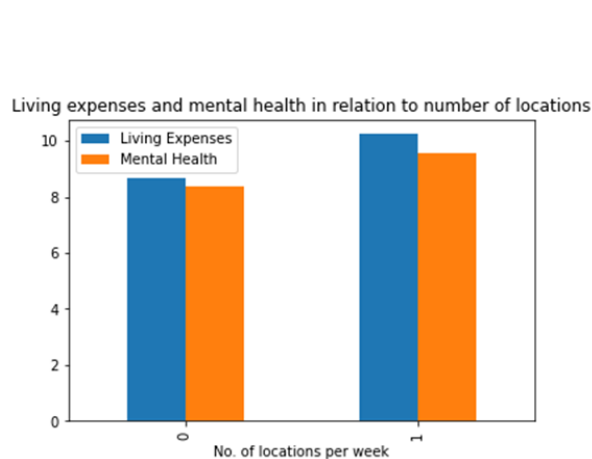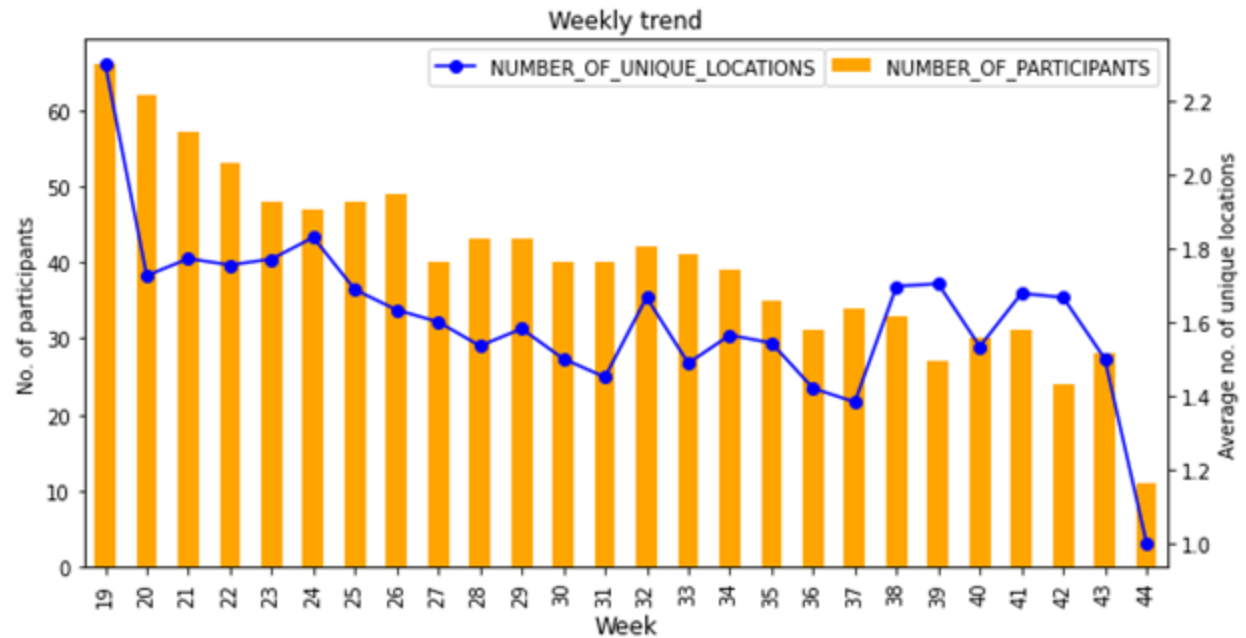Average number of locations for all participants
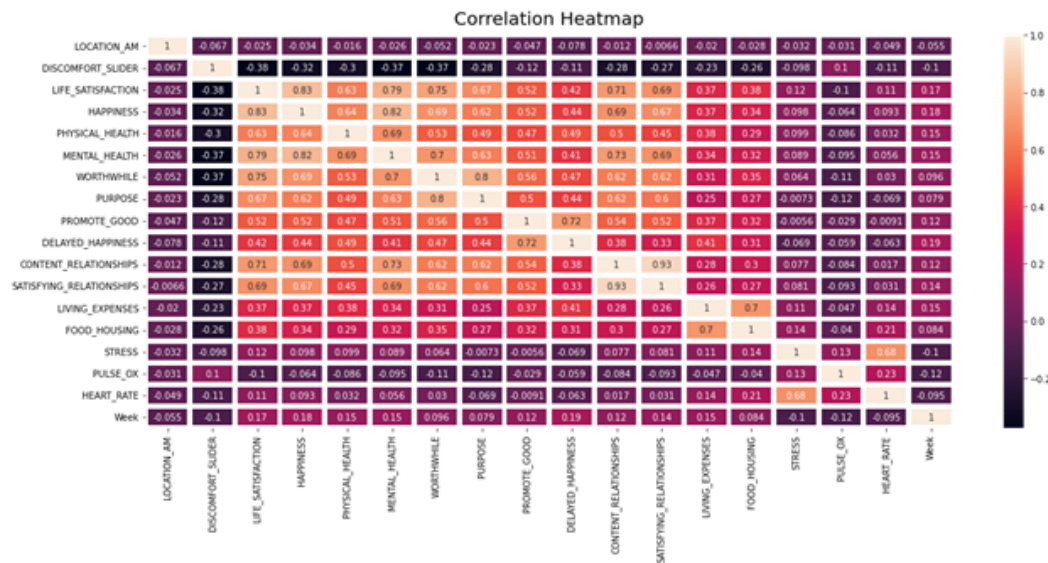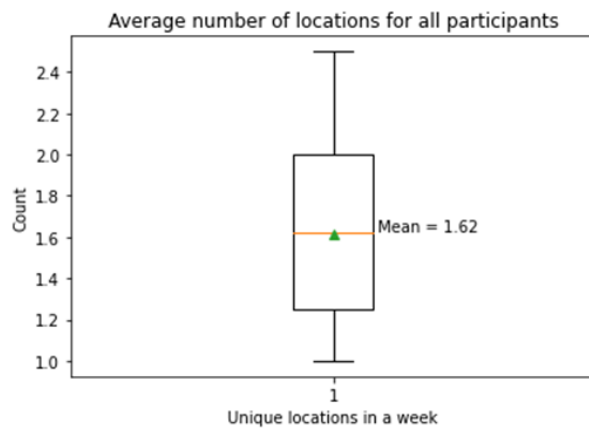
Distribution of Average No. of Unique Locations per Week
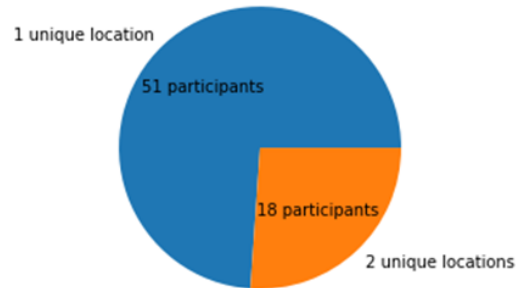
In contrast to our initial predictions or hypothesis in which participants work at an average of 3 different locations per week, we found that this is not true as participants work at an average of 1.62 unique or different locations in a week. We also found that a majority of the participants (73.9%) would work in only 1 unique location in a week.

Living expenses and mental health in relation to number of locations

Discomfort level in relation to number of locations

We also took a look at how living expenses played a part in relation to the number of locations and the participants' mental health. Both the mental health and the living costs of the participants increased as the average number of locations increased. However, mental health did not increase in proportion with living costs, implying that living costs do have an effect on mental health along with the number of average locations. In general, it seems that working from home decreased the overall health of the participants as they have less mobility working from home.

Weekly trend

Throughout the entire 6 month duration, we found that the number of participants as well as the average number of unique locations in which they worked at decreased overall. Another pattern that we noticed is that a large pool of participants would work in a high number of unique locations in one week and then work only in one location for the remaining weeks of the study.

Average no. of unique locations per week for each industry
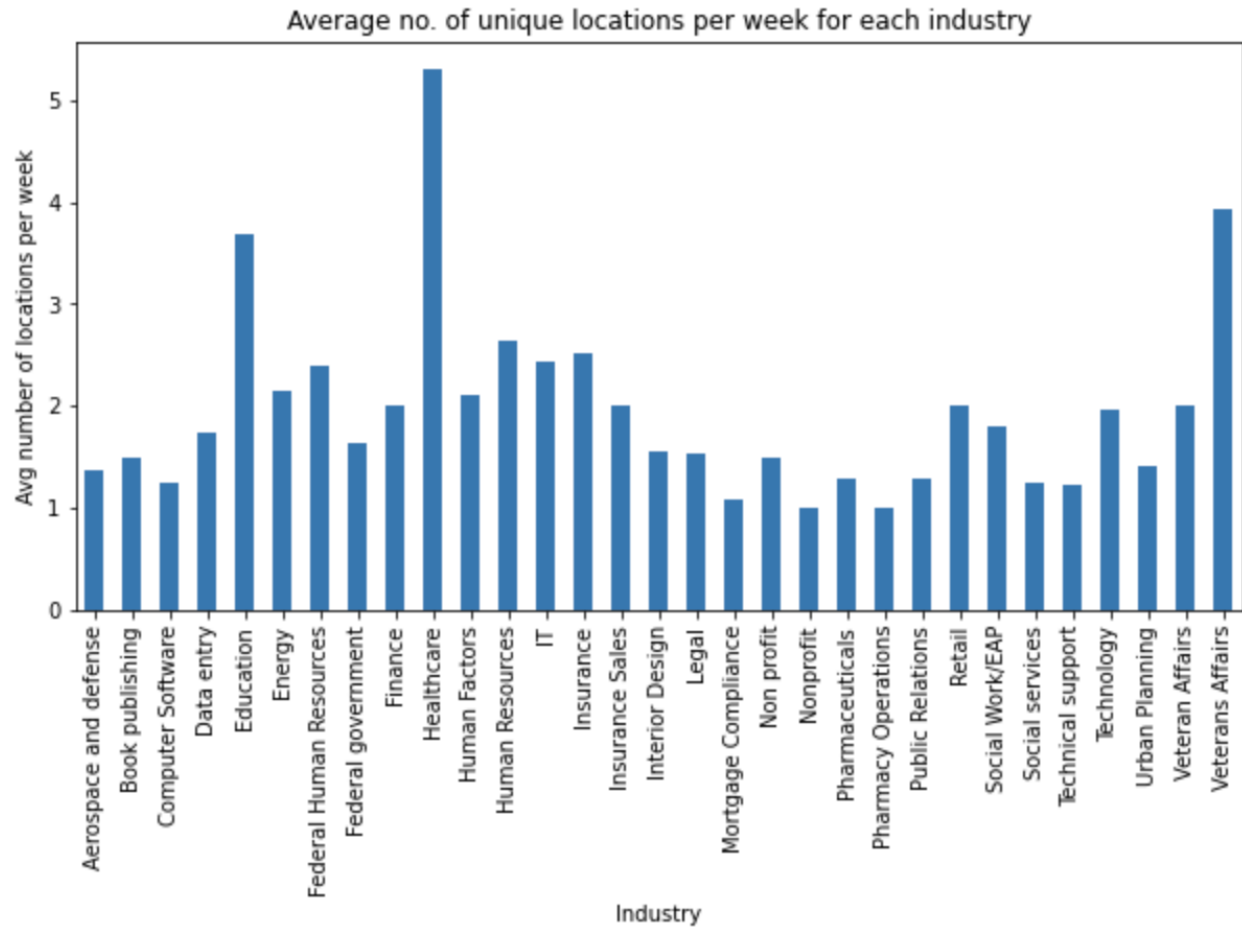
We can see here that the healthcare industry had the largest variation in terms of average locations worked per week with Veterans Affairs and Education tieing in second. It should be noted, however, that this could also be attributed to the fact that most of the participants work in the healthcare industry, as seen in our graph "Distribution of participants by industry".

Average no. of unique locations per week for each age group
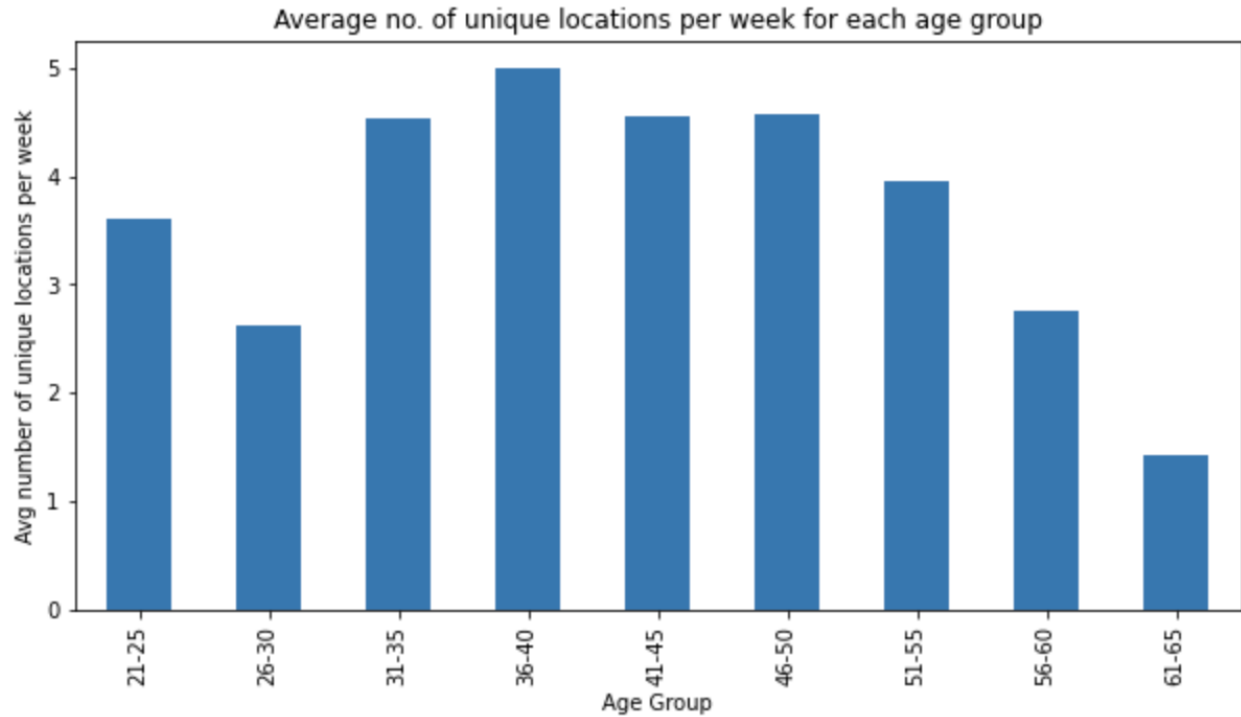
We also saw that participants between the ages of 36 and 40 tended to work in more unique locations. Younger people in the 21-35 year old range tended to work in fewer locations and at the other end of the spectrum 61-65 year olds followed the same trend. Although there is not enough data to support this, for the older demographic, less physical mobility due to age could be a factor worth noting.

Challenges Faced

There are a couple limitations with our analysis as we have not yet fully considered the age and occupation of the participants and it is extremely likely that these factors play a significant role in their health. We have also noticed there is a disproportionate amount of participants working in healthcare in relation to other occupations. This can play a role in massively skewing the data and potentially creating bias in our results, perhaps skewing data for certain age ranges. There are an innumerable amount of factors that play a role in the overall health of people and it would be impossible to take all of them into consideration, but we will attempt to efficiently encapsulate all of our findings in the final report.