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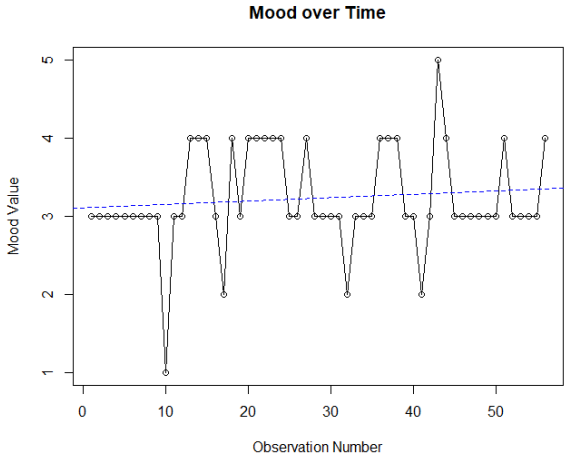
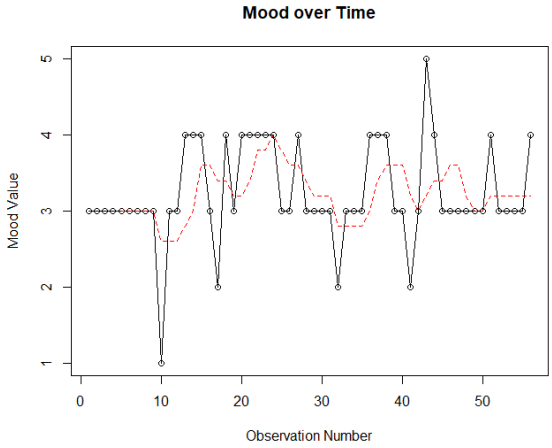
Neuroflow Data Project

For the project, I was tasked with analyzing data pulled from a sample user, to see what meaningful conclusions can be drawn. The data consisted of various subjective metrics rated on a scale of 0-5, with 0 being the worst and 5 being the best. For each metric, I found the mean and standard deviation, and then plotted the data, fitting various models to see if there were any meaningful patterns present in the data. The following analyzations are broken up based on the four metrics: Mood, Stress, Rumination Stress, and Sleep.

Mood

Mean: 3.23, SD: .66

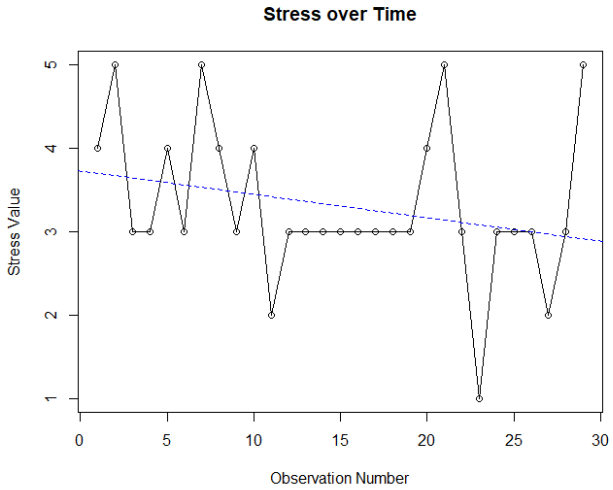


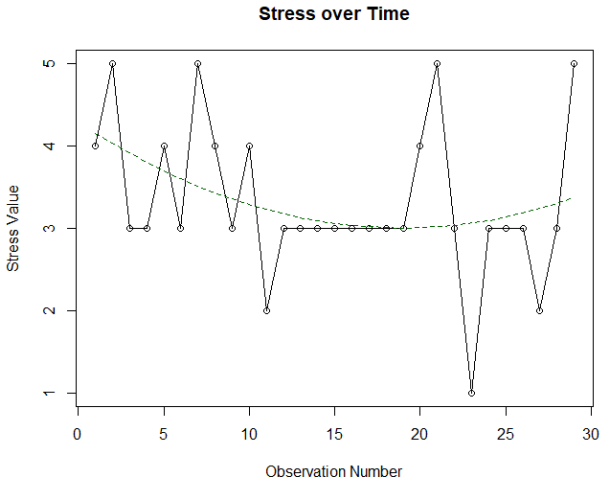


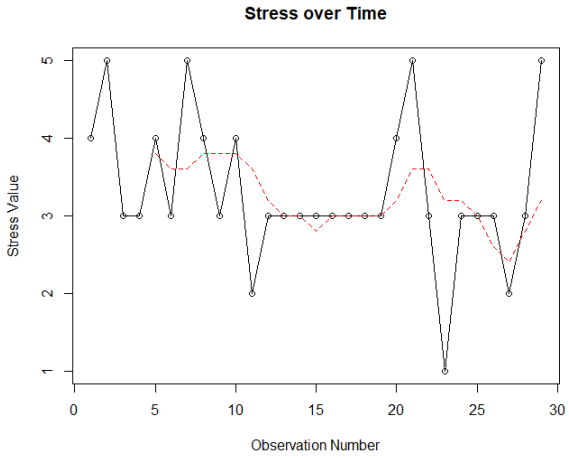
For mood, I fitted a linear regression model (blue dotted line) as well as a moving average curve (red dotted line). Both indicated a slight increase in mood over time. Mood was also the largest data set, with 56 observations, whereas each other metric's data set had only 29.

Stress

Mean: 3.31, SD: .93



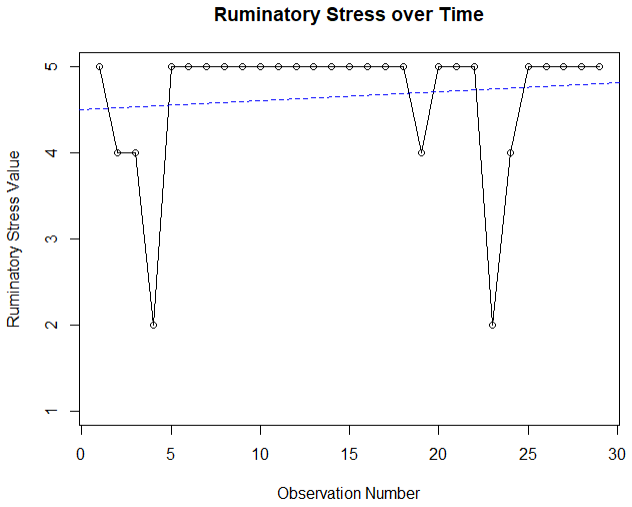


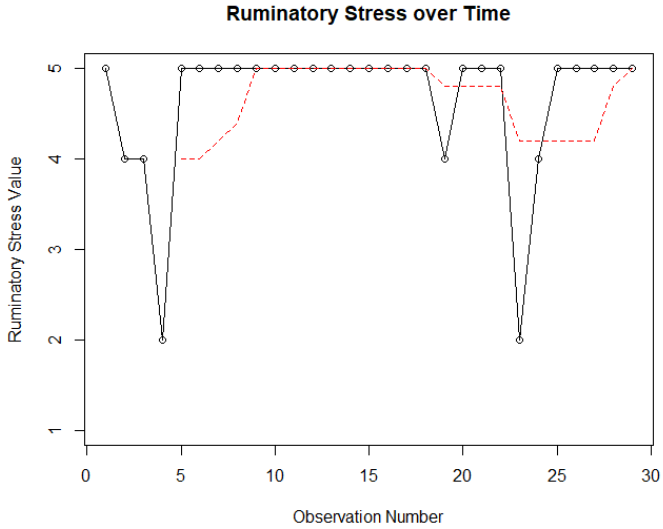


For stress, I fitted both a linear model (blue) and a quadratic model (green), while also adding a moving average curve (red). While all three showed a general downward trend over time as a whole, the moving average and quadratic showed the stress rating may have stopped decreasing and started increasing near the end. However, this possible increase is small compared to the total decrease that occurred over this time period.

Rumination Stress

Mean: 4.65, SD: .81

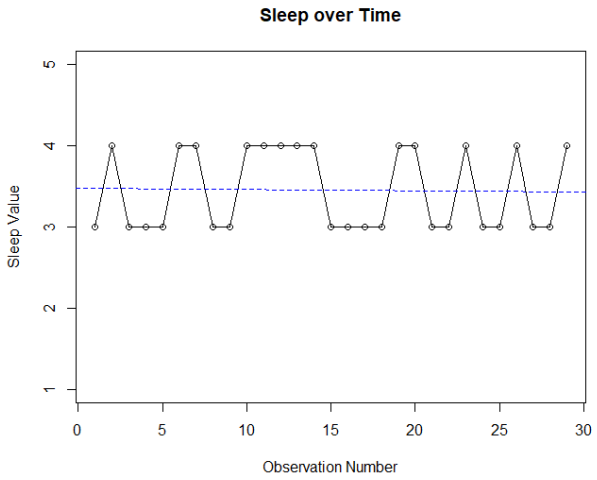


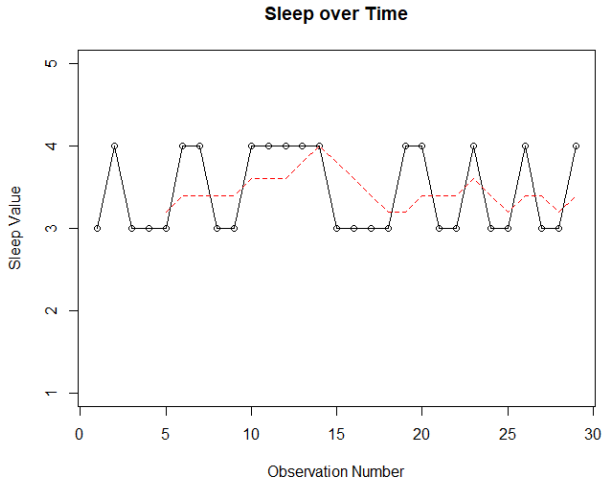


Rumination Stress was consistently high over time, with only two low outliers observed. Other than that, the values were consistently either 4 or 5, with the moving average (red) showing that the average of any 5 consecutive days did not drop below 4 throughout the time period. Regression line (blue) has a slight upward angle, indicating that rumination stress has improved over time.

Sleep

Mean: 3.45, SD: .51





Sleep was the most consistent metric measured. Every observed value was either 3 or 4, and the regression line (blue) was almost exactly horizontal. The moving average (red) hovers around 3.5, never dipping lower than 3 or higher than 4.

Conclusion

Based on the data, over the time period the mood value and rumination stress value of this user have increased, indicating improvements in both areas. However, the stress value has decreased, indicating that this user is becoming more stressed over time. The sleep metric remains largely unaffected over time. Therefore, while therapy may be helping to improve mood and rumination stress, it may be leading to an increase in stress. Future therapy sessions should dive deeper into what is causing the individual's stress level to become more and more negative. Additional metrics that may be important to monitor are anxiety level and energy level, two factors that would help in painting a picture of a person's mental health state.