

Exploring the impact of social time with different people on happiness



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Introduction

COVID-19 The pandemic has profoundly changed our daily lives, affecting not only physical health but also mental health. During the lockdown and quarantine, many people experienced heightened feelings of anxiety and uncertainty. Worryingly, mental health concerns are often overlooked in comparison to physical health challenges.

The aim of this study is to identify effective strategies to improve personal well-being and thereby promote better mental health outcomes. Our data were collected through surveys conducted in 2021, 2022, and 2023 that documented participants' social interactions with various populations and their self-reported levels of well-being.

Given that the pandemic has severely disrupted social interactions, our research focuses on exploring how social time with family, friends, and neighbors affects an individual's well-being. By examining the relationship between social time and mental health, we hope to propose feasible solutions and recommendations to improve well-being in the post-pandemic world.

Background:

Different Social Groups Fulfill Unique Emotional Needs

Family: Often provides unconditional support, stability, and a sense of belonging, essential for emotional well-being.

Friends: Foster shared interests, fun, and personal growth, which enhance joy and reduce stress.

Neighbors: Promote community connection, safety, and collaboration, contributing to a sense of local belonging.

Social time with diverse groups supports mental, emotional, and even physical health:

- Close family bonds may reduce anxiety and depression.
- Friendships are linked to increased life satisfaction and resilience.
- Strong neighborly connections can encourage active lifestyles and mutual support.
- Exploring these dynamics helps uncover holistic benefits of diversified social interactions.

Data and Variables Overview

Social Connection Variables:

1.CONNECTION_social_time_family_p7d_grouped.

2.CONNECTION_social_time_friends_p7d_grouped.

3.CONNECTION_social_time_neighbours_p7d_grouped.

wellness_subjective_happiness_scale_happy (subjective
happiness score)

Research Question 1 and Variables

Question: Does longer family socialising time lead to higher happiness scores?

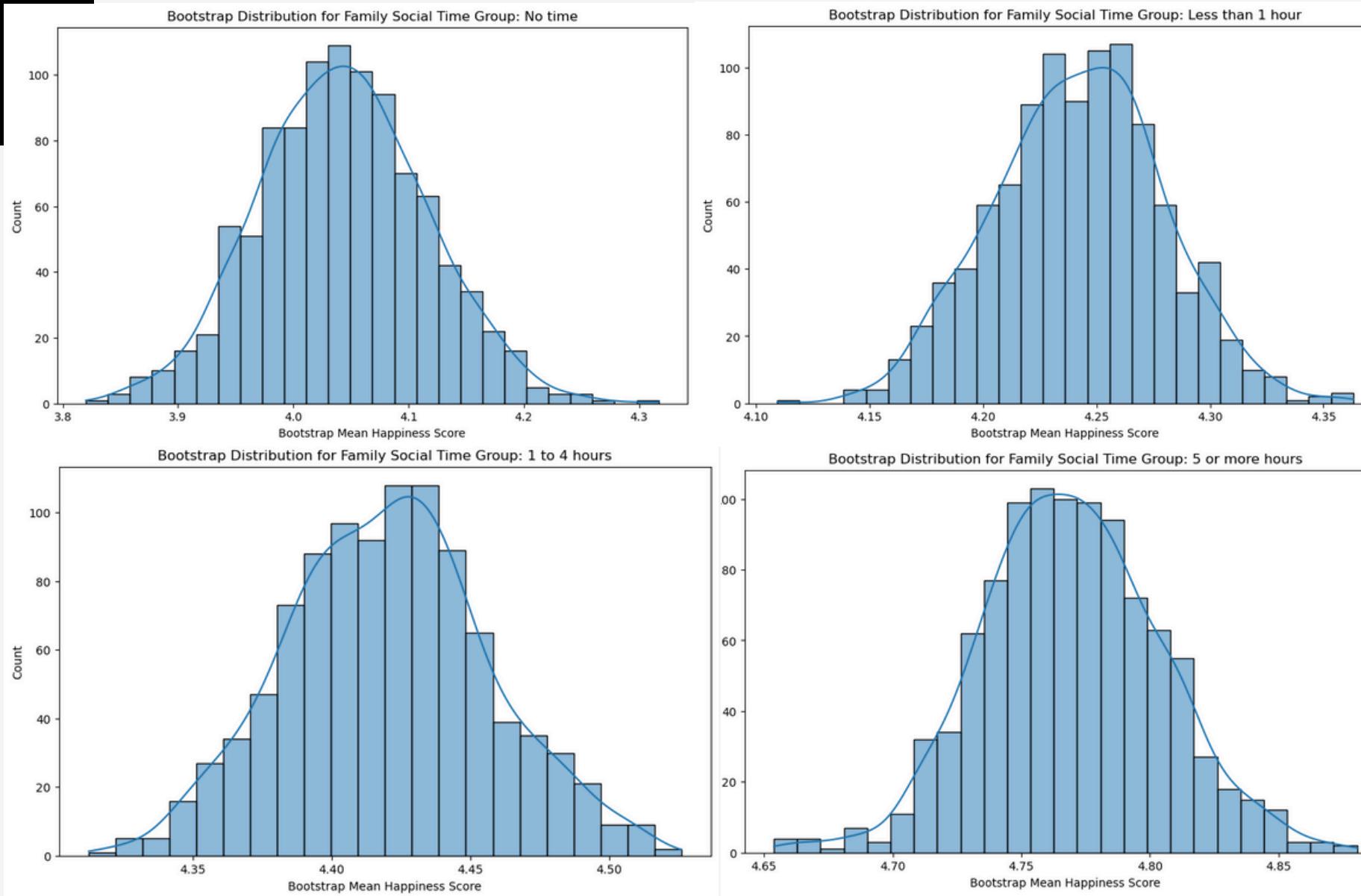
Independent variable:

`CONNECTION_social_time_family_p7d_grouped`

Dependent variable:

`wellness_subjective_happiness_scale_happy` (subjective happiness score)

Visualization



95% Confidence Interval for No time: (3.90, 4.19)

95% Confidence Interval for Less than 1 hour: (4.17, 4.31)

95% Confidence Interval for 1 to 4 hours: (4.35, 4.50)

95% Confidence Interval for 5 or more hours: (4.71, 4.84)

95% Confidence Interval for overall data: (4.40, 4.49)

No time: (3.90, 4.19)

This group has the lowest well-being scores, suggesting that lack of family social time is associated with reduced well-being.

Less than 1 hour: (4.17, 4.31)

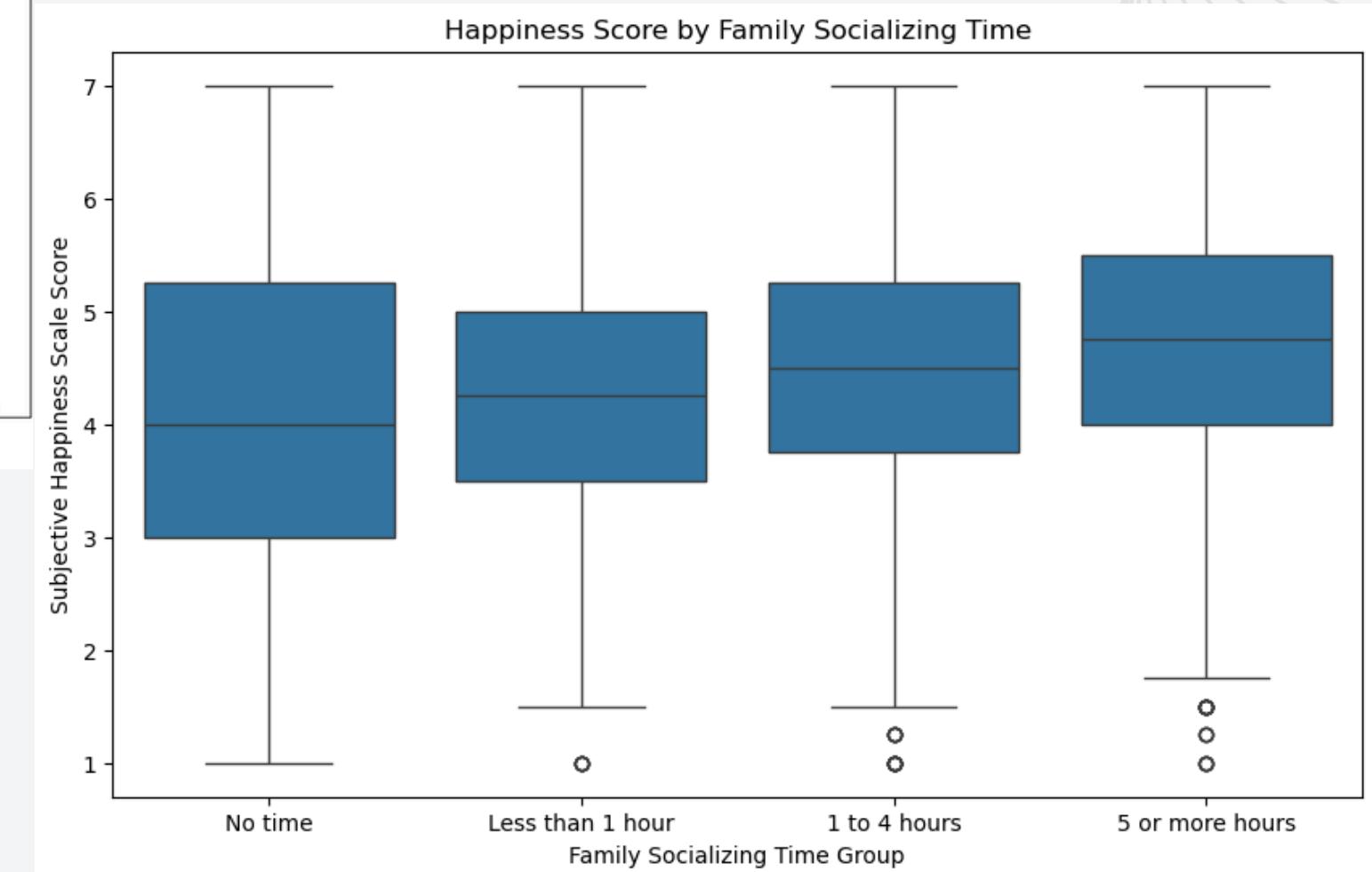
Scores are slightly higher than the "No time" group, indicating a minor improvement in well-being with even minimal family interaction.

1 to 4 hours: (4.35, 4.50)

This group exhibits significantly higher well-being scores compared to the two lower groups. Regular family social time within this range seems to contribute meaningfully to well-being.

5 or more hours: (4.71, 4.84)

This group has the highest well-being scores, with a considerable improvement compared to all other groups. Extensive family social time correlates strongly with higher well-being.



Discussion

Research Process:

To understand whether socializing with friends can help improve an individual's happiness, we divided the data into four groups based on the amount of time spent socializing: “No time,” “Less than 1 hour,” “1 to 4 hours,” and “5 or more hours.” We then calculated the average happiness score for each group and compared the differences between them.

If there were no significant differences between the average scores of these groups, it would suggest that socializing with friends might not have a noticeable impact on happiness. On the other hand, if the average scores showed clear differences, it would indicate that spending time with friends positively affects happiness.

Conclusion:

After analyzing the data, we found that although the average happiness scores between different social time groups were not vastly different, there were still some changes across the groups. Most people's happiness scores were clustered around similar values, making the differences between the groups seem smaller. However, as the time spent socializing with friends increased, the average happiness score also showed a steady rise. Therefore, we concluded that increasing social time with friends may help improve a person's happiness. In other words, the more time people spend with friends, the happier they tend to feel.

Research Question 2 and Variables

Question: Does time spent socialising with friends affect subjective well-being?

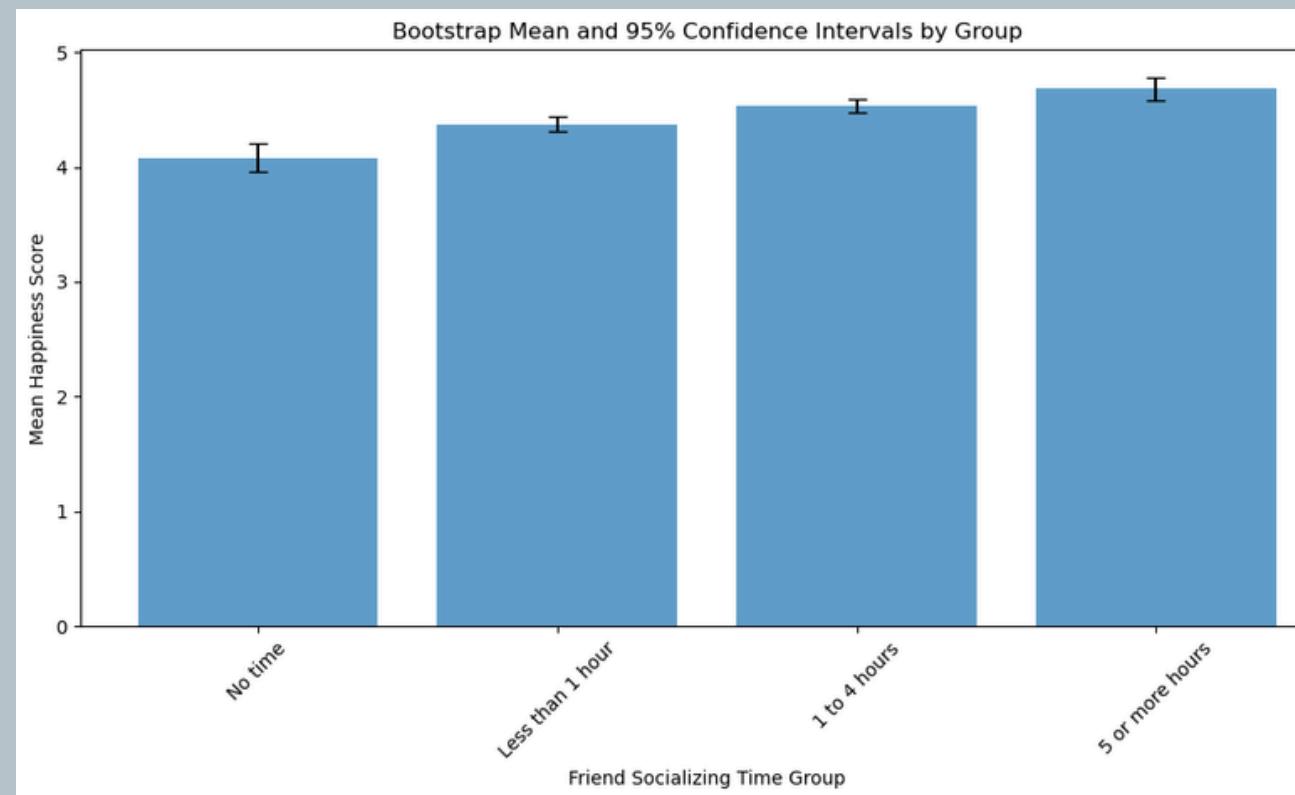
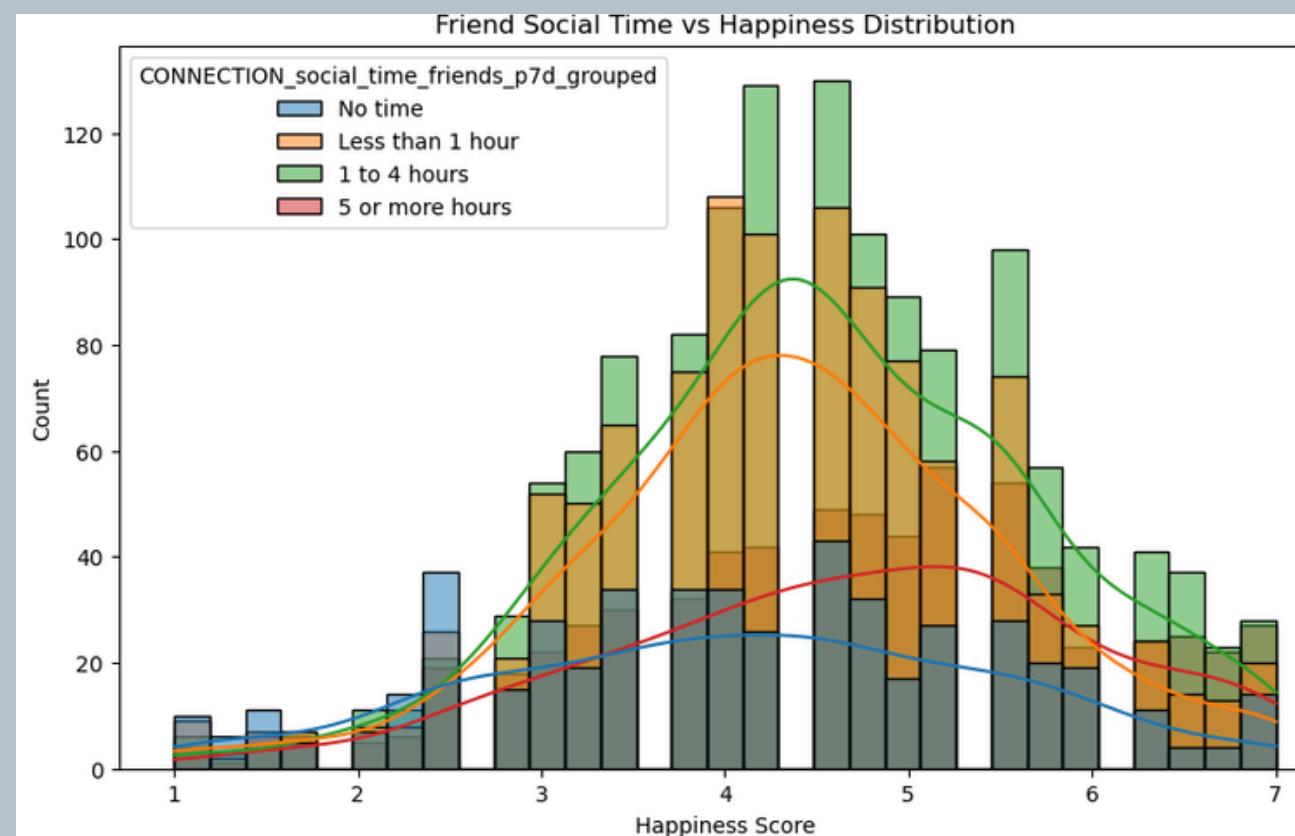
Independent variable:

`CONNECTION_social_time_friends_p7d_grouped` (social time with friends in the last 7 days)

Dependent variable:

`wellness_subjective_happiness_scale_happy` (subjective happiness score)

Visualization

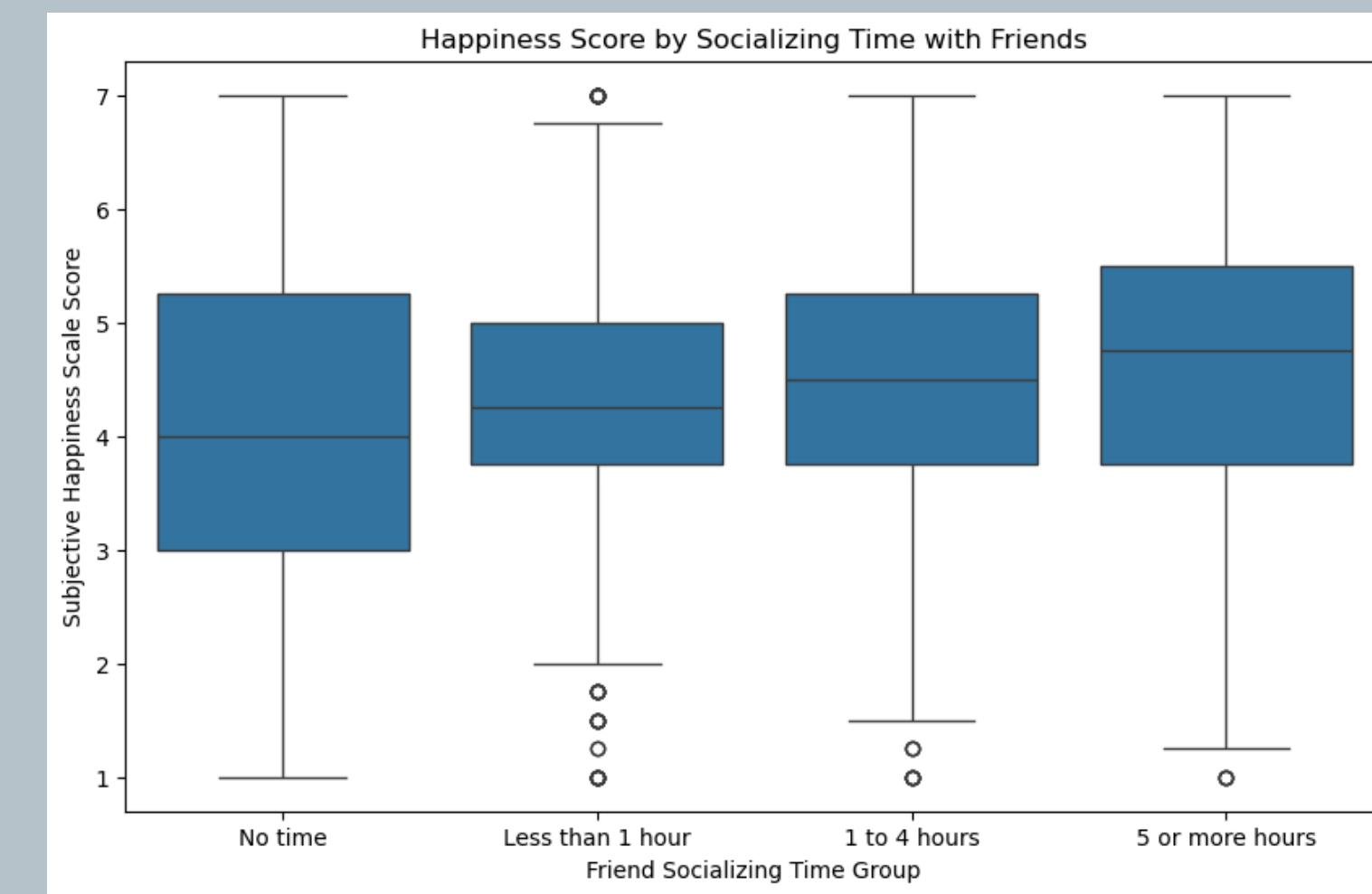


Bootstrap Results (Mean and Confidence Intervals):

Group	Bootstrap Mean	95% CI Lower	95% CI Upper	
0	1 to 4 hours	4.530588	4.467760	4.593142
1	No time	4.079567	3.952405	4.203908
2	Less than 1 hour	4.373424	4.305524	4.440991
3	5 or more hours	4.682763	4.586567	4.780606

ANOVA Result:

F-statistic: 26.898906111993547, p-value: 3.373554778829205e-17



Discussion

The research process:

Research Process.

In order to prove that social time is something that can help improve personal happiness, I chose social time with friends as the subject of my study. The idea of my research is to divide the data into four groups according to the length of time (no time, less than 1 hour, 1~4hour, more than 5 hour), and then study the average of the happiness index of each group. If there is no significant difference between these four means, it means that socializing time with friends cannot enhance one's happiness index, on the contrary, if there is a significant difference between the means, it means that the enhancement of socializing time with friends can influence one's happiness index.

Conclusion:

Based on the results obtained from the code run, I found that although their averages are not numerically very different, because the dispersion of their data is very low, most of the data values are spread around the mean, which makes the difference between the groups actually very large, and my previous assumption (that all the averages are equal) is hardly valid. And the mean values of personal well-being were rising as socialization time rose. So I have good evidence that increasing social time with friends is helpful in improving our personal happiness.

Research Question 3 and Variables

Question: Does social interaction with neighbors have a significant effect on subjective well-being?

Independent variable:

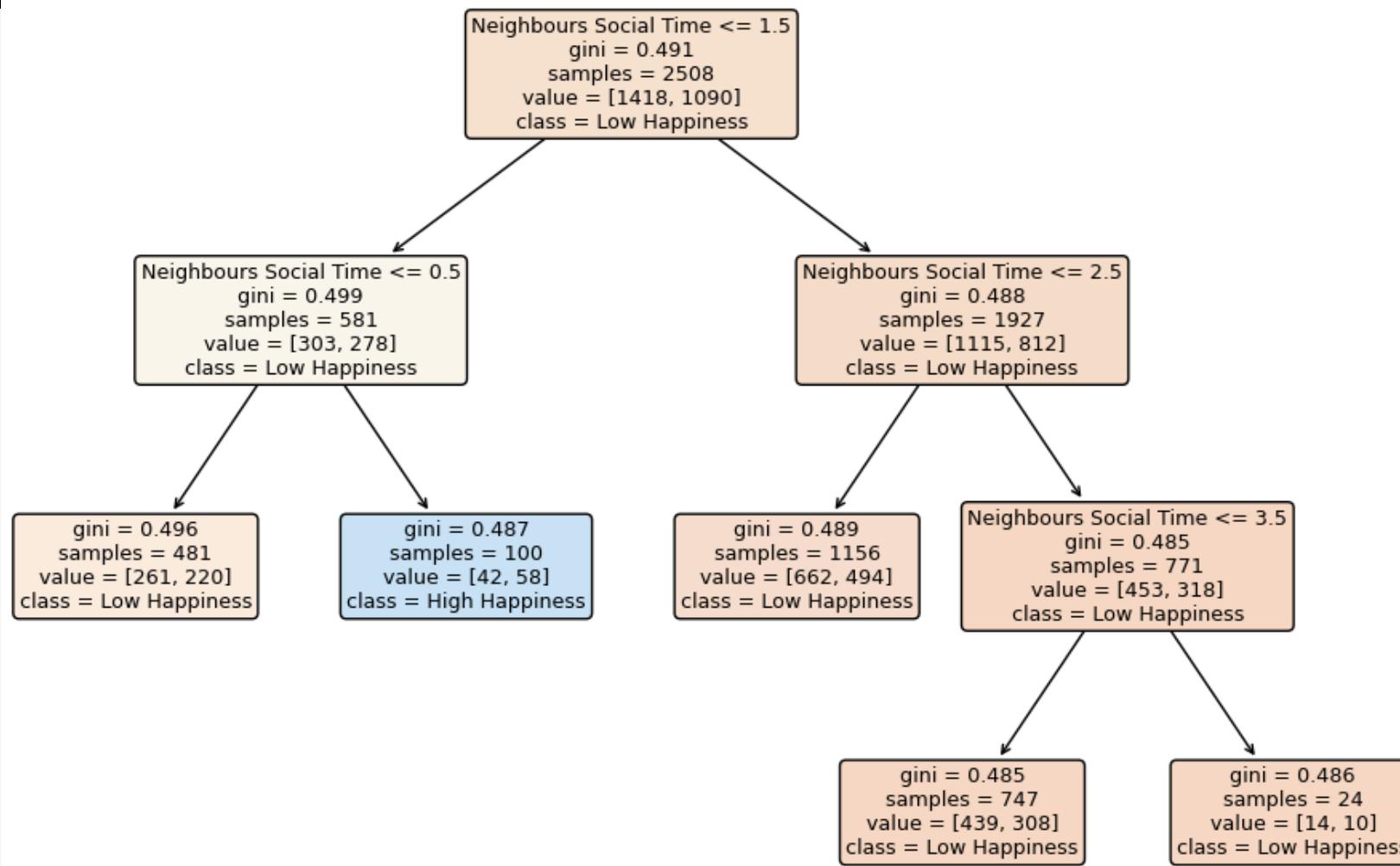
`CONNECTION_social_time_neighbours_p7d_grouped` (social time with neighbours in the last 7 days)

Dependent variable:

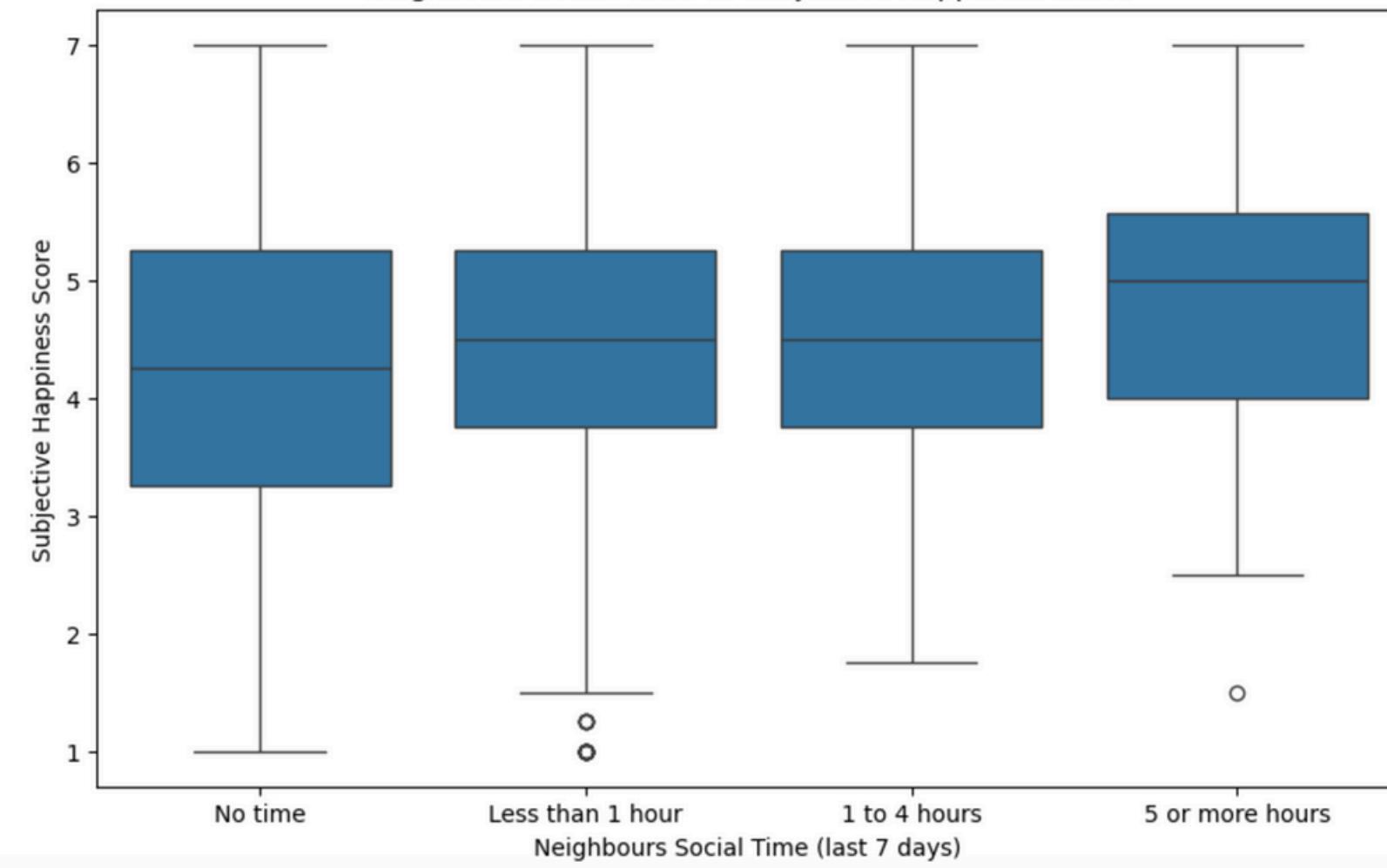
`wellness_subjective_happiness_scale_happy` (subjective happiness score)

Visualization

Decision Tree for Neighbours Social Time and Happiness Category



Neighbours Social Time vs Subjective Happiness Score



Discussion

Objective: To explore whether neighbourhood interaction time affects well-being.

Analysis method: Using the 'question grouping' method, the population was divided into the 4 groups according to the interaction time.

Key Findings:

The longer the interaction time, the higher the percentage of high well-being increases.

Happiness is also possible without interaction time, Nearly half of those who had no interaction were still happy, suggesting that interacting with neighbours is not a key factor in increased happiness.

Limitations

In research related to family, bootstrap may not perform well with small datasets, as resampling from limited data can introduce high variance and overfit to the sample's peculiarities.

In research related to friends, the dataset might lack sufficient data to detect subtle differences between groups. Moreover, high variability within groups might mask underlying differences. Other factors affecting happiness (e.g., health, personality) may not be accounted for, diluting the effect of social time with friends.

In research related to neighbors, the decision tree is used in analysis. While decision trees are highly sensitive to small changes in the training data. Slight variations in the data can lead to significantly different tree structures, affecting model interpretability and reliability.

Future studies could address these limitations by:

Increasing the sample size and ensuring diverse representation.

Collecting data on additional variables to account for confounding factors.

Exploring causal relationships using longitudinal or experimental designs.



CONCLUSION

FAMILY

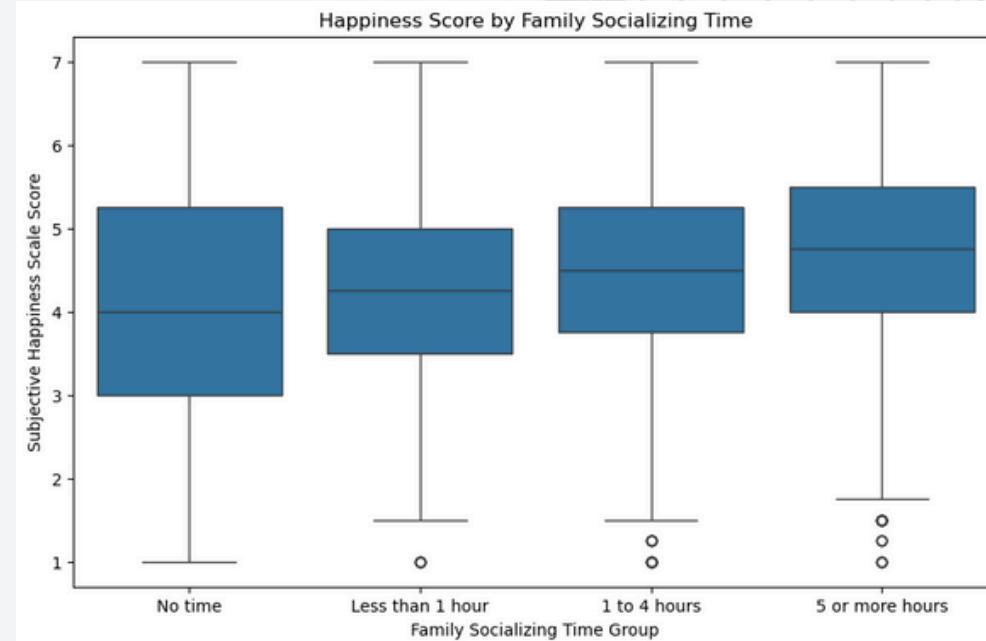
INTERPRETATION

For the family social time, the boxplot of happiness scores across the family social time groups provides a clearer comparative view:

- 1) Median happiness scores tend to increase with more family social time;
- 2) The "5 or more hours" group appears to have the highest median happiness.

The findings suggest a positive relationship between family social time and subjective happiness: More family social time correlates with higher happiness scores. Even small increases in social time may result in a noticeable boost in happiness.

GRAPH

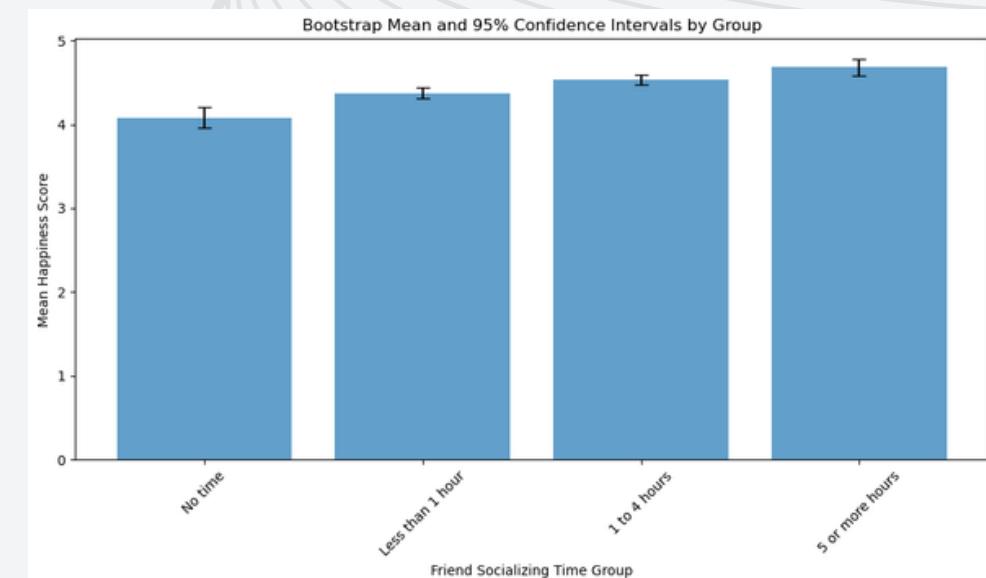


FRIENDS

Bootstrapping was conducted to estimate the distribution of mean happiness scores for each friend social time group.

Bootstrap Results:

The mean happiness scores differ across groups, with higher friend social time showing higher happiness scores on average.

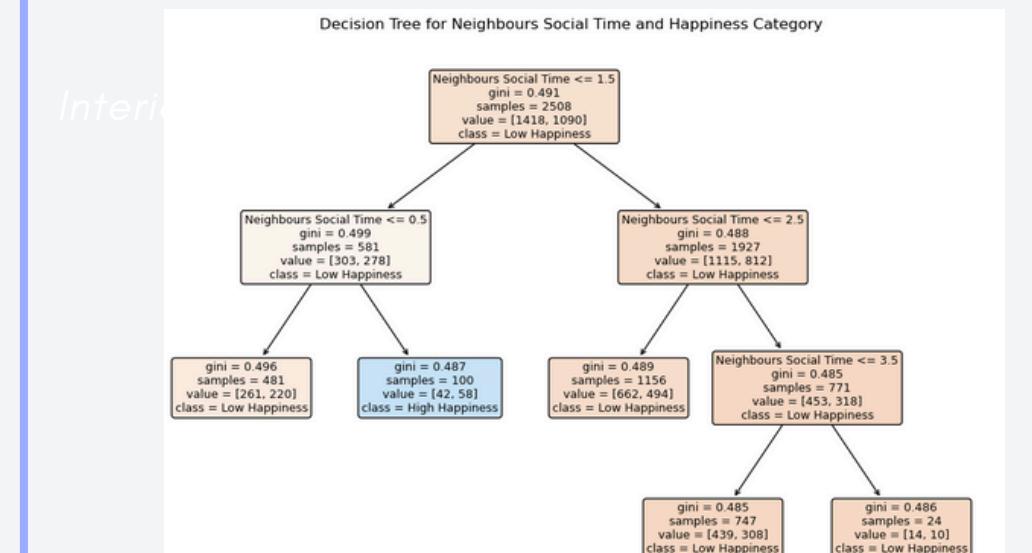


NEIGHBORS

Social Time ≤ 0.5 : Gini = 0.496, with [261 (Low Happiness), 220 (High Happiness)] samples. This group still leans toward Low Happiness, though the split is relatively even.

Social Time > 0.5 : Gini = 0.487, indicating less impurity compared to the previous node. Samples = 100, with more individuals reporting High Happiness ([42 Low, 58 High]).

This suggests that even a small increase in neighbor social time might correlate with improved happiness.



References and Acknowledgments



Thanks for
Dr. Kiffer Card,
Christine Ovcaric,
our TA Jenny Oh,
and dear professor Mr. Scott.

Gerente General