COVID-19 Survey Student Responses

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January 17, 2023

In this report we will present a dataset analysis from a survey with Delhi - National Capital Region (NCR) students and how the COVID-19 pandemic affected their social life and mental health.

1 Introduction

The outbreak of COVID-19 affected the lives of millions of people around the globe, as many people were asked to self-quarantine and make social distancing measures to flatten the epidemic curve and reduce the number of cases.

The article in study was conducted to explore how COVID-19 affected the life of 1182 students from India. Students were surveyed on the time spent on online classes and self-study, medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health.

2 Methodology

In this project, we have used a dataset provided from the Kaggle platform, using the article "COVID-19 and its impact on education, social life and mental health of students: A Survey" from Chaturvedi [1] *et al.*

For the exploratory and data analysis we have used the Python programming language for all its benefits in data science. The libraries Pandas, Seaborn, Matplotlib and Numpy were used in this work.

3 Exploratory data analysis

To start, we explored to see if there were any missing values, nulls or inconsistent data. We have fixed several lines of data that were not given in numbers to describe the value zero. After that, we saw an outlier point in given person answer, we checked and its data was inconsistent, so the data was dropped from the analysis and was not used in the dataset.

In Figure 1 is shown the dataframe obtained from the *.csv* file obtained from the Kaggle website. This dataframe is the basis of all of our report, every information we gather and explore is based on it.

	ID	Region of residence	Age of Subject	Time spent on Online Class	Rating of Online Class experience	Medium for online class	Time spent on self study	Time spent on fitness	Time spent on sleep	Time spent on social media	Prefered social media platform	Time spent on TV	Number of meals per day	Change in your weight	Health issue during lockdown	Stress busters	Time utilized	Do you find yourself more connected with your family, close friends , relatives ?	What you miss the most
0	R1	Delhi-NCR	21	2.0	Good	Laptop/Desktop	4.0	0.0	7.0	3.0	Linkedin	1	4	Increased	NO	Cooking	YES	YES	School/college
1	R2	Delhi-NCR	21	0.0	Excellent	Smartphone	0.0	2.0	10.0	3.0	Youtube	0	3	Decreased	NO	Scrolling through social media	YES	NO	Roaming around freely
2	R3	Delhi-NCR	20	7.0	Very poor	Laptop/Desktop	3.0	0.0	6.0	2.0	Linkedin	0	3	Remain Constant	NO	Listening to music	NO	YES	Travelling
3	R4	Delhi-NCR	20	3.0	Very poor	Smartphone	2.0	1.0	6.0	5.0	Instagram	0	3	Decreased	NO	Watching web series	NO	NO	Friends , relatives
4	R5	Delhi-NCR	21	3.0	Good	Laptop/Desktop	3.0	1.0	8.0	3.0	Instagram	1	4	Remain Constant	NO	Social Media	NO	NO	Travelling

Figure 1: Dataframe obtained.

4 Graphs and results

In this section we will show our results from our dataframe analysis.

In section 1 we will present plots on the distribution of the age of the subjescts, a pie graph on what gadgets were used for the online classes and another plot on how the students evaluate the online class experience.

Section 2 we analyze on boxplots and violinplots how the time of the students were used during the pandemic, how they evaluate their health conditions and if they had an increase in weight.

For the conclusion, we will illustrate a result from the main article and finish the analysis with a correlation heatgraph.

Section 1

To start, we want to know the age of the subjects in the study. It is shown in the Figure 2. We have students from the age of 7 to the age of 59. Being the mean age value of 20.2 years old, and the standart deviation being 5.51.
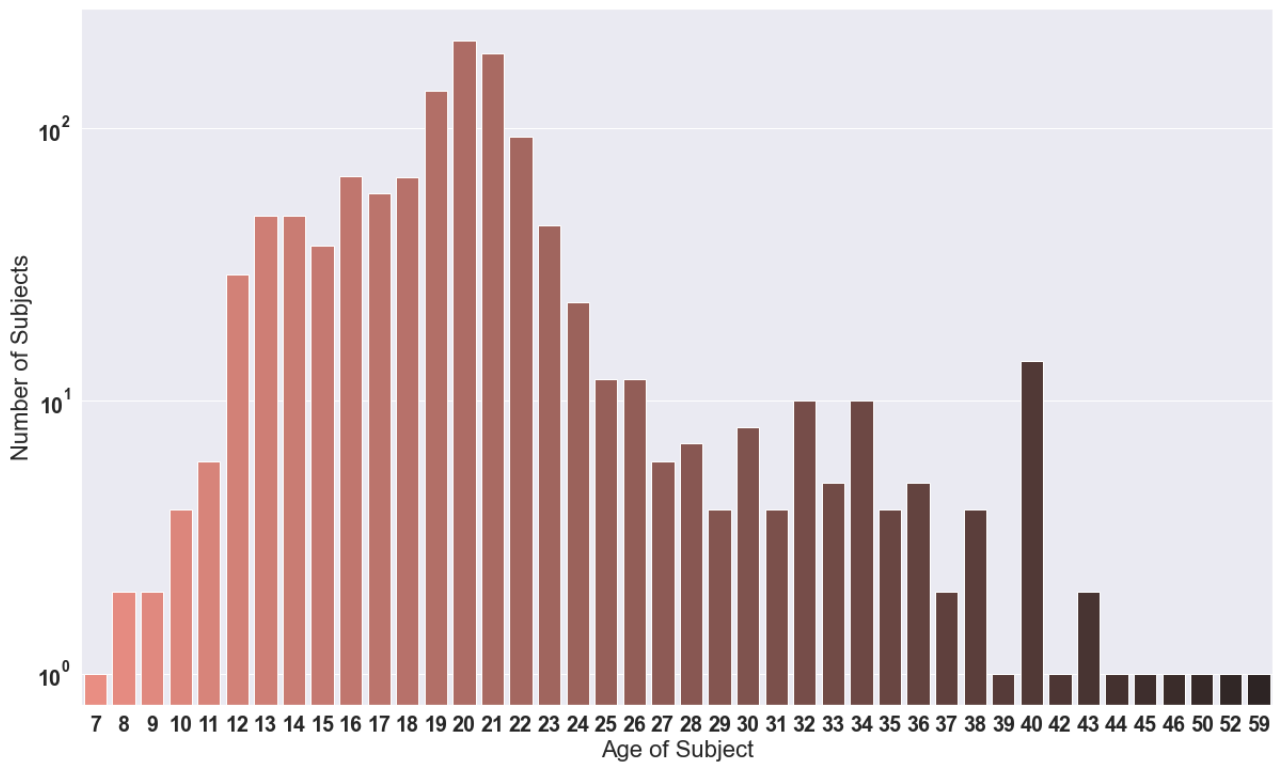
Figure 2: Age distribution of the students.

Another interesting plot is what gadgets were used for online classes (Figure 3). We found that 48.19% of the students used a Laptop or a Desktop to watch their online classes, following, Smartphones were used by 47.66% and tablets by 3.27%. Less than a percent marked either "*Any Gadget*" or "*Smartphone or Laptop/Desktop*"

As the first two options on the list for gadgets had a close percentage, we thought it was relevant to compare how the users of those gadgets would rate the online class experience. Figure 4 shows that the overall experience of classes is not good, as the "*Very poor*" category is the top choice of the students, with 413 students rating it. Another interesting we can infere from this analysis, is that smartphone users rate it more poorly than laptop/desktop users, so thats something we can take from this plot, since gadgets do affect the experience on online classes.
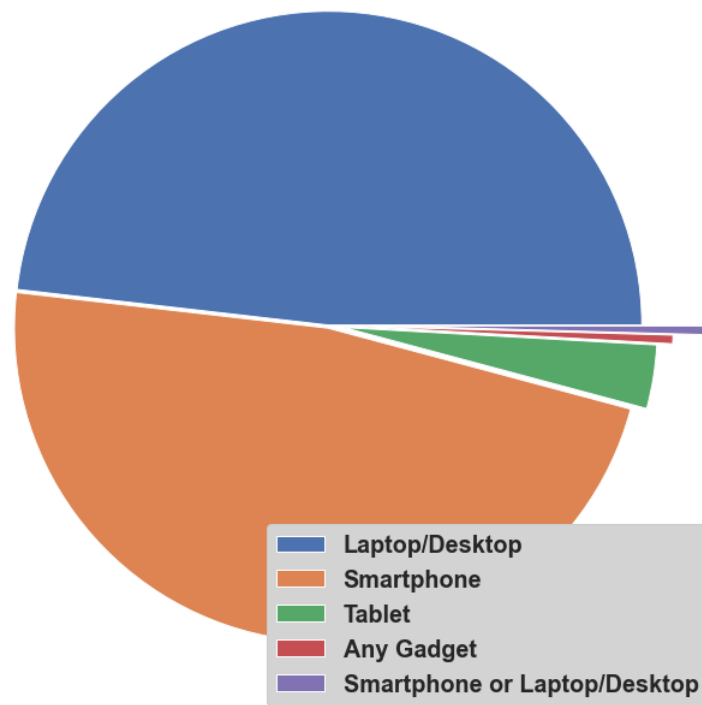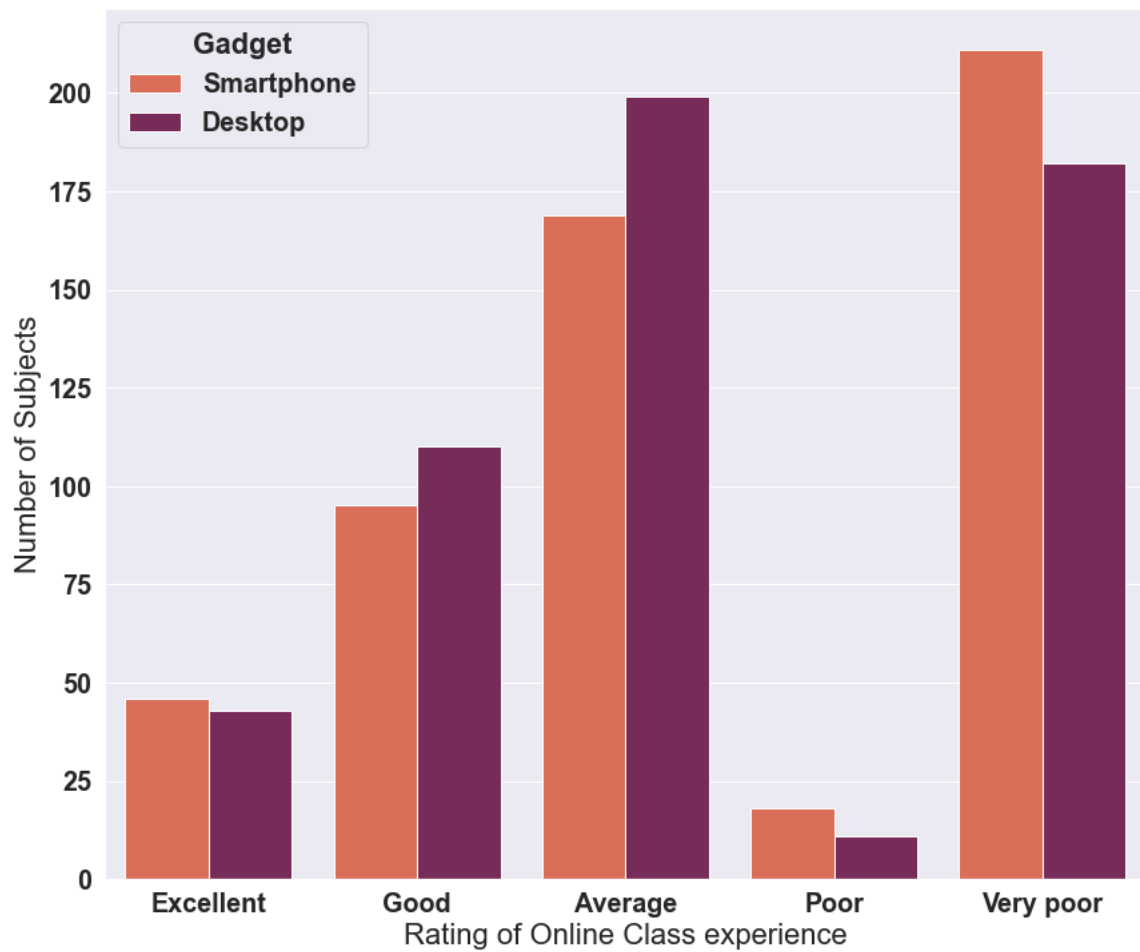
Figure 3: Pie graph on what gadgets were used.

Figure 4: Rating of online classes on different gadgets.

Section 2

Now, we will show other plots that are interesting to be analyzed in the dataset. To start, in Figure 5, we show how the students use their time on different activities.
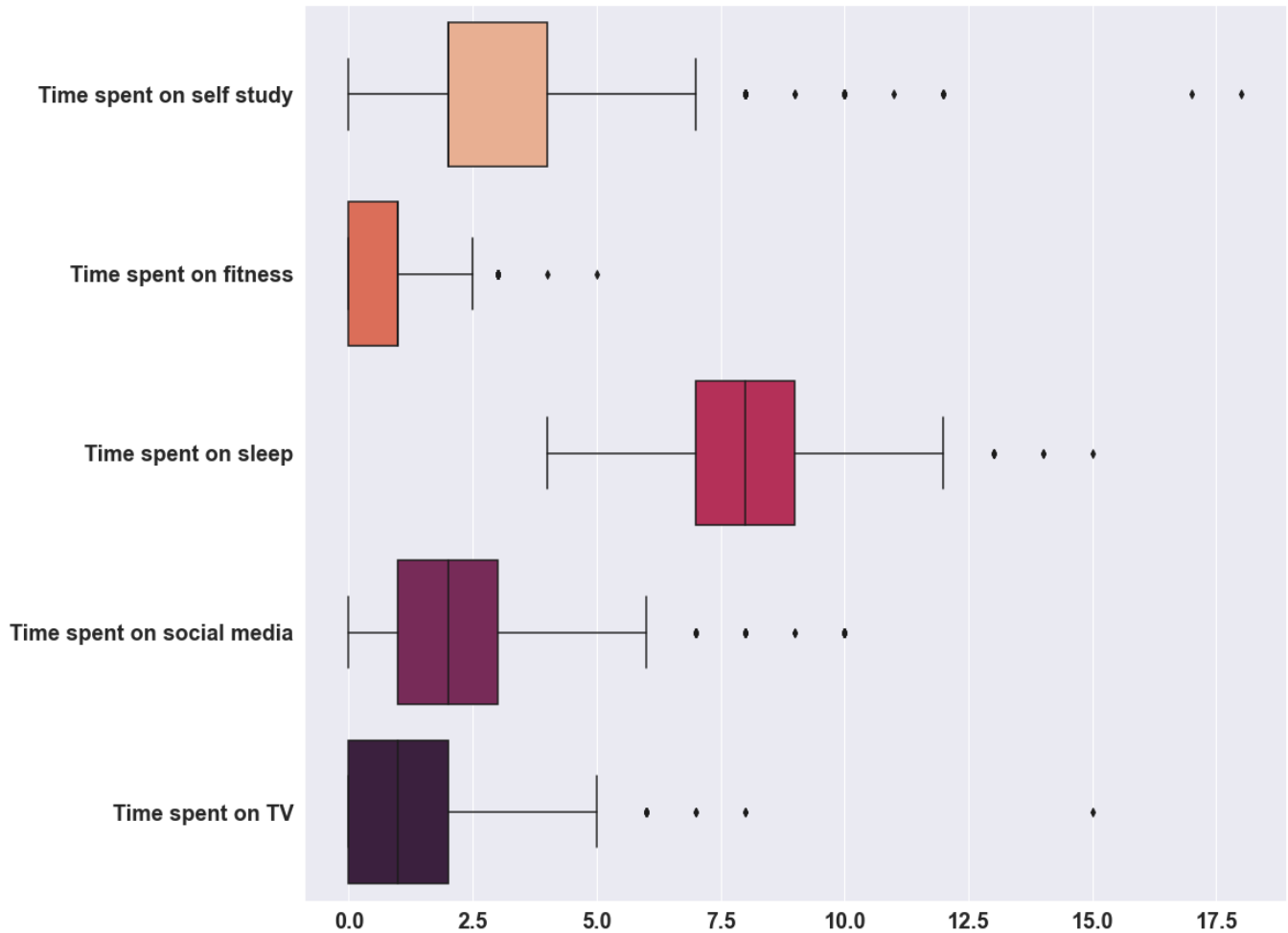

Figure 5: Boxplot of time spent on different activities.

Health issues were a big problem during and after the pandemic, so it is important to analyze how the health of the students are affected according to time spent on different activities and habits during the lockdown (Figure 6). Changing in weight could have a correlation between time spent on fitness and number of meals per day, so we plotted it on Figure 7.

The researcher asked the subjects if they found that their time were well utilized during the lockdown (Figure 8). In this plot, we can see a trend that students that spent more time on online classes felt they utilized their time better.
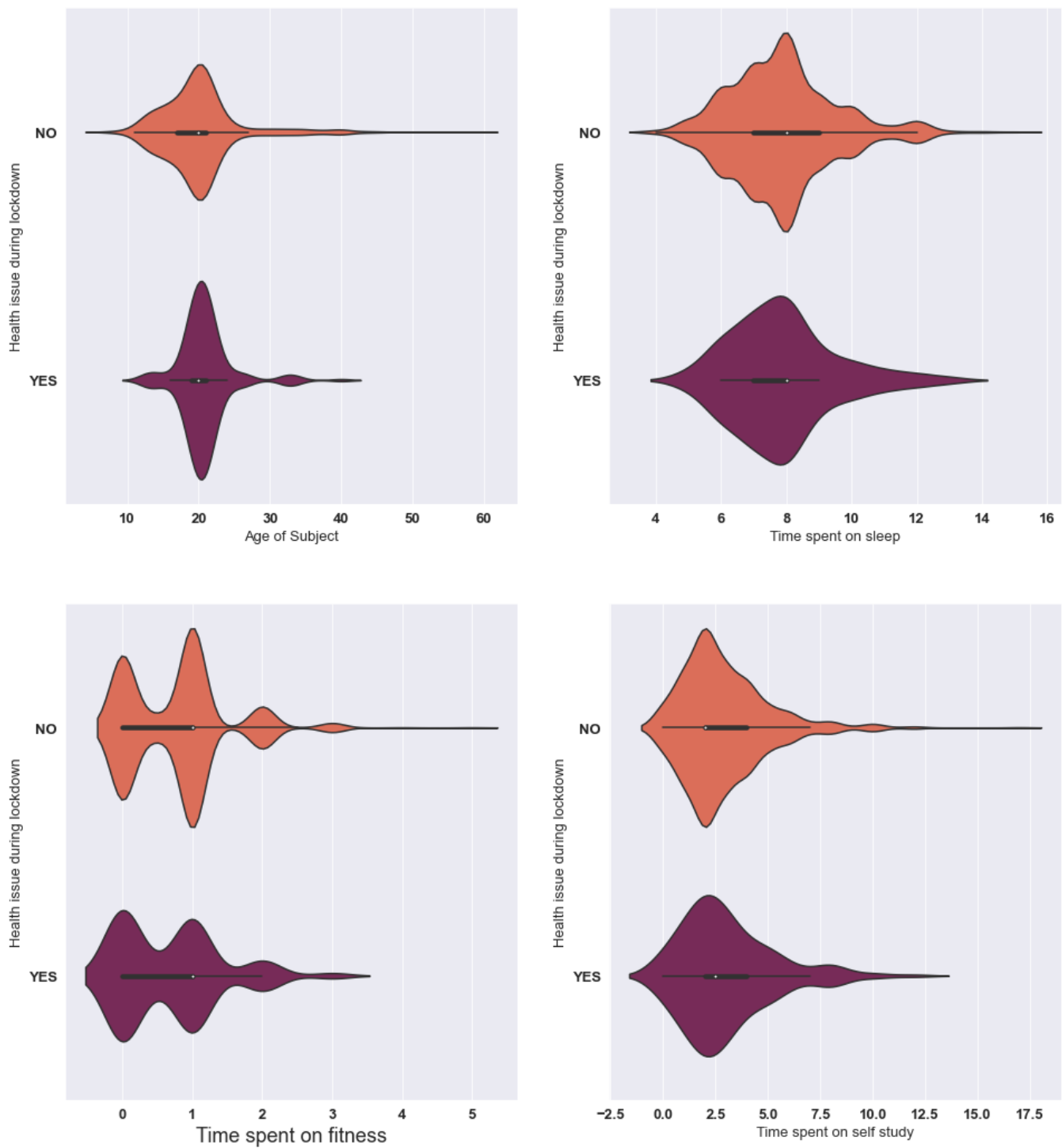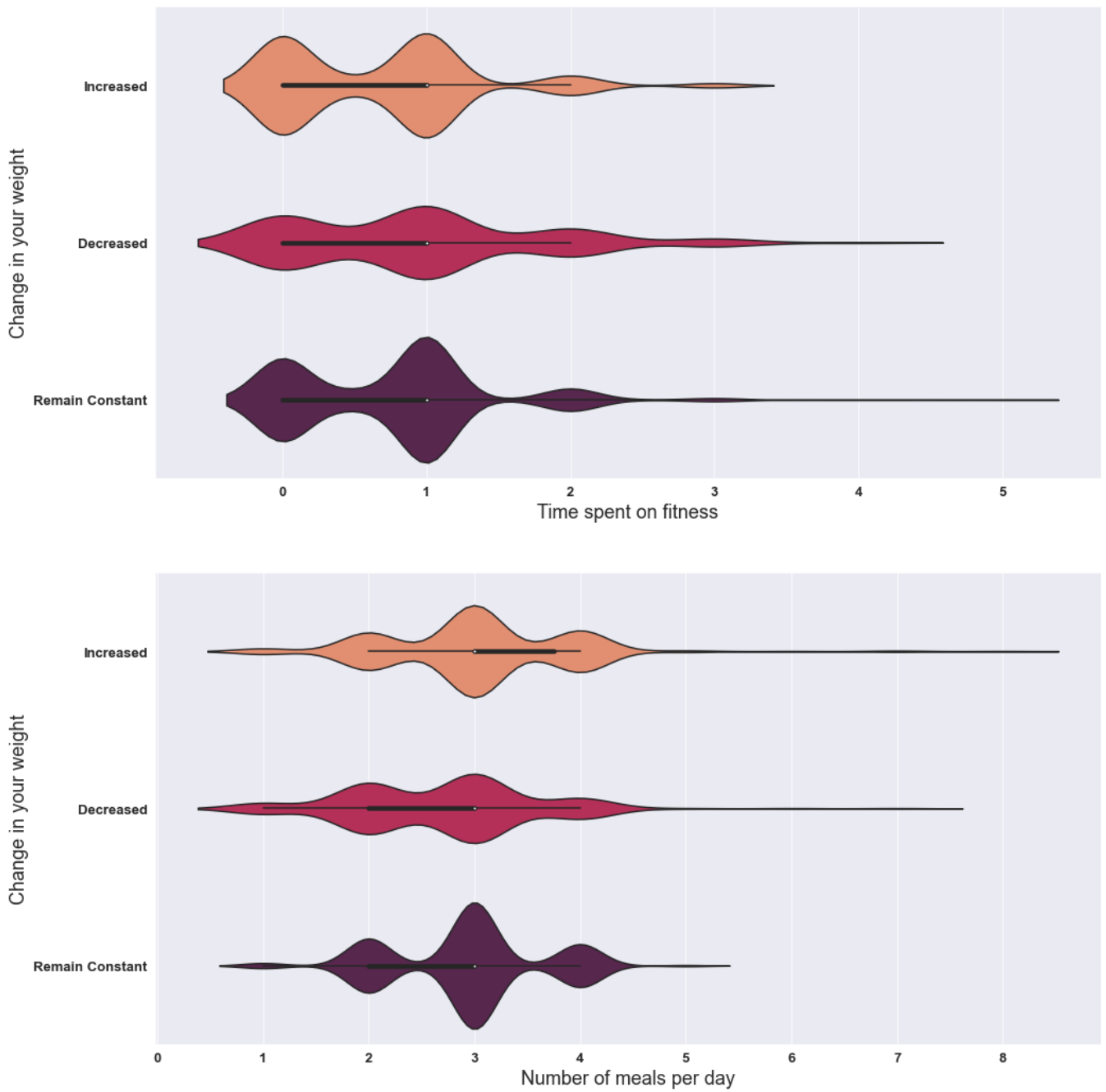
Figure 6: Violinplot on health issues.

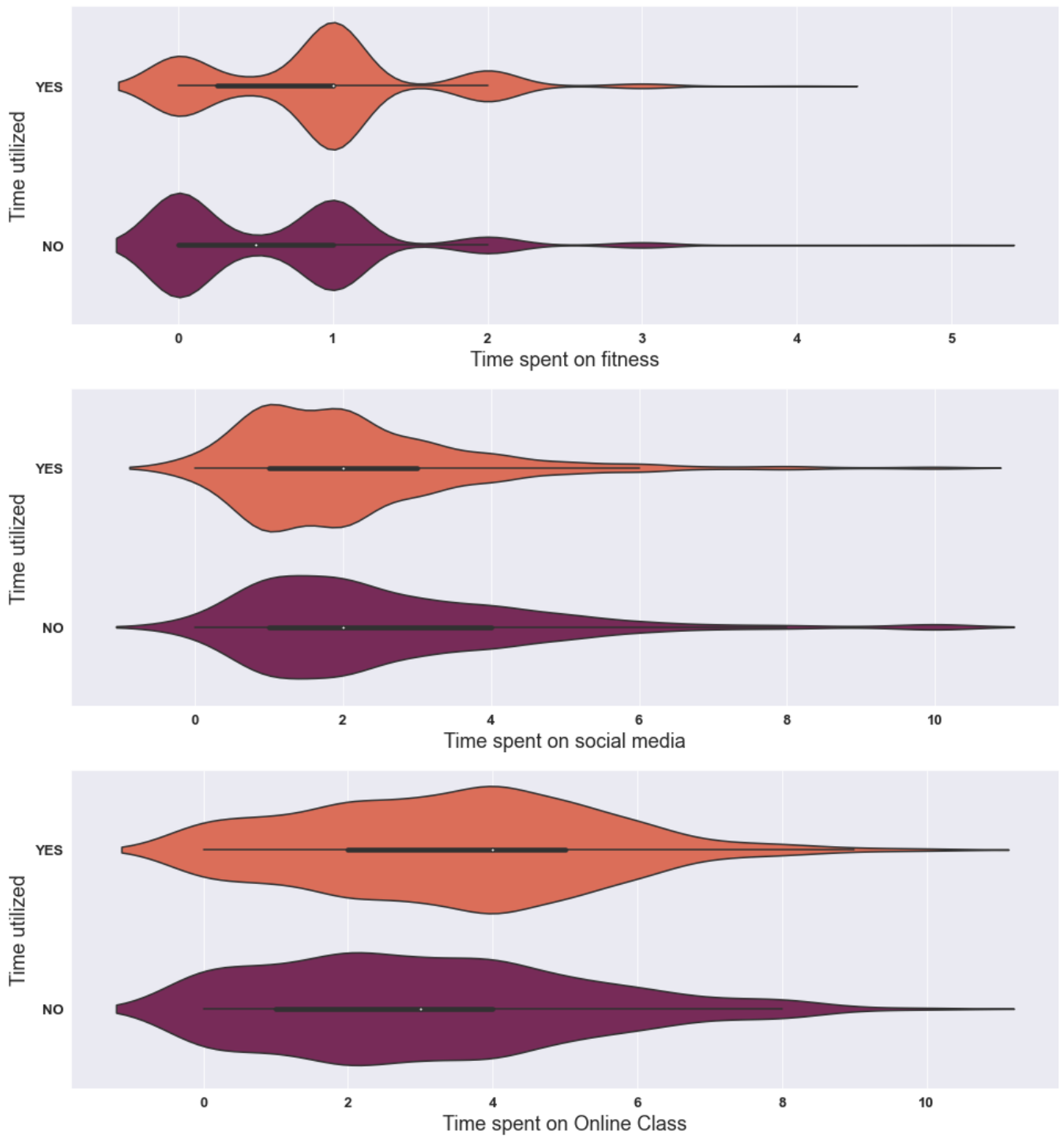Figure 7: Violinplot on change of weight.

Figure 8: Violinplot on time utilized during lockdown.

5 Conclusions

The researchers found as a conclusion in the end of their paper, that students that didn't felt connected to families, friends and others, and didn't think they utilized their time well during lockdown, reported that they had more health issues. We can see that in Figure 9. As a counterpart, students that felt connected and had utilized well their time, had less health issues problems being reported (Figure 10).
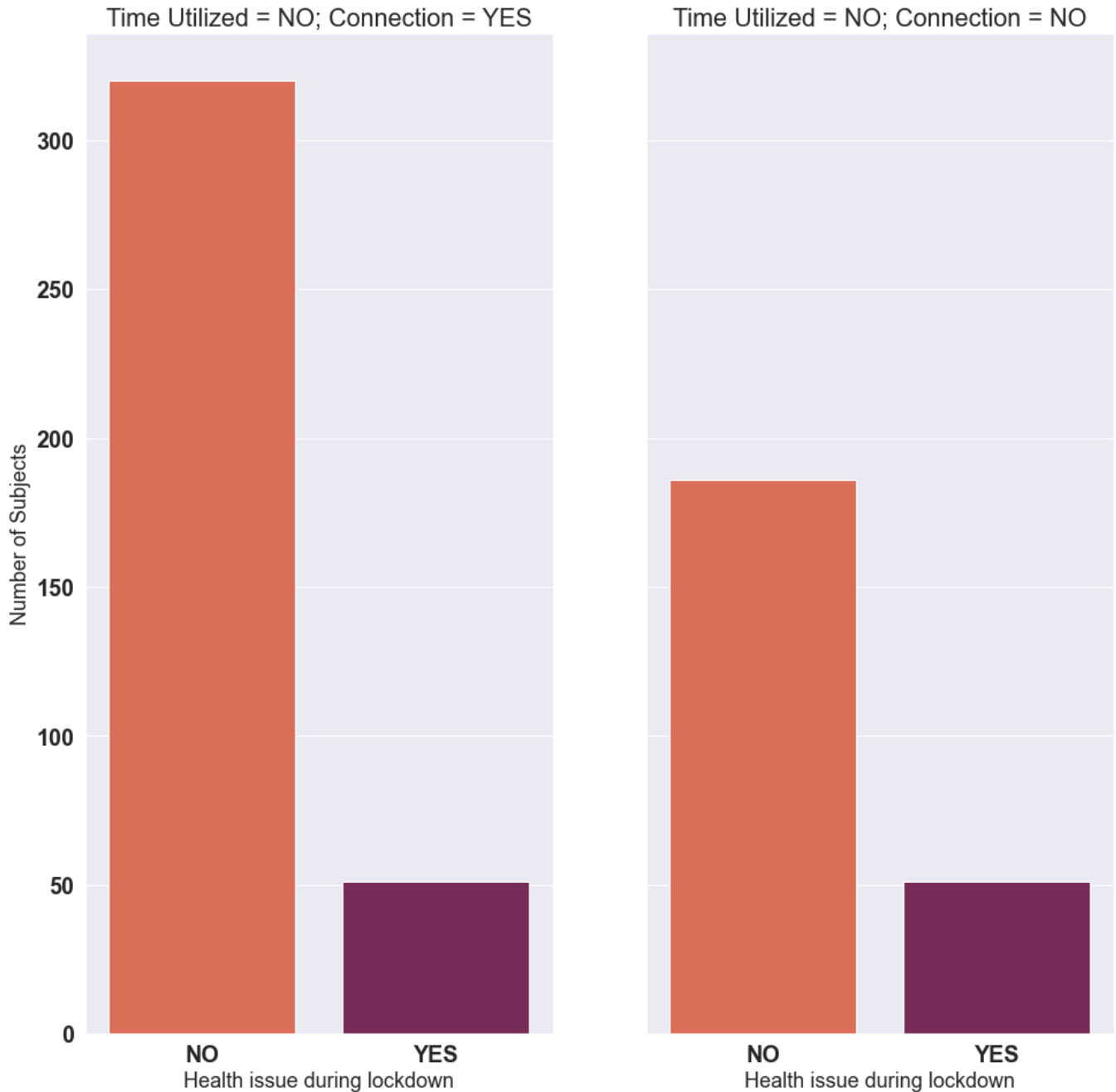

Figure 9: Distribution of health issues during lockdown.

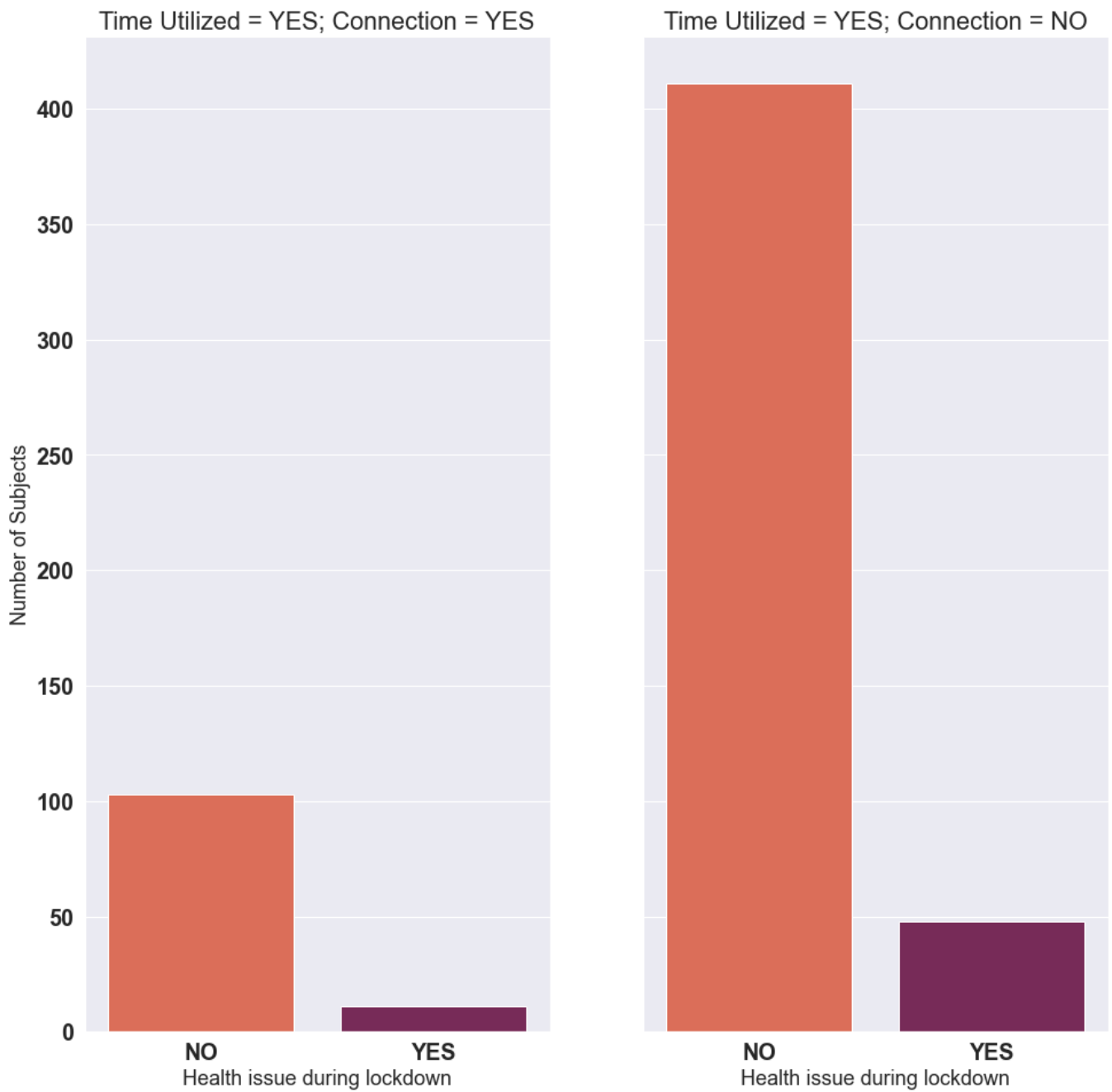To wrap things up, we made a plot on Kendall's correlation, it is shown on Figure 11.

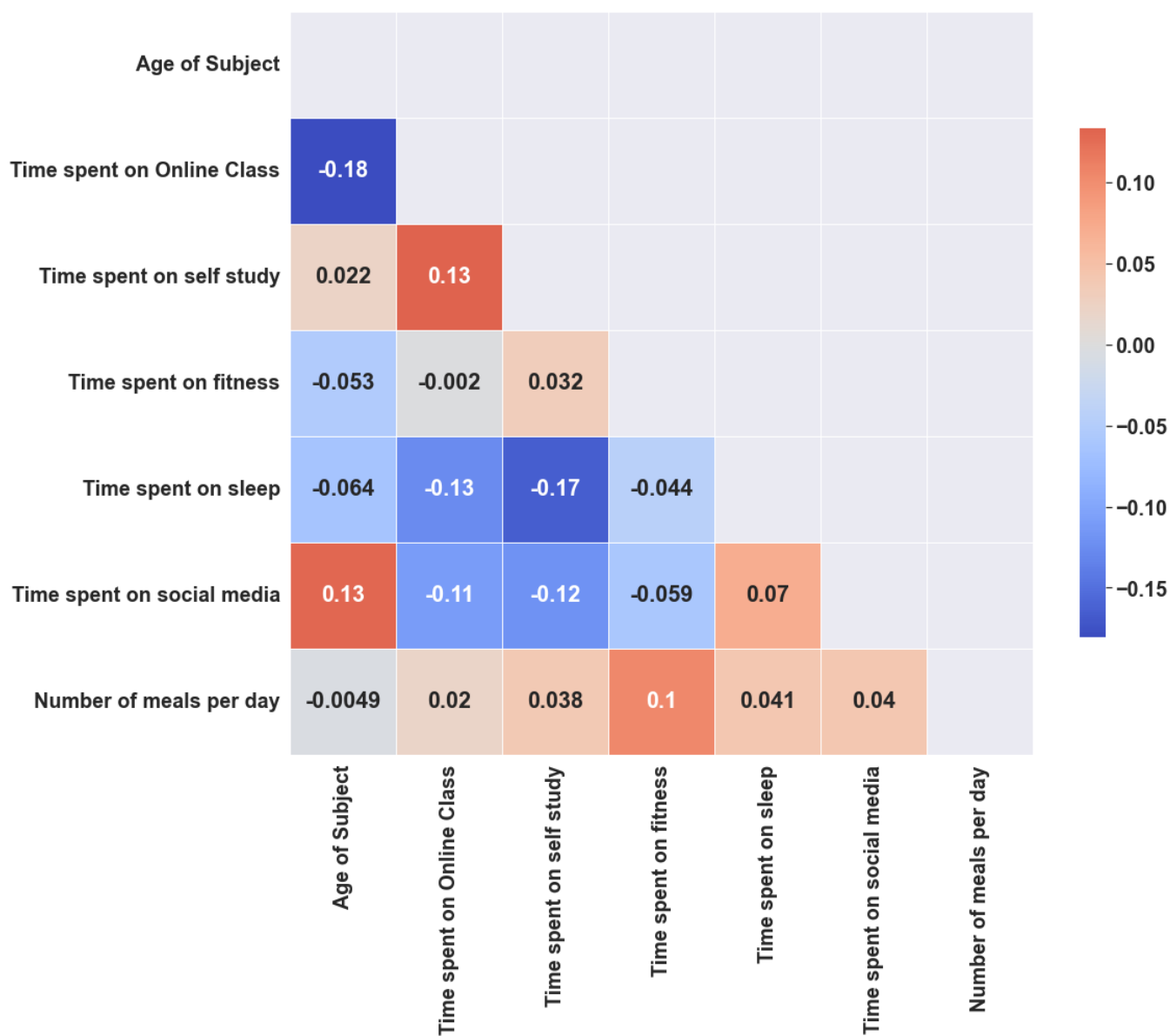Figure 10: Distribution of health issues during lockdown.

Figure 11: Correlation heatmap.

References

[1] Chaturvedi K, Vishwakarma DK, Singh N. COVID-19 and its impact on education, social life and mental health of students: A survey. Children and youth services review. 2021 Feb 1;121:105866.