Social Media's Effect on Health- Data Analysis

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Data Introduction

Getting to know our data

About the Data

- Dataset consists of about 400 participants of ages 13-91, collected in 2022.
- Applicants were asked questions about themselves such as occupation, age, and relationship status, then asked a series of health questions which they gave a rating from 1-5.

Data Availability: Open Database License

"This dataset was originally collected for a data science and machine learning project that aimed at investigating the potential correlation between the amount of time an individual spends on social media and the impact it has on their mental health…This project was completed as part of a Statistics course at a university…"

https://www.kaggle.com/datasets/souvikahmed071/social-media-and-mental-health

Data Sample

	Timestamp	1. What is your age?	2. Gender	3. Relationship Status	4. Occupation Status	5. What type of organizations are you affiliated with?	6. Do you use social media?	7. What social media platforms do you commonly use?	8. What is the average time you spend on social media every day?	9. How often do you find yourself using Social media without a specific purpose?
0	4/18/2022 19:18:47	21.0	Male	In a relationship	University Student	University	Yes	Facebook, Twitter, Instagram, YouTube, Discord...	Between 2 and 3 hours	5
1	4/18/2022 19:19:28	21.0	Female	Single	University Student	University	Yes	Facebook, Twitter, Instagram, YouTube, Discord...	More than 5 hours	4
2	4/18/2022 19:25:59	21.0	Female	Single	University Student	University	Yes	Facebook, Instagram, YouTube, Pinterest	Between 3 and 4 hours	3
3	4/18/2022 19:29:43	21.0	Female	Single	University Student	University	Yes	Facebook, Instagram	More than 5 hours	4
4	4/18/2022 19:33:31	21.0	Female	Single	University Student	University	Yes	Facebook, Instagram, YouTube	Between 2 and 3 hours	3

| 11. Do you feel restless if you haven't used Social media in a while?	12. On a scale of 1 to 5, how easily distracted are you?	13. On a scale of 1 to 5, how much are you bothered by worries?	14. Do you find it difficult to concentrate on things?	15. On a scale of 1-5, how often do you compare yourself to other successful people through the use of social media?	16. Following the previous question, how do you feel about these comparisons, generally speaking?	17. How often do you look to seek validation from features of social media?	18. How often do you feel depressed or down?	19. On a scale of 1 to 5, how frequently does your interest in daily activities fluctuate?	20. On a scale of 1 to 5, how often do you face issues regarding sleep?
2	5	2	5	2	3	2	5	4	5
2	4	5	4	5	1	1	5	4	5
1	2	5	4	3	3	1	4	2	5
1	3	5	3	5	1	2	4	3	2
4	4	5	5	3	3	3	4	4	1

Study Demographics

<u>82% of participants were ages 10-32.</u>

<u>After around age 55, data becomes scarce.</u>

<u>70% of participants surveyed were University students.</u>

From this data, conclusions about the general population as well as older groups can't be made.

The focus is on teens to young adults, primarily those in a university setting.

Number of Study Participants per Age
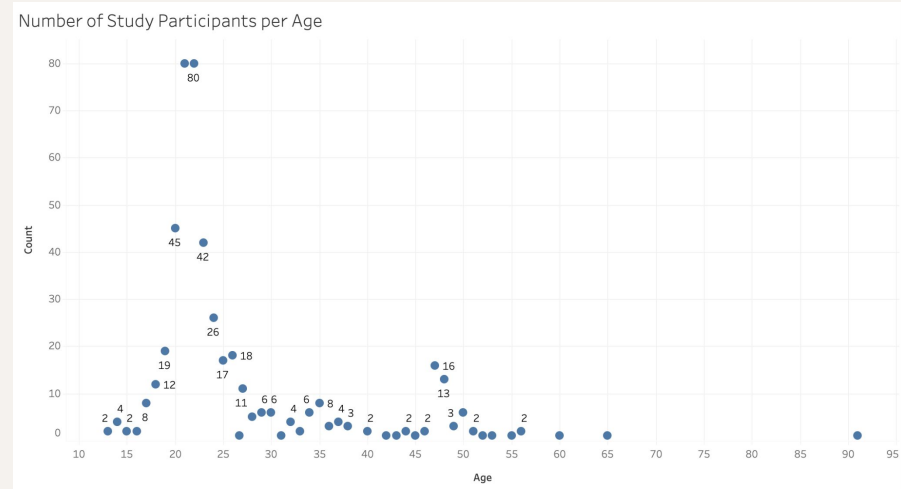
02

Data Processing

Cleaning and processing our data for analysis.

Data Processing

Python- Jupyter Notebook

- Converted platform data from wide format to long. Data was taken from main dataset and list of platforms was isolated into its own table using google sheets, then imported to Jupyter to visualize in Pandas using MatPlotLib.
    - Removed white spaces and duplicates, sorted by percentages.

Google Sheets

- Created new table for all platforms used for each entry in wide format
    - Added unique ids to each entry, adding in new column for number of platforms used by each entry.

Tableau

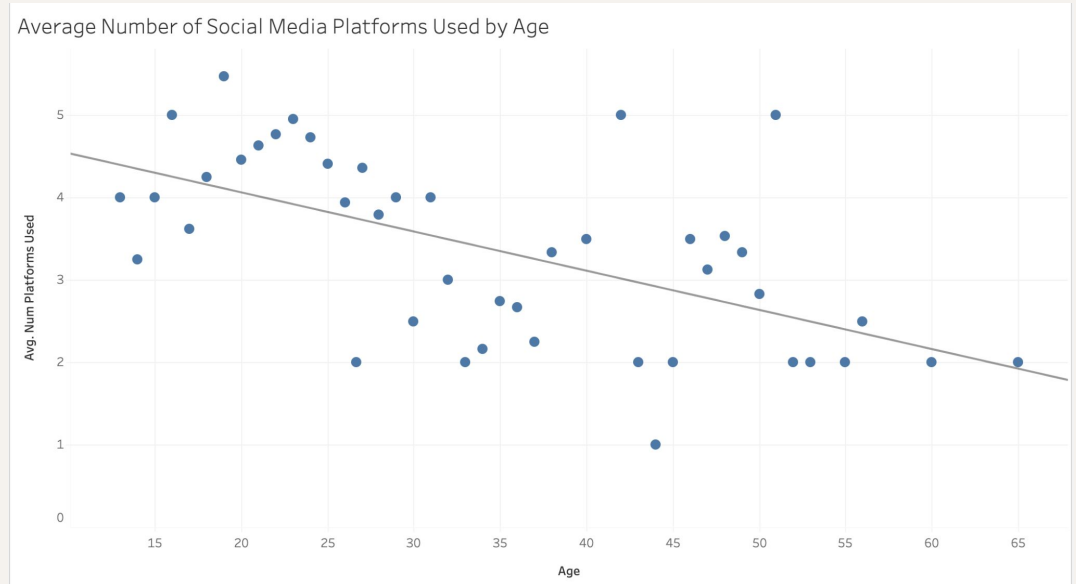- Dashboard and visualizations that were shown here.

03

Data Analysis

Trends and Correlations

Younger Crowds Had More Accounts

Younger users were more likely to be active on <u>more</u> social media platforms.

Average Number of Social Media Platforms Used by Age

Number of Platforms Used

The majority of people surveyed were using 4 platforms.

The most popular being Facebook, Youtube, and Instagram. More on this on the next slide.

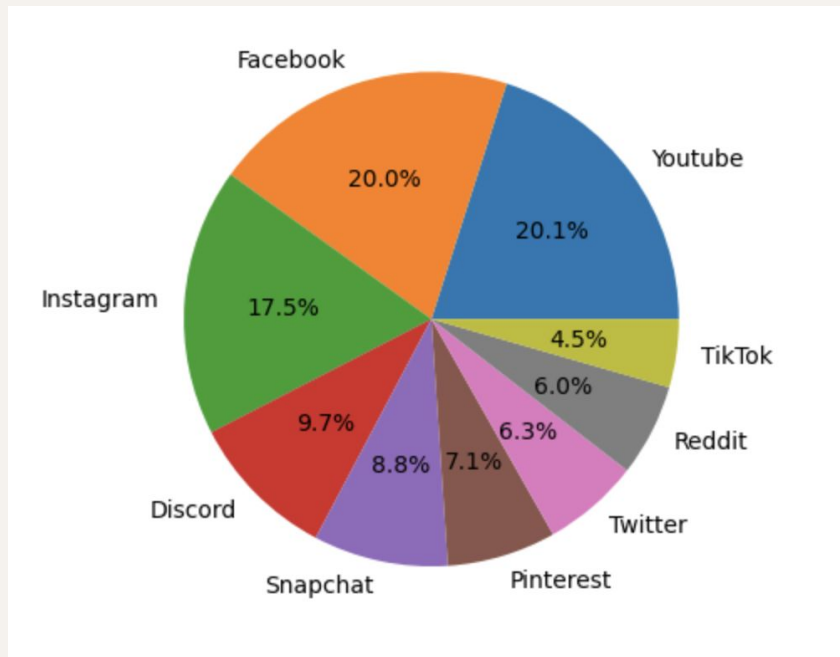Count of Number of Platforms Used
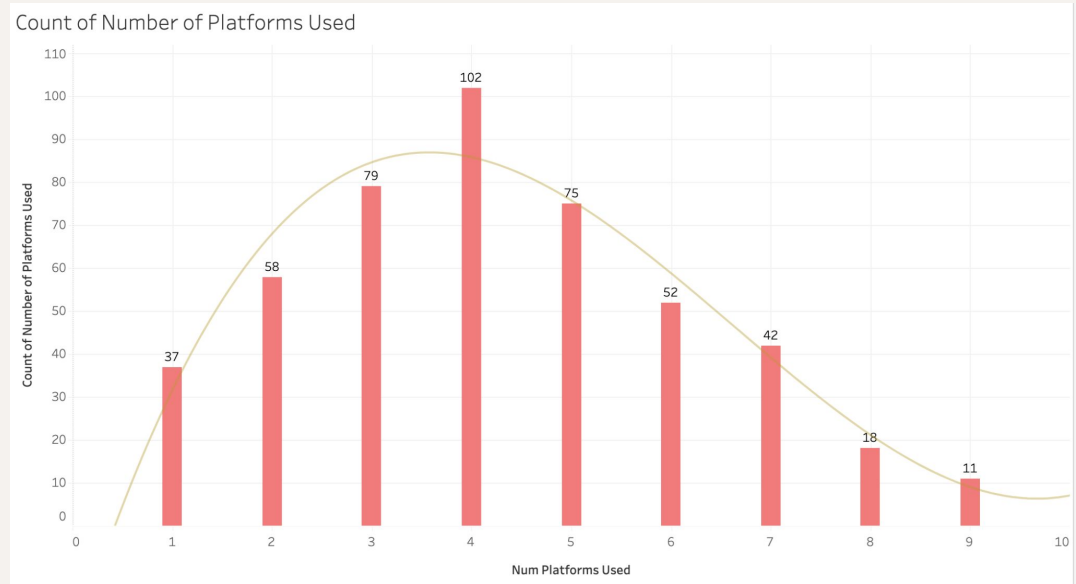
Social Media Platform Usage

Subjects were asked which platforms they used most often.

Facebook, Youtube, and Instagram was mentioned the most, each averaging around 20%.
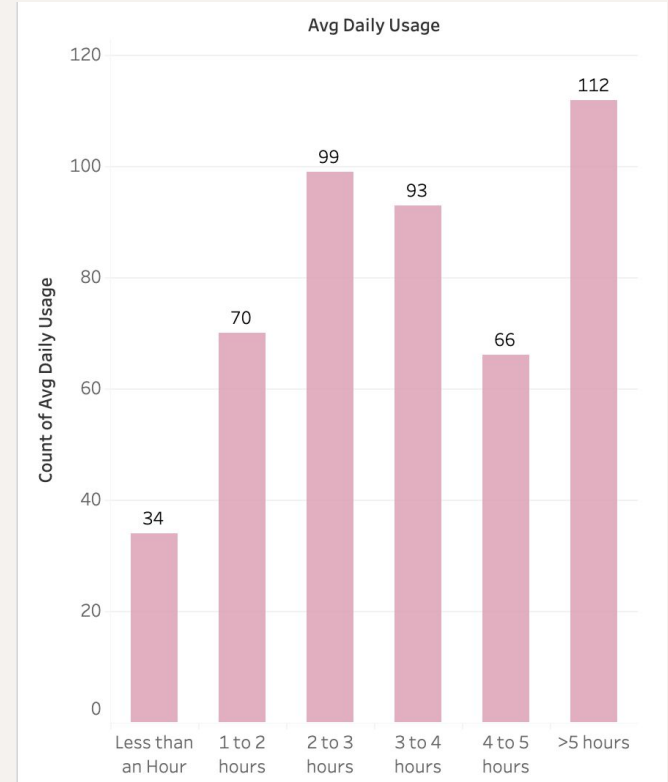
The more platforms users were present on, the higher their screen time. More on screen time in the next slide.

Screen Time

The majority of our study subjects were spending more than 5 hours a day on social media.

In America, the average user spends 2 hours and 15 minutes a day on social media. (1) The average teen spends an average of 8 hours and 40 minutes. (2)
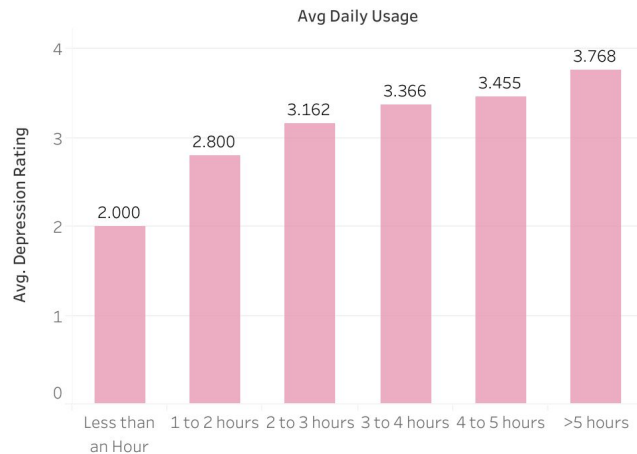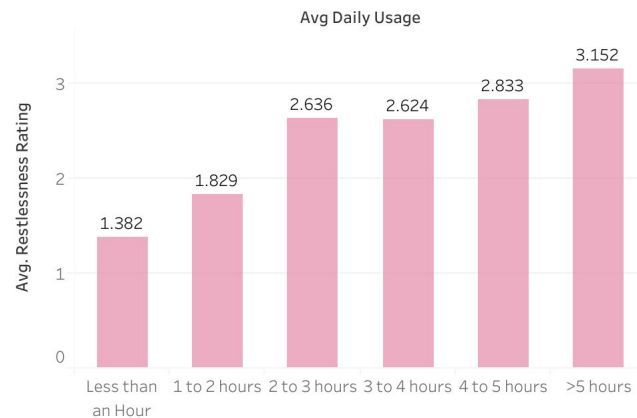
Avg Daily Usage

Screen time's Effect on Health.

The higher the screen time, the higher the reported negative effects on your health.

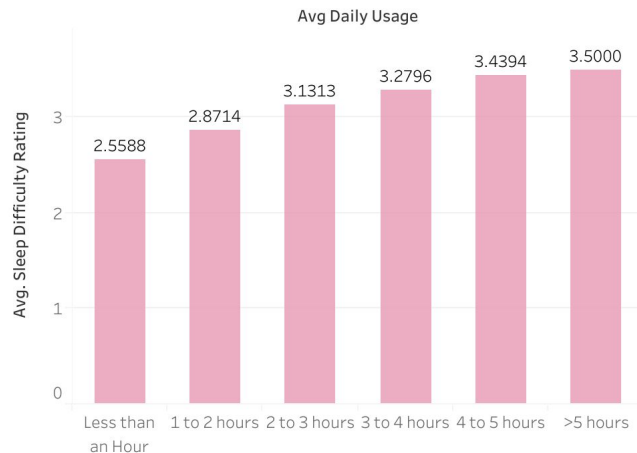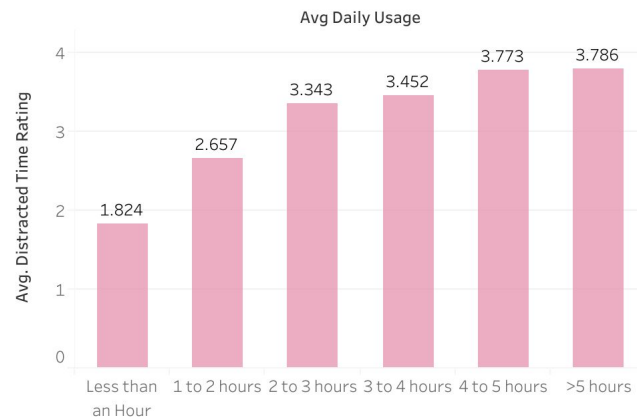### Daily Usage and Rates of Depression

Avg Daily Usage

Less than an Hour	1 to 2 hours	2 to 3 hours	3 to 4 hours	4 to 5 hours	>5 hours
2.000	2.800	3.162	3.366	3.455	3.768

Avg. Depression Rating

Daily Social Media Usage and Feelings of Restlessness

Avg Daily Usage

Less than an Hour	1 to 2 hours	2 to 3 hours	3 to 4 hours	4 to 5 hours	>5 hours
1.382	1.829	2.636	2.624	2.833	3.152

Avg. Restlessness Rating

Daily Social Media Usage and Effects on Sleep

Avg Daily Usage

Less than an Hour	1 to 2 hours	2 to 3 hours	3 to 4 hours	4 to 5 hours	>5 hours
2.5588	2.8714	3.1313	3.2796	3.4394	3.5000

Avg. Sleep Difficulty Rating

Daily Social Media Usage and Feeling Distracted in Daily Activities

Avg Daily Usage

Less than an Hour	1 to 2 hours	2 to 3 hours	3 to 4 hours	4 to 5 hours	>5 hours
1.824	2.657	3.343	3.452	3.773	3.786

Avg. Distracted Time Rating

Social Media Daily Usage and Trends in Health

There is a positive correlation between screen time and health deterioration in the below categories.

- Depression
- Media withdrawal- restlessness when away from social media.
- Difficulty sleeping
- Difficulty completing other tasks- distracted by social media.

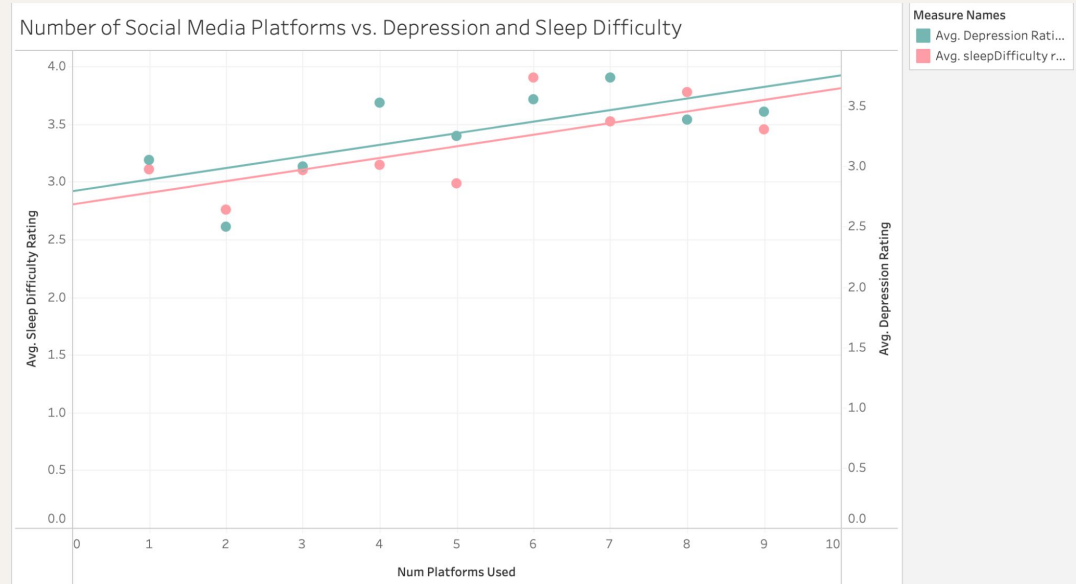Daily Usage and Rates of Depression
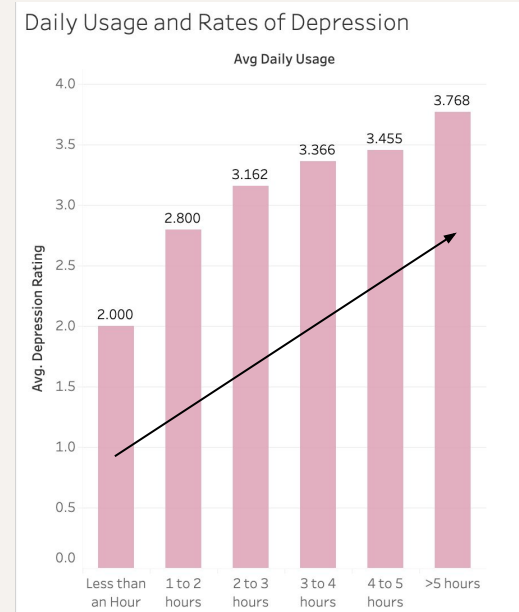
Number of Platforms and Health

The more platforms participants were present on, the higher the rates of depression and difficulty sleeping.

More platforms also resulted in:

- Being more easily distracted.
- Feeling bothered by worries.
- Self-comparisons with others.

Number of Social Media Platforms vs. Depression and Sleep Difficulty

Measure Names
Avg. Depression Rati...
Avg. sleepDifficulty r...

Screen Time and Health

Our analysis found a correlation between health deterioration and social media usage.

In a 2019 study, researchers found:

> Increased time spent using social media per day was prospectively associated with increased odds of reporting high levels of internalizing and comorbid internalizing and externalizing problems, even after adjusting for history of mental health problems.

> Adolescents who spend more than 3 hours per day on social media may be at heightened risk for mental health problems, particularly internalizing problems. (3)

Key Takeaways

More screen time negatively affects health.

Higher rates of self reported depression, inability to focus, and media withdrawal.
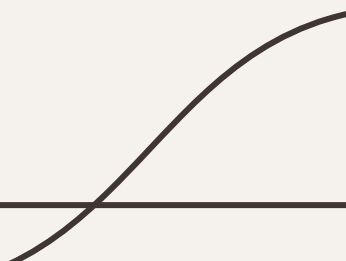
The more platforms users were active on, the more reported negative health effects.

Specifically, the reported rates of depression and difficulty sleeping were higher the more platforms users were active on.

Recommendations

Be conscious about screen time, especially when using multiple platforms.

Monitor your mental and physical health including sleep to catch

Limitations

Lack of longitudinal studies and quantified correlations in this topic means the correlations between health and social media usage can not be solidified.

This analysis primarily quantifies University students from ages 10-32, and is a small sized dataset of 700 data points. While data can be applicable to others outside this group, it is not tested in this analysis. Larger studies must be conducted to encompass the larger broader population.

This analysis was done with creative interest and overall just gives us all something to think about!

Platforms Used

Python- Jupyter Notebook, Pandas Library, MatPlotLib Library

Google Sheets

Tableau

References

(3) Riehm KE, Feder KA, Tormohlen KN, et al. Associations Between Time Spent Using Social Media and Internalizing and Externalizing Problems Among US Youth. JAMA Psychiatry. 2019;76(12):1266–1273. doi:10.1001/jamapsychiatry.2019.2325

My tableau :
https://public.tableau.com/views/SocialMediaTrendsandHealth/Dashboard1?:language=en-US&:display_count=n&:origin=viz_share_link