Social Media & Sleep

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Presented by

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Topic and Motivation

- Social Media Impact on Life is a comprehensive dataset containing information about students' social media habits and how these habits relate to sleep, stress, mental health, and academic performance.

- Variables include:
- daily social media usage
- primary social media platform
- sleep duration
- perceived stress score
- mental health index
- GPA

This topic piqued our interest for its personal impacts on our lives both as members of Duke university and social media spheres. By comparing the ways in which hard data interacts with our anecdotal experiences as a member of the most affected population in said topic, we can learn more about our perceptions.

Is heavier social media use associated with less sleep and more stress among students, and does late-night use matter?

Our Dataset: Social Media, Sleep, & Stress

Impact of Social Media on Life dataset · One observation = one student

4,500 Student Observations

16 Total Variables

4 Key Variables Analyzed

KEY VARIABLES

Daily Social Media Use → hours spent per day

Sleep Duration → hours of sleep per night

Perceived Stress → self reported stress score (0-40)

Late-Night Usage → Yes/no: uses social media late at night

DATA QUALITY: 46 missing stress scores; excluded only from stress related calculations

Source: Kaggle, "Impact of Social Media on Life" (posted by harishyadav0506). The original collector and collection method are not documented.

Who's in the Data

Who's in the dataset

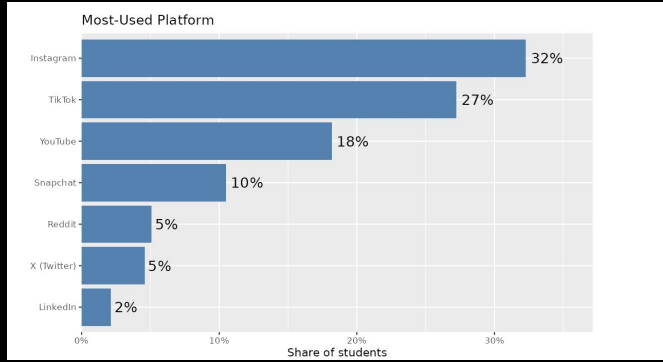
- Ages range from 15 to 26, with an average of about 18.7.
- Academic level: 62% undergraduate, 33% high school, 5.5% postgraduate.
- Gender: 50% female, 46% male, 3% non-binary, 2% prefer not to say.
- 84% mainly use a smartphone, 13% a laptop or PC, and 3% a tablet.

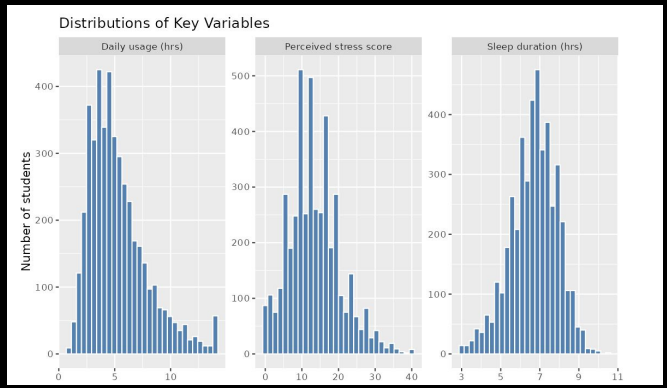
How they use social media

- Top platforms: Instagram (32%), TikTok (27%), YouTube (18%), Snapchat (10%). Reddit, X, and LinkedIn together make up about 12%.
- Average usage is **5.3 hrs/day**, but the median is lower at 4.7. The data is right-skewed, with a long tail of heavy users (maximum 14 hrs).
- Weekends add about 1.8 extra hours on average.
- 59% use social media late at night.
- 14% of students (632) use it more than 8 hrs/day.

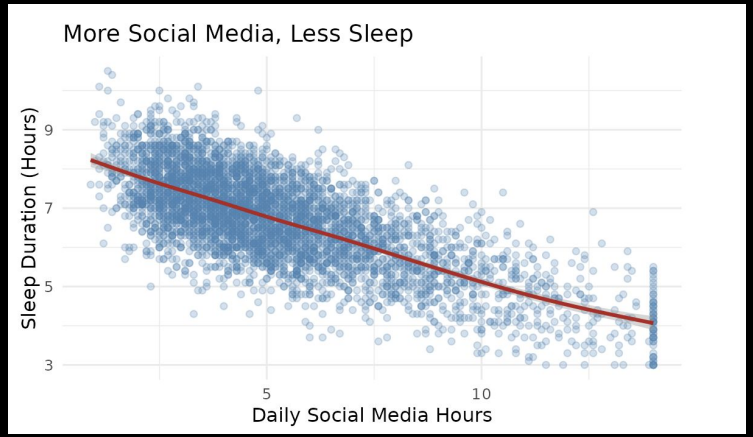
Sleep, stress, and wellbeing

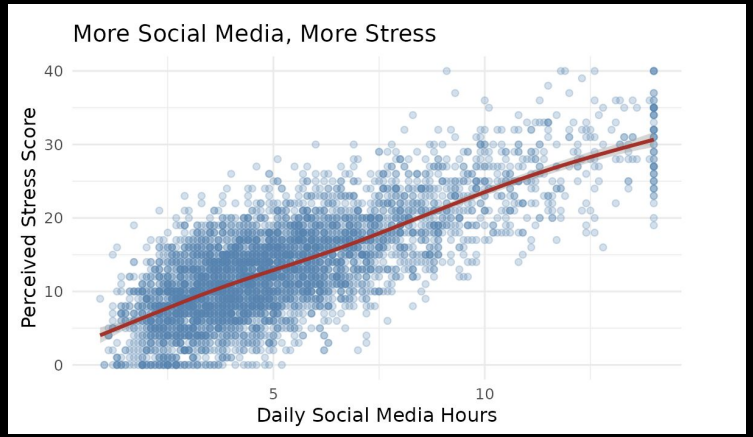
- Average sleep is **6.7 hrs/night**, below the 7–9 hrs commonly recommended. The middle 50% of students sleep between 6.0 and 7.5 hrs.
- Average stress score is 13.5, with the middle 50% between 9 and 18, though scores range from 0 to 40.
- Average mental health index is about 80/100, and average GPA is 3.43.
- Only two columns have missing values: stress (46 students, 1%) and GPA (85 students, 2%).





Effects of Increasing Use





Hypothesis 1:
Is higher social media use associated with less sleep?

- The correlation is strongly negative (**r ≈ –0.72**).
- The heaviest users sleep about **3 hours less** than the lightest users (5.1 vs. 8.0 hrs).
- The decline is steady at every level, so it isn't just a heavy-user effect.

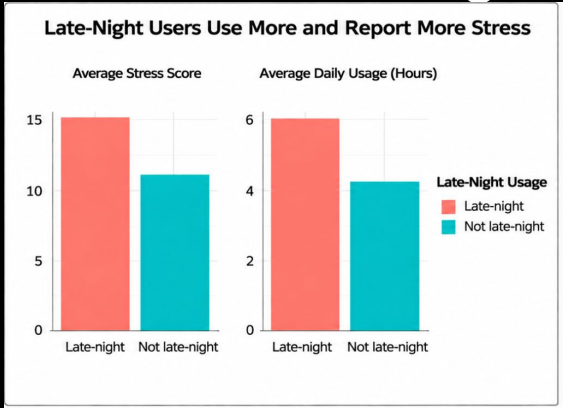
Hypothesis 2:
Is higher social media use associated with more stress?

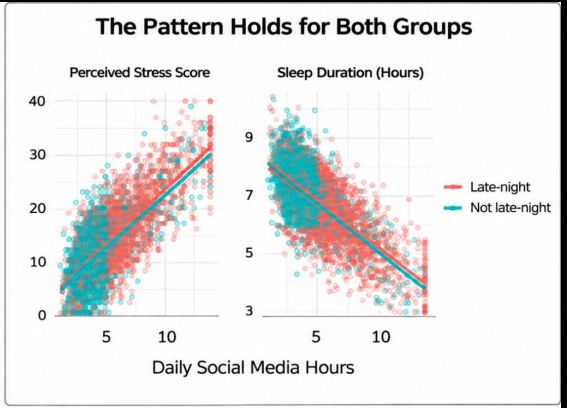
- The correlation is strongly positive (**r ≈ +0.75**).
- The heaviest users have roughly **4 times** the average stress of the lightest users (23.9 vs. 5.9).
- The biggest jump is from 6–8 hrs to 8+ hrs, a rise of about 7 points.

Related patterns

- Usage is also strongly tied to mental health index (r ≈ –0.85), GPA (r ≈ –0.71), and sleep quality (r ≈ –0.68).
- Weekend extra hours are unrelated to weekday usage (r ≈ 0), so they behave like a separate trait.

Late Night Users





	Late-night	Not late-night
Avg. daily usage	6.0 hrs	4.3 hrs
Avg. stress	15.2	11.2
Usage vs. sleep	r = −0.71	r = −0.66
Usage vs. stress	r = +0.76	r = +0.67

Late-night users spend about 1.8 more hours online per day and score about 4 points higher on stress.

- The usage–sleep and usage–stress relationships appear in both groups and are somewhat stronger among late-night users. So the pattern differs in strength, not in direction.

What did not matter

- Platform: average usage only ranges from 5.1 to 5.5 hrs and sleep from 6.6 to 6.8 hrs across platforms.
- Academic level: average sleep (6.7 hrs) and stress (13.2–13.6) are nearly the same for high school, undergrad, and postgrad students.

Limitations

- These are associations, not causation. Stressed students may turn to social media more, not only the reverse.
- The dataset doesn't state who collected it or how, so the sample may not represent all students.
- The patterns are unusually clean for survey data, and 82% of students are labeled "Beneficial" for overall impact despite the negative trends.

Conclusions, Discussions, and Critiques

Key Findings

-0.716
Correlation
Social media usage vs. sleep duration

0.754
Correlation
Social media usage vs. perceived stress

What does this mean?

Greater social media usage is associated with shorter sleep and higher stress. Both the amount and timing of usage may matter.

Limitations and Critiques

Observational data cannot establish causation. Other factors may contribute, and dataset representativeness is unverified.

Takeaway:
Social media habits are associated with student well-being, but further research is needed to understand why.