10/17/2024

Final Analysis Report

Mental Health and Technology Usage

Group (D)

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1. Executive Summary

This report presents a comprehensive analysis of technology usage and sleep patterns and their relationships with mental health and stress levels across different demographics. The findings highlight key trends in technology habits and age distribution and their impact on individual well-being, with effects on both personal health and workplace environments.

2. Introduction

Technology and Our Lives: A Closer Look

In today's world, technology is everywhere. We use it for work, play, and everything in between. But how does this constant connection affect our health and happiness? This study explores the relationship between technology usage, sleep, mental health, and stress. By understanding these connections, we can learn how to use technology healthily and improve our overall well-being.

3. Data Collection

This report is based on data collected from a comprehensive survey. Data-cleaning procedures, preprocessing, and handling mistakes were implemented to address missing information and ensure data accuracy or inconsistent information.

4. Methodology

The analysis involved various statistical techniques and data visualization methods to uncover key patterns and correlations.

Tools used:

- Python (Pandas, NumPy) for data manipulation.
- Python (Matplotlib, Seaborn) for data visualization.
- Power BI for interactive visualization dashboard.

5. Analysis and Findings

5.1. Technology Usage Hours

The distribution of technology usage hours is skewed to the right, with a peak of around 4 hours per day. Most individuals use technology for between 3 and 5 hours daily, while a notable number engage in extended usage beyond this range.

Key Findings:

- **Peak Usage:** Approximately 4 hours

- **Common Range:** 3-5 hours

- **Maximum Recorded Usage:** 9 hours

5.2. Age Distribution

The population analysis reveals a higher frequency of individuals in the **25-30** and **45-50** age ranges, indicating these groups are more prevalent in the sample.

5.3. Variable Ranges

Technology usage shows a wide range of habits among individuals:

- **Screen Time Hours:** ~13 hours

- **Social Media Usage Hours:** ~7 hours

- **Gaming Hours:** ~4 hours

- **Sleep Hours:** ~8 hours

5.4. Correlation Analysis

Strong Positive Correlations:

- **Technology Usage Hours & Screen Time Hours:** 0.94

Weak or No Correlations:

- **Social Media Usage Hours & Physical Activity Hours:** 0.002 and 0.007

Negative Correlation:

- **Technology Usage Hours & Sleep Hours:** -0.49

Overall, technology-related variables are strongly correlated, while there is a notable negative relationship between technology usage and sleep hours.

5.5. Gender Differences in Technology Usage

Analysis indicates minimal differences in technology usage hours across genders, with usage patterns remaining consistent among females, males, and non-binary individuals.

5.6. Technology Usage and Mental Health Status

No significant differences in technology usage hours were observed based on mental health status, indicating a standard distribution across various mental health categories.

5.7. Sleep Hours by Age and Gender

Average sleep hours vary:

- **Older Adults:** Tend to sleep more than younger adults.

- **Gender Differences:** Females generally report higher sleep hours than males, particularly in older age groups.

5.8. Sleep Hours Trends

- **Early Adulthood (20-30):** Relatively high sleep hours.

- **Mid-Adulthood (30-40):** Decrease in sleep hours.

- **Late Adulthood (40-50):** Potential increase in sleep hours.

- **Older Adulthood (50-60):** Stable or increased sleep hours.

5.9. Technology Usage and Sleep Status

Individuals reporting "**Bad Sleeping**" exhibit the highest average technology usage"**8 Hours**", followed by "**Fair Sleeping.**" "**6 Hours**" Those categorized as "**Well Sleeping**" show the lowest usage "**2-5 Hours**".

5.10. Stress Levels and Social Media Usage

Individuals **with high social media usage** often report **high to medium stress levels**, with a smaller fraction indicating low stress.

5.11. Stress Levels and Screen Usage

Similar trends are observed for screen usage, where **high levels correlate with increased stress.**

5.12. Mental Health Status and Sleep Hours

Among those with high sleep hours "Over 8 Hours":

- **Fair Status:** Majority report "Fair."

- **Good Status:** Significant portion report "Good."

- **Excellent and Poor Status:** Fewer individuals report these statuses.

5.13. Mental Health Status and Gaming

Non-gamers who "Play less than 2 Hours" mostly report a "**Fair**" mental health status, with fewer reporting "**Good**" or "**Excellent**" statuses.

5.14. Mental Health Status and Support

Individuals with support show a distribution of mental health statuses tend towards "**Fair**" and "**Good**."

5.15. Impact of High Sleep on the Work Environment

Individuals with **high sleep hours** "**More than 8 Hours**" report mostly **neutral impacts on their work environment**, though a significant portion note negative impacts.

5.16. Impact of Low Sleep on the Work Environment

Similar patterns are observed for low sleep, with most reporting a neutral impact, but some indicating negative effects.

5.17. Impact of High Stress/High Technology Usage on Work Environment

High stress or technology usage correlates with **negative impacts on the work environment** for most individuals.

6. Recommendations

Based on our analysis, here are some actionable recommendations:

6.1. Promote Balanced Technology Use:

- Encourage **time management** apps to monitor and limit excessive screen time.

6.2. Enhance Sleep Hygiene:

- Advocate for a **regular** sleep schedule and proper sleep environments.

6.3. Mental Health Awareness:

- Regular **mental health check**-ins and workshops can help in reducing shame.

6.4. Stress Management Programs:

- Encourage **physical activities** as a means to manage stress levels.

6.5. Holistic Approach to Well-Being:

- Enhance a **supportive and positive work environment**.

7. Conclusion

This analysis offers critical insights into the complex relationships between technological usage, sleep patterns, mental health, and stress across various demographic groups. The findings uncover that while technology use is wide and often correlates with increased screen time, it also negatively impacts sleep quality, particularly among younger adults and those experiencing high-stress levels.

The absence of significant differences in technology usage based on mental health status suggests that interventions aimed at improving mental well-being should consider holistic approaches that include sleep hygiene and balanced technology habits.

Moreover, the observed variations in sleep hours by age and gender highlight the need for designed strategies to promote better sleep among different demographics, particularly older adults and females.

Given the negative impacts of high technology use and stress on workplace environments, organizations should consider developing wellness programs that encourage healthy technology practices and stress management techniques.

Future research should further explore the long-term consequences of technology consumption on mental health and the efficacy of interventions designed to enhance healthier lifestyles in an increasingly digital world. By addressing these issues, we can better support individual well-being and promote productivity in both personal and professional settings.

8. References

8.1. [Scrutinizing the effects of digital technology on mental health](#)

8.2. [Enhancing Employee Mental Health with Technology](#)

8.3. [Technology and Mental Health](#)

8.4. [How Employers Can Leverage Technology to Manage Employee Mental Health](#)