



**Shikshan Prasarak Santha's
Padmabhushan Vasantraodada Patil Mahavidyalaya
Kavathe Mahankal
DEPARTMENT OF STATISTICS**



**Case Study Report on
“Impact of Social Media Usage on Mental Health”**

**Submitted to
Department of Statistics,
P. V. P. Mahavidyalaya,
Kavathe Mahankal**

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**As a partial fulfillment of the SEC-I (P): Practical on Data Analysis
Using MS-Excel – I for B.Sc. II (Semester III)**

***Under the guidance of*
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2025-2026

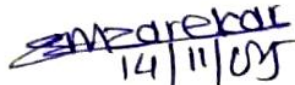
CERTIFICATE

This is to certify that *Miss. Salunkhe Rutuja Hanmant, Miss. Salunkhe Sanika Navanath and Miss. Shinde Anushka Sanjay* of B.Sc. II (Semester III), P. V. P. Mahavidyalaya, Kavathe Mahankal have successfully completed the case study report entitled “*Impact of Social Media Usage on Mental Health*” based on SEC-I (P): Practical on Data Analysis Using MS-Excel – I, as prescribed by the curriculum of Shivaji University, Kolhapur, under my supervision and guidance during the academic year 2025 – 2026.



Guide

Department of Statistics
P. V. P. Mahavidyalaya,
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Examiner's Signature



Head

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Kavathe Mahankal

Place: Kavathe Mahankal

Date: 10/11/2025

DECLARATION

We hereby declare that the Case Study Report entitled “*Impact of Social Media Usage on Mental Health*” submitted in partial fulfillment of the requirements of SEC-I (P): Practical on Data Analysis Using MS-Excel – I for B.Sc. II (Semester III) is our original work carried out under the guidance of Dr. A. M. Suryawanshi, Assistant Professor, Department of Statistics, P. V. P. Mahavidyalaya, Kavathe Mahankal.

We further declare that this report has not been previously submitted to any other university or institution for any other degree.

Place: Kavathe Mahankal

Date: 10/11/2025

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Abstract:

In the modern digital era, social media has become an integral part of daily life, connecting individuals globally through platforms like Instagram, Facebook, YouTube, and WhatsApp. While these platforms offer numerous benefits, excessive use has been increasingly linked to adverse effects on mental health. This study explores the relationship between social media usage and stress levels among individuals aged 10–30 years. Primary data were collected using a questionnaire that recorded average daily screen time and self-assessed stress levels. Statistical tools such as mean, median, standard deviation, and correlation were applied using MS Excel. The findings revealed a strong positive correlation between social media usage and stress levels, indicating that higher social media engagement is associated with increased stress. The study emphasizes the need for balanced social media habits and greater awareness of its psychological impact to promote better mental well-being.

Introduction:

In the 21st century, social media has become one of the most powerful and influential tools in human life. Platforms such as Instagram, Facebook, WhatsApp, YouTube and Snapchat are no longer just communication tools—they have evolved into essential parts of daily routines, sources of entertainment, and spaces for self-expression. People of all age groups use social media for various purposes such as staying connected with friends, accessing information, promoting businesses, or following current trends.

However, the increasing dependence on social media has also raised concerns about its impact on mental well-being. Many studies and observations have suggested that excessive use of social media may lead to emotional exhaustion, anxiety, stress, and feelings of loneliness. The constant comparison with others, the pressure to maintain an online image, and the fear of missing out (FOMO) can contribute significantly to stress levels—especially among adolescents and young adults who are the most active social media users.

In this context, it becomes important to understand how the number of hours spent on social media relates to the level of stress experienced by individuals. This case study attempts to examine this relationship across different age groups, highlighting which group is most affected and to what extent. The study is based on **primary data** collected from respondents aged **10 to 30 years**, using a questionnaire to record their average social media usage and self-reported stress levels.

The results of this analysis can provide valuable insight into the behavioral patterns of social media users and help in creating awareness about the mental health effects of excessive screen time.

Objectives:

1. To study the relationship between **social media usage** and **stress levels** among different age groups.
2. To analyze whether **increased time on social media** leads to higher **stress levels**.
3. To promote awareness about **healthy and balanced social media habits**.
4. To provide **recommendations** for reducing stress caused by social media usage.

Hypotheses:

The null and alternative Hypotheses are:

H₀: There is no significant relationship between social media usage and stress levels.

H₁: There is a significant relationship between social media usage and stress levels.

Methodology:

Type of Study: This is a descriptive and analytical study based on primary data collected based on structured questionnaire through Google Form.

Sample Size and Population: Data were collected from 50 respondents belonging to different age groups between 10 and 30 years.

Data Collection Method: A questionnaire was designed in Microsoft Excel to record: Age group, Average time spent on social media (hours/day), and Self-reported stress level (scale of 1 to 5).

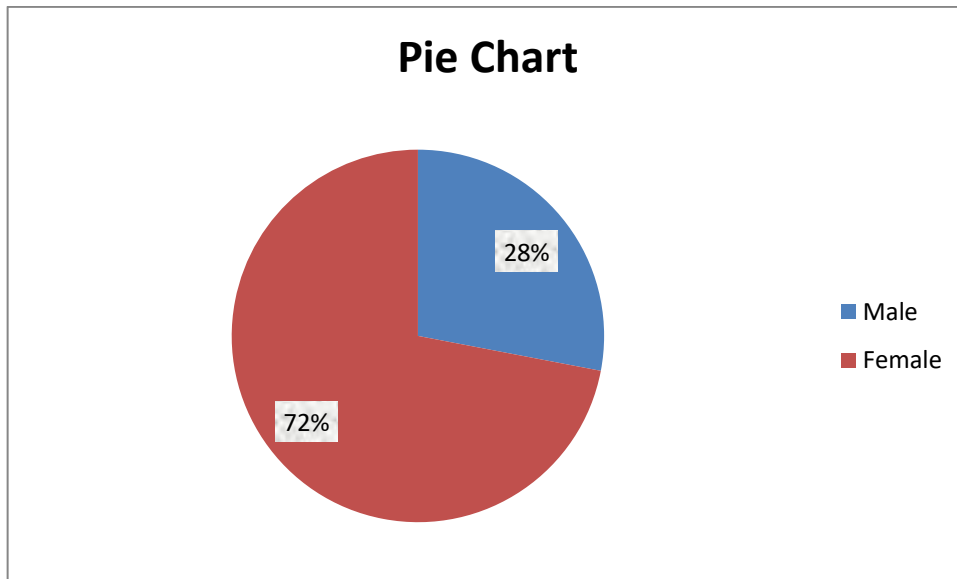
Data Analysis Tools: MS Excel functions such as AVERAGE, MEDIAN, STDEV, and CORREL were used, along with graphical tools like Bar charts and Scatter diagrams.

Variables Considered: Independent Variable: Social Media Usage (hours/day); Dependent Variable: Stress Level (1–5 scale).

Statistical Analysis:

1) Graphical representation:

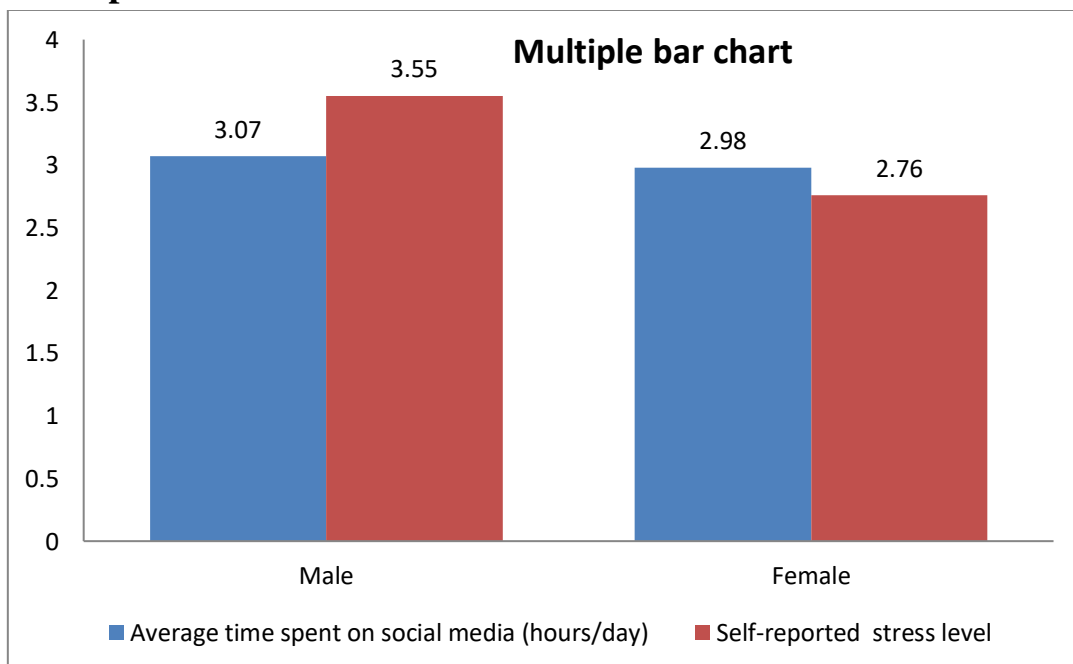
A. Pie chart



Interpretation:

The pie chart represents the gender-wise distribution of respondents in the study. It shows that 58% are female and 42% are male, indicating that female participants form the majority of the sample. This suggests that women are slightly more represented in the study, which may influence the overall results related to social media usage and stress levels.

B. Multiple Bar chart



Interpretation:

The multiple bar chart compares the average time spent on social media (hours/day) and self-reported stress levels between males and females.

Males spend an average of 3.07 hours per day on social media and have a higher self-reported stress level of 3.55. Females spend slightly less time on social media, averaging 2.98 hours per day, and report a lower stress level of 2.76.

Overall, the chart indicates that males spend slightly more time on social media and experience higher stress levels compared to females. This suggests a possible relationship between higher social media usage and increased stress, particularly among males.

2) Descriptive Statistics: Mean, Median, Variance and Standard Deviation

Measure	time spent on social media (hours/day)	Self-reported stress level
Mean	3.05 hrs	3
Median	2.5 hrs	2
Variance	3.19	7.78
Standard Deviation	1.79	2.79

Interpretation:

The descriptive statistics indicate that, on average, respondents spend around 3.05 hours per day on social media, with a median of 2.5 hours, suggesting that most individuals use social media moderately, though a few may spend significantly more time, as reflected by the relatively high variance (3.19) and standard deviation (1.79). Similarly, the mean self-reported stress level is 3 (on a 1–5 scale), with a median of 2, indicating that the majority of respondents experience low to moderate stress, though the higher variance (7.78) and standard deviation (2.79) show considerable variation in stress levels among individuals.

Overall, these results suggest that while average social media use is moderate, differences in usage patterns and stress levels across respondents are quite wide—implying that individual experiences and stress responses to social media vary significantly.

3) Correlation analysis:

The Excel function = CORREL(time spent on social media (hours/day), Self-reported stress level) calculate correlation between time spent on social media (hours/day) and Self-reported stress level.

The value of correlation coefficient is: $r = 0.7204$

Degrees of freedom for correlation = $n-2 = 50- 2 = 48$

Significance level (α) = 0.05

Critical value of r at 48 degrees of freedom with 5% significance level = 0.279

Interpretation:

The value of r (0.7204) is greater than critical value of r (0.279). Hence we reject null hypothesis at 5% level of significance and conclude that there is a significant positive relationship between time spent on social media (hours/day) and Self-reported stress level.

This indicates that there is a significant positive correlation between the time spent on social media (hours per day) and self-reported stress level. In other words, as individuals spend more time on social media, their stress levels tend to increase.

Conclusions:

The analysis revealed a significant positive correlation between the time spent on social media and self-reported stress levels. This indicates that individuals who spend more time on social media tend to experience higher levels of stress. While moderate use of social media can promote communication and connectivity, excessive usage may contribute to psychological strain, anxiety, and reduced well-being. The findings also show that males spend slightly more time on social media and report higher stress levels than females, suggesting that prolonged online engagement may negatively affect mental health across different groups.

To promote healthier social media habits and reduce stress, individuals should set daily time limits, take regular digital breaks, and engage in offline activities such as exercise, hobbies, or spending quality time with family and friends. Curating positive online content and practicing mindfulness can help minimize exposure to negativity and comparison. Additionally, creating “no-phone zones” before bedtime and during meals can encourage real-world interactions and mental relaxation. Overall, maintaining balanced and mindful social media use is essential for protecting emotional well-being and fostering a healthier digital lifestyle.

References:

- 1) Andreassen, C. S. (2015). Online Social Network Site Addiction: A Comprehensive Review. *Current Addiction Reports*, 2(2), 175–184.
- 2) Keles, B., McCrae, N., & Grealish, A. (2020). The Influence of Social Media on Depression, Anxiety and Psychological Distress: A Systematic Review. *Journal of Adolescence*, 80, 12–24.
- 3) Primack, B. A., et al. (2017). Social Media Use and Perceived Social Isolation Among Young Adults in the U.S. *American Journal of Preventive Medicine*, 53(1), 1–8.

Questionnaire:

1. Name of respondents: _____
2. Gender: Male Female
3. Age: _____ years
4. After spending time on social media how often do you feel tired/stressed/anxious
 - Often
 - Always
 - Sometimes
 - Rarely
5. Do you feel restless If you access social media for long time?
 - Sometimes
 - Rarely
 - Always
 - Never
6. How many hours do you spend on social media
 - 1
 - 2
 - 3
 - 4
 - More than 4
7. Do comparison on social media lower your self confidence
 - Strongly Agree
 - Agree
 - Strongly disagree
 - Disagree
8. Which social media platform do you use most
 - Instagram
 - Facebook
 - WhatsApp
 - YouTube
 - Snapchat
9. After using social media how do you usually feel
 - Positive
 - Negative
 - Neutral
 - Stressed