



Navigating the Digital Landscape: The Influence of Social Media, Economic Factors, and Mobile Device Dependence on Student Life in Kolhapur District

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ABSTRACT : This study explores the effects of social media usage, economic stress, and dependency on mobile technology on student performance, student psychological well-being, and social behavior in Kolhapur District, using data from 12 tehsils to report not only on social media as a source both of learning material and of distraction, but also on economic factors like part-time work and economic stressors affecting the students' academics and mental health problems associated with overuse of digital technologies. The findings support balanced technology use, mental health support, and actionable strategies to enhance student well-being and academic success in the digital era.

KEYWORDS: Social Media Usage, Academic Performance, Mental Health, Financial Pressure, Mobile Technology Dependence, Digital Behavior, Student Well-being, Kolhapur District, Part-Time Work, Psychological Impact, Educational Backgrounds, Stress and Anxiety

INTRODUCTION

This speedy development of technology has repositioned the way students interact with education, social networks, and daily life. In consequence, they cannot do without social media, and mobile devices have always been a compulsion. With these tools, unknown levels of knowledge, professional development, and other forms of growth are available, but overuse raises problems with increased distraction, heightened stress levels, and decreased academic focus. Meanwhile, economic factors—governed by such factors as family income, pressure due to financial stress, and unequal access to resources—distinctively affect students' academic performance and overall well-being. The interactions between these technological and economic aspects are most clearly shown in the effective balancing of students' responsibilities in the academic, social, and personal realms.

This research explores student dynamics across the 12 tehsils of Kolhapur district, an area that includes both rural and urban settings, making it a very relevant space to study these influences. Here, it analyzes the effects of their use of social media, their economic situation, and dependency on mobile phones to unravel how these factors interact to influence success in academic terms, mental health, and social behavior. The regional focus opens our understanding of the challenges and opportunities presented by the digital age for students in diverse socio-economic contexts, thus highlighting any benefits as well as risks to integration that come with technological advancements in daily life.

To address growing concerns about the issues of digital overuse and economic inequality, and the combined implications on education, such interconnections need to be understood. The findings of this research will contribute to a deeper understanding of the struggles and adaptations of students in regional contexts like Kolhapur. Additionally, it will highlight the importance of creating supportive systems that balance technological engagement with mental health and academic focus. This paper will draw on the detail of student feedback and comprehensive data analysis in pursuit of actionable recommendations for educators, policymakers, and mental health professionals to produce healthier experiences for students through the digital age.

NEED OF THE STUDY.

Students are faced with a difficult mix of opportunities and challenges in this new fast-changing digital era, fuelled by the widespread uptake of social media, mobile devices, and pressures to pursue economic advancement. On the one hand, technologies open up pathways for increased learning, teamwork, and personal development, but an overuse of these technologies creates much distraction, academic disengagement, and mental health issues. The above issues compound economic inequalities where family income, financial stress, and unequal access to resources have strong impacts on the academic performance as well as the overall well-being of the students.

Specifically, the study is crucial in Kolhapur district because integration with both urban and rural environments presents unique challenges to the students. The interaction of digital behavior and economic conditions is important in determining how these elements influence the students' academic performance, mental health, and social behaviors in regional areas. This research will fill in the gap within previous studies by showing the exact areas in which such students suffer and strive within such heterogeneous socio-economic settings.

In this context, the findings of this research will be timely and useful for educators, policymakers, as well as mental health professionals because they react to the implications that emerge from the issue at hand-third-order unemployment over economic inequality-through digital overuse. The study will look at the patterns, challenges, and opportunities in an effort to help with targeted solutions that support a healthier balance between technology use, academic focus, and well-being. The ability to achieve this shall critically gear students with the tools and support systems to survive in today's digitally connected and economically complex world.

OBJECTIVES:

- **Demographic Analysis of Research Participants:**
To analyse the demographic characteristics of research participants, including gender, age distribution, and academic backgrounds.
- **Stream and Academic Year Distribution:**
To examine the academic streams and year of study of students to identify trends and variations in participation.
- **Social Media Usage Patterns:**
To investigate students' daily usage of social media, including time spent and its perceived impact on their academic performance.
- **Economic and Mental Health Factors:**
To explore the relationship between students' economic situations and mental health, with a focus on gender differences.
- **Academic and Psychological Well-being:**
To assess the relationship between students' use of social media and its impact on their psychological well-being, stress, and anxiety levels.
- **Employment and Support for Education:**
To compare the proportion of male and female students engaged in part-time work to support their education.

Data and Sources of Data

It was through a structured questionnaire that this study would gather information to determine a comprehensive range of issues from the academic performances to the students' activities on social media, financial conditions, and mental well-being. A few closed-ended questions and some open-ended ones made sure that both the quantitative and qualitative aspects were being considered. The target population consisted of students from all the colleges across the 12 tehsils of Kolhapur district.

Data was collected in collaboration with colleges from each tehsil to ensure representativeness. The questionnaire was distributed to the students through online mode, hence allowing equal access and participation. The approach will allow for fairly reliable and diversified data that can be used to reflect the socio-economic and academic contexts of students in the region. The data gathered serves as the basis upon which to examine the interaction of social media use and financial stressor impacts on students' academic and personal lives.

RESEARCH METHODOLOGY

STATISTICAL TOOLS USED:

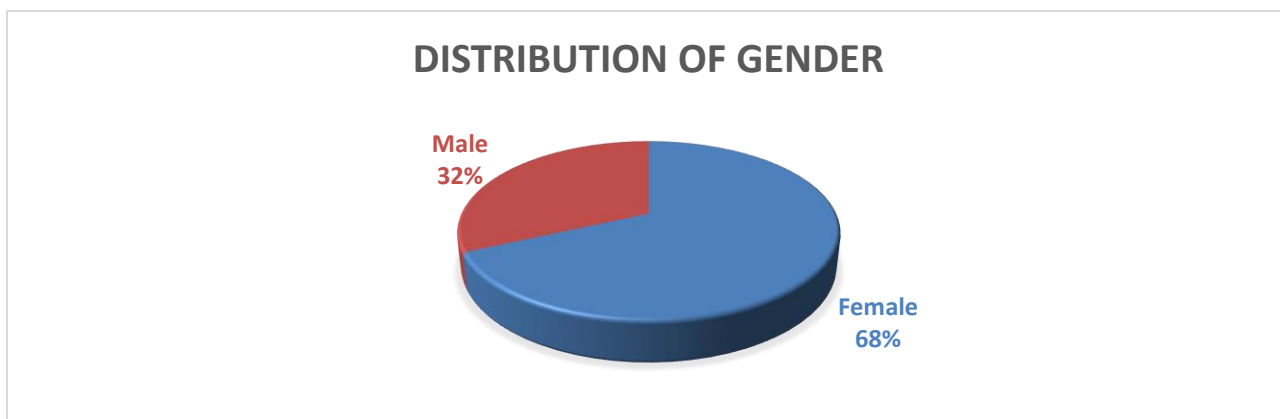
- **Diagrammatic and Graphical Representation**
This method uses charts like bar diagrams, pie charts, and histograms to present the data in an easy-to-understand way to depict simplified data sets that have trends, patterns, and relationships in them. The data becomes easily interpretable with allowance for easier comparison and insight.
- **Chi-square test for independence**
The Chi-square test is used to test the significance of association between two categorical variables.
- **Test for the equality of population proportion**
This is a statistical test that compares two or more proportions to establish whether they are significantly different.

➤ **The t-test for correlation**

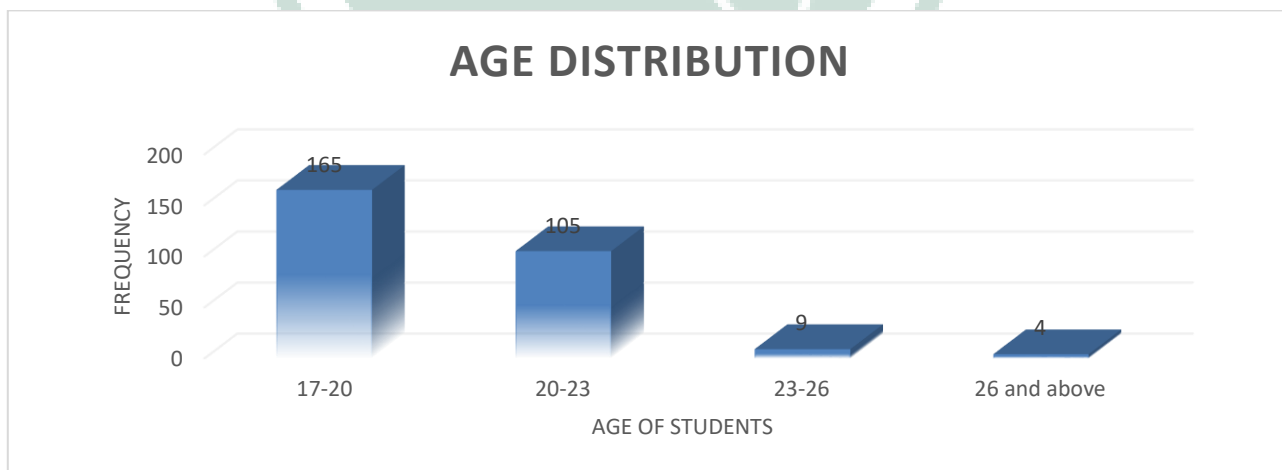
Correlation of the two continuous variables is measured by the t-test, assessing how well the linear relationship is strong and significant.

SOFTWARE USED:

- Microsoft word (MS-Word)
- Microsoft Excel (MS-Excel)

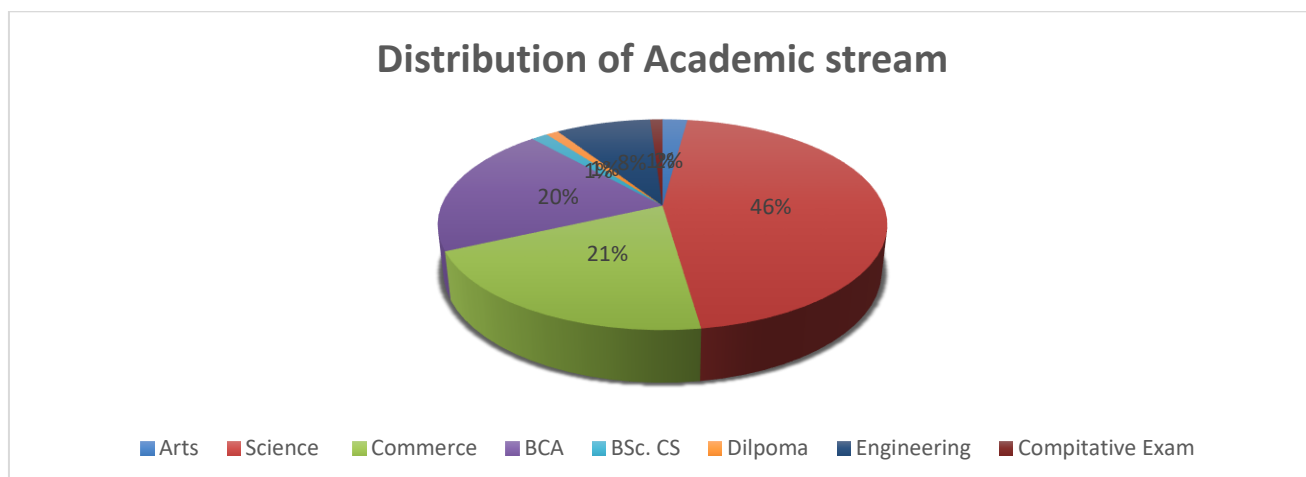
STATISTICAL ANALYSIS:**EXPLORATORY DATA ANALYSIS:****1. Pie Diagram to Understand the distribution of Gender of student :**

Interpretation: Based on the above pie chart analysis, it is observed that female students constitute 68% of the research participants, while male students account for 32%.

2. Bar Diagram to Understand the distribution of Age of student

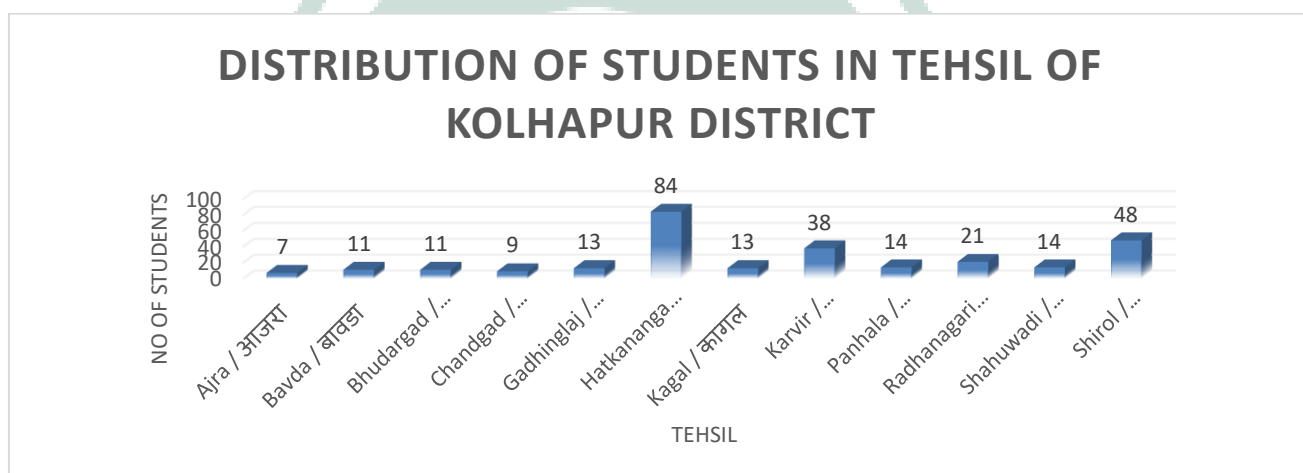
Interpretation: The bar diagram indicates that 165 research participants are between 17 and 20 years old, while the fewest participants are aged 26 years and above.

3. Pie Diagram to Understand the distribution of Academic stream



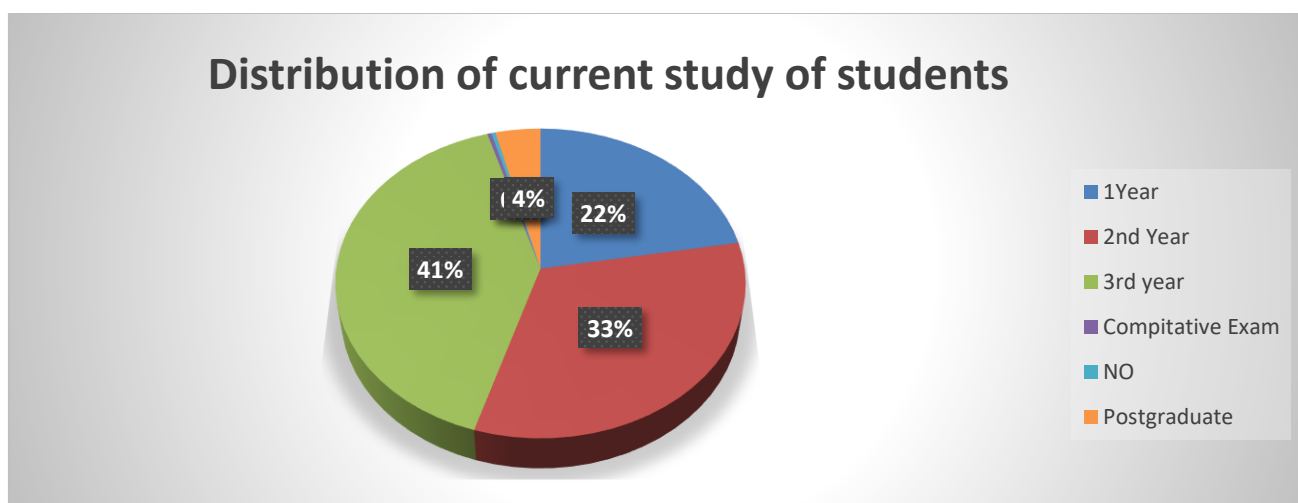
Interpretation: The pie chart shows that most of the students in the study are from the Science stream, making up 46% of the participants, while those preparing for competitive exams represent a small fraction, around 3.82%.

4. Bar Diagram to Understand the distribution of Tehsil



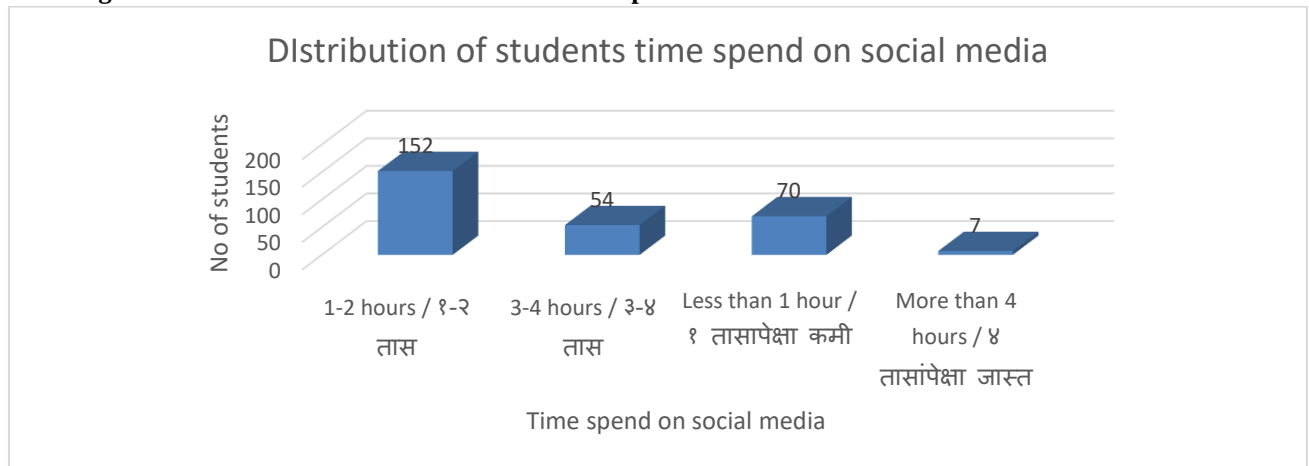
Interpretation: The bar diagram indicates that 84 research participants are from Hatkanangle, while the fewest participants are from Ajara."

5. Pie Diagram to Understand the distribution of Year of study



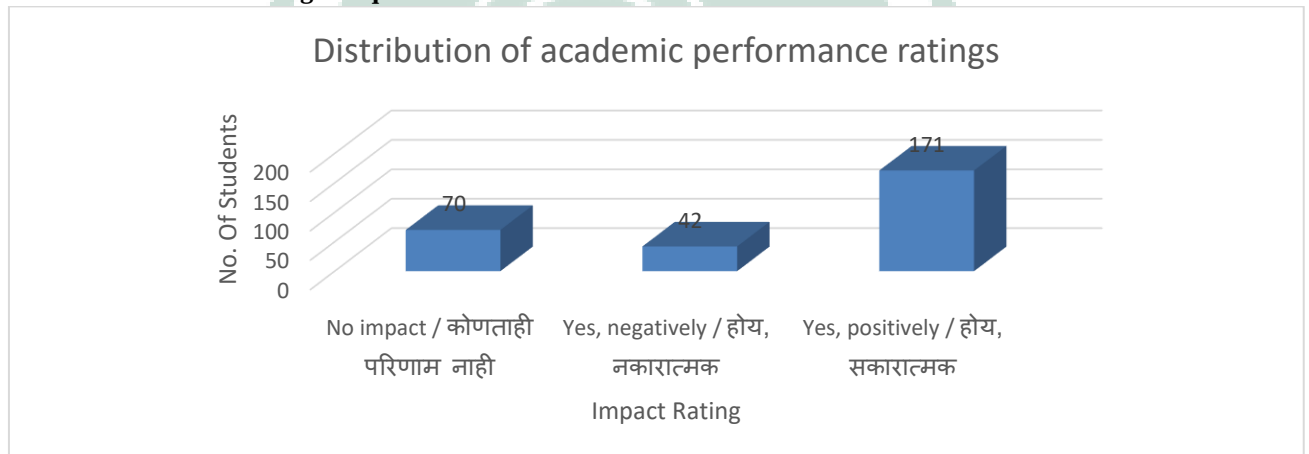
Interpretation: The pie chart shows that the majority of students in the study are in their 3rd year (final year of graduation), making up 46% of participants, followed by those in the 2nd year, 1st year, postgraduate studies, and those preparing for competitive exams.

6. Bar Diagram to Understand the distribution of Time spent on social media



Interpretation: The bar diagram indicates that the majority of students spend 1 to 2 hours on social media daily, while fewer students spend more than 4 hours each day.

7. Bar Diagram to Understand distribution of academic performance ratings (positive, negative, no impact) across different social media usage frequencies.



Interpretation: The bar diagram indicates that most students believe social media has a positive impact on their academic performance.

TESTING OF HYPOTHESIS:

- **Chi-square test to check the association between social media usage and academic performance.**

Hypothesis:

Null Hypothesis (H₀): There is no association between social media usage and academic performance.

Alternative Hypothesis (H₁): There is a significant association between social media usage and academic performance.

Level of significance: $\alpha=5\%=0.05$

Degrees of freedom

$$df = (R-1)(C-1) = (4-1)(3-1) = 6$$

Here R=number of rows in the contingency table and C= Number of column in the contingency table

Test Statistic:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} = 14.36$$

Where, O_i is the Observed frequency, and E_i is the expected frequency

P value:

$$P\text{-value} = 0.05173$$

Decision and conclusion:

Here the p value is greater than 0.05 then we do not reject the null hypothesis and conclude that there is no association between social media usage and academic performance i.e. students do not think the use of social media affect the students' academic performance.

➤ **Z-test to Compare the Proportion of Male and Female Students Engaged in Part-Time Work to Support Their Education**

Notations:

P_1 = proportion of male students engaged in the part time work to support their education

P_2 = proportion of Female students engaged in the part time work to support their education

n_1 = Total number of male students = 90

x_1 = Total number of male students engaged in the part time work to support their education = 48

n_2 = Total number of Female students = 193

x_2 = Total number of Female students engaged in the part time work to support their education = 49

p_1 = Sample proportion of male students engaged in the part time work to support their education = $48/90 = 0.53$

p_2 = Sample proportion of Female students engaged in the part time work to support their education = $49/193 = 0.25$

Hypothesis: $H_0: p_1 = p_2$ Vs $H_1: p_1 > p_2$

Level of significance:

$$\alpha = 5\% = 0.05$$

Calculations:

$$\bar{p} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = 0.34 \quad \text{and} \quad \bar{q} = 0.66$$

Under H_0 , the calculated value of Z is

$$Z = \frac{\bar{p}_1 - \bar{p}_2}{\sqrt{\bar{p} \cdot \bar{q} \left[\frac{1}{n_1} + \frac{1}{n_2} \right]}} = 4.6127$$

Critical value: at 5% level of significance, $Z_{\frac{\alpha}{2}} = 1.96$

Decision and conclusion:

Here the calculated value of Z is greater than critical value of Z then we reject the null hypothesis at 5% level of significance and conclude that proportion of male students engaged in the part time work to support their education is greater than proportion of Female students engaged in the part time work to support their education

➤ **Z-test to Compare the Proportion of Male and Female Students Who Believe Economic Situations Affect Mental Health Equally**

Notations:

P_1 = Proportion of Male Student Who Believe Economic Situations Affect Mental Health

P_2 = Proportion of Female Student Who Believe Economic Situations Affect Mental Health

n_1 = Total number of male students = 90

x_1 = Total number of male students Who Believe Economic Situations Affect Mental Health = 44

n_2 = Total number of Female students = 193

x_2 = Total number of Female students Who Believe Economic Situations Affect Mental Health = 68

p_1 = Sample proportion of male students Who Believe Economic Situations

Affect Mental Health = $\bar{p}_1 = 44/90 = 0.48$

p_2 = Sample proportion of Female students Who Believe Economic Situations

Affect Mental Health = $\bar{p}_2 = 68/193 = 0.35$

Level of significance :

$$\alpha = 5\% = 0.05$$

Hypothesis:

$$H_0: p_1 = p_2 \text{ Vs } H_1: p_1 > p_2$$

Calculations:

$$\bar{p} = \frac{n_1 p_1 + n_2 p_2}{n_1 + n_2} = 0.40 \text{ and } \bar{q} = 0.60$$

Under H_0 , the calculated value of Z is

$$Z = \frac{\bar{p}_1 - \bar{p}_2}{\sqrt{\bar{p} \bar{q} \left[\frac{1}{n_1} + \frac{1}{n_2} \right]}} = 2.1878$$

Critical value: at 5% level of significance, $Z_{\frac{\alpha}{2}} = 1.96$

Decision and conclusion:

Here the calculated value of Z is greater than critical value of Z then we reject the null hypothesis at 5% level of significance and conclude that proportion of male students Who Believe Economic Situations Affect Mental Health is greater than proportion of Female students Who Believe Economic Situations Affect Mental Health

➤ T-test to Examine the Relationship Between Students' Sleep Duration and Their Levels of Stress or Anxiety

Hypothesis:

H_0 : there is no Relationship Between Students' Sleep Duration and Their Levels of Stress or Anxiety

Vs

H_1 : there is significant Relationship Between Students' Sleep Duration and Their Levels of Stress or Anxiety

Level of significance :

$$\alpha = 5\% = 0.05$$

Degrees of freedom:

$$df = n - 2 = 281$$

Calculations:

r = correlation between Students' Sleep Duration and Their Levels of Stress or Anxiety = 0.0744

n = total number of respondents = 283

Under the null hypothesis, the test statistic is

$$t = \frac{r \sqrt{n-2}}{\sqrt{1-r^2}} = 1.2506$$

P value: at 5% level of significance, p value = 0.2121

Decision and conclusion:

Here the p value is greater than 0.05 then we do not reject the null hypothesis and conclude that there is no Relationship Between Students' Sleep Duration and Their Levels of Stress or Anxiety

➤ Chi Square test to check the association between Daily use of social media and impact of social media on your psychological well-being.

Hypothesis:

Null Hypothesis (H_0): There is no association between Daily use of social media and impact of social media on your psychological well-being

Alternative Hypothesis (H1): There is a significant association between Daily use of social media and impact of social media on your psychological well-being

Level of significance:

$$\alpha=5\%=0.05$$

Degrees of freedom

$$df = (R-1)(C-1) = (4-1)(5-1) = 12$$

Here R=number of rows in the contingency table and C= Number of column in the contingency table

Test Statistic:

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i} = 199.27$$

Where, O_i is the Observed frequency, and E_i is the expected frequency

P value:

$$P\text{-value} = 0.0000$$

Decision and conclusion:

Here the p value is less than 0.05 then we reject the null hypothesis at 5% level of significance and conclude that There is a significant association between Daily use of social media and impact of social media on your psychological well-being

CONCLUSION:

This study makes a comprehensive analysis of the academic, social, and psychological fields of the students and yields crucial information about their behavior and attitudes. This demographic analysis also indicates that most of the participants are females (68%) and from the Science stream (46%), and the majority of students are in the final year of graduation (46%) and between 17 to 20 years of age. Social media usage patterns reveal that a higher percentage of students spend 1 to 2 hours on the various social media platforms and perceive a positive impact on their academic performance, though only a minimal percentage spends more than 4 hours daily. Geographically, Hatkanangle has the highest participation (84 students), while Ajara has the least percentage. Other notable gender-based differences were observed. More students who are male were working part-time, and more of these students believed that economic situations actually affect mental health. In fact, no statistical relationship is found between the students' sleep duration and their stress or anxiety, suggesting that there might be other factors that would affect these psychological outcomes. Significantly, associations between daily social media usage and influence on psychological well-being were also found, thereby outlining the crucial role of digital habits in mental health. Additionally, students do not feel that social media negatively influences their academic performance in its entirety, but many believe it positively affects them. Such research findings emphasize the call for interventions that address aspects such as economic pressure and mental health issues and, in addition, promote balanced use of social media that supports both students' academic and psychological well-being. The study underlines the need for a holistic support system for students in the pursuit of help in their academic and personal lives.

References:

1. Alahmar A. T. (2016). The impact of social media on the academic performance of second year medical students at College of Medicine, University of Babylon, Iraq. J. Med. Allied Sci. 6 77–83. 10.5455/jmas.236927 [[link](#)]
2. Keles B., McCrae N., Grealish A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. Int. J. Adolesc. Youth 25 79–93. 10.1080/02673843.2019.1590851 [[link](#)]
3. “To Study the Pattern of Cell Phone Users and Service Providers Based on Statistical Techniques in Kolhapur District” Published in ISSN: 0950-0707 DOI:20.18001.STD.2020.V9I11.20.34760 [[link](#)]
4. A Study on the Improvement of College Students' Psychological Pressure and Anxiety by Using English Psychological Script Activities Front. Psychol., 27 April 2022 Sec. Educational Psychology Volume 13 – 2022 [[Link](#)]
5. Academic Stress and Mental Well-Being in College Students: Correlations, Affected Groups, and COVID-19 Sec. Educational Psychology Volume 13 – 2022 [[Link](#)]