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# The Impact of Social Media on the Memory of Students: A Case Study of Rokhan University

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**Abstract**

This study explores the impact of social media usage on memory retention, concentration, and academic performance among students at the Rokhan University. This is a quantitative study; a convenience sampling technique was used, and the data were collected from 372 students across five faculties via a structured questionnaire. Descriptive statistics were used to analyze the data through Microsoft Excel .The findings indicate that 60.22% of students believe social media negatively impacts their memory retention, with 71.24% reporting a decline in concentration and 58.06% indicating that social media interferes with their academic tasks. Additionally, a significant portion 61.83% of students reported experiencing mental stress, and 75% reported mental fatigue as a result of social media use. Regarding usage patterns, 77.42% of students spend 1–3 hours daily on social media, with the majority 53.76% using it for educational purposes. Despite the negative impacts on memory and concentration, 39.78% of students did not perceive social media as harmful to memory, suggesting the presence of potential coping mechanisms. Furthermore, while 55.11% of students felt social media hindered their learning, 24.73% found it beneficial for accessing educational resources and facilitating peer interactions. These findings reflect the dual impact of social media on students' cognitive functions. While it impairs some students' memory and focus, it also supports educational engagement for others. The study highlights the importance of balanced social media use to maximize its benefits and reduce negative cognitive effects.

**Keywords**: Impact, social media, Memory, Students, Rokhan University

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## Introduction

Social media has become an integral part of modern life, especially among university students, significantly influencing various cognitive processes, including memory (Dikshit, 2023). Memory plays a crucial role in academic success, enabling individuals to encode, store, and retrieve information essential for effective learning (Baddeley, 2019). However, excessive engagement with social media may result in cognitive overload, attention deficits, and decreased memory retention (Firth et al., 2019).

Previous research indicates that social media usage exerts both positive and negative effects on memory. On the positive side, social media facilitates collaborative learning, knowledge sharing, and digital note-taking, which can enhance memory retention (Junco, 2012). It provides students opportunities to participate in interactive learning environments, reinforcing information through discussions and multimedia content (Neo & Neo, 2004). Conversely, persistent exposure to digital distractions—such as notifications and multitasking—can impair attention span, reduce deep cognitive processing, and hinder long-term memory consolidation (Uncapher & Wagner, 2018; Carr, 2020). Furthermore, social media multitasking has been linked to diminished working memory capacity and poorer academic performance (Ophir et al., 2009; van der Schuur et al., 2015).

Despite these findings, there remains limited understanding of how different patterns of social media usage—such as frequency, duration, and type—specifically affect students' memory retention in the context of higher education. Moreover, the balance between beneficial and detrimental effects is not fully clear, highlighting a need for further empirical investigation.

Therefore, this study aims to investigate the impact of social media usage on the memory performance of students at Rokhan University. It will examine the relationships between social media usage patterns and memory retention, providing insights that could help students, educators, and policymakers optimize learning outcomes while mitigating potential cognitive drawbacks.

This study focuses on assessing the impact of social media usage on memory retention, concentration, and academic performance among students at Rokhan University. The research includes students from five faculties) Medical, Stomatology, Pharmacy, Law & Political Science, and Economics (and specifically examines their usage patterns and associated cognitive effects. This study is limited to undergraduate students and does not consider faculty or postgraduate perspectives. It employs a quantitative approach using a structured physical questionnaire to collect data. The research was conducted during the Spring Semester of 2025 and focuses on short-term cognitive outcomes, excluding long-term psychological or emotional impacts. Data were analyzed using descriptive statistical techniques.

## Problem Statement

Memory is a fundamental cognitive function essential for academic success, facilitating the retention, processing, and retrieval of information necessary for learning and intellectual development (Baddeley, 2012). However, the pervasive use of social media among students has raised concerns about its potential impact on cognitive functions, particularly memory. While social media platforms provide educational opportunities, they also introduce distractions, cognitive overload, and fragmented attention, which may impair students' ability to encode and retain information effectively (Cain & Gradisar, 2010; van der Schuur, Baumgartner, Sumter, & Valkenburg, 2015).

Despite the growing body of research on digital media and cognitive functions, there remains a gap in

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understanding the specific relationship between social media use and memory performance in higher education settings. Studies suggest that excessive engagement with social media, particularly during academic activities, can disrupt working memory, reduce attentional control, and impair recall performance (Spence et al., 2020; Almarzouki et al., 2022). However, the extent to which these effects manifest in university students, particularly at institutions such as Rokhan University, remains largely unexplored. Moreover, the role of social media usage patterns—such as frequency, purpose, and platform type—requires further investigation to determine whether these factors exacerbate or mitigate cognitive effects.

This study aims to assess the impact of social media usage on the memory of students at Rokhan University by explaining their usage patterns, cognitive performance, and perceptions of memory retention. By identifying potential cognitive risks and benefits associated with social media engagement, this research seeks to provide empirical evidence for educators, policymakers, and students to develop strategies for balanced and mindful social media use, ultimately promoting cognitive well-being and academic success.

## Research Questions

1. Does social media usage have an impact on the memory performance of students at Rokhan University?
2. How do the duration of social media usage, the type of platform, and the purpose of use affect students' memory performance?
3. What are the effects of social media usage on students' concentration, information retention, and academic performance?
4. How does social media usage influence short-term and long-term memory among students?
5. Are the negative effects of social media on memory mediated by social, psychological, or academic factors?

## Objectives of the Study

The primary aim of this study is to investigate the impact of social media usage on students' cognitive and academic performance, with a particular focus on memory. The specific objectives are:

1. To explain the impact of social media usage on the memory performance of students at Rokhan University.
2. To analyze how the duration of social media usage, the type of platform, and the purpose of use affect students' memory performance.
3. To assess the effects of social media usage on students' concentration, information retention, and academic performance.
4. To investigate the influence of social media usage on short-term and long-term memory among students.
5. To explore whether the negative effects of social media on memory are mediated by social, psychological, or academic factors.

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**Importance of the Study**

The increasing prevalence of social media usage among students has raised concerns about its potential impact on cognitive functions, particularly memory retention. This study is significant as it provides empirical insights into how social media affects the memory of students at Rokhan University, a topic that has critical implications for academic performance and cognitive development. By assessing students' perceptions and usage patterns, this research highlights the extent to which social media contributes to memory lapses, cognitive overload, and distractions that hinder learning. Furthermore, the findings of this study can help educators, psychologists, and policymakers develop strategies to mitigate the negative effects of social media on memory while promoting its constructive use for educational purposes. Understanding this relationship is essential for optimizing students' academic experiences and fostering better cognitive health in the digital era.

Such insights are crucial not only for enhancing academic success but also for guiding the ethical and productive integration of digital tools in educational systems.

**Literature Review**

Spence et al. (2020) found that social media use while exposed to new material negatively affects short-term memory recall due to distraction. Even brief passive interactions, such as scrolling through a social media feed, impair memory retention. Similarly, Porwal and Sharma (2019) investigated social media use and memory among teenagers, reporting a negative correlation between time spent on social media and memory performance.

Mgbedo et al. (2024) revealed that students who spend significant time on social media are more likely to neglect academic activities, resulting in poorer academic outcomes. Almarzouki et al. (2022) explained that problematic social media use may cause cognitive overload, hindering academic achievement.

Besides cognitive impacts, excessive social media use has been linked to increased mental stress, anxiety, and cognitive overload (Mgbedo et al., 2024). Mohammed, T. Y., Philip, K. Y., and Labaran, K. (2024) described social media's impact on secondary school students as a double-edged sword, offering both benefits and drawbacks. They emphasized the need for ethical and practical guidelines, balancing social media engagement with academic success, reinforcing formal writing skills, enhancing educational participation, and addressing gender disparities.

Hamidah and Rizan (2025) highlighted that academic-oriented use of platforms like WhatsApp and YouTube can positively influence students' learning and achievement. Spence et al. (2020) reiterated that social media use during learning disrupts short-term memory recall, noting the importance of when social media is used rather than how long or what content is viewed. Peter, O. (2015) noted that while social media presents challenges such as privacy risks, distractions, and time management issues, it also offers valuable educational benefits by enabling study groups, collaboration, and academic updates after absences. Khaola (2022) found that student citizenship behaviour on social media positively affects academic learning and performance.

Lau, W. W. F. (2017) examined social media usage patterns among undergraduates in Hong Kong, finding that educational use showed no significant impact on GPA, but recreational use, especially video gaming, had a negative correlation. Social media multitasking also negatively predicted student achievement.

Overall, Spence et al. (2020) and Almarzouki et al. (2022) emphasized the detrimental effects of social

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media on memory and academic outcomes. However, the impact varies depending on individual coping mechanisms and usage patterns. Mgbedo et al. (2024) recommend establishing boundaries and digital moderation to mitigate negative effects.

## Materials and Methods

This quantitative study investigates the impact of social media usage on students' memory at the Rokhan University. Data were collected using a structured, close-ended questionnaire incorporating relevant independent and dependent variables aligned with the research objectives.

A convenience sampling technique was employed to select 372 students from five faculties (Medical, Stomatology, Pharmacy, Law & Political Science, and Economics). Participation was voluntary, and students completed physical copies of the questionnaire.

Data were analyzed using Microsoft Excel, applying descriptive statistics such as percentages and frequencies to ensure accurate representation and interpretation.

The methodology focused on measuring patterns of social media usage, including platform type, duration, and purpose and their correlation with cognitive outcomes like memory retention, concentration, and academic performance.

This approach enabled an objective evaluation of the cognitive impact of social media and provided empirical support for the study's findings.

## Data Analysis

Demography

Table 1. Gender, Age, Marital Status and Faculties of respondents.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Gender | Male | | | Female | | | Total |
| | 372 | | | 0 | | | 372 |
| | 100% | | | 0% | | | |
| Marital Status | Single | | | Married | | | |
| | 249 | | | 123 | | | |
| | 66.94% | | | 33.06% | | | |
| Age | 18-25 | 26-35 | | 36-45 | | | |
| | 314 | 53 | | 5 | | | |
| | 84.41% | 14.25% | | 1.34% | | | |
| Faculties | Medical | Stomatology | | Law and Political Science | Economics | pharmacy | |
| | 243 | 61 | | 30 | 26 | 12 | |
| | 65.32% | 16.40% | | 8.06% | 6.99% | 3.23% | |
| Faculty Years | PCB | 1st | 2nd | 3rd | 4th | 5th | |
| | 36 | 61 | 48 | 113 | 72 | 42 | |
| | 9.68% | 16.40% | 12.90% | 30.38% | 19.35% | 11.29% | |

This study analyzes a total of 372 participants, all of whom are male (100%). The marital status distribution

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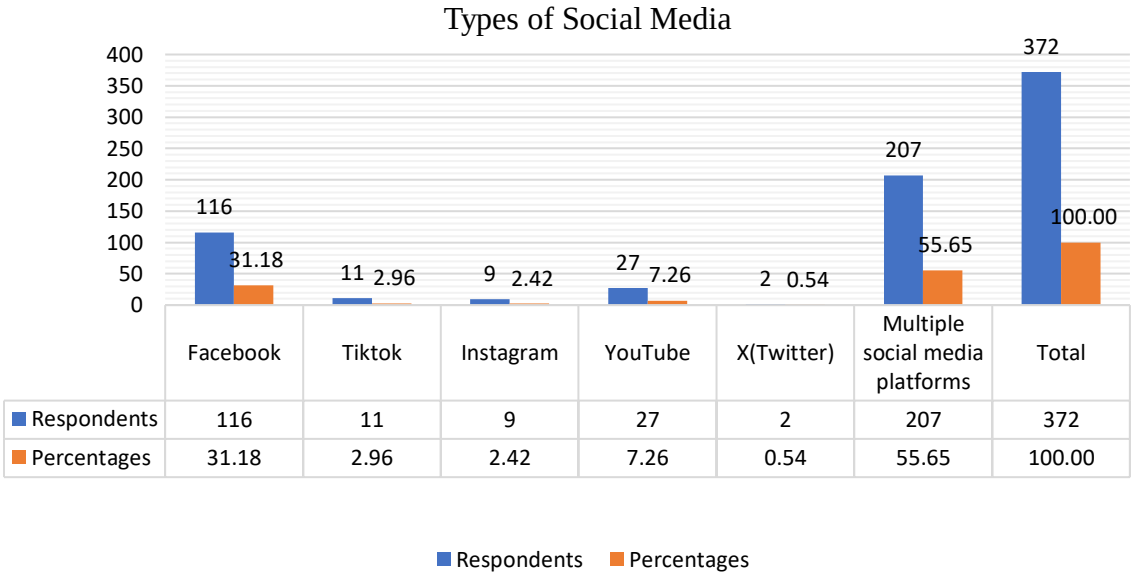
shows that 249 individuals (66.94%) are single, while 123 individuals (33.06%) are married. This indicates that the majority of the study population is single, which is common in academic settings where students are still in the early stages of their careers.

In terms of age distribution, most participants fall within the 18-25 age range, accounting for 314 individuals (84.41%). The 26-35 age group comprises 53 participants (14.25%), while only 5 individuals (1.34%) belong to the 36-45 age category. This suggests that the study population is predominantly young, which aligns with typical university enrollment trends.

Faculty-wise, the majority of respondents (243 students, 65.32%) are enrolled in the Medical Faculty, followed by the Stomatology Faculty with 61 students (16.40%). The Law and Political Science Faculty has 30 students (8.06%), while the Economics Faculty includes 26 students (6.99%), and the Pharmacy Faculty has the smallest representation with 12 students (3.23%). The dominance of medical students in the dataset indicates a stronger interest or higher enrollment in health-related disciplines.

Although the academic year distribution data is incomplete, it is evident that the study population consists of students from different years of study, contributing to a diverse academic representation. Overall, the findings highlight a young, single, and predominantly medical-student population, reflecting the demographic structure of the participants.




| | Facebook | Tiktok | Instagram | YouTube | X(Twitter) | Multiple social media platforms | Total |
|---|---|---|---|---|---|---|---|
| Respondents | 116 | 11 | 9 | 27 | 2 | 207 | 372 |
| Percentages | 31.18 | 2.96 | 2.42 | 7.26 | 0.54 | 55.65 | 100.00 |

Figure 1. Types of Social Media

The data evaluates the preferences for different social media platforms among respondents, addressing the question: "Which type of social media do you use the most?" The findings indicate that Facebook is the most widely used platform, with 116 users, accounting for 31.18% of the total. This dominant usage highlights Facebook's continued relevance and popularity among social media users. In contrast, YouTube ranks second, with 27 users (7.26%), demonstrating its appeal as a video-sharing platform. TikTok is used by 11 users (2.96%), while Instagram is utilized by 9 users (2.42%), suggesting relatively lower engagement with these platforms compared to Facebook and YouTube. Only 2 respondents (0.54%) reported using X (Twitter), highlighting its minimal usage in this sample. Interestingly, a significant proportion of

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respondents (55.65%, or 137 users) reported using all kinds of social media platforms, reflecting a trend of multi-platform engagement. This suggests that many individuals diversify their social media usage rather than relying on a single platform. From an academic perspective, these findings underscore the varying popularity of social media platforms, with Facebook maintaining a dominant position. The high percentage of multi-platform users indicates that individuals might use different platforms to fulfill specific needs, such as networking, entertainment, or information sharing. These insights provide a foundation for further research into the motivations behind platform preferences and their implications for communication patterns and digital behaviors.

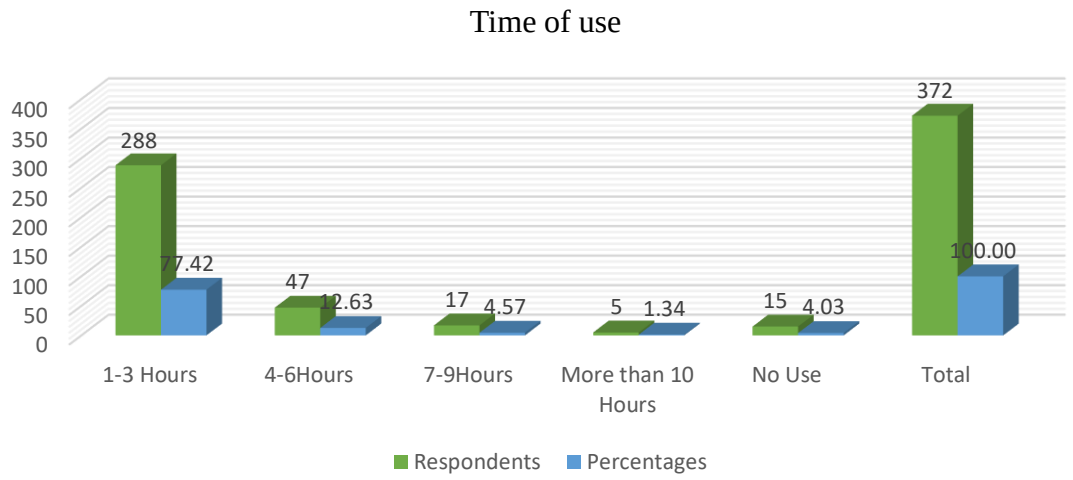


Figure 2. Time of use

The provided data represents the daily time spent by students on social media and highlights distinct usage patterns. The analysis reveals that the majority of students, accounting for 77.42% (186 individuals), engage with social media for 1-3 hours daily, indicating that moderate usage is the predominant behavior. A smaller group, comprising 12.63% (36 individuals), spends 4-6 hours daily on these platforms, suggesting a more extended engagement among this subset. Only 4.57% (10 individuals) use social media for 7-9 hours, while 1.34% (3 individuals) reported usage exceeding 10 hours per day, representing an extreme minority. Interestingly, a notable 4.03% (8 individuals) reported no social media use at all. This distribution demonstrates that the majority of students maintain a balanced approach to social media usage, with limited time allocation during the day. However, the data also identifies a minority with prolonged usage, which could indicate potential risks of overuse, such as reduced academic productivity or social media dependency. On the other hand, the small proportion of non-users may reflect either deliberate avoidance or lack of access to these platforms. These findings provide valuable insights into the social media engagement patterns of students and can inform further studies exploring the relationship between time spent on social media and its impact on academic performance, mental health, or social behavior.

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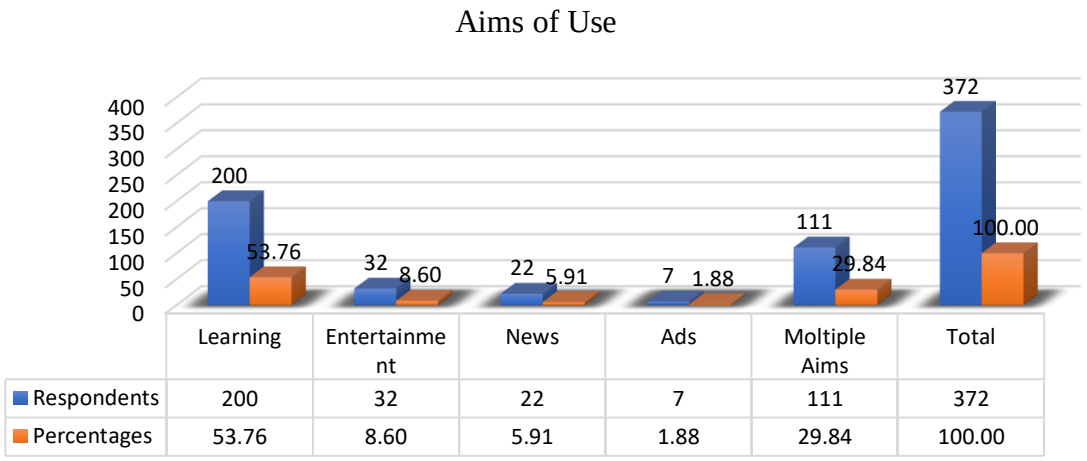


| | Learning | Entertainment | News | Ads | Moltiple Aims | Total |
|---|---|---|---|---|---|---|
| Respondents | 200 | 32 | 22 | 7 | 111 | 372 |
| Percentages | 53.76 | 8.60 | 5.91 | 1.88 | 29.84 | 100.00 |

Figure 3. Aims of Use

The data examines the purposes for which respondents use social media, addressing the question: "For what purpose do you use social media?" The analysis reveals that the primary purpose is learning, with 200 respondents (accounting for 53.76%) indicating this as their main objective. This finding underscores the significant role social media plays as an educational tool and a platform for acquiring knowledge. The second most common purpose is multiple aims, reported by 111 respondents (29.84%). This suggests that a considerable proportion of users employ social media for a combination of purposes, such as education, entertainment, and communication, highlighting its versatility. Entertainment ranks third, with 32 respondents (8.60%) using social media for leisure and recreational activities. This demonstrates the importance of social media as a source of entertainment in users' daily lives. News consumption was reported by 22 respondents (5.91%), indicating that while not the primary purpose, social media serves as an important channel for staying informed. Lastly, advertising accounted for the smallest proportion, with only 7 respondents (1.88%) identifying it as their main purpose for using social media. From an academic perspective, these findings highlight the diverse purposes for which social media is utilized, with learning emerging as the dominant focus. The data also underscores the multi-functional nature of social media, catering to users' educational, entertainment, informational, and professional needs. These insights can inform further research on the specific ways social media contributes to personal and professional development, as well as its broader societal impacts.

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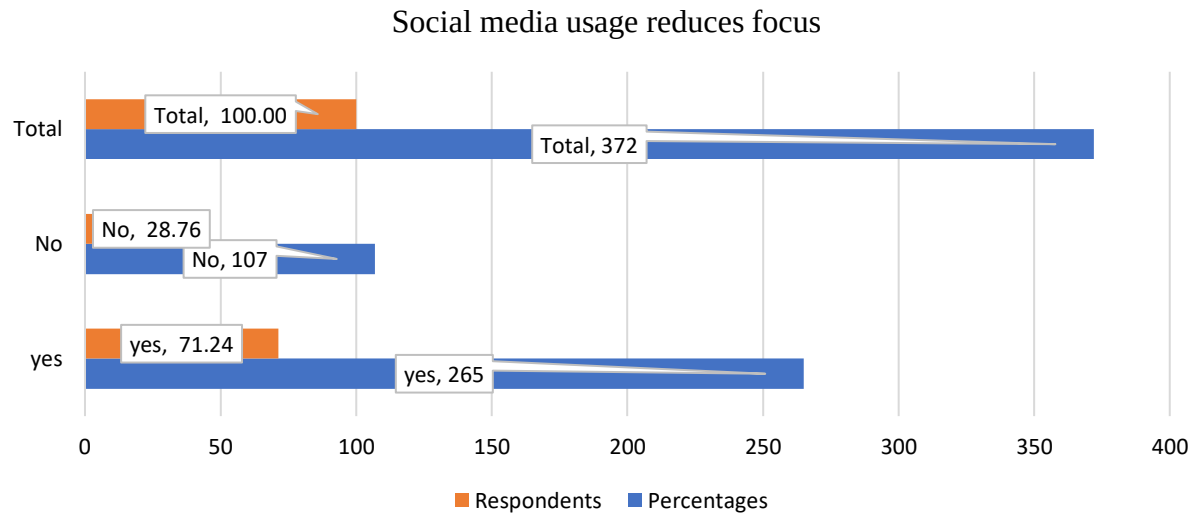


Figure 4. Social media usage reduces focus

The data explores the impact of social media usage on users' ability to concentrate, based on the question: "Do you think social media usage reduces your focus?" The results reveal that a significant majority, 265 respondents (71.24%), believe that social media negatively affects their concentration. This finding emphasizes a widespread perception of social media as a potential distraction that diminishes focus and attention span. In contrast, 107 respondents (28.76%) stated that social media does not reduce their focus, indicating that while the majority experience its adverse effects, a notable minority do not perceive it as detrimental to their concentration. These individuals may have developed strategies to manage their social media usage effectively or might engage with it in ways that do not interfere with their focus. From an academic perspective, these findings align with existing research on the cognitive effects of social media. Studies often highlight how constant notifications, multitasking, and prolonged screen time can disrupt attention and reduce the ability to concentrate on tasks. This data underscores the need for awareness campaigns or educational interventions to help individuals use social media more mindfully. Further research could explore the specific factors contributing to this perception, such as the type of content consumed, duration of usage, or individual differences in self-regulation and digital habits.

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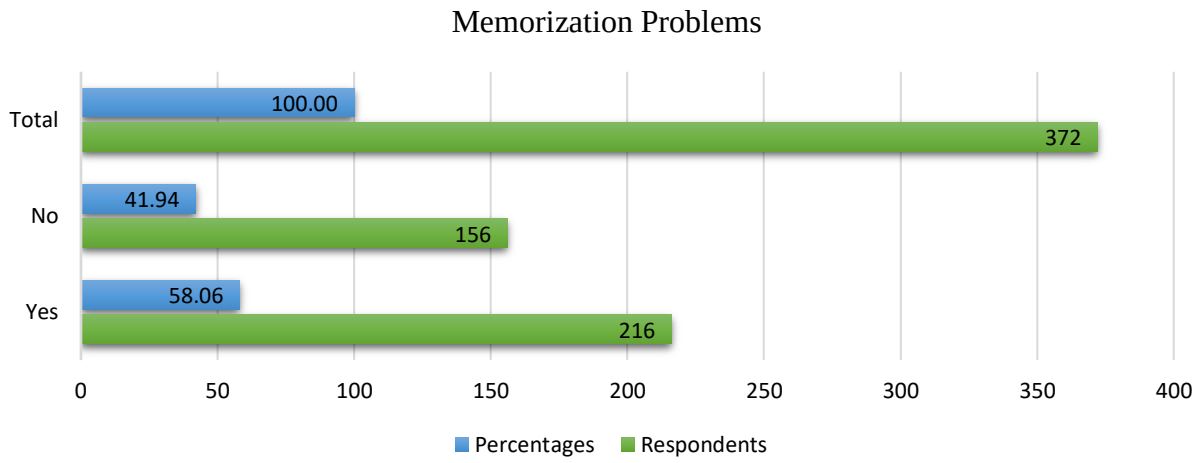


Figure 5. Memorization Problems

The above chart explores whether social media usage affects individuals' ability to study or learn effectively. Respondents were divided into two groups based on their responses: "Yes" (social media creates challenges) and "No" (social media does not create challenges). The total number of respondents in the "Yes" group was 216, making up 58.06% of the total sample, while 156 respondents, or 41.94%, were in the "No" group. The "Yes" responses outnumbered the "No" responses across all categories, reflecting a consistent trend of challenges caused by social media usage during study or learning activities. The significant difference between the two groups suggests that social media might be a major source of distraction for many individuals. It is worth noting that the variation in the data points might be influenced by factors such as the frequency of social media use, its purpose, or the academic environment.

This trend highlights the need for further investigation into the specific ways social media affects academic performance. Future research could delve into qualitative aspects, such as the nature of distractions caused by social media, its psychological impact, and strategies for minimizing its negative effects on productivity. Overall, the findings indicate a strong correlation between social media usage and challenges in academic activities, emphasizing the importance of promoting balanced and purposeful use of social media platforms to support learning and productivity.

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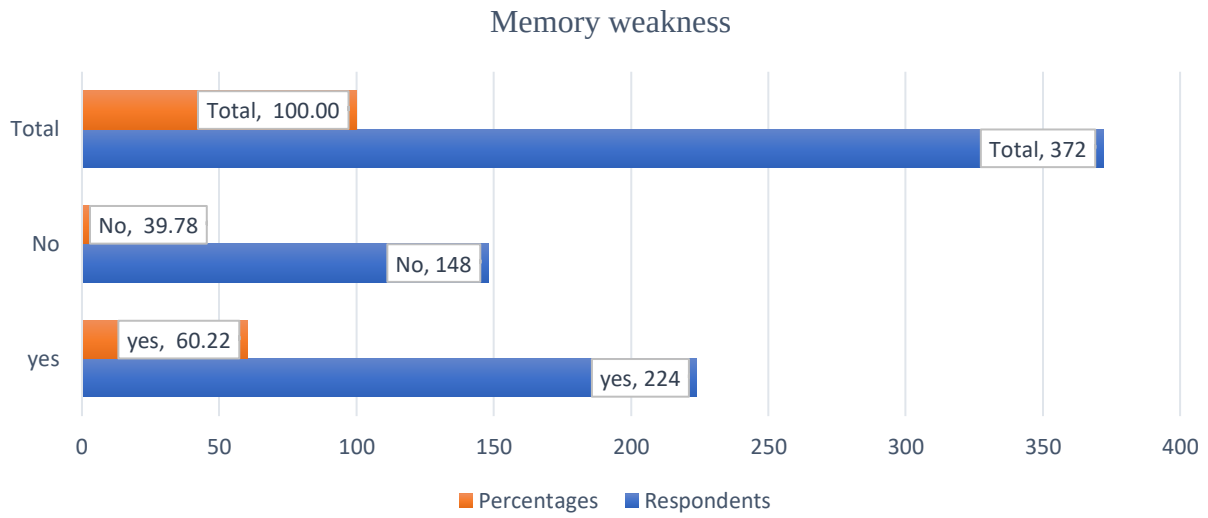


Figure 6. Memory weakness

The above data presented in this study reveal the public's perception regarding the impact of social media usage on memory retention. A total of 372 respondents were asked whether they believed social media negatively affects their memory. Out of these respondents, 224 individuals (60.22%) answered "Yes," indicating that they believe social media weakens their memory, while 148 individuals (39.78%) answered "No," suggesting that they do not perceive social media as having any negative impact on memory. These results suggest that a significant portion of the population perceives social media usage as detrimental to memory retention. From a psychological and cognitive perspective, the data support existing theories that suggest social media may overwhelm cognitive resources, leading to decreased memory retention. According to Cognitive Load Theory, the constant influx of information from social media platforms can overload the brain, making it more difficult to store and retrieve information effectively. Furthermore, Neuroplasticity studies indicate that frequent social media use may result in changes in brain structures, such as reduced attention span and memory retention. As individuals are bombarded with constant notifications and multitask across different platforms, it is plausible that their brain's ability to focus and retain information diminishes. However, while the data suggests a correlation between social media use and perceived memory decline, it is crucial to recognize the limitations of this study. The findings are based on self-reported perceptions rather than objective cognitive assessments. Factors such as individual differences, frequency of social media usage, and lifestyle habits could influence how respondents view the effects of social media on their memory. Moreover, while there is a strong belief that social media affects memory, further empirical studies are needed to establish a direct cause-and-effect relationship between social media usage and cognitive functions.

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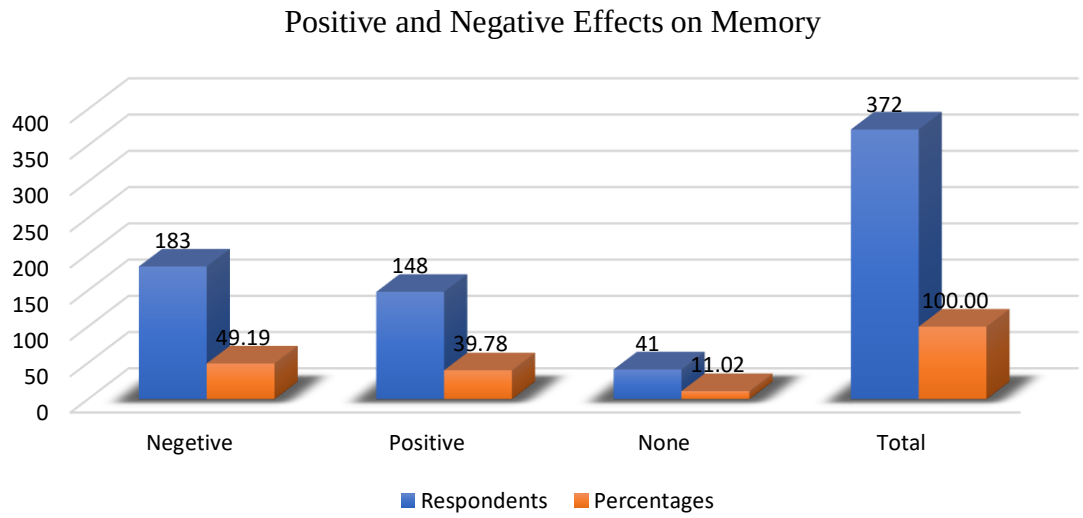


Figure 7. Positive and Negative Effects on Memory

This dataset evaluates how respondents perceive the impact of social media usage on their memory, categorized into three groups: "Negative," "Positive," and "None." The results show that 49.19% of respondents believe social media negatively affects their memory, 39.78% view it positively, and 11.02% report no effect. The "Negative" responses dominate across most categories, indicating that a significant portion of respondents perceive social media usage as detrimental to their memory. For example, the largest subgroup includes 109 "Negative" responses compared to 106 "Positive" responses, while the "None" group consistently remains the smallest, with only 28 responses in the largest category. The "Positive" responses, though smaller in proportion, still represent a substantial share, suggesting that many individuals find social media beneficial for their memory. This may be due to features such as accessibility to educational content, memory aids, and opportunities for cognitive engagement. The "None" category, which accounts for the smallest proportion (11.02%), reflects a minority of respondents who believe social media has no impact on their memory at all. These findings reveal a diverse range of perceptions about the relationship between social media usage and memory. The prominence of "Negative" responses may indicate concerns about distractions, reduced attention spans, and information overload, which can impair cognitive function. Conversely, the significant presence of "Positive" responses highlights the potential for social media to enhance memory through structured and intentional usage. Further research is recommended to explore these perceptions in greater depth. For example, experimental studies could assess the actual cognitive effects of social media usage on memory performance. Additionally, understanding demographic and behavioral factors, such as age, education, and frequency of use, could help explain why perceptions vary among individuals. In conclusion, the data underscores the complex and multifaceted impact of social media on memory, emphasizing the need for a balanced approach to its use. While many perceive it as a challenge to cognitive health, others recognize its potential as a tool for memory enhancement. A mindful and purposeful approach to social media usage could help maximize its benefits while minimizing its drawbacks.

ROKHAN Medical Science Journal
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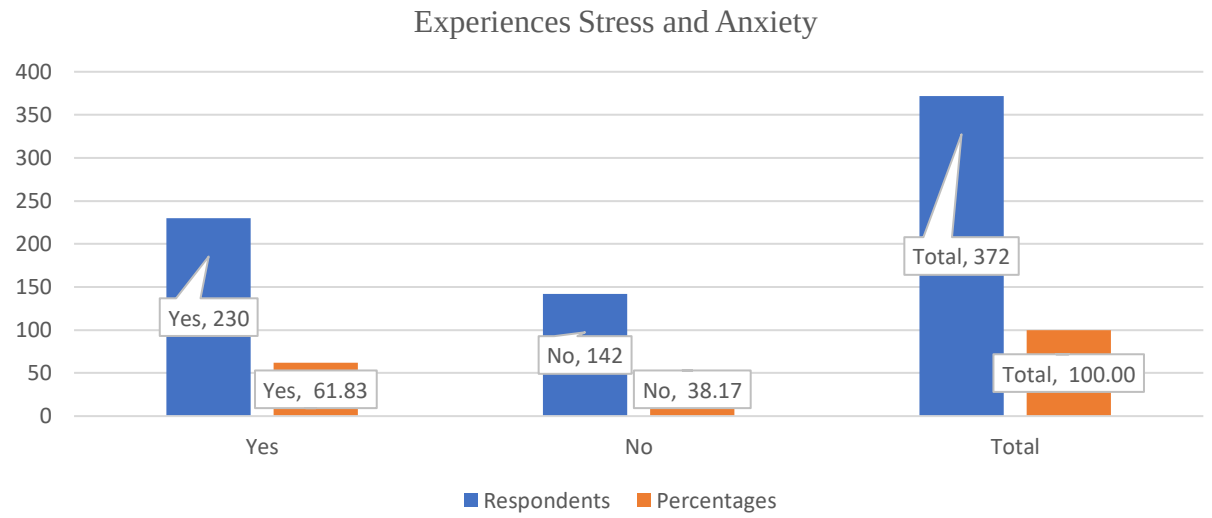


Figure 8. Experiences Stress and Anxiety

The above chart analysis the relationship between social media usage and experiences of Mental Stress or Anxiety. This dataset provides insights into whether individuals have experienced mental stress or anxiety due to their use of social media. The findings reveal that 61.83% of respondents reported experiencing mental stress or anxiety ("Yes"), while 38.17% indicated no such experiences ("No"). This indicates that a significant majority perceive social media usage as a contributing factor to psychological distress.

The trend is consistent across all subgroups, where the "Yes" responses outnumber the "No" responses. For instance, in the largest subgroup, 150 respondents reported experiencing mental stress compared to 93 who did not. Similarly, smaller subgroups maintain the same pattern, highlighting the pervasive nature of this issue. The data underscores the potential for social media to act as a stressor in daily life. Contributing factors may include exposure to negative or distressing content, cyberbullying, excessive comparisons with others, and the pressure to curate an idealized online persona. These stressors can lead to heightened feelings of inadequacy, anxiety, and overall mental strain. On the other hand, the 38.17% of respondents who reported no mental stress or anxiety might represent individuals who approach social media usage with mindfulness and balance. This group may utilize social media primarily for positive interactions, learning, or entertainment, avoiding stress-inducing behaviors such as overuse or negative engagement. The findings suggest a need for targeted interventions to mitigate the negative effects of social media on mental health. Educational programs focusing on healthy social media habits, such as limiting screen time, managing notifications, and curating content for positivity, could help reduce mental stress. Moreover, developing coping strategies, such as practicing mindfulness or engaging in offline activities, may further support mental well-being. In conclusion, the data highlights the complex relationship between social media usage and mental health. While social media offers significant benefits, its potential to cause mental stress or anxiety is a growing concern. A balanced approach to its usage, combined with awareness and healthy practices, is essential to minimize its adverse effects and promote psychological well-being.

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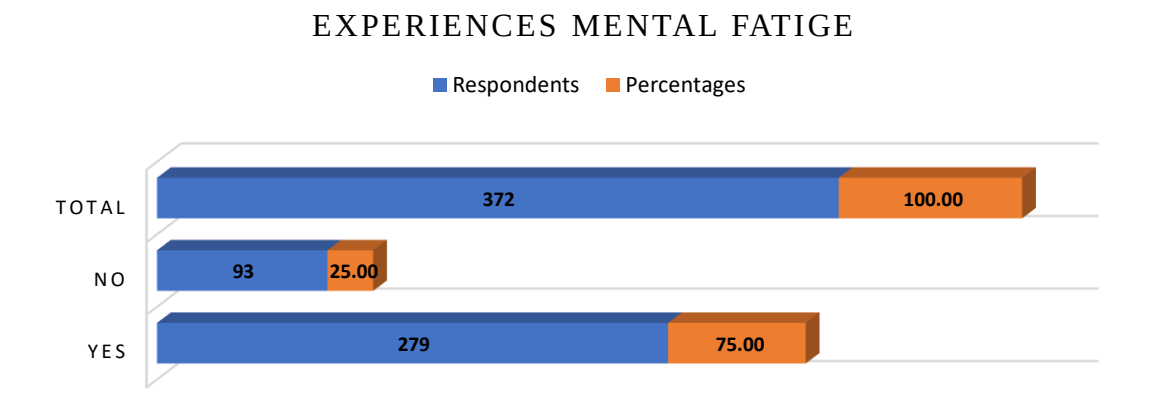


| | Yes | No | Total |
|---|---|---|---|
| Respondents | 279 | 93 | 372 |
| Percentages | 75.00 | 25.00 | 100.00 |

Figure 9. Experiences Mental Fatigue

The above chart analysis the relationship between social media usage and mental Fatigue. This dataset explores whether individuals have experienced mental fatigue after using social media. The findings reveal that a significant majority—75% of respondents—reported feeling mental fatigue ("Yes"), while only 25% indicated they had not experienced such fatigue ("No"). The trend is consistent across all subgroups. In the largest subgroup, 183 respondents reported experiencing mental fatigue compared to 60 who did not. Similarly, in smaller subgroups, such as those with 24 and 6 responses or 19 and 7 responses, the "Yes" responses consistently outnumber the "No" responses. This consistency highlights the widespread nature of the issue. Mental fatigue caused by social media use can be attributed to several factors, including prolonged screen time, overstimulation from constant notifications, and the mental effort required to process large amounts of information. Additional contributors may include engaging with emotionally charged content, excessive multitasking between platforms, and the pressure to respond to social interactions promptly. These factors may cumulatively result in cognitive overload and a reduced ability to focus or relax. The 25% of respondents who reported no mental fatigue might represent individuals who manage their social media usage effectively. These individuals may practice mindful scrolling, limit their time spent on social platforms, or avoid stress-inducing behaviors such as doomscrolling or engaging with negative content. The findings suggest that social media use has a notable impact on mental energy, with a large portion of users experiencing fatigue. To address this, interventions such as promoting digital well-being, setting boundaries for social media usage, and taking regular breaks from screens could be beneficial. Encouraging users to engage in offline activities, practice mindfulness, or allocate specific times for social media use may also help mitigate mental fatigue.

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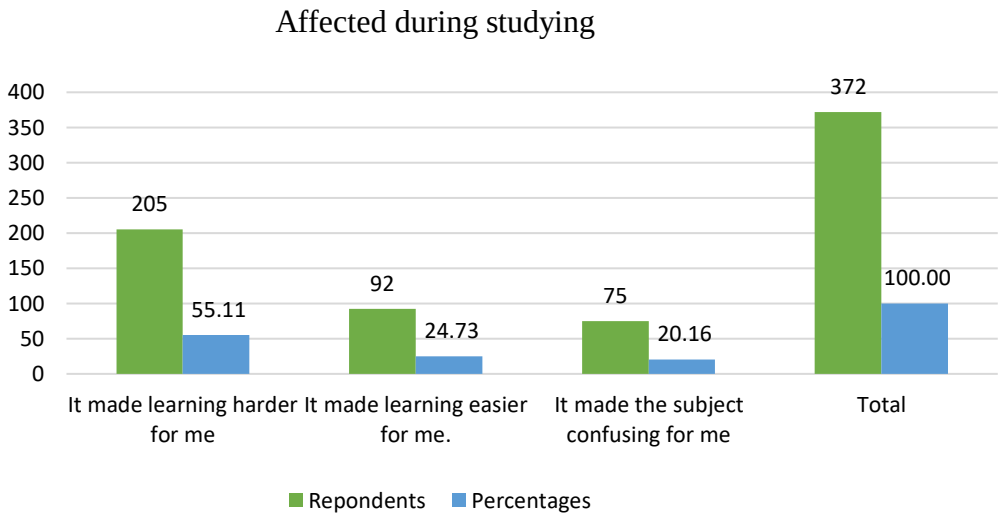


Figure 10. Affected during studying

The data provided reflects the students' perceptions of how social media affects their learning experience. When asked about the impact of social media on their educational process, responses were divided into three main categories: "It made learning harder for me," "It made learning easier for me," and "It made the subject confusing for me." A significant portion of the participants, 55.11%, reported that social media made learning harder for them. This suggests that a large number of individuals feel that social media negatively influences their academic performance. The main reasons for this perception could include distractions, the tendency to lose focus, or being overwhelmed by the vast amount of information available on social media platforms, which may prevent effective study or concentration. On the other hand, 24.73% of respondents indicated that social media made learning easier for them. These individuals might have found value in using social media to access educational resources, interact with peers, or gather diverse learning materials that aided their understanding of various subjects. This group highlights that when used productively, social media can serve as a valuable tool in the learning process, offering opportunities for collaborative learning and quick access to information. However, 20.16% of the respondents found that social media made the subject matter confusing. This could be attributed to the conflicting information encountered on social media platforms, which may lead to confusion or difficulty in distinguishing between reliable and unreliable sources. The overload of information and diverse opinions available online could contribute to a sense of uncertainty about the subject being studied. In conclusion, while a portion of respondents found social media to be a useful tool for learning, a significant number felt it had a negative impact, either by making learning harder or causing confusion. This data suggests that while social media has the potential to enhance the educational experience, its overuse or misuse could hinder academic performance. Further investigation into the specific factors contributing to these perceptions could help guide strategies for integrating social media into the educational process in a more beneficial way.

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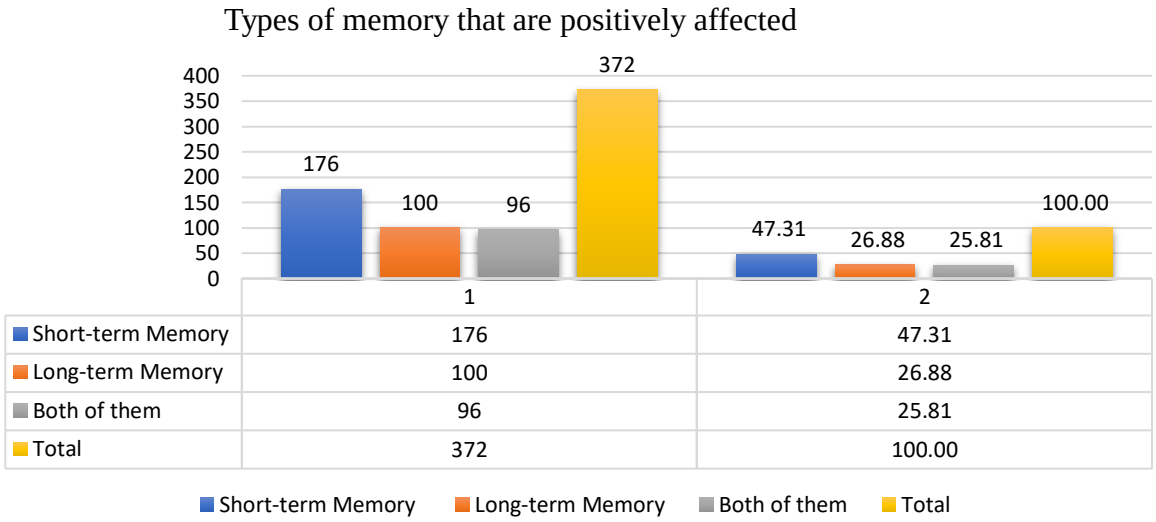


Figure 11. Types of memory that are positively affected

The data reveals how social media usage has affected different types of memory short-term memory, long-term memory, and both types of memory. Respondents were asked to assess the impact of social media on their memory, and the results are categorized into three groups: "Short-term Memory," "Long-term Memory," and "Both of them."

A considerable portion of participants, 47.31%, reported that social media has positively affected their short-term memory. This suggests that many individuals feel that social media enhances their ability to remember information temporarily, perhaps through frequent exposure to new content, constant updates, and quick interactions, which may strengthen their immediate recall and memory retention. In contrast, 26.88% of the respondents stated that social media positively influences their long-term memory. This group could benefit from the long-term storage of information that is either repeatedly encountered or learned through engaging with educational or informative content on social media platforms. This finding points to the possibility that social media may facilitate the retention of information over an extended period, particularly when used for educational purposes or when engaging in regular, thoughtful interactions. Moreover, 25.81% of participants indicated that social media affects both short-term and long-term memory. This suggests that for some individuals, social media plays a role in improving both the immediate recall of information as well as the longer-term retention of knowledge. These individuals might benefit from the continuous exposure to diverse content, fostering the retention of both fleeting information and more substantial, lasting memories. In conclusion, while social media's impact on memory varies among individuals, the data reveals a generally positive influence on memory, especially short-term memory. Social media may enhance immediate recall through constant interaction and engagement, while its impact on long-term memory is also notable, particularly for those who use it to access educational material or engage in meaningful discussions. However, further research is necessary to explore the specific mechanisms by which social media influences memory, and how different types of content or usage patterns contribute to these effects.

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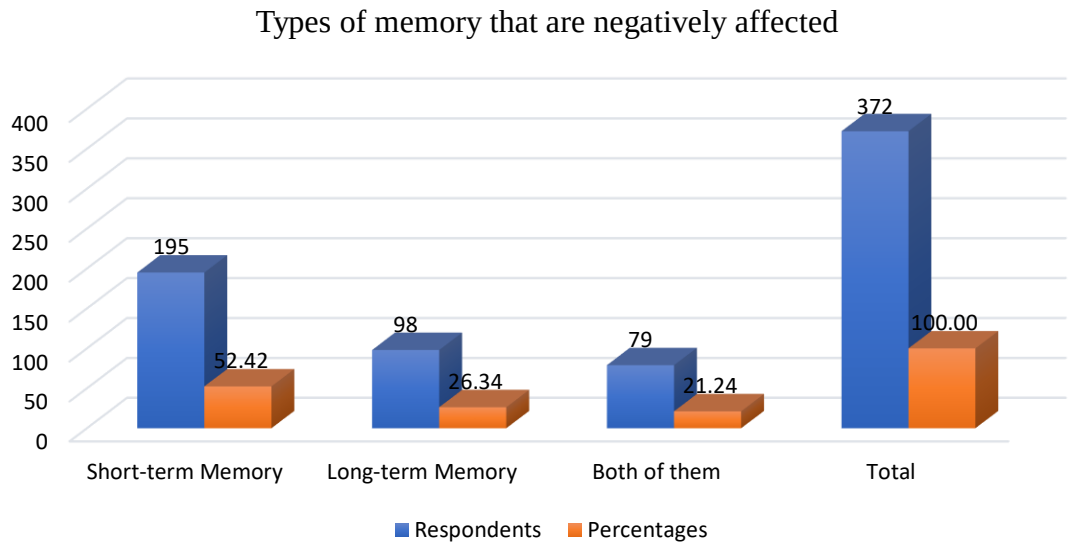


Figure 12. Types of memory that are negatively affected

The data provided sheds light on the negative effects of social media usage on different types of memory: short-term memory, long-term memory, and both types of memory. Respondents were asked to assess how social media has negatively impacted their memory, and the results are categorized into three groups: "Short-term Memory," "Long-term Memory," and "Both of them." A significant portion of the respondents, 52.42%, reported that social media negatively affects their short-term memory. This suggests that many individuals perceive social media as a factor that hinders their ability to retain information for short periods, possibly due to distractions, multitasking, or frequent shifts in focus caused by the rapid consumption of content. The fast-paced nature of social media may overload users with information, making it difficult to concentrate on or remember key details in the short term.

Additionally, 26.34% of participants indicated that social media negatively impacts their long-term memory. This group might experience difficulties in retaining information over a longer period, possibly because of the constant bombardment of information on social media platforms, which can diminish the ability to prioritize and store important knowledge in long-term memory. The overwhelming influx of content could hinder deep processing, which is crucial for long-term retention. Furthermore, 21.24% of the respondents felt that social media negatively affects both their short-term and long-term memory. This finding highlights that for some individuals, social media usage leads to a generalized negative impact on memory across both dimensions. The combination of short-term distractions and long-term information overload could create a compounded effect, reducing overall cognitive efficiency and memory retention.

In conclusion, the data indicates that social media is generally perceived as having a negative impact on memory, especially on short-term memory. The distractions and information overload associated with social media use seem to interfere with the ability to retain information both in the short and long term. These findings suggest that while social media offers numerous benefits, its influence on memory may be detrimental for some individuals. Further research is needed to better understand the specific cognitive mechanisms through which social media affects memory and how different usage patterns may contribute to these negative effects.

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## Results

The demographic analysis showed that the majority of participants were aged between 18 and 25 years 84.41%, with most being single 66.94%. Among the five faculties surveyed, 65.32% of respondents were from the Medical faculty. Regarding social media platform preference, Facebook was the most frequently used 31.18%, followed by YouTube 7.26%, while 55.65% reported using multiple platforms. In terms of daily usage, 77.42% of students used social media for 1–3 hours. The primary reasons for use included learning 53.76%, multiple purposes 29.84%, entertainment 8.60%, and news consumption 5.91%.

Regarding concentration, 71.24% of respondents believed social media negatively affected their ability to focus. Similarly, 58.06% indicated that social media interfered with their academic activities. In terms of memory retention, 60.22% perceived social media as having a negative impact. However, 28.76% disagreed regarding concentration, 41.94% for academic performance, and 39.78% for memory retention.

Concerning psychological impact, 61.83% of participants reported experiencing mental stress, and 75% reported mental fatigue due to social media usage. Educational perceptions varied; 55.11% felt that social media hindered learning, while 24.73% believed it facilitated access to educational content and peer interaction. In addition, 20.16% of students reported confusion in studies, potentially linked to inconsistent online information.

Regarding short-term memory, 47.31% perceived a positive effect, while 52.42% reported a negative effect.

## Discussion

This study provides valuable insights into the effects of social media on cognitive functions among students at Rokhan University, presenting a balanced view of both its advantages and disadvantages. The findings reveal that social media's impact is complex and largely depends on individual usage patterns, coping strategies, and platform preferences.

A significant majority of participants 60.22% reported negative effects on memory retention, supporting prior research by Spence et al. (2020), which identified social media as a source of distraction that impairs short-term memory. The study also found evidence of cognitive overload, consistent with Porwal and Sharma's (2019) findings and Cognitive Load Theory, which suggests that a constant influx of information reduces the brain's capacity to process and retain new knowledge. These memory impairments were further linked to fragmented attention and diminished focus, highlighting the detrimental effects of social media on cognitive performance.

The psychological impacts were similarly concerning, with 61.83% of respondents reporting mental stress and 75% experiencing fatigue. These results align with findings by Mgbedo et al. (2024), who associated social media use with increased anxiety and cognitive strain. However, the study also revealed potential benefits, as 39.78% of students perceived possible memory improvements related to social media use. This supports Mgbedo et al.'s (2024) suggestion that intentional and educational use of social media may yield cognitive advantages. Notably, 53.76% of participants actively used social media for learning purposes, utilizing it to access educational resources and collaborate with peers.

The effects on academic performance were mixed. While 58.06% of students considered social media to be a hindrance—consistent with the findings of Mgbedo et al. (2024) and Almarzouki et al. (2022)—24.73% reported academic benefits from enhanced access to educational content and peer interaction. This dichotomy underscores social media's dual nature: it can either distract or facilitate learning depending on

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how it is used.

The study emphasizes the importance of balanced social media engagement. Given the high levels of psychological strain reported, students should develop effective self-regulation strategies, including mindfulness and digital moderation. These approaches could mitigate negative effects while preserving the educational value of social media platforms.

In conclusion, this research confirms the complex relationship between social media and cognitive functions. While it validates concerns about cognitive overload and memory impairment, it also highlights the potential benefits of purposeful, education-focused use. The findings suggest that, rather than imposing blanket restrictions, students would benefit from guidance on optimizing their social media engagement to enhance learning and minimize psychological and cognitive drawbacks. This balanced perspective contributes to ongoing discussions about the role of technology in education and cognitive development.

## Conclusions

While social media offers considerable potential to enhance memory and learning, its negative effects on cognitive functions particularly memory retention, concentration, mental stress, fatigue, and confusion should not be overlooked. Therefore, it is essential to promote balanced and mindful use of social media to maximize its educational benefits while minimizing its cognitive and psychological drawbacks.

## Recommendations

- Social media usage can contribute to emotional distress and psychological strain, likely due to overstimulation, social comparisons, and the pressure to maintain a constant online presence.
- It is essential to encourage students to set clear boundaries, limit screen time, and engage regularly in offline activities to reduce cognitive overload and mental fatigue associated with excessive social media use.
- Adopting a balanced and mindful approach to social media can help students maximize its educational benefits while minimizing harmful cognitive and emotional impacts.
- Further research is needed to explore how specific social media content particularly negative or anxiety-inducing material affects emotional well-being and cognitive functions, as these may have long-term effects on mental health and academic performance.
- Investigations should also focus on the mechanisms underlying students' perceptions and develop strategies for integrating social media into educational settings in ways that promote cognitive and psychological well-being.S
- Encouraging intentional, focused use of digital platforms, alongside promoting time management skills and offline engagement, is crucial for optimizing both academic outcomes and mental health.
- Additionally, implementing digital literacy and awareness programs can empower students to navigate social media responsibly and mitigate its potential negative effects.

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**Conflict of Interest**
The authors declare that they have no conflicts of interest regarding the publication of this research.

**Ethics Approval**
Ethical approval for this study was obtained from the Research and Ethics Committee of Rokhan University before the commencement of data collection. The study was conducted in accordance with the ethical principles of the Declaration of Helsinki. Participation was voluntary, respondents' anonymity and confidentiality were strictly maintained, and no personally identifiable information was collected.

**Informed Consent**
Written informed consent was obtained from all participants before they completed the physical questionnaire. Participants were informed about the purpose of the study, the voluntary nature of participation, their right to withdraw from the study at any stage without any consequences, and the confidentiality of their responses.

**Data Availability**
The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. The data are not publicly available because they contain information collected from study participants and are subject to confidentiality and privacy considerations.

**Author Contributions**
Dr. Amanullah Aslami: Conceptualization, study design, questionnaire development, supervision, interpretation of results, manuscript writing, and critical revision.
Teaching Assistant Inamullah Miakhel: Data collection, data analysis, interpretation of findings, literature review, and manuscript editing.
All authors read and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

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