



Impact of Social Media Usage on Cognitive Abilities in Young Adults

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Abstract: This study investigates the relationship between social media usage and cognitive abilities among young adults aged 18–25, while also examining potential gender differences in usage patterns and cognitive outcomes. Using a quantitative, correlational research design, data were collected from 100 participants via a structured online questionnaire assessing social media habits and cognitive self-assessment. Results revealed a moderate to strong positive correlation ($r = 0.61$) between social media usage and cognitive abilities, suggesting that higher engagement may enhance cognitive functions such as memory and attention. No significant gender differences were found in social media usage ($t = 0.62, p = 0.538$) or cognitive abilities ($t = -1.33, p = 0.1853$). These findings challenge assumptions that social media is inherently detrimental, indicating that moderate, purposeful use may support cognitive development. Limitations include a small sample size and reliance on self-reported data, suggesting the need for larger, longitudinal studies with objective measures.

Keywords: *Social Media Usage, Cognitive Abilities, Young Adults*

1. Introduction

In the digital era, social media platforms such as Instagram, Facebook, Twitter (X), TikTok, and Snapchat have become integral to the daily lives of young adults, with approximately 90% of individuals aged 18–24 actively using these platforms globally. These platforms facilitate communication, entertainment, learning, networking, and information sharing. However, their pervasive use, particularly among adolescents and young adults, has raised concerns about their impact on psychological, behavioral, and cognitive functioning. Social media's design, with features like constant notifications

and infinite scrolling, influences attention patterns and cognitive abilities (Kuss & Griffiths, 2017).

Cognitive abilities encompass essential mental skills such as memory, attention, reasoning, problem-solving, decision-making, information processing, and language comprehension (Neisser et al., 1996). Social media's fast-paced, visually stimulating environment can both positively and negatively affect these skills. While it offers opportunities for learning and digital literacy, excessive use has been linked to cognitive overload, reduced attention span, impaired memory, and lower academic performance (Alloway & Alloway, 2012). This study explores how social media usage correlates with cognitive abilities in young adults and examines potential gender differences in usage patterns and cognitive outcomes.

1.1 Theoretical Framework

Several psychological and media-related theories underpin this study:

- Cognitive Load Theory (Sweller, 1988): Suggests that excessive information from social media may increase cognitive load, leading to fatigue and impaired memory retention.
- Limited Capacity Model of Mediated Message Processing (Lang, 2000): Proposes that multitasking with social media reduces cognitive efficiency due to limited cognitive resources.
- Social Cognitive Theory (Bandura, 1986): Indicates that social media interactions shape cognitive development through observational learning.
- Uses and Gratifications Theory (Katz et al., 1973): Explains that individuals use social media to fulfill specific needs, influencing cognitive functions.
- Media Dependency Theory (Ball-Rokeach & DeFleur, 1976): Suggests that high dependency on social media may lead to cognitive and behavioral effects.
- Self-Determination Theory (Deci & Ryan, 1985): Highlights that seeking validation on social media may impact self-regulation and cognitive control.

1.2 Objectives and Hypotheses

The study aims to:

- Investigate the relationship between social media usage and cognitive abilities in young adults.
- Examine differences in social media usage between males and females.
- Examine differences in cognitive abilities between males and females influenced by social

media use.

The hypotheses are:

H1: There is a significant relationship between social media use and cognitive abilities in young adults.

H2: There is a significant difference in social media usage between males and females.

H3: There is a significant difference in cognitive abilities between males and females influenced by social media use.

2. Literature Review

Extensive research has explored the cognitive impacts of social media usage. Firth et al. (2019) found that internet use may alter attentional capacities, memory processes, and social cognition, with online information streams encouraging divided attention and reducing reliance on internal memory. Keles et al. (2020) linked problematic social media use to mental health issues like depression and anxiety, particularly among adolescents with low social support. Alloway & Alloway (2012) noted that while social media engagement may enhance working memory, it can reduce attention spans. Cain & Mitroff (2011) linked excessive social media use to lower academic performance due to distraction and reduced study time. Uncapher et al. (2016) highlighted the addictive potential of social media, noting cognitive impairments similar to substance addiction.

Kuss & Griffiths (2017) associated excessive social media use with depression and lower self-esteem due to negative social comparisons. Turel & Bechara (2016) study examines the effects of motor impulsivity and cognitive impulsivity on social media use of social media's impact on adolescent cognitive development, while Nesi & Prinstein (2015) noted that social media amplifies peer influence, affecting decision-making and self-regulation. Uhls et al. (2014) found that excessive screen time hinders social cognition skills, and Chassiakos et al. (2016) highlighted both benefits and risks of social media, advocating for balanced use to support cognitive health.

3. Method

3.1 Research Design

This study employed a quantitative, correlational research design to explore the association between social media usage and cognitive abilities among young adults. Data were collected in a non-experimental, natural setting using a structured online

questionnaire, with statistical analyses performed using Pearson's correlation coefficient and independent samples t-tests.

3.2 Participants

The target population consisted of young adults aged 18–25 who are regular social media users (at least one hour daily). A convenience sample of 100 participants (male and female) was recruited via social media, email, and academic networks. Inclusion criteria required participants to be aged 18–25, regular social media users, and provide informed consent. Exclusion criteria eliminated individuals with cognitive or neurological disorders, those outside the age range, and those with incomplete questionnaires.

3.3 Measures

Two measurement tools were used:

- **Social Media Usage Scale:** A self-structured questionnaire with a 5-point Likert scale, measuring frequency, duration, and purpose of social media use (Cronbach's $\alpha = 0.83$).
- **Cognitive Abilities Self-Assessment Scale:** Adapted from standard cognitive self-assessment tools inspired by Neisser et al. (1996) and customized for this study's digital context this scale assessed attention span, working memory, decision-making, and processing speed using a 5-point Likert scale (Cronbach's $\alpha = 0.81$).

3.4 Procedure

Data were collected over two weeks using Google Forms. Participants were invited via social media and email, provided informed consent, and completed the questionnaire in one sitting. Responses were screened to remove incomplete submissions or those not meeting inclusion criteria.

3.5 Data Analysis

Data were analyzed using Microsoft Excel. Descriptive statistics (mean, standard deviation) summarized social media usage and cognitive abilities. Pearson's correlation coefficient assessed the relationship between variables, and independent samples t-tests compared gender differences.

4. Results

Table1: *Relationship between Social Media Use and Cognitive Abilities*

	Mean	Standard deviation	Correlation
Social media Usage	98.51	26.29	0.61

Cognitive Ability	39.7	11.0	
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A Pearson's correlation analysis revealed a moderate to strong positive correlation ($r = 0.61$) between social media usage ($M = 98.51$, $SD = 26.29$) and cognitive abilities ($M = 39.7$, $SD = 11.0$). The null hypothesis (no significant relationship) was rejected, supporting H1 that there is a significant relationship.

Table 2: *Gender Differences in Social Media Usage*

	Mean	Standard deviation	T test
Male	41.09	11.67	0.62
Female	39.43	10.90	

An independent samples t-test showed no significant difference in social media usage between males ($M = 41.09$, $SD = 11.67$) and females ($M = 39.43$, $SD = 10.90$), with $t = 0.62$, $p = 0.538$. The null hypothesis was accepted, rejecting H2.

Table 3: *Gender Differences in Cognitive Abilities*

	Mean	Standard deviation	T test
Male	41.09	11.67	-1.33
Female	39.43	10.90	

An independent samples t-test indicated no significant difference in cognitive abilities between males ($M = 41.09$, $SD = 11.67$) and females ($M = 39.43$, $SD = 10.90$), with $t = -1.33$, $p = 0.1853$. The null hypothesis was accepted, rejecting H3.

5. Discussion

The moderate to strong positive correlation ($r = 0.61$) between social media usage and cognitive abilities challenges the notion that social media is inherently detrimental. This aligns with Alloway & Alloway (2012), who found that social media engagement may enhance working memory. The interactive nature of platforms may foster cognitive flexibility and information processing, supporting Firth et al. (2019) study. However, Ophir et al. (2009), caution that excessive multitasking may impair cognitive control, suggesting moderation is key.

The lack of gender differences in social media usage ($t = 0.62$, $p = 0.538$) and cognitive abilities ($t = -1.33$, $p = 0.1853$) indicates that digital engagement impacts both genders similarly, consistent with the universal adoption of social media among young adults.

Limitations

The study's convenience sampling and small sample size ($N = 100$) limit

generalizability. Self-reported data may introduce bias, and the cross-sectional design prevents causal inferences. Future research should use larger, diverse samples, objective cognitive measures, and longitudinal designs.

6. Conclusion

This study demonstrates that social media usage positively correlates with cognitive abilities in young adults, challenging assumptions of harm. No gender differences were found in usage or cognitive outcomes, suggesting uniform impacts across demographics. Mindful usage and content quality are critical for positive cognitive effects. Future research should address limitations to deepen understanding of this relationship.

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