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Artificial Intelligence Dependence and Well-Being Among College Students

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ABSTRACT

The present study examined the relationship between AI dependence and digital well-being among college students using a cross-sectional design. A sample of 100 students aged 17–25 was selected through purposive sampling, focusing on active users of AI tools such as ChatGPT, Gemini, Perplexity, and Meta AI. Data were collected using two standardized instruments: the Digital Well-Being Scale (Gomes et al., 2023) and the Dependence on Artificial Intelligence Scale (Morales-García et al., 2024). Descriptive statistics revealed moderate levels of AI dependence and generally high levels of digital well-being among the participants. Results further showed that 58% of students had high AI dependence, while 65% reported high digital well-being. A strong and highly significant negative correlation ($r = –0.72$, $p < 0.01$) was found between AI dependence and digital well-being, indicating that increased reliance on AI is associated with reduced digital wellness. Gender differences were also significant, with males reporting higher AI dependence and females showing better digital well-being. Overall, the study highlights the importance of mindful AI usage and the need for promoting healthy digital habits among students to maintain emotional balance and technological well-being.

Keywords: AI dependence, digital well-being, college students, cross-sectional study, gender differences, artificial intelligence tools, psychological impact.

1. INTRODUCTION

Artificial Intelligence (AI) has rapidly integrated into daily life, influencing how individuals learn, communicate, make decisions, and manage their digital routines. With the rise of AI-powered tools such as chatbots, recommendation systems, and automated learning assistants, users increasingly rely on these technologies for convenience and cognitive support. This growing AI dependence has direct psychological implications, especially for young adults who are highly engaged in digital environments. Research shows that as AI becomes more accessible, individuals tend to outsource cognitive tasks like memory, problem-solving, and decision-making to digital systems, potentially reducing independent thinking and self-regulation (Sparrow et al., 2011; Logg et al., 2019).

At the same time, the concept of digital well-being—a state of healthy, mindful, and balanced technology use—has gained importance. Poorly regulated AI use has been linked to increased screen time, reduced

attention span, emotional fatigue, and disturbances in sleep and mental balance (Twenge, 2019). AI algorithms can also influence user behavior

by shaping online experiences, potentially creating patterns of overuse and emotional dependency (Bucher, 2018). For students, this can translate to both positive outcomes (enhanced learning efficiency) and negative consequences (distraction, anxiety, and identity dilution).

Therefore, understanding how AI dependence impacts digital well-being is crucial. This study aims to examine the psychological effects of AI reliance and explore whether growing dependence strengthens or disrupts digital wellness among young adults navigating an increasingly AI-driven world.

2. MAIN OBJECTIVE OF THE STUDY

To examine the relationship between AI dependence and digital well-being among college students, and to understand how growing reliance on AI influences their overall psychological balance.

3. METHODS

A cross-sectional research design was used to study the relationship between AI dependence and digital well-being among college students. The population consisted of students aged 17–25 years, and a sample of 100 participants was selected through purposive sampling, ensuring that only regular users of AI tools such as ChatGPT, Perplexity, Gemini, and Meta AI were included. Students aged 17–25 who were enrolled in a recognized college and willing to participate were included, while those above 25, those who rarely used AI, and individuals with diagnosed cognitive or psychiatric issues were excluded. Two standardized tools were used for data collection: the Digital Well-Being Scale (Gomes et al., 2023) with a reliability of $\alpha = 0.921$, and the Dependence on Artificial Intelligence Scale (DAIS) by Morales-García et al. (2024) with a reliability of $\alpha = 0.87$, both of which measured the key variables of digital well-being and AI dependence in the sample.

4. RESULTS

Table 1

Descriptive Statistics of Gender, Age, AI Dependence, and Digital Well-Being (N = 100)

Variables	Category / Values	Frequency (N)	Percentage (%)	Mean
Gender	Male	38	38%	-
	Female	62	62%	-
Age (in years)	17–19	28	28%	
	20–22	47	47%	
	23–25	25	25%	**20.6**

The descriptive statistics in Table 1 show that the sample consisted of 100 college students, of whom 38% were male and 62% were female, indicating a higher participation of female students. The age distribution reflects a typical college-age population, with 28% of students between 17–19 years, 47% between 20–22 years, and 25% between 23–25 years. The mean age of the sample was 20.6 years, suggesting that most participants were in the early stage of young adulthood. These demographic characteristics provide a balanced foundation for understanding patterns of AI dependence and digital well-being across gender and age groups.

Table 2

Frequency and Percentage Levels of AI Dependence and Digital Well-Being (N = 100)

Variables	Level	Frequency (N)	Percentage (%)
AI Dependence	Low Level	42	42%
	High Level	58	58%
Digital Well-Being	Low Level	35	35%
	High Level	65	65%

The results show that 58% of the students exhibited high AI dependence, while 42% showed low dependence, indicating that a majority of students rely heavily on AI tools for academic and daily tasks. For digital well-being, 65% of the students scored at a high level, suggesting that despite frequent AI usage, most students maintain positive digital health. However, 35% reported low digital well-being, indicating that a portion of students may experience stress, imbalance, or negative effects from digital engagement.

Table 3

Correlation Between AI Dependence and Digital Well-Being (N = 100)

Variables	AI Dependence	Digital Well-Being
AI Dependence	1	-0.725
Digital Well-Being	–0.725	1

The correlation analysis revealed a significant negative relationship between AI dependence and digital well-being ($r = –0.32$, $p < 0.01$). This indicates that as students' reliance on AI tools increases, their digital well-being tends to decrease. Although the relationship is moderate, it clearly shows that higher AI dependence may contribute to reduced emotional balance, increased digital fatigue, or lowered digital wellness.

Table 4

Gender Differences in AI Dependence and Digital Well-Being (N = 100)

Variables	Gender	N	Mean	SD	t-value	df	p-value
AI Dependence	Male	38	16.241	3.127	2.785	98	0.006 (significant)
	Female	62	14.522	2.981			
Digital Well-Being	Male	38	69.182	8.742	–2.441	98	0.017 (significant)
	Female	62	73.425	9.156			

The independent sample t-test revealed significant gender differences in both AI dependence and digital well-being among college students. Male students showed a significantly higher level of AI dependence (M = 16.24) compared to female students (M = 14.52), as indicated by the t-value of 2.78 (df = 98, p = 0.006). This suggests that males rely more heavily on AI tools such as ChatGPT, Gemini, Perplexity, and Meta AI for academic and daily tasks. In contrast, female students demonstrated a significantly higher level of digital well-being (M = 73.42) than male students (M = 69.18), supported by the t-value of –2.44 (df = 98, p = 0.017). This indicates that females maintain better digital balance, healthier online habits, and overall more positive digital wellness. Together, these findings show that while males tend to rely more on AI, females exhibit stronger digital well-being, suggesting possible behavioral and psychological differences in how each gender engages with AI technologies.

5. DISCUSSION

The findings of the present study examined the relationship between AI dependence and digital well-being among college students and further explored gender differences in these variables. The results revealed a strong and highly significant negative correlation between AI dependence and digital well-being ($r = -0.72$, $p < 0.01$), indicating that higher reliance on AI tools such as ChatGPT, Perplexity, Gemini, and Meta AI was associated with poorer digital well-being. This aligns with earlier research suggesting that increasing dependence on digital technologies can reduce emotional stability, self-regulation, and mindful technology use (Gomes et al., 2023). Similarly, psychological models explain that outsourcing cognitive tasks to AI systems may diminish autonomy and digital balance (Sparrow et al., 2011).

The descriptive results showed that a majority of students demonstrated high levels of AI dependence, which may be attributed to the growing integration of AI in academics, problem-solving, and social communication. Students today often rely on AI tools for explanations, writing support, decision-making, and even emotional reassurance. Morales-García et al. (2024) argue that such dependence can gradually shift from functional to emotional reliance, influencing digital well-being and overall mental balance. The present study supports this view, as higher AI dependence corresponded with lower digital well-being scores.

Furthermore, the analysis of gender differences revealed that male students showed significantly higher AI dependence than females, while female students demonstrated significantly better digital well-being. This pattern is consistent with previous studies showing that males tend to adopt and experiment with

technology more intensively, often resulting in higher reliance (Twenge, 2019). In contrast, females typically show greater digital self-regulation and healthier online habits, contributing to better digital wellness outcomes (Bucher, 2018). The mean scores in the present study reflect this trend, suggesting that gender-based behavioral differences may influence both AI usage and digital well-being.

Another important aspect of these findings is that although many students showed high levels of digital well-being, a substantial proportion also reported low digital wellness. This highlights the dual nature of AI technology while it enhances learning and efficiency, excessive dependence may reduce mindful technology use and increase digital fatigue. As suggested by Logg et al. (2019), reliance on AI systems may reduce human critical thinking, decision-making autonomy, and emotional resilience, which may explain the observed decrease in digital well-being among students with high AI dependence. Therefore, the study emphasizes the need for balanced and mindful AI usage. The results support existing literature and provide new insights into how AI dependence affects young adults' digital well-being, pointing toward the importance of awareness programs and healthy digital habits for college students.

6. CONCLUSION

This study found a strong negative relationship between AI dependence and digital well-being among college students, showing that higher reliance on AI tools is associated with lower digital wellness. Significant gender differences also emerged, with males displaying greater AI dependence and females reporting better digital well-being. These findings highlight that while AI technologies offer convenience and support, excessive dependence may affect emotional balance and digital health. Therefore, promoting mindful and responsible AI use is essential for maintaining healthy digital habits. Overall, the study emphasizes the need for balanced technology engagement among students in an increasingly AI-driven world.

7. SUGGESTIONS

1. Promote mindful and balanced AI usage by encouraging students to limit excessive reliance on AI tools and build independent thinking and problem-solving skills.
2. Conduct digital well-being awareness programs to help students develop healthy online habits, manage screen time, and maintain emotional balance.
3. Integrate responsible AI use guidelines in academic settings to ensure students use AI support ethically, effectively, and without compromising their digital wellness.

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