Artificial Intelligence, Social Media, and Academic Outcomes Among Nutrition and Dietetics Students in Türkiye

Türkiye'deki Beslenme ve Diyetetik Öğrencileri Arasında Yapay Zeka, Sosyal Medya ve Akademik Başarı İlişkisi

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ABSTRACT

This study examines how social media addiction and AI attitudes affect academic performance and mental health in university students, a population where digital integration and mental health challenges remain underexplored. This descriptive and cross-sectional study conducted on University students in Türkiye, between November 2024-January 2025. An online questionnaire including demographic characteristics, general weighted grade point average (GPA), General Attitudes towards Artificial Intelligence Scale (GAAIS), Social Media Addiction Scale (SMAS), Depression, Anxiety, and Stress Scale Short Form were administered. Additionally, height and body weight were taken with the declaration of the participants. Data were analyzed using SPSS 24.0. A total of 353 university students (93.5% female, mean age 21.79 ± 2.78 years) completed the study. 97.5% of them used social media, and the most used social media was Instagram with 97.5%. GPA showed a weak positive correlation with GAAIS positive score (r: 0.126, p< 0.05), whereas it showed a weak negative correlation with SMAS score (r: -0.115, p< 0.005). SMAS scores showed a moderate positive correlation with stress (r: 0.454, p< 0.001), anxiety (r: 0.428, p< 0.001), and depression (r: 0.482, p< 0.001). Furthermore, body mass index showed a negative weak correlation with SMAS scores (r: -0.166, p< 0.005), and depression score (r: -0.134, p< 0.005). According to the multiple linear regression analysis, increased GAAIS positive subscale scores (β: 0.006, p: 0.006) and decreased SMAS scores (β: -0.064, p: 0.043) predicted an increase in GPA, and these results accounted for 21% of the variance. These findings underline the need for balanced and informed approaches to the adoption of digital technology. Further research on the subject is needed.

Keywords: Artificial Intelligence, Social Media Addiction, Academic Performance, Mental Health

ÖZ

Bu çalışma, dijital entegrasyonun ve ruh sağlığı sorunlarının yeterince incelenmediği bir grup olan üniversite öğrencilerinde, sosyal medya bağımlılığı ve yapay zekâ tutumlarının akademik başarı ve ruh sağlığı üzerindeki etkilerini incelemektedir. Tanımlayıcı ve kesitsel nitelikteki bu çalışma, Kasım 2024–Ocak 2025 tarihleri arasında Türkiye'deki üniversite öğrencileri üzerinde yürütülmüştür. Çevrim içi anket formunda; demografik bilgiler, genel ağırlıklı not ortalaması (GPA), Yapay Zekâya Yönelik Genel Tutum Ölçeği (GAAIS), Sosyal Medya Bağımlılığı Ölçeği (SMAS) ile Depresyon, Anksiyete ve Stres Ölçeği Kısa Formu yer almıştır. Ayrıca, katılımcıların boy ve vücut ağırlığı beyana dayalı olarak alınmıştır. Veriler SPSS 24.0 programı ile analiz edilmiştir. Çalışmaya toplam 353 üniversite öğrencisi (%93,5'i kadın, yaş ortalaması 21,79 ± 2,78 yıl) katılmıştır. Katılımcıların %97,5'i sosyal medya kullanmakta olup, en çok kullanılan platform %97,5 ile Instagram olmuştur. Genel Akademik Not Ortalaması (GANO), GAAIS pozitif puanı ile zayıf düzeyde pozitif yönde ilişkilidir (r: 0,126, p< 0,05); buna karşın SMAS puanı ile zayıf düzeyde negatif ilişki göstermiştir (r: -0,115, p< 0,005). SMAS puanları; stres (r: 0,454, p< 0,001), anksiyete (r: 0,428, p< 0,001) ve depresyon (r: 0,482, p< 0,001) skorları ile orta düzeyde pozitif ilişkilidir. Ayrıca, beden kitle indeksi (BKİ), SMAS (r: -0,166, p< 0,005) ve depresyon (r: -0,134, p< 0,005) skorları ile zayıf düzeyde negatif ilişkili bulunmuştur. Çoklu doğrusal regresyon analizine göre; GAAIS pozitif alt ölçek puanındaki artış (β: 0,006, p: 0,006) ve SMAS puanındaki azalma (β: -0,064, p: 0,043), GANO'da artışla ilişkili bulunmuş ve bu değişkenler toplam varyansın %21'ini açıklamıştır. Bulgular, dijital teknolojinin benimsenmesinde dengeli ve bilinçli yaklaşımların gerekliliğini ortaya koymaktadır. Konuyla ilgili daha fazla araştırmaya ihtiyaç vardır.

Anahtar Kelimeler: Yapay Zekâ, Sosyal Medya Bağımlılığı, Akademik Başarı, Ruh Sağlığı.

Highlights
*Social media addiction lowers GPA and worsens mental health.
*Positive AI attitudes link to better academic performance.
*Social media use relates to higher stress, anxiety, and depression.
*Balanced digital use is key for student well-being.

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INTRODUCTION

Social media and artificial intelligence (AI) have transformed various aspects of modern life, particularly among younger populations. University students represent a demographic that is deeply integrated into these digital landscapes.[1] In Türkiye, recent surveys have shown that 97.5% of university students use social media platforms, with Instagram being the most popular platform at 88.4% daily access.[2] Additionally, generative AI tools such as Generative Pre-trained Transformer (ChatGPT) have been embraced by 70% of students for academic and personal purposes, highlighting their growing relevance in educational settings. While social media provides opportunities for connection and information sharing, it has also been linked to challenges such as addiction and negative mental health outcomes.[2] These dynamics are of increasing concern in academic environments, where students' well-being and performance are critical to their success.

Social media addiction is characterized by compulsive use, emotional attachment, and withdrawal symptoms when access is limited.[3] Studies suggest that excessive social media use correlates with higher levels of anxiety, depression, and stress.[4,5] Moreover, students with social media addiction may exhibit reduced academic performance, potentially due to distractions and reduced focus.[6] These findings emphasize the need to explore the broader implications of social media use on mental health and educational outcomes, particularly within culturally specific contexts like Türkiye.

Simultaneously, the rapid development of AI tools, such as ChatGPT and other generative models, has introduced new opportunities and challenges in educational settings. On the one hand, these tools offer enhanced learning aids, streamlined research capabilities, and productivity boosts.[7] On the other hand, skepticism surrounding the ethical implications and potential overreliance on AI has fueled polarized attitudes.[2] Understanding these attitudes is essential to maximizing the benefits of AI while mitigating its risks in academic contexts.

Despite the global relevance of these issues, there is limited research specifically examining the interplay of social media addiction, AI attitudes, academic success, and mental health in university students in Türkiye. This study aims to address this gap by focusing on a population where digital integration and mental health challenges are prominent yet underexplored. By addressing this specific demographic, the study seeks to fill a critical void in the literature.

This study's contributions are twofold. First, it provides insights into how social media addiction and AI attitudes impact academic performance and mental health among Turkish university students. Second, it highlights culturally nuanced factors influencing these relationships, offering a unique perspective to the existing body of research. By examining these interconnections, the research seeks to provide actionable insights for educators, policymakers, and mental health professionals. Moreover, this study's findings will contribute to the growing body of literature on digital influences in educational and psychological domains.

MATERIAL AND METHOD

Study Design and Participants

This descriptive and cross-sectional study was conducted among Nutrition and Dietetics undergraduate students aged ≥18 years who volunteered to participate in the study in Türkiye, between November 2024 and January 2025. G*Power was utilized for sample selection, with a prevalence rate of 20%, a type I error rate (α) of 0.05, a type II error rate (β) of 0.5, and a test power (1-β) of 0.95. The sample size for this study was calculated as 176. The exclusion criteria were students who did not agree to participate in the study, those aged < 18 years. Participants were recruited from multiple universities, which defined the sampling frame.

Participants were recruited through voluntary convenience sampling, which may limit the generalizability of the findings.

An online questionnaire including demographic characteristics (gender, school grade, chronic disease, social media and artificial intelligence use, general weighted grade point average - GPA, etc.), General Attitudes towards Artificial Intelligence Scale (GAAIS), Social Media Addiction Scale (SMAS), Depression, Anxiety, and Stress Scale Short Form (DASS-21) were administered. The dependent variable in this study was students' academic performance measured by GPA, while the independent variables included SMAS, GAAIS, DASS-21, and demographic factors (age, gender, BMI, school grade, chronic disease status, and AI/social media usage). Additionally, height and body weight were taken with the declaration of the participants.

Ethical Considerations

The ethics committee of Istanbul Gelisim University Ethics Committee with the number: 2024-19, and date: 29.11.2024 approved this study and the principles of the Declaration of Helsinki were followed. Written and verbal informed consent was obtained from all participants.

General Attitudes towards Artificial Intelligence Scale (GAAIS)

This scale was developed by Schepman and Rodway (2020) to measure individuals' general attitudes towards artificial intelligence. The Turkish validity and reliability of the scale was conducted by Kaya et al.[2] and cronbach's α was 0.820 for the positive GAAIS and 0.840 for the negative GAAIS. The scale measures the general attitude towards artificial intelligence and consists of 20 items. Questions 1-12 are calculated as positive and positive points, and questions 13-20 are calculated as negative and negative points. The items are scored with a five-point Likert-type rating scale (1: strongly disagree to 5: strongly agree). Cronbach's alpha was found to be α= 0.942 for the positive GAAIS and 0.905 for the negative GAAIS in this study.

Social Media Addiction Scale (SMAS)

The scale was developed by Çölekçi and Başol[8] and cronbach's alpha internal consistency reliability coefficient α= 0.850. The scale, which consists of a total of 7 items, is 5-point Likert type (1: never, 5: always). The scale is averaged and the score varies between 1 and 5. Increasing score indicates an increase in social media engagement. Cronbach's alpha was found to be α= 0.908 in this study.

Depression, Anxiety, and Stress Scale Short Form (DASS-21)

The Depression, Anxiety, and Stress Scale short form (DASS-21), a psychometric instrument developed by Lovibond and Lovibond[9] The Turkish version of the DASS-21 was evaluated for its validity and reliability by Sarıçam[10] and cronbach's alpha internal consistency reliability coefficient α= 0.870 for depression subscale, α= 0.850 for anxiety subscale and α= 0.810 for stress subscale.[10] The questionnaire was designed to assess levels of depression, anxiety and stress levels and consisted of seven items for each of the three scales. Items 3, 5, 10, 13, 16, 17, and 21 represent the depression score; and according to the total score 0 to 4 means normal, between 5 and 6 of mild depression, 7 to 10 of moderate depression, 11 to 13 of severe depression, and >13 of extremely severe depression. Items 2, 4, 7, 9, 15, 19, and 20 represent the anxiety score; and total scores between 0 to 3 means normal, between 4 and 5 of mild anxiety, between 6 and 7 of moderate anxiety, between 8 and 9 of severe anxiety, and >9 of extremely severe anxiety. Additionaly, items 1, 6, 8, 11, 12, 14, and 18 represent the stress score, and the total scores between 0 and 7 means normal, between 8 and 9 of mild stress, 10 and 12 of moderate stress, 13 and 16 of severe stress, and >16 are indicative of extremely severe stress.[10] Cronbach's alpha was found to be α= 0892 for depression subscale, α= 0.861 for anxiety subscale and α= 0.898 for stress subscale in this study.

Statistical Analysis

All statistical analyses were conducted using SPSS Statistics 24.0 (Statistical Package for the Social Sciences, Inc.; Chicago, IL, United States). The normality of data distribution was assessed using the Kolmogorov–Smirnov test. Descriptive statistics of the data were presented as n (%) and mean±standard deviation. Differences between tertilles of SMAS scores were analyzed by Kruskall-Wallis coefficient for GPA, GAAIS positive and subscales, stress, anxiety, and depression scores. Additionally, Spearman correlation coefficients were used to determine the relationship between age, BMI, GPA, GAAIS, SMAS, stress, anxiety, and depression scores. The relationships between GPA, gender, BMI, GAAIS positive subscale, SMAS, stress, anxiety, and depression were analysed by logistic regression models. For all statistical tests, a p-value of <0.05 was considered statistically significant.

RESULTS AND DISCUSSION

The demographic characteristics of participants are shown in Table 1. A total of 353 university students (93.5% female, mean age 21.79 ± 2.78 years) completed the study. 39.7% of the students were 4th year students and most of them (97.5%) used social media. The most used social media was Instagram with 97.5%, 88.4% of the students accessed social media several times a day and 60.6% of them used social media for 60 minutes or more. Additionally, the most used AI was ChatGPT with 70.0%. The mean BMI of the participants was 21.86 ± 3.47 kg/m².

Table 1. Demographic characteristics of participants (n=353)

Parameters	n	%
Age (year) (mean ± SD)	21.79 ± 2.78	
Gender [n (%)]		
Male	23	6.5
Female	330	93.5
Degree of class [n (%)]		
1st year	16	4.5
2nd year	64	18.1
3rd year	133	37.7
4th year	140	39.7
Social media use [n (%)]		
No	9	2.5
Yes	344	97.5
The most used social media platforms*		
Instagram	344	97.5
Facebook	13	3.7
Twitter (X)	175	49.6
Pinterest	138	39.1
Google+	168	47.6
Tumblr	3	0.8
LinkedIn	38	10.8
Frequency of social media access		
Less than 1 per month	3	0.8
1-3 times per month	2	0.6
1 time per week	3	0.8
2-3 times per week	4	1.1
4-5 times per week	12	3.4
One a day	17	4.8
Several times a day	312	88.4
Median time users spend on this channel per day		
<15 minutes	18	5.1
15-30 minutes	33	9.3
30-60 minutes	88	24.9

Table 1 (continued)

>60 minutes	214	60.6
The most used AI platforms		
ChatGPT	247	70.0
Bing Chat	2	0.6
Google Bard	3	0.8
Not using	101	28.6
Presence of a chronic disease [n (%)]		
No	288	81.6
Yes	65	18.4
Height (cm) (mean ± SD)	164.15 ± 9.03	
Body weight (kg) (mean ± SD)	59.66 ± 13.16	
BMI (kg/m2) (mean ± SD)	21.86 ± 3.47	
GAAIS positive subscale scores (mean ± SD)	41.12 ± 9.96	
GAAIS negative subscale scores (mean ± SD)	24.29 ± 6.78	
SMAS scores (mean ± SD)	1.95 ± 0.82	
Stress scores (mean ± SD)	7.23 ± 5.47	
Anxiety scores (mean ± SD)	6.62 ± 4.79	
Depression scores (mean ± SD)	6.59 ± 4.85	
GPA scores (mean ± SD)	2.72 ± 0.41	
The most used AI platforms		
ChatGPT	247	70.0
Bing Chat	2	0.6
Google Bard	3	0.8
Not using	101	28.6
Presence of a chronic disease [n (%)]		
No	288	81.6
Yes	65	18.4
Height (cm) (mean ± SD)	164.15 ± 9.03	
Body weight (kg) (mean ± SD)	59.66 ± 13.16	
BMI (kg/m2) (mean ± SD)	21.86 ± 3.47	

*More than one option is selected. GAAIS: general attitudes towards Artificial Intelligence Scale, SMAS: Adolescent Social Media Addiction Scale, GPA: General weighted grade point average, BMI: body mass index.

Table 2 shows the differences between GPA, GAAIS positive and subscales, stress, anxiety, and depression scores according to tertilles of SMAS scores. The GAAIS positive subscale scores were significantly higher in the tertile 3 compared to the tertile 2 (p< 0.05). Similarly, GAAIS negative subscale scores, stress, anxiety, and depression scores demonstrated significant differences across all tertiles, indicating increasing scores with higher SMAS scores (p< 0.05). Additionally, 11.4% were classified as extremely severe stress, 47.6% as extremely severe anxiety, and 22.7% as extremely severe depression in tertile 3 (p< 0.001).

Table 3 shows the correlation between age, BMI, GPA, GAAIS positive and negative subscale, SMAS, stress, anxiety, and depression scores. GPA showed a weak positive correlation with GAAIS positive score (r: 0.126, p< 0.05), whereas GPA showed a weak negative correlation with SMAS score (r: -0.115, p< 0.005). There was a weak positive correlation between SMAS scores and GAAIS positive scores (r: 0.110, p< 0.005), however, there was a moderate negative correlation between SMAS scores and GAAIS negative scores (r: -0.318, p< 0.001). Additionally, GAAIS negative scores showed a weak negative correlation with stress (r: -0.259, p< 0.001), anxiety (r: -0.227, p< 0.001), and depression (r: -0.252, p< 0.001). SMAS scores showed a moderate positive correlation with stress (r: 0.454, p< 0.001), anxiety (r: 0.428, p< 0.001), and depression (r: 0.482, p< 0.001). Furthermore, BMI showed a negative weak correlation with SMAS scores (r: -0.166, p< 0.005), and depression score (r: -0.134, p< 0.005).

Table 2. GPA, GAAIS positive and subscales, stress, anxiety, and depression scores according to tertilles of SMAS scores

Parameters	Tertille 1 (SMAS score <1.28) (n: 80)	Tertille 2 (SMAS score 1.28-2.50) (n: 185)	Tertille 3 (SMAS score >2.50) (n: 88)	p-value
GPA scores (mean ± SD)	2.70 (2.50-2.98)	2.75 (2.46-2.99)	2.58 (2.38-2.98)	0.194
GAAIS positive subscale scores (mean ± SD)	42.00 (34.25-47.75)	42.00 (38.00-46.00) [c]	44.00 (36.50-48.00) [c]	**0.028***
GAAIS negative subscale scores (mean ± SD)	27.00 (22.00-31.00) [a, b]	24.00 (20.50-28.50) [a, c]	20.50 (16.00-24.75) [b, c]	**<0.001****
Stress scores (mean ± SD)	4.00 (1.00-7.00) [a, b]	7.00 (4.00-9.00) [a, c]	10.00 (7.00-13.75) [b, c]	**<0.001****
Classification of stress				
Normal	66 (82.5)	109 (58.9)	26 (29.5)	
Mild	5 (6.2)	32 (17.3)	17 (19.3)	
Moderate	6 (7.5)	25 (13.5)	21 (23.9)	**<0.001****
Severe	1 (1.3)	16 (8.6)	14 (15.9)	
Extremely severe	2 (2.5)	2 (1.6)	10 (11.4)	
Anxiety scores (mean ± SD)	3.00 (0.00-5.00) [a, b]	6.00 (3.00-8.00) [a, c]	9.00 (6.00-13.75) [b, c]	**<0.001****
Classification of anxiety				
Normal	44 (55.0)	51 (27.6)	11 (12.5)	
Mild	17 (21.2)	29 (15.6)	7 (8.0)	
Moderate	6 (7.5)	50 (27.0)	18 (20.5)	**<0.001****
Severe	3 (3.8)	23 (12.4)	10 (11.4)	
Extremely severe	10 (12.5)	32 (17.3)	42 (47.6)	
Depression scores (mean ± SD)	2.00 (1.00-6.00) [a, b]	6.00 (3.00-8.00) [a, c]	9.50 (7.00-12.75) [b, c]	
Classification of depression				
Normal	56 (70.0)	61 (33.0)	14 (15.9)	
Mild	7 (8.7)	32 (17.3)	7 (8.0)	
Moderate	11 (13.8)	67 (36.2)	30 (34.1)	**<0.001****
Severe	4 (5.0)	12 (6.5)	17 (19.3)	
Extremely severe	2 (2.5)	13 (7.0)	20 (22.7)	

*p< 0.05, **p< 0.001. [a] Differences between tertille 1 and 2, [b] Differences between tertille 1 and 3, [c] Differences between tertille 2 and 3. GAAIS: general attitudes towards Artificial Intelligence Scale, SMAS: Social Media Addiction Scale, GPA: General weighted grade point average.

Table 3. The relationship between age, BMI, GPA, GAAIS, SMAS, stress, anxiety, and depression scores

	1	2	3	4	5	6	7	8
1. Age	-							
2. BMI	0.063	-						
3. GPA	0.024	*-0.076*	-					
4. GAAIS positive subscale scores	0.086	*-0.074*	**0.126***	-				
5. GAAIS negative subscale scores	*-0.035*	*-0.042*	0.060	*-0.017*	-			
6. SMAS	***-0.166****	0.004	**-0.115***	**0.110***	***-0.318*****	-		
7. Stress	*-0.047*	*-0.024*	*-0.027*	0.071	***-0.259*****	**0.454****	-	
8. Anxiety	*-0.100*	*-0.053*	*-0.068*	*-0.004*	***-0.227*****	**0.428****	**0.799****	-
9. Depression	***-0.134****	*-0.019*	*-0.064*	0.079	***-0.252*****	**0.482****	**0.836****	**0.782****

Spearman correlation was used. *$p < 0.05$, **$p < 0.001$. GAAIS: general attitudes towards Artificial Intelligence Scale, SMAS: Social Media Addiction Scale, GPA: General weighted grade point average, BMI: body mass index.

Multiple linear regression was performed to determine the factors related to GPA. According to our results, increased GAAIS positive subscale scores (β: 0.006, p: 0.006) and decreased SMAS scores (β: -0.064, p: 0.043) predicted an increase in GPA. These variables predicted 21% of the total variance (Table 4). The model including GAAIS positive and SMAS scores explained 21% of GPA variance, indicating moderate predictive strength. In recent years, the utilization of AI in Türkiye has increased significantly, particularly among university students, where it is predominantly employed for educational purposes. To the best of our knowledge, this study represents the first comprehensive evaluation of the combined effects of social media addiction, attitudes toward AI, and mental health on GPA scores among university students in Türkiye. The findings indicate that social media addiction has a detrimental effect on GPA, with higher levels of addiction correlating with increased stress, anxiety, and depression risks. Additionally, increasing positive general attitude towards AI and decreasing social media addiction were associated with an increase in GPA, and these results accounted for 21% of the variance. The study demonstrated that students with higher levels of social media addiction had significantly lower GPA scores. This finding suggests that spending excessive time on social media may negatively impact academic performance. A negative correlation was also identified between SMAS scores and GPA scores. Considering that the majority of students reported spending over 60 minutes daily on social media with a certain frequency, studies showed that reduced time allocated for academic activities contributes to lower GPA scores.[11,12] Previous studies have similarly reported that social media use for non-educational purposes can divert students' attention to other content, thereby adversely affecting academic performance.[13-15] I was also observed that the frequent use of social media for non-educational purposes in this study. Furthermore, the development of addictive behaviors may lead to academic procrastination, which in turn could impact sleep quality. Reduced sleep duration and quality may increase academic stress, further exacerbating academic underperformance. It has also been reported that individuals with a digital lifestyle face difficulties maintaining prolonged focus, which can negatively influence academic success.[16-18] This negative association between BMI, SMAS, and depression is consistent with previous research suggesting that lower BMI may be linked to higher vulnerability to addictive behaviors and mood disturbances.

Table 4. GPA and its association with gender, BMI, GAAIS positive subscale, SMAS, stress, anxiety, and depression

	Unstandardized coefficients		Standardized coefficients						
	B	SE	Beta	t	Sig	F	Sig	R	Rsquare effect size
1 (constant)	2.630	0.269		9.770	**<0.001****	0.160	0.852	0.001	0.030
Age	0.000	0.008	-0.002	-0.032	0.975				
Gender	0.050	0.091	0.030	0.553	0.581				
2 (constant)	2.903	0.323		8.989	**<0.001****	0.878	0.452	0.007	0.087
Age	0.002	0.008	0.011	0.208	0.835				
Gender	0.005	0.095	0.003	0.051	0.959				
BMI	-0.010	0.007	-0.087	-1.521	0.129				
3 (constant)	2.634	0.340		7.747	**<0.001****	2.095	0.081	0.024	0.153
Age	0.002	0.008	0.011	0.203	0.839				
Gender	0.024	0.095	0.014	0.248	0.804				
BMI	-0.010	0.007	-0.081	-1.417	0.157				
GAAIS positive subscale score	0.005	0.002	0.127	2.390	**0.017***				
4 (constant)	2.750	0.341		8.074	**<0.001****	2.960	0.012*	0.041	0.202
Age	-0.002	0.008	-0.013	-0.239	0.812				
Gender	0.035	0.095	0.021	0.373	0.709				
BMI	-0.008	0.007	-0.066	-1.166	0.244				
GAAIS positive subscale score	0.006	0.002	0.147	2.759	**0.006***				
SMAS scores	-0.068	0.027	-0.136	-2.508	**0.013***				
5 (constant)	2.796	0.344		8.127	**<0.001****	2.000	0.046*	0.044	0.211
Age	-0.003	0.008	-0.023	-0.419	0.676				
Gender	0.023	0.096	0.014	0.241	0.810				
BMI	-0.008	0.007	-0.067	-1.078	0.240				
GAAIS positive subscale score	0.006	0.002	0.148	2.744	**0.006***				
SMAS scores	-0.064	0.031	-0.127	-2.035	**0.043***				
Stress	0.009	0.011	0.100	0.857	0.392				
Anxiety	0.001	0.009	0.015	0.142	0.887				
Depression	-0.011	0.010	-0.127	-1.080	0.281				

*p< 0.05, **p< 0.001. GAAIS: general attitudes towards Artificial Intelligence Scale, SMAS: Social Media Addiction Scale, GPA: General weighted grade point average, BMI: body mass index.

The literature presents complicated findings regarding the effects of social media on mental health. Some evidence have suggested that social media use may benefit mental health by facilitating interpersonal communication and reducing feelings of loneliness.[20-22] However, these studies predominantly focus on text-based social media platforms. Since text-based platforms allow for more frequent interactions with diverse individuals, their positive impact on mental health is an expected outcome. Conversely, studies have highlighted the detrimental effects of visual-based social media platforms, where increased usage is linked to diminished self-esteem and life satisfaction, potentially exacerbating mental health challenges.[23] Consistent with these findings, the present study identified that students who frequently engage with visual social media platforms exhibit higher levels of social media addiction, alongside elevated stress, anxiety, and depression scores. Furthermore, a significant positive correlation was observed between the severity of social media addiction and the levels of stress, anxiety, and depression. A study reported that Instagram negatively affects young individuals' body image perceptions and self-esteem. Frequent use of filters and photo-editing tools on platforms such as Instagram distorts perceptions of reality, fostering feelings of inadequacy among users.[24] Another study revealed that increased Instagram use is associated with higher levels of anxiety, depression, bullying, fear of missing out, and poorer sleep quality.[25] To address these adverse effects, the Royal Society for Public Health has recommended implementing warnings for filtered and digitally enhanced content as a means of mitigating the psychological impact of such platforms.[26]

The study revealed that students with positive attitudes toward AI demonstrated higher GPAs, a finding consistent with existing literature. AI technologies have been demonstrated to effectively analyze extensive datasets in educational settings, thereby enhancing academic performance through tailored feedback and support mechanisms.[27,28] AI tools such as ChatGPT have shown promise in facilitating interactive learning experiences, offering opportunities to improve educational outcomes through dynamic and responsive engagement.[28,29] The ability of AI to deliver personalized learning experiences is particularly noteworthy, as it enables students to explore their specific areas of interest and receive educational content adapted to their individual competencies. This tailored approach has been suggested to foster active engagement, increase motivation, and positively influence academic achievement.[30] However, despite the evident advantages, the potential adverse effects of long-term reliance on AI technologies warrant careful consideration. For example, a recent study among university students reported that approximately 89% utilized AI tools for completing assignments, while 53% used AI for drafting academic papers.[31] This increasing dependence on AI raises concerns about its potential to diminish critical thinking and problem-solving skills over time, which are essential for independent intellectual development.[32] These findings highlight the necessity of implementing guidelines for responsible AI use in education, ensuring its integration serves to augment rather than undermine students' cognitive and academic growth.

In contrast to findings reported in the literature, this study identified that students with negative attitudes toward AI had lower stress, anxiety, and depression scores. It has been suggested that AI technologies can analyze students' behaviors and emotional data, thereby identifying stress and mood patterns and developing individualized relaxation plans.[33] Additionally, AI-powered chatbots and virtual assistants provide on-demand access to psychological support and critical information, which have been reported to positively influence mental health.[34] Despite these advantages, ethical concerns regarding the integration of AI in mental health care remain significant, particularly concerning its reliability in diagnostic processes and the inherent limitations of AI in replicating human judgment.[35] A review study

in Türkiye; revealed that AI applications are predominantly used in educational contexts, particularly among university students.[36] However, the use of AI in psychiatry in Türkiye remains in its nascent stages and not yet widely adopted.[37] Unlike other studies in the literature on mental health, the present study did not establish a significant relationship between AI applications and mental health among participants, likely because students primarily used AI for educational purposes. Nevertheless, this observation could potentially contribute to the lower stress, anxiety, and depression scores among students with negative attitudes toward AI, although the exact mechanisms remain unclear and warrant further investigation. Moreover, the finding that students with positive attitudes toward AI and lower SMAS levels were strong predictors of higher GPAs underscores that students predominantly engage with AI for educational purposes.

Limitations and Strengths

While this study provides a valuable contribution to understanding the intersection of AI usage and psychological well-being, several limitations must be acknowledged. First, the research is constrained to university students in Türkiye, which limits its generalizability to other populations. Furthermore, the study evaluated students' academic performance solely through GPA, which may not fully capture the broader range of factors influencing educational outcomes. Additionally, GPA data were self-reported and not independently verified, which may introduce reporting bias. In addition, the study relied on self-reported data, including height and weight, which may be subject to reporting bias. The predominance of female participants and the cross-sectional design further limit the generalizability of the findings. Moreover, although "Google+" was included as a response option in the questionnaire, it is no longer an actively used platform, representing a minor limitation of the study design. Future studies should incorporate a more comprehensive set of variables, such as socio-economic status, educational environments, and access to technological resources, to offer a deeper understanding of the nuanced effects of AI and social media on educational achievement.

CONCLUSION AND RECOMMENDATIONS

In conclusion, this study provides a comprehensive assessment of the impact of emerging digital tools, particularly AI applications and social media, on the educational and psychological well-being of university students in Türkiye. The findings reveal that social media addiction negatively affects GPA and increases levels of stress, anxiety, and depression. Conversely, positive attitudes toward AI are associated with improved academic performance, highlighting the potential benefits of AI in education when utilized effectively. By shedding light on the complex interplay between AI, social media, and mental health, this study contributes valuable insights to the growing body of literature and offers practical implications for educators, policymakers, mental health professionals, and dietitians, who could promote balanced digital technology use, incorporate AI literacy, and monitor eating and lifestyle behaviors to support students' academic and psychological well-being. These findings underline the necessity of balanced and informed approaches to digital technology adoption, ensuring that it serves as a tool for enhancement rather than a source of detriment.

Conflict of Interest

The authors declare that they have no conflict of interest regarding the publication of this article.

Authors' Contributions

B.M.K. contributed to the study design, data collection, and literature review. **H.M.B.** contributed to the statistical analysis, interpretation of results, and critical review of the manuscript. **S.A.** (corresponding author) contributed to the conceptualization, supervision, manuscript drafting, and final approval of the version to be submitted. All authors contributed to the study.

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