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Predicting Anxiety Levels From Social Media Use and Daily Screen Time Among University Students

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ABSTRACT

This study aimed to examine the predictive relationship between social media use, daily screen time, and anxiety levels among university students. A correlational descriptive research design was employed using a sample of 400 undergraduate students from Egyptian universities, selected based on the Morgan and Krejcie sample size table. Participants completed standardized instruments including the Generalized Anxiety Disorder 7-item scale (GAD-7), the Social Media Engagement Questionnaire (SMEQ), and the Smartphone Usage Questionnaire (SUQ). Data were analyzed using SPSS version 27. Pearson correlation coefficients were calculated to assess the bivariate relationships between anxiety and each independent variable. Multiple linear regression was then conducted to evaluate the combined predictive power of social media use and daily screen time on anxiety. Results showed significant positive correlations between anxiety and social media use ($r = .56$, $p < .01$) and between anxiety and daily screen time ($r = .41$, $p < .01$). The overall regression model was statistically significant, $F(2, 397) = 92.16$, $p < .001$, explaining 37% of the variance in anxiety ($R^2 = .37$). Both social media use ($\beta = .49$, $p < .001$) and screen time ($\beta = .29$, $p < .001$) emerged as significant predictors, with social media use demonstrating a stronger contribution to anxiety levels. The findings indicate that both social media engagement and prolonged screen time are significant predictors of anxiety among university students, with social media use having a more substantial impact. These results underscore the need for targeted interventions aimed at promoting balanced digital habits in higher education settings to mitigate mental health risks.

Keywords: Anxiety, Social Media Use, Screen Time, University Students, Digital Behavior, Mental Health.

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Introduction

Social media platforms have transformed the landscape of interpersonal interaction, yet their psychological implications remain deeply contested. Some studies highlight the role of social media in facilitating social connectedness and access to supportive networks, particularly during stressful events such as the COVID-19 pandemic (1, 2). However, this increased connectivity also introduces potential risks. The pressures of online self-presentation, social comparison, and fear of missing out (FoMO) have been repeatedly linked to elevated levels of stress and anxiety (3-5). Among university students, who are already

navigating complex academic and social transitions, these pressures can contribute to the development or exacerbation of anxiety symptoms.

The association between social media use and anxiety is multifaceted and often mediated by individual and contextual factors. For example, upward social comparison—comparing oneself to idealized portrayals of others online—has been identified as a key predictor of increased anxiety and lower self-esteem among youth (3, 4). Similarly, the compulsive nature of social media engagement, particularly when it becomes habitual or addictive, has been linked to deteriorating emotional well-being and symptoms of anxiety (6-8). Some researchers have conceptualized this pattern of behavior as "problematic social media use," a condition characterized by excessive, uncontrollable use that interferes with daily functioning (9, 10).

Further complicating the relationship between digital behaviors and mental health is the concept of "social media rumination," which refers to repetitive, negative thinking patterns focused on online interactions or social feedback. Studies suggest that such cognitive patterns are strongly correlated with heightened anxiety, especially in individuals who are prone to emotional sensitivity or social comparison (11, 12). This is particularly pronounced in students who frequently revisit and analyze their posts, likes, or perceived social standing online. The result is not only emotional fatigue but a reinforcement of anxiety-provoking thought cycles.

The relationship between daily screen time and anxiety is also gaining attention in psychological and public health literature. With smartphones, tablets, and laptops becoming essential tools for learning and socializing, students are spending unprecedented amounts of time in front of screens. Although screen time alone is not inherently harmful, excessive usage—especially when linked to passive consumption or compulsive checking behaviors—has been associated with negative emotional states including irritability, restlessness, and anxiety (13-15). Research shows that overuse of screens, particularly before sleep or during study hours, can disrupt cognitive functioning and circadian rhythms, both of which are closely tied to emotional regulation and anxiety levels (16, 17).

Importantly, these associations appear to be especially significant during developmental phases characterized by identity exploration and social role formation—hallmarks of the university experience. Young adults are uniquely vulnerable to the psychological effects of social media and screen time due to heightened sensitivity to peer feedback and evolving self-concepts. In this regard, studies have demonstrated that students with higher needs for social approval and external validation are more susceptible to anxiety linked to social media engagement (5, 12). Furthermore, screen-based behaviors may replace healthier coping mechanisms, such as in-person interactions, physical activity, and sleep, thereby exacerbating mental health challenges (18, 19).

From a cognitive perspective, prolonged screen exposure has also been implicated in impairments in attention and working memory, both of which contribute to academic stress and emotional dysregulation (15, 20). Students who experience such cognitive overload may become more anxious, especially when they struggle to manage academic responsibilities alongside their digital habits. This is further compounded by the availability of limitless information—much of which is health-related, speculative, or emotionally charged—which may feed into health anxiety and general distress (13, 14).

Additionally, gender and individual traits such as narcissism, alexithymia (difficulty identifying emotions), and self-concealment have been shown to moderate the relationship between digital behavior

and anxiety symptoms. For instance, females may be more vulnerable to appearance-based comparisons, while individuals with high levels of alexithymia or narcissistic tendencies may be particularly reactive to negative online feedback or perceived social rejection (7, 21, 22). These findings underscore the importance of considering personality and emotional traits when assessing the impact of screen time and social media on anxiety.

Cross-cultural research has further highlighted variations in digital habits and mental health outcomes across different societies. In collectivist cultures, for example, where group affiliation and social conformity are valued, the pressures of online self-presentation may exert a stronger psychological toll (3, 6). Likewise, during global crises such as the COVID-19 pandemic, increases in social media usage were associated with spikes in anxiety and internalizing symptoms, especially in youth and student populations (23, 24). These findings emphasize the relevance of situating current research within specific socio-cultural contexts.

Despite the rich body of literature linking social media and screen time to anxiety, significant gaps remain. Many existing studies rely on Western samples, limiting the generalizability of their findings to non-Western populations such as students in the Middle East and North Africa. Additionally, much of the literature treats social media use and screen time as isolated predictors, often failing to explore their interactive or combined effects on mental health. This study aims to address these gaps by examining how both social media use and daily screen time independently and collectively predict anxiety levels among university students in Egypt.

Methods and Materials

Study Design and Participants

This study employed a correlational descriptive research design to examine the relationship between social media use, daily screen time, and anxiety levels among university students. The target population consisted of undergraduate students from universities in Egypt. A total of 400 participants were selected using a simple random sampling technique, with the sample size determined based on the Morgan and Krejcie (1970) sample size determination table for a population of unknown size. Inclusion criteria required that participants be full-time students aged 18 to 30 years and regular users of social media platforms. Informed consent was obtained from all participants, and ethical considerations regarding anonymity and voluntary participation were strictly followed throughout the study.

Data Collection

To assess anxiety levels among university students, this study employed the Generalized Anxiety Disorder 7-item scale (GAD-7), developed by Spitzer et al. in 2006. The GAD-7 is a widely recognized screening tool for measuring the severity of generalized anxiety disorder symptoms in both clinical and research settings. The scale includes 7 items that reflect core anxiety symptoms experienced over the past two weeks, rated on a 4-point Likert scale ranging from 0 ("not at all") to 3 ("nearly every day"). Total scores range from 0 to 21, with cutoff points of 5, 10, and 15 indicating mild, moderate, and severe anxiety levels, respectively. The GAD-7 has demonstrated strong internal consistency (Cronbach's $\alpha = 0.92$) and test-retest reliability, and its validity has been supported across various populations and languages in numerous studies, confirming its suitability for assessing anxiety in university student populations.

Social media use was measured using the Social Media Engagement Questionnaire (SMEQ), developed by SMEQ researchers led by Frison and Eggermont in 2016. This scale assesses the frequency and emotional involvement of individuals with social media platforms in daily life. The SMEQ comprises 5 core items, each rated on a 5-point Likert scale from 1 ("never") to 5 ("always"), capturing behavioral engagement, emotional connection, and habitual use. It does not divide into formal subscales, but rather yields a total engagement score. The SMEQ has shown acceptable levels of internal consistency (Cronbach's $\alpha > 0.80$) and construct validity across different adolescent and young adult populations. Its concise format and focus on general engagement rather than platform-specific behavior make it particularly effective for use among university students.

Daily screen time was assessed using the Smartphone Usage Questionnaire (SUQ), originally developed by Kwon et al. in 2013 as part of their Smartphone Addiction Scale framework. For the purposes of this study, the short version focusing on daily time spent on smartphone-related activities was used. The SUQ includes 10 items, with responses rated on a 6-point Likert scale ranging from 1 ("strongly disagree") to 6 ("strongly agree"), and it is designed to measure both the frequency and duration of daily smartphone use, which serves as a proxy for overall screen time. The tool encompasses behavioral patterns such as checking, usage during daily routines, and perceived overuse. The SUQ has demonstrated good internal reliability (Cronbach's $\alpha = 0.88$) and has been validated in studies involving student populations, confirming its applicability in examining screen time-related behaviors in young adults.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS), version 27. Descriptive statistics were used to summarize demographic information and the main study variables. Pearson correlation analysis was conducted to examine the relationships between the dependent variable (anxiety) and each of the independent variables (social media use and daily screen time). To further assess the predictive power of social media use and screen time on anxiety levels, a standard multiple linear regression analysis was performed. Assumptions of normality, linearity, homoscedasticity, multicollinearity, and independence of residuals were tested and confirmed prior to the analysis.

Findings and Results

The sample consisted of 400 university students, with 229 (57.25%) identifying as female and 171 (42.75%) as male. The majority of participants were between 21 and 24 years old (n = 216; 54.00%), while 118 students (29.50%) were aged 18 to 20, and 66 students (16.50%) were aged 25 to 30. Regarding academic level, 142 participants (35.50%) were in their third year, followed by 112 (28.00%) in the second year, 96 (24.00%) in the fourth year, and 50 (12.50%) in the first year. Most students (n = 351; 87.75%) reported using social media for more than three hours daily, while only 49 participants (12.25%) used it for less than three hours.

Table 1. Descriptive Statistics for Study Variables (N = 400)

Variable	Mean (M)	Standard Deviation (SD)
Anxiety (GAD-7)	10.87	4.36
Social Media Use (SMEQ)	17.24	3.95
Daily Screen Time (hrs)	6.71	2.14

Participants reported a mean anxiety score of 10.87 (SD = 4.36), indicating a moderate average level of anxiety. The mean score for social media use was 17.24 (SD = 3.95), reflecting moderate to high engagement on a scale where higher scores denote more frequent and emotionally involved use. Daily screen time had a mean of 6.71 hours (SD = 2.14), suggesting that most participants exceeded typical recommended screen time guidelines.

Prior to conducting the regression analysis, all assumptions were evaluated and met. Normality was confirmed through the Shapiro-Wilk test ($p > 0.05$) and visual inspection of Q-Q plots. Linearity and homoscedasticity were assessed using scatterplots of standardized residuals versus predicted values, indicating evenly distributed residuals with no clear pattern. Multicollinearity was examined using Variance Inflation Factor (VIF) values, which were 1.28 for social media use and 1.31 for daily screen time, both well below the threshold of 10. Additionally, the Durbin-Watson statistic was 1.97, suggesting no autocorrelation in the residuals and supporting the assumption of independence.

Table 2. Pearson Correlation Coefficients Between Study Variables

Variable	1. Anxiety	2. Social Media Use	3. Screen Time
1. Anxiety	—		
2. Social Media Use	.56**	—	
3. Screen Time (hrs)	.41**	.48**	—

**p < .01.

As shown in Table 2, anxiety was positively and significantly correlated with social media use ($r = .56$, $p < .01$) and daily screen time ($r = .41$, $p < .01$). Additionally, social media use and screen time were also moderately correlated with each other ($r = .48$, $p < .01$), suggesting that students who spent more time on screens were also more likely to report higher social media engagement.

Table 3. ANOVA Summary for Multiple Linear Regression Predicting Anxiety

Source	Sum of Squares	df	Mean Square	R	R^2	Adjusted R^2	F	p
Regression	1947.26	2	973.63	0.61	0.37	0.37	92.16	< .001
Residual	3321.18	397	8.37					
Total	5268.44	399						

The overall regression model was statistically significant, $F(2, 397) = 92.16$, $p < .001$, indicating that social media use and screen time together accounted for a significant proportion of the variance in anxiety scores. The model explained 37% of the variance in anxiety ($R^2 = .37$), with a strong model fit ($R = .61$) and minimal shrinkage indicated by the adjusted R^2.

Table 4. Multiple Regression Coefficients Predicting Anxiety

Predictor	B	SE	β	t	p
Constant	2.84	0.78	—	3.64	< .001
Social Media Use	0.51	0.06	.49	8.47	< .001
Daily Screen Time (hrs)	0.42	0.08	.29	5.38	< .001

As illustrated in Table 4, both social media use ($B = 0.51$, $\beta = .49$, $p < .001$) and daily screen time ($B = 0.42$, $\beta = .29$, $p < .001$) were statistically significant predictors of anxiety. Social media use had a slightly stronger beta weight, indicating a more substantial unique contribution to the prediction of anxiety compared to screen time. The constant (intercept) of the model was also significant ($B = 2.84$, $p < .001$), suggesting a baseline anxiety level independent of the two predictors.

Discussion and Conclusion

The present study explored the predictive relationship between social media use, daily screen time, and anxiety levels among university students in Egypt using a correlational descriptive design. The findings indicated statistically significant positive correlations between both independent variables—social media use and daily screen time—and the dependent variable, anxiety. Additionally, the results of the multiple linear regression analysis revealed that both variables were significant predictors of anxiety, with social media use exhibiting a slightly stronger predictive power than daily screen time. These findings contribute to the growing body of literature emphasizing the psychological cost of excessive digital engagement among university-aged populations.

The significant relationship observed between social media use and anxiety supports a wide range of prior studies that have documented the adverse emotional consequences of excessive or problematic social media behaviors. Research has consistently shown that individuals who engage in frequent social media use—particularly those prone to social comparison, rumination, and compulsive checking—tend to report higher levels of anxiety and psychological distress (3, 4, 10). These effects are particularly pronounced in student populations, where social media becomes a central arena for identity expression and peer interaction. This dynamic was supported in our study as students reporting higher engagement with social media platforms also reported elevated anxiety levels.

A possible explanation for this relationship lies in the mechanisms of upward social comparison and fear of missing out (FoMO), both of which are frequently amplified on visually driven platforms such as Instagram or TikTok. Jin et al. (4) found that the visibility of idealized lifestyles and achievements on social media intensifies self-evaluation and contributes to employment-related anxiety among Chinese youth. Similar psychological patterns are observable in our sample, where students may feel inadequate or anxious when comparing their academic or social lives with those of their peers online. Moreover, Shi et al. (3) showed that the acquisition of information related to physical appearance on social media predicted appearance-related anxiety in young women, further highlighting how platform-specific content exacerbates emotional distress.

In addition to content-based triggers, the compulsive nature of social media use itself may also fuel anxiety. Ahorsu (6) emphasized how social media addiction functions through psychological reinforcement cycles that mimic behavioral addictions. The present study corroborates this view by showing that increased social media engagement is significantly associated with anxiety, suggesting that it may not merely be *what* students consume online, but *how frequently and compulsively* they do so that drives emotional distress. Dorčić et al. (10) similarly highlighted the link between habitual use and mental health deterioration, adding support to this interpretation.

The regression results also showed that daily screen time was a significant, though slightly less powerful, predictor of anxiety levels. This is consistent with existing findings suggesting that prolonged screen exposure—regardless of platform—can disrupt sleep, impair cognitive functioning, and limit face-to-face interaction, all of which contribute to emotional dysregulation (13, 14). For instance, Pallavi et al. (13) reported that exposure to excessive and unreliable health information via digital platforms was predictive of increased anxiety, a pattern likely reflective of the cognitive overload experienced by university students.

Other studies have shown that the *timing* and *context* of screen usage also matter. Ryu et al. (23) found that screen time during lockdown periods was associated with acute anxiety symptoms, especially when individuals used their devices late into the night. Likewise, Shabahang et al. (16) introduced the concept of "social media-related nightmares" as a possible outcome of poor digital hygiene, further linking screen habits to poor sleep quality and emotional disturbance. These insights align with the current study's results, suggesting that excessive screen exposure may negatively impact both psychological and physiological functioning, ultimately elevating anxiety.

While both predictors were significant, it is notable that social media use emerged as a stronger contributor to anxiety than general screen time. This distinction aligns with Liu's (8) findings that social media overuse—specifically, as opposed to general device usage—was more directly correlated with perceived stress and anxiety symptoms among Chinese university students. This distinction is crucial for understanding that the *quality* and *type* of digital engagement may play a more central role in emotional outcomes than sheer time spent on screens.

Beyond individual usage patterns, emotional and personality traits appear to interact with digital behaviors to shape mental health outcomes. Studies have shown that individuals high in alexithymia, narcissism, or dissociation may experience heightened sensitivity to negative online feedback, thereby increasing their anxiety (7, 21). This interaction between personal vulnerability and digital context may explain why certain students in our sample, even with similar screen time, reported varying anxiety levels. Akpinar et al. (22) further supported this by identifying self-concealment and sensation-seeking as mediators in social media-induced anxiety.

Sociocultural factors also play a role in shaping how digital experiences are internalized. In collectivist cultures like Egypt, social media can act as a public arena where one's behavior is closely observed and evaluated by peers and family, which may heighten social anxiety and the need for social approval (5, 12). Lai et al. (17) also found that communication capacity mediated the relationship between social media use and social anxiety in collectivist societies, adding a layer of cultural complexity that may also apply to our Egyptian sample.

Interestingly, some studies point to potential protective roles of digital engagement, particularly when online platforms are used to access social support. For instance, Politte-Corn et al. (1) found that social media-based support moderated the effects of pandemic-related stress on internalizing symptoms. However, the nature of the support appears to matter; superficial interactions or likes may not buffer against anxiety in the same way that deep, emotionally supportive online relationships do. In our sample, this buffering effect did not appear to outweigh the more detrimental impacts of habitual use and screen overexposure.

Our findings also resonate with the concept of "infodemic fatigue"—the emotional exhaustion caused by continuous exposure to overwhelming or conflicting online information. During crises such as the COVID-19 pandemic, this overload has been linked to increases in state anxiety and health-related distress (14, 18). Even outside crisis periods, the non-stop flow of news, opinions, and peer content can lead to emotional burnout, particularly in university environments characterized by performance pressure and social comparison.

Overall, the present study affirms that social media use and daily screen time are significant predictors of anxiety among university students, with the former demonstrating a more direct and powerful association.

These results reinforce previous empirical findings and contribute to a more nuanced understanding of the psychological effects of digital behavior in non-Western student populations.

Despite its contributions, this study has several limitations that should be acknowledged. First, the correlational design restricts the ability to make causal inferences about the relationships between variables. While social media use and screen time were found to predict anxiety, it is possible that pre-existing anxiety may also lead individuals to engage more heavily with digital media. Second, all data were self-reported, introducing the risk of response bias and social desirability effects. Third, the sample was limited to university students in Egypt, which may limit the generalizability of the findings to other age groups or cultural contexts. Furthermore, the study did not differentiate between types of screen activities (e.g., gaming, studying, entertainment), which may have varying impacts on anxiety levels.

Future studies should adopt longitudinal or experimental designs to better establish the causal relationships between digital behavior and anxiety. It would also be beneficial to explore the role of mediating variables such as self-esteem, sleep quality, or emotional regulation. Additionally, cross-cultural comparisons could yield deeper insights into how cultural norms and values mediate the psychological effects of social media. Finally, distinguishing between different types of screen use—active vs. passive, educational vs. recreational—could refine our understanding of which specific behaviors are most detrimental or protective for mental health.

Based on the findings of this study, universities and mental health practitioners should consider implementing digital literacy and well-being programs to help students develop healthier online habits. Educational workshops could focus on promoting mindful social media use, setting boundaries for screen time, and recognizing signs of digital overuse. Counselors may also assess digital behavior patterns as part of routine mental health screenings. Lastly, integrating structured offline activities such as peer support groups, exercise programs, and social clubs may provide students with healthier alternatives to excessive screen engagement.

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Authors' Contributions

All authors equally contributed to this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants. Written consent was obtained from all participants in the study.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

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