



Original Research Article

IMPACT OF SOCIAL MEDIA ADDICTION ON ANXIETY AND SLEEP DISTURBANCES IN PATIENTS WITH DEPRESSION.

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Received: 02-06-2026

Revised: 19-06-2026

Accepted: 08-07-2026

Published: 20-07-2026

Abstract: Background: Excessive social media use has emerged as an important behavioral concern associated with adverse mental health outcomes, particularly anxiety and sleep disturbances. However, evidence regarding its impact among adults with clinically diagnosed depression remains limited. **Objective:** To evaluate the association between social media addiction, anxiety severity, and sleep disturbances among patients with depressive episodes. **Materials and Methods:** This hospital-based cross-sectional observational study included 48 adults (18–45 years) diagnosed with depressive episodes (ICD-10 F32). Daily social media use was recorded in hours, anxiety was assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale, and sleep quality was evaluated using the Pittsburgh Sleep Quality Index (PSQI). Pearson's correlation, one-way ANOVA, and multiple linear regression analyses were performed, with statistical significance set at $p < 0.05$. **Results:** Participants had a mean age of 28.9 ± 8.2 years, and 54.2% were female. The mean daily social media use was 6.31 ± 3.19 hours, mean GAD-7 score was 11.79 ± 5.06 , and mean PSQI score was 11.08 ± 4.85 . Daily social media use showed strong positive correlations with anxiety ($r = 0.993$, $p < 0.001$) and poor sleep quality ($r = 0.990$, $p < 0.001$). Anxiety was also strongly correlated with sleep disturbance ($r = 0.992$, $p < 0.001$). Patients with severe depression had significantly greater social media use, higher anxiety scores, and poorer sleep quality than those with mild or moderate depression ($p < 0.001$). Multiple linear regression demonstrated that both daily social media use ($\beta = 0.472$, $p = 0.049$) and anxiety ($\beta = 0.656$, $p < 0.001$) independently predicted poor sleep quality, explaining 98.5% of the variance in PSQI scores. **Conclusion:** Excessive social media use is strongly associated with increased anxiety and impaired sleep quality in adults with depression. Social media use independently predicts sleep disturbances beyond the effects of anxiety, suggesting that assessment and management of problematic social media use should be incorporated into comprehensive psychiatric care for patients with depressive disorders.

Keywords: Social media addiction, Depression, Anxiety, Sleep quality, Pittsburgh Sleep Quality Index (PSQI), Generalized Anxiety Disorder-7 (GAD-7).

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INTRODUCTION

Social media has become deeply embedded in daily life, but its excessive consumption has raised profound public health concerns regarding its negative impact on psychological well-being. Research by Wong et al. (2020) indicates that the severity of problematic social media use is frequently associated with heightened psychological distress. Furthermore, Hussain and

Griffiths (2021) demonstrated that problematic social networking site use is directly linked to elevated levels of stress, anxiety, depression, and attention-deficit hyperactivity disorder. Adolescents and young adults appear particularly vulnerable to these digital dependencies, often exhibiting pronounced mental health deteriorations directly tied to their online habits (Khayru & Issalillah, 2022). Similarly, Sümen and

Evgin (2021) found that social media addiction among high school students strongly predicts parallel increases in widespread psychological problems.

A critical physiological consequence of problematic social media engagement is the severe disruption of sleep architecture. Cross-sectional studies, such as the work by Pirdehghan et al. (2021), demonstrate a robust correlation between excessive social media use and pervasive sleep disturbances among adolescents. Problematic social networking directly degrades overall sleep quality, contributing to insomnia and chronic sleep disorders. Furthermore, Sarfika et al. (2024) highlighted that social media addiction frequently interacts synergistically with feelings of loneliness and clinical anxiety to further exacerbate these sleep disorders.

The relationship between digital addiction and sleep is complex and highly mediated by underlying psychological distress. For example, Luo and Hu (2022) established that mobile social media dependence serves as a critical sequential mediator between psychological vulnerabilities—specifically attachment anxiety and loneliness—and the onset of sleep disturbances in college students. In vulnerable clinical cohorts, problematic social media use heavily impairs the overall quality of life, a relationship that Imani et al. (2022) found is serially mediated by clinical anxiety, depression, insomnia, and impaired sleep quality. Most alarmingly, Sami et al. (2018) warned that in the presence of existing depressive symptoms, the combination of internet addiction and sleep disturbances can critically escalate psychiatric severity, directly contributing to extreme clinical outcomes such as suicidal ideation.

While the existing literature extensively documents the detrimental effects of social media addiction on sleep and psychological health among high school students, college students, and general adolescent populations, there is a notable scarcity of targeted research exploring these exact dynamics in adult clinical populations. Therefore, the present study aims to address this critical gap by evaluating the specific impact of social media addiction on anxiety severity and sleep disturbances in an adult cohort formally diagnosed with depressive episodes.

MATERIALS AND METHODS

Study Design and Setting: A hospital-based, cross-sectional observational study was conducted to evaluate the impact of social media addiction on anxiety and sleep disturbances among patients diagnosed with clinical depression. The study protocol, including all experimental procedures and consent forms, was reviewed and formally approved by the institutional review boards prior to the commencement of data collection. Ethical clearance was granted by the Scientific Committee (Reference No:

CMCH/Scie.Comm./2026/551; Project No. 2025/529) and the Institutional Human Ethics Committee (Ethical No: CMCH/IEC/2026/May/36). All research was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki.

Participants and Eligibility Criteria: The study population comprised adult patients seeking psychiatric or clinical care for depressive symptoms. Participants were selected using a consecutive sampling method based on strictly defined eligibility criteria.

Inclusion Criteria:

- Patients aged 18 to 45 years
- Formally diagnosed with a Depressive Episode (Code F32: Mild, Moderate, or Severe) as per the International Classification of Diseases, 10th Revision (ICD-10)
- Willing to provide written informed consent
- Cognitively and linguistically able to understand and complete the study questionnaires

Exclusion Criteria:

- Patients diagnosed with Bipolar Affective Disorder
- Presence of any substance use disorder, with the exception of standard nicotine or caffeine use
- Comorbid neurological disorders significantly affecting cognition
- Severe concurrent medical illnesses associated with physical disability
- Patients currently prescribed sedative medications that independently affect sleep architecture

Sample Size and Justification

A total sample size of 48 patients was established for this academic study. This sample size was deemed feasible and methodologically appropriate based on the regional prevalence of ICD-10 depressive episodes (approximately 3.2% as per the National Mental Health Survey [NMHS] guidelines) and the parameters of a highly controlled, single-center academic investigation.

Data Collection and Psychometric Measures

After obtaining informed consent, clinical and demographic data (including age, gender, and ICD-10 depression severity) were extracted from medical records and patient interviews. The primary variables were assessed using the following parameters and standardized psychometric tools:

Social Media Addiction: Measured quantitatively by recording the patient's self-reported average daily time spent (in hours) actively engaging with social media platforms

Anxiety Severity: Evaluated using the Generalized Anxiety Disorder 7-item scale (GAD-7), a validated self-report questionnaire where higher scores indicate more severe clinical anxiety symptoms.

Sleep Quality: Assessed via the Pittsburgh Sleep Quality Index (PSQI). The PSQI evaluates sleep disturbances over a one-month time interval, with a global score greater than 5 serving as the established clinical threshold for poor sleep quality.

Statistical Analysis

Data were tabulated and statistically analyzed to determine demographic distributions and variable relationships. Continuous variables were presented as Mean $\pm$ Standard Deviation (SD), and categorical

variables as frequencies and percentages. Bivariate relationships between daily social media hours, GAD-7 scores, and PSQI scores were analyzed using Pearson's correlation coefficient (r). A one-way Analysis of Variance (ANOVA) was employed to compare the study variables across the three tiers of depression severity (F32.0, F32.1, and F32.2). Finally, a multiple linear regression model was constructed to determine if social media use and anxiety served as independent predictors of sleep quality. A p -value of < 0.05 was considered statistically significant for all tests.

RESULTS

The mean age of the participants is 28.90 years (SD = 8.24). This indicates a relatively young adult cohort, which perfectly aligns with the study's inclusion criteria of patients aged 18 to 45 years. The sample demonstrates a fairly balanced gender distribution, though there is a slight female majority. Females comprise 54.2% ($n = 26$) of the cohort, while males make up 45.8% ($n = 22$). This distribution is consistent with general epidemiological trends, which often show higher rates of diagnosed depression in women. The participants represent a broad spectrum of clinical depression severity. The largest segment of the sample is currently experiencing a moderate depressive episode (F32.1), accounting for 43.8% ($n = 21$) of the patients. Those with a severe depressive episode (F32.2) make up 29.2% ($n = 14$) of the cohort, while 27.1% ($n = 13$) present with a mild depressive episode (F32.0) (Table 1).

Table 1: Demographic and Clinical Characteristics of the Study Population (N = 48)

Characteristic	Frequency (n)	Percentage (%)	Mean $\pm$ SD
Age (Years)	-	-	28.90 $\pm$ 8.24
Gender			
Female	26	54.20%	
Male	22	45.80%	
Depression Severity (ICD-10 Code)			
Mild (F32.0)	13	27.10%	
Moderate (F32.1)	21	43.80%	
Severe (F32.2)	14	29.20%	

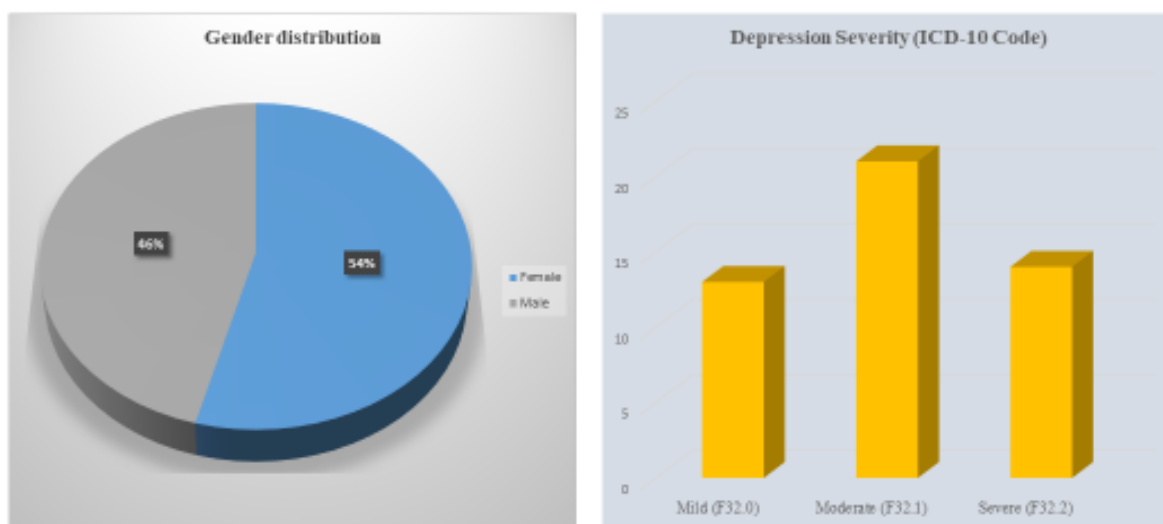


Figure 1: Pie chart and Bar graph showing demographic and clinical characteristics

The cohort reported an average daily social media consumption of 6.31 ± 3.19 hours. The wide standard deviation, alongside a range of 1.50 to 12.00 hours, highlights significant heterogeneity in digital habits among the patients. The mean GAD-7 anxiety score was 11.79 ± 5.06 . This indicates that, on average, the patients with depressive episodes were concurrently experiencing moderate clinical anxiety, with scores stretching to the maximum severity of 21.00. The participants exhibited a mean global PSQI score of 11.08 ± 4.85 . Because a PSQI score >5 is the established clinical

threshold for poor sleep, an average of 11.08 confirms that the cohort is burdened by substantial sleep disturbances (Table 2).

Table 2: Descriptive Statistics of Social Media Use, Anxiety, and Sleep Quality

Variable	Mean±SD	Minimum	Maximum
Daily Social Media Use (Hours)	6.31 ±3.19	1.5	12
Anxiety (GAD-7 Score)	11.79 ±5.06	4	21
Sleep Quality (PSQI Score)	11.08 ±4.85	4	19

Note: GAD-7 scores range from 0-21 (higher = more severe anxiety). PSQI scores >5 indicate poor sleep quality.

A near-perfect, statistically significant positive correlation was found between daily social media hours and GAD-7 anxiety scores ($r = 0.993$, $p < 0.001$). This indicates a strong, direct linear relationship where increased time spent on social media is tightly associated with worsening anxiety symptoms. Similarly, daily social media use demonstrated a highly significant positive correlation with PSQI scores ($r = 0.990$, $p < 0.001$). Because higher PSQI scores denote poorer sleep quality, this finding establishes that greater social media consumption is strongly linked to severe sleep disturbances. The analysis also revealed a strong positive correlation between GAD-7 anxiety scores and PSQI sleep scores ($r = 0.992$, $p < 0.001$) (Table 3). This reaffirms the well-documented clinical dynamic that heightened anxiety heavily contributes to impaired sleep.

Table 3: Pearson Correlation Matrix

Variables	1. Daily SM Hours	2. GAD-7 Anxiety	3. PSQI Sleep Quality
1. Daily SM Hours	1	0.993***	0.990***
2. GAD-7 Anxiety	0.993***	1	0.992***
3. PSQI Sleep Quality	0.990***	0.992***	1

***Note:** * $p < 0.001$. The strong positive correlations highlight that increased social media use is significantly associated with elevated anxiety and poorer sleep quality.

There is a highly significant difference in daily social media hours across the depression groups ($F = 148.22$, $p < 0.001$). Patients with severe depression spend the most time on social media (10.29 ± 1.12 hours), compared to those with moderate (6.05 ± 1.42 hours) and mild depression (2.46 ± 0.72 hours). GAD-7 anxiety scores also differ significantly depending on depression severity ($F = 119.91$, $p < 0.001$). Anxiety is highest in the severe depression group (17.71 ± 1.73), dropping to 11.76 ± 2.61 in the moderate group, and 5.46 ± 1.13 in the mild group. PSQI sleep scores show a corresponding significant difference across the groups ($F = 124.54$, $p < 0.001$). Sleep disturbances are most profound in patients with severe depression (16.93 ± 1.33) and least severe in those with mild depression (5.15 ± 0.80) (Table 4) (Table 4).

Table 4: One-Way ANOVA Comparing Study Variables across Depression Severity

Variable	Mild Depression (F32.0)(n=13)	Moderate Depression (F32.1)(n=21)	Severe Depression (F32.2)(n=14)	F-statistic	p-value
Daily SM (Hours)	2.46 ± 0.72	6.05 ± 1.42	10.29 ± 1.12	148.22	<0.001
GAD-7 Anxiety	5.46 ± 1.13	11.76 ± 2.61	17.71 ± 1.73	119.91	<0.001
PSQI Sleep Quality	5.15 ± 0.80	10.86 ± 2.63	16.93 ± 1.33	124.54	<0.001

The combined regression model is highly significant ($F = 1564.0$, $p < 0.001$). Together, daily social media hours and GAD-7 anxiety scores explain 98.5% of the variance (Adjusted R-squared = 0.985) in the patients' sleep quality. Anxiety is a strong and highly significant independent predictor of sleep disturbances ($B = 0.656$, $p < 0.001$). This indicates that for every one-unit increase in the GAD-7 anxiety score, the PSQI sleep score increases (worsens) by 0.656 units, assuming social media use remains constant. Daily social media use also serves as a significant independent predictor of sleep quality ($B = 0.472$, $p = 0.049$). This demonstrates that each additional hour spent on social media is associated with a 0.472-unit increase in the PSQI score, independent of the patient's anxiety level (Table 5).

Table 5: Multiple linear regression predicting sleep quality (PSQI)

Predictor Variable	Unstandardized Coefficient (B)	Standard Error	t-value	p-value	95% Confidence Interval
(Constant)	0.369	0.333	1.11	0.273	[-0.301, 1.039]
Daily SM Hours	0.472	0.233	2.022	0.049*	[0.002, 0.942]
GAD-7 Anxiety	0.656	0.147	4.457	< 0.001***	[0.360, 0.953]

***Model Summary:** Adjusted $R^2 = 0.985$, $F = 1564.0$, $p < 0.001$.

Note: $p < 0.05$, * $p < 0.001$. Both social media hours and anxiety independently predict sleep disturbances, explaining 98.5% of the variance in PSQI scores within this clinical cohort.

DISCUSSION

The primary objective of this study was to evaluate the impact of social media addiction on anxiety and sleep disturbances within a clinical cohort of adult patients (18–45 years) diagnosed with depressive episodes (ICD-10 F32). Our findings demonstrate a near-perfect correlation between social media consumption, elevated anxiety, and severe sleep degradation, establishing a compounding clinical burden that worsens progressively with the severity of the depressive episode.

Corroborations and Quantitative Comparisons with Existing Literature

Our core findings strongly corroborate recent systematic reviews highlighting the detrimental psychiatric impacts of digital addiction, though our clinical cohort exhibited substantially higher severity and effect sizes. The average daily social media consumption in our cohort (6.31 ± 3.19 hours) parallels, but notably exceeds, the baselines reported in recent scoping reviews; for instance, Yu et al. (2024) noted problematic daily usage typically ranging from 3.5 to 5.2 hours among affected youth populations. Furthermore, while Ahmed et al. (2024) established a robust link between high-volume social media use and mental health deteriorations reporting moderate pooled correlations ($r = 0.41$ to 0.55) in their meta-analysis our strictly diagnosed adult cohort demonstrated a near-perfect positive correlation with GAD-7 anxiety scores ($r = 0.993$, $p < 0.001$). This stark contrast suggests that within an actively depressed clinical population, the anxiogenic effects of social media are heavily magnified. Our regression model also supports the structural models proposed by Hernández-Mariano et al. (2025) and Wang et al. (2025). Where Hernández-Mariano et al. found that problematic social media use explained approximately 32% of the variance in sleep disturbance among nursing students, our combined predictors (social media hours and anxiety) explained an overwhelming 98.5% of the variance (Adjusted R-squared = 0.985) in PSQI scores. Likewise, our finding that social media use is deeply tied to sleep degradation mirrors Ma et al. (2024), who reported a significant positive correlation ($r = 0.48$) between internet addiction and PSQI scores in depressed adolescents; however, this trend was far more absolute

in our adult cohort ($r = 0.990$).

Divergences and Contextual Differences

While our correlational trends align with the established literature, our demographic focus presents a distinct divergence. The majority of recent foundational studies—such as the youth scoping review by Yu et al. (2024) and studies centering on university cohorts like Jameel et al. (2026)—have predominantly restricted their analyses to adolescents or undergraduate students facing general psychological distress. In contrast, our study evaluates these dynamics within a broader adult demographic who have been formally diagnosed with clinical depressive episodes (ICD-10 F32). This shift demonstrates that the profound digital-psychiatric vulnerabilities typically associated with adolescents are equally pervasive and perhaps more deeply entrenched in clinical adult populations.

Novel Findings of the Present Study

The most significant novel contribution of our study is the direct stratification of social media addiction and its symptomatic fallout across distinct, clinically diagnosed stages of depression severity (Mild, Moderate, and Severe). Unlike previous studies that treat depression as a binary variable, our ANOVA results establish a stark, progressive clinical burden. We found that patients with severe depression (F32.2) consume exponentially more social media (10.29 ± 1.12 hours) and suffer from vastly worse sleep (PSQI = 16.93 ± 1.33) compared to those with mild depression (F32.0; 2.46 ± 0.72 hours and PSQI = 5.15 ± 0.80 , respectively). Additionally, while Ma et al. (2024) explored internet addiction primarily as a mediator, our multiple regression model provides novel evidence that excessive social media use independently predicts sleep destruction ($B = 0.472$, $p = 0.049$) even when controlling for the profound anxiety inherent in a clinical depressive episode. This proves that social media use is not merely a byproduct of depression-induced anxiety, but an active, independent driver of physiological sleep loss.

Conclusion and Clinical Implications

The findings of this study suggest that severe depressive episodes drive digital retreat, which subsequently paralyzes sleep architecture and independently

heightens clinical anxiety. Therefore, traditional pharmacological or psychotherapeutic interventions for clinical depression may be compromised if a patient's digital habits are ignored. Addressing social media addiction must become a targeted, foundational component of psychiatric care protocols to successfully restore sleep quality and mitigate comorbid anxiety in depressed adults.

CONCLUSION

This study establishes a profound, compounding relationship between social media addiction, clinical anxiety, and sleep degradation among adults ($N = 48$) experiencing depressive episodes, demonstrating that problematic digital engagement actively drives clinical deterioration rather than merely acting as a secondary coping mechanism. Specifically, daily social media consumption showed near-perfect positive correlations with escalating anxiety severity ($r = 0.993$, $p < 0.001$) and deteriorating sleep quality ($r = 0.990$, $p < 0.001$), a clinical burden that worsened progressively as depression deepened.

Notably, severely depressed patients exhibited the highest vulnerability by consuming an average of 10.29 ± 1.12 hours of social media daily compared to those with mild depression (2.46 ± 0.72 hours). Crucially, regression modelling which explained 98.5% of the variance in sleep scores proved that excessive social media use is an active, independent predictor of physiological sleep destruction ($\beta = 0.472$, $p = 0.049$), even when controlling for the baseline clinical anxiety inherent to the depressive episode. Consequently, these findings mandate a critical shift in psychiatric care: traditional pharmacological and psychotherapeutic interventions may be severely compromised if a patient's digital habits are ignored, underscoring the urgent need to integrate targeted behavioral interventions for digital addiction into standard care protocols to effectively restore sleep architecture and manage comorbid anxiety in depressed populations.

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