

Social Media Addiction and Anxiety Disorders: A Comprehensive Review of Theoretical Frameworks, Empirical Evidence, and Clinical Implications

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Abstract:

Background: The pervasive integration of social media into daily life has been paralleled by growing concerns regarding "social media addiction" (SMA) and its potential impact on mental health, particularly anxiety disorders. Despite not being a formal diagnosis, SMA is characterized by core behavioral addiction components and is linked to significant psychological distress. This review aims to synthesize and critically evaluate the conceptual, theoretical, and empirical literature on the relationship between SMA and anxiety disorders, focusing on adolescents and young adults while identifying key mechanisms, methodological limitations, and future research priorities. A narrative synthesis was conducted, drawing on recent meta-analyses, large-scale epidemiological studies, and established theoretical models of behavioral addiction (e.g., I-PACE, DSM-5) and problematic internet use. Evidence from cross-sectional and longitudinal research reveals a robust positive association between SMA and anxiety symptoms, with pooled effect sizes in the small-to-moderate range, particularly pronounced in adolescents and young adults. The relationship is bidirectional and mediated by factors such as sleep disturbance, fear of missing out (FoMO), cyberbullying, and low self-esteem. Key moderators include gender, age, and pre-existing vulnerability. Mechanistically, the link is driven by reward-based platform design, social comparison processes, hyper-connectivity, and maladaptive emotion regulation, creating a cycle where anxious individuals use social media as a coping mechanism, only to experience heightened social and generalized anxiety. SMA and anxiety disorders are consistently and positively associated, likely through bidirectional, self-reinforcing pathways. Future research requires rigorous longitudinal and experimental designs, clinically diagnosed samples, and culturally diverse cohorts. Clinically, assessments of digital behaviors should be integrated into anxiety treatment. At a policy level, interventions must extend beyond individual responsibility to include structural changes in platform design to mitigate addictive and anxiety-provoking features.

Keywords: Social media addiction; problematic social media use; anxiety disorders; social anxiety; adolescents; FoMO; I-PACE model; behavioral addiction.

INTRODUCTION

The last decade has witnessed the deep embedding of social media into the fabric of everyday life, with over 4.8 billion global users, predominantly adolescents and young adults (Twenge, 2019; U.S. Department of Health and Human Services, 2023). Concurrently, anxiety disorders remain among the most prevalent mental health conditions worldwide, with lifetime prevalence estimates ranging from 20-30% in many populations. The temporal overlap between the proliferation of social media and rising rates of reported anxiety has generated intense academic and public debate regarding a potential causal nexus.

Initial research, focused on screen time, has evolved to examine more nuanced, problematic patterns of use. This shift recognizes that it is not the time spent online per se, but the nature of the engagement—characterized by compulsive checking, loss of control, and functional impairment—that is most strongly linked to psychological distress (Kuss & Griffiths, 2017). This pattern, often termed "social media addiction" (SMA) or problematic social media use, has been consistently associated with higher levels of anxiety, depression, and stress across systematic reviews and meta-analyses (Jing et al., 2025; Shannon et al., 2022).

Despite this consensus, critical questions remain unresolved. The directionality of the relationship remains unclear: does SMA cause anxiety, do anxious individuals gravitate towards maladaptive social media use, or does a bidirectional relationship exist? Furthermore, the mechanisms underpinning this association—such as fear of missing out (FoMO), social comparison, and sleep disruption—require further elucidation, as do the factors that moderate the relationship, such as age, gender, and pre-existing vulnerability (Valkenburg & Peter, 2013). Addressing these questions is not merely an academic exercise; it has profound implications for clinical assessment, early intervention, and the development of evidence-based public health and policy responses.

This paper provides a comprehensive synthesis of the conceptual, theoretical, and empirical work on the relationship between SMA and anxiety disorders. It aims to clarify the constructs, outline leading explanatory frameworks, consolidate empirical findings on direct associations and mediating mechanisms, and discuss methodological challenges. Finally, it delineates implications for clinical practice, public health initiatives, and platform governance.

METHODS

This article is a narrative review designed to synthesize and critically evaluate the extant literature on the relationship between social media addiction and anxiety disorders. Given the broad, multidisciplinary nature of the field, a narrative approach was deemed most suitable for integrating diverse theoretical perspectives and empirical findings.

Search Strategy: A non-systematic but comprehensive literature search was conducted in major electronic databases (PubMed, Scopus, PsycINFO, and Google Scholar) for articles published up to March 2025. Search terms included combinations of: "social media addiction," "problematic social media use," "social networking site addiction," "anxiety," "anxiety disorders," "social anxiety," "generalized anxiety," "adolescents," "young adults," "I-PACE model," "FoMO," and "sleep." The search was supplemented by reviewing reference lists of included meta-analyses and key theoretical papers.

Inclusion Criteria: Articles were included if they were: (a) peer-reviewed empirical studies, meta-analyses, systematic reviews, or theoretical papers; (b) focused on the relationship between SMA (or related constructs) and anxiety; and (c) published in English. Given the volume of literature, priority was given to large-scale studies, meta-analyses, and papers published within the last decade, while foundational theoretical and empirical works were also included.

Synthesis: The extracted information was organized thematically. Findings were synthesized under the following thematic categories: conceptualizations of SMA and anxiety, theoretical frameworks, direct associations (cross-sectional and longitudinal), mediating mechanisms, moderating factors, and methodological limitations.

CONCEPTUALIZING SOCIAL MEDIA ADDICTION AND ANXIETY

SMA is not a formal diagnosis in the DSM-5 but is widely operationalized using criteria adapted from substance use and gambling disorders (e.g., salience, tolerance, withdrawal, conflict, relapse). Instruments like the Bergen Social Media Addiction Scale (BSMAS) are most commonly used (Andreassen, 2015). In this review, SMA is defined as a pattern of excessive, compulsive social media engagement leading to distress or functional impairment. Anxiety disorders, in contrast, are a well-defined clinical group characterized by excessive fear

and worry. The intersection is particularly potent for social anxiety disorder (SAD), where digital interactions can paradoxically offer a sense of safety while simultaneously intensifying fears of negative evaluation (Woods & Scott, 2016).

THEORETICAL FRAMEWORKS

Several theoretical models explain the SMA-anxiety link. The **I-PACE (Interaction of Person-Affect-Cognition-Execution) model** (Brand et al., 2019) posits that addictive behaviors arise from interactions between predisposing factors (e.g., high anxiety), affective and cognitive responses to stimuli (e.g., relief from using social media), and weakened executive control, leading to compulsive use. **Cognitive-behavioral models** suggest that maladaptive beliefs (e.g., "My worth depends on likes") drive excessive use and prevent disconfirmation of anxious beliefs in offline contexts. The **Differential Susceptibility to Media Effects Model (DSMM)** (Valkenburg & Peter, 2013) highlights that the effects of social media are conditional, with individuals differing in dispositional and developmental susceptibility, meaning SMA is not uniformly harmful.

EMPIRICAL EVIDENCE: DIRECT ASSOCIATIONS AND TEMPORAL DYNAMICS

A large body of cross-sectional research demonstrates a consistent positive association between SMA and anxiety symptoms. A meta-analysis of student populations found a significant positive correlation between SMA and anxiety, with a small-to-moderate effect size (Jing et al., 2025). These findings are replicated in emerging adults (Vannucci et al., 2017) and adolescents (Woods & Scott, 2016).

Longitudinal and meta-analytic evidence suggests this relationship is bidirectional. A meta-analysis by Wu et al. (2024) found a significant positive correlation between social anxiety and problematic social media use, noting higher effect sizes in clinical and adolescent samples. Longitudinal studies indicate that trajectories of high or increasing addictive use predict subsequent emotional problems, suggesting SMA can precede and exacerbate anxiety (Xiao et al., 2025). This is supported by the U.S. Surgeon General's advisory, which concludes that problematic patterns of social media use are associated with increased risk of anxiety in youth (U.S. Department of Health and Human Services, 2023).

MEDIATING MECHANISMS

Key mechanisms linking SMA and anxiety include:

- **Sleep Disturbance:** Night-time social media use is a robust mediator, disrupting sleep onset, duration, and quality, which in turn is a well-established risk factor for anxiety disorders (Woods & Scott, 2016).
- **Fear of Missing Out (FoMO) and Social Comparison:** FoMO is strongly linked to both SMA and anxiety, driving compulsive checking and anxious rumination (Gupta & Sharma, 2021). This is compounded by social comparison with idealized online portrayals, fostering perceived social isolation and inadequacy (Primack et al., 2017).
- **Cyberbullying:** SMA increases exposure to cyberbullying and online victimization, which are significant predictors of subsequent anxiety, particularly for girls (Twenge, 2019).
- **Self-Esteem and Emotion Regulation:** Low self-esteem acts as both a risk factor for SMA and a consequence of it, while poor emotion regulation can lead individuals to use social media maladaptively as a distraction, reinforcing avoidance behaviors that maintain anxiety.

MODERATORS OF THE SMA-ANXIETY RELATIONSHIP

The strength of the SMA-anxiety association is moderated by several factors. **Age** is a key moderator, with adolescents and emerging adults showing stronger associations due to heightened sensitivity to peer evaluation. **Gender** also plays a role, with girls and young women often more vulnerable, particularly through social comparison and appearance-focused content pathways (Twenge, 2019). Finally, **pre-existing vulnerabilities**, such as neuroticism or a prior anxiety disorder, increase both the likelihood of developing SMA and experiencing its negative mental health consequences (Brand et al., 2019).

DISCUSSION

This review synthesizes a substantial body of evidence confirming a consistent, positive, and likely bidirectional relationship between social media addiction and anxiety disorders. The findings align with the core tenets of the I-PACE model, illustrating how an anxious predisposition (Person) can lead to compulsive social media use driven by relief and reinforcement (Affect-Cognition), which over time weakens executive control (Execution) and exacerbates the original anxiety (Brand et al., 2019). The cognitive-behavioral framework and DSMM further refine this picture, highlighting the role of maladaptive cognitions and individual susceptibility (Valkenburg & Peter, 2013). The identification of mediators such as FoMO, sleep disruption, and cyberbullying provides specific targets for intervention, suggesting that not all social media use is harmful, but rather the compulsive, emotionally driven patterns are most problematic.

METHODOLOGICAL LIMITATIONS AND FUTURE DIRECTIONS

Despite the robustness of the overall findings, the field faces significant methodological limitations that temper causal conclusions. The **predominance of cross-sectional designs** limits causal inference, and while meta-analyses show temporal precedence, more experimental and intensive longitudinal studies (e.g., ecological momentary assessment) are needed to disentangle directionality. **Measurement heterogeneity** is a major issue, with studies using diverse instruments (e.g., BSMAS vs. ad-hoc questionnaires) and varying cut-offs, complicating direct comparisons and meta-analytic synthesis (Ma et al., 2025). **Self-report bias** in both social media use and anxiety symptoms is prevalent, and future research should incorporate objective usage data (e.g., app logs) alongside clinical interviews. There is also a need for greater **cultural and contextual diversity**, as the vast majority of evidence comes from high-income countries. Finally, the field has largely focused on subclinical anxiety symptoms; the relationship between SMA and clinically diagnosed anxiety disorders remains under-explored and represents a critical gap (Kerr et al., 2025).

IMPLICATIONS FOR CLINICAL PRACTICE, PUBLIC HEALTH, AND POLICY

The evidence synthesized here has direct implications for multiple stakeholders.

Clinical: Clinicians treating anxiety disorders should routinely assess digital behaviors. Screening tools like the BSMAS can identify problematic use. Cognitive-behavioral therapy (CBT) can be adapted to address SMA by challenging maladaptive beliefs about online social evaluation, reducing safety behaviors (e.g., compulsive checking), and incorporating behavioral experiments such as temporary social media "detoxes."

Public Health: Population-level initiatives should move beyond simple screen time limits to focus on the context and quality of use. Educational programs in schools should foster digital literacy, explicitly addressing FoMO, social comparison, and healthy sleep hygiene (U.S. Department of Health and Human Services, 2023).

Policy: Given that SMA is partly driven by persuasive design features, responsibility cannot rest solely on individuals. Policymakers and platforms should consider implementing default settings that limit night-time notifications, discourage infinite scroll, and increase transparency around algorithms that may amplify anxiety-provoking content, particularly for minors.

CONCLUSION

The accumulated evidence consistently demonstrates a complex, bidirectional relationship between social media addiction and anxiety disorders. Individuals with SMA are at a significantly higher risk for elevated anxiety, particularly social and generalized anxiety. This

relationship is mediated by well-defined mechanisms including sleep disruption, FoMO, and cyberbullying, and is moderated by age, gender, and pre-existing vulnerabilities. While the evidence base is robust, it is constrained by methodological heterogeneity and a predominance of cross-sectional designs. Future research must prioritize rigorous longitudinal and experimental designs, clinically diagnosed samples, and diverse populations to establish causality and identify high-risk groups. Clinically, integrating assessment of SMA into anxiety treatment is crucial. At a societal level, a multi-level approach combining psychoeducation, cognitive-behavioral strategies, and structural changes to platform design is essential to mitigate the harms of social media addiction while preserving its potential for positive social connection.

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