Review Article ISSN 2639-8451

Addiction Research

Addictive Behaviors in the Post-COVID College Environment

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Received: 07 Oct 2026; **Accepted:** 07 Nov 2026; **Published:** 18 Nov 2026

Citation: Joy Ireri Kagendo. Addictive Behaviors in the Post-COVID College Environment. Addict Res. 2026; 10(4): 1-2.

ABSTRACT

The COVID-19 pandemic accelerated digital technology use among college students and may have unintentionally increased vulnerability to addictive behaviors. Although universities have traditionally focused on alcohol, tobacco, and substance use disorders, emerging evidence indicates a rise in behavioral addictions involving social media, smartphones, and online platforms. Concurrently, post-COVID cognitive changes, often described as "brain fog", have been associated with deficits in attention, memory, and executive functioning, potentially weakening self-regulation and increasing susceptibility to compulsive digital engagement. Social media platforms further reinforce these behaviors through algorithm-driven reward systems designed to maximize engagement. This commentary argues that the convergence of post-pandemic cognitive vulnerability and highly engaging digital environments has created a novel addiction risk profile among college students. Current university prevention frameworks may not sufficiently address these emerging challenges. An expanded approach incorporating behavioral addiction screening, digital wellness education, and cognitive health promotion is recommended to better support student well-being in the post-COVID era.

Keywords

Behavioral addiction, College students, Digital media, Post-COVID cognition, Social media.

Introduction

The COVID-19 pandemic reshaped the behavioral and cognitive landscape of higher education. Remote learning, social isolation, and increased reliance on digital technologies contributed to sustained changes in screen-based behavior among college students. These shifts have persisted beyond the acute pandemic phase, raising concerns about long-term behavioral consequences [1,2].

While substance use remains a central focus of university addiction programs, behavioral addictions are increasingly recognized as significant public health concerns. Excessive engagement with digital platforms, particularly social media and smartphones, is now widely reported among young adults [3]. This commentary examines how post-COVID cognitive vulnerability and algorithm-driven digital environments may be interacting to intensify addiction risk in college populations.

Social Media and Behavioral Reinforcement

Social media platforms are engineered to maximize user engagement through algorithmic personalization, infinite scrolling, and intermittent reinforcement mechanisms. These design features activate reward pathways associated with habit formation and compulsive behavior [4].

Empirical studies consistently link problematic social media use with depression, anxiety, sleep disruption, and reduced academic performance among college students [5]. Emerging neurocognitive research also suggests that frequent social media engagement may temporarily impair attention and inhibitory control, contributing to reduced self-regulation [6].

Because social media is embedded in academic, social, and professional life, its addictive potential is often normalized, making early identification and intervention challenging within university settings.

Post-COVID Cognitive Vulnerability

Post-COVID syndrome has been associated with persistent cognitive symptoms, including reduced attention, memory impairment, and

executive dysfunction [7]. Even among individuals without severe infection, pandemic-related stress and disruption have been linked to cognitive fatigue and reduced mental efficiency [8].

Executive functioning plays a central role in impulse control and behavioral regulation. When cognitive capacity is compromised, individuals may become more reliant on immediate-reward systems such as social media platforms and digital entertainment. This creates a reinforcing cycle in which cognitive fatigue increases digital dependence, which may further reduce cognitive resilience.

These findings suggest that post-COVID cognitive changes may indirectly contribute to increased vulnerability to behavioral addictions among college students.

The University Response Gap

Most universities maintain structured programs addressing substance use disorders; however, behavioral addictions remain underrepresented in institutional prevention frameworks. Students experiencing problematic digital use may not perceive their behavior as clinically relevant, reducing help-seeking behavior.

Importantly, behavioral addictions frequently co-occur with anxiety, depression, and loneliness, suggesting shared underlying mechanisms [9]. The absence of integrated intervention models may therefore limit the effectiveness of current university mental health strategies.

Given the normalization of digital engagement in academic environments, abstinence-based approaches are impractical. Harm-reduction and self-regulation strategies may be more appropriate.

Toward Integrated Interventions

Universities should expand addiction prevention frameworks to include behavioral addictions and digital wellness. Behavioral addiction screening should be incorporated into student health assessments, and digital wellness education should be integrated into orientation and wellness programming.

Training for faculty and student support staff is also essential for early identification of problematic digital behavior patterns. Additionally, cognitive health promotion strategies—including sleep optimization, stress management, and structured digital breaks—may help strengthen executive functioning and reduce vulnerability to compulsive use behaviors.

Further research is needed to explore the interaction between post-COVID cognitive changes and digital engagement patterns in shaping addiction risk trajectories.

Conclusion

The post-COVID academic environment has produced a convergence of cognitive vulnerability and highly reinforcing digital technologies, creating new pathways for addictive behaviors among college students. Social media platforms and smartphones, while essential tools for communication and learning, also contribute to compulsive usage patterns that may impair mental health and academic performance. Universities must expand traditional addiction frameworks to include behavioral addictions and cognitive health considerations. Failure to adapt prevention strategies may limit institutional effectiveness in addressing emerging student health challenges in an increasingly digital world.

Acknowledgments

The author acknowledges colleagues and students whose insights contributed to the development of this commentary.

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