

Designing and Evaluating the Effectiveness of Interventions to Reduce Social Media Addiction among College Students

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Social media addiction among college students has emerged as a significant concern due to its negative impact on academic performance, mental health, and overall well-being. This study aimed to design, implement, and evaluate the effectiveness of three interventions digital detox, cognitive-behavioral therapy (CBT), and mindfulness training in reducing social media addiction among college students. A total of 250 students were randomly assigned to one of the three intervention groups or a control group. Pre- and post-test assessments were conducted to measure social media addiction, psychological well-being (using the DASS-21), and academic performance (self-reported GPA and study habits). Results indicated that all interventions led to significant reductions in social media addiction compared to the control group, with the digital detox group showing the greatest decrease in usage. Additionally, the CBT group showed the most significant improvement in psychological well-being, and the mindfulness group reported improvements in stress management and emotional regulation. The research suggests that while all three interventions are effective in reducing social media addiction, combining elements from each approach may offer the most sustainable long-term benefits. These findings have important implications for university wellness programs aimed at supporting students in managing technology use.

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1. Introduction

In recent years, social media has become an indispensable part of the lives of young adults, particularly college students. While these platforms offer a space for connection, learning,

and self-expression, their excessive use can lead to social media addiction, a growing concern for student well-being and academic performance. Social media addiction is characterized by compulsive use of social networking sites, which

can interfere with daily life activities, academic responsibilities, and social relationships (Kuss & Griffiths, 2020). This issue is particularly critical in the college environment, where students experience high academic and social pressures.

The proliferation of smartphones and constant internet connectivity makes it easier for students to engage with social media at all times, even during class or study sessions. Research indicates that social media addiction among college students is linked to a variety of negative outcomes, including decreased academic performance, poor mental health, sleep disturbances, and social isolation (Lin et al., 2019; Vannucci et al., 2020). Despite this, the academic literature on effective interventions to address social media addiction is still developing, with

limited studies focusing on practical and sustainable solutions in college settings.

This paper aims to design, implement, and evaluate a series of interventions to reduce social media addiction among college students. The research investigates various approaches, including cognitive-behavioral strategies, mindfulness practices, and digital detox programs, to determine which methods are most effective in altering social media usage behaviors and improving students' overall well-being. By exploring the effectiveness of these interventions, this study provides valuable insights into the development of evidence-based strategies that can be incorporated into campus wellness programs to mitigate social media addiction and enhance students' academic and emotional health.

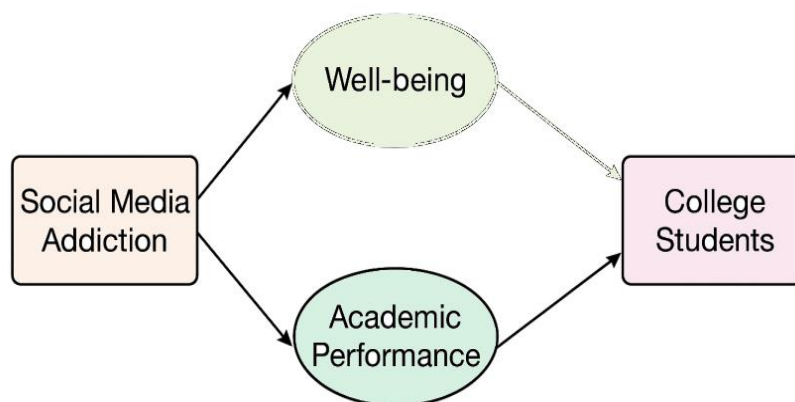


Figure 1: Conceptual framework of social media addiction and its impact on college students' well-being and academic performance

Table 1: Summary of the intervention strategies studied in the research (Digital Detox, CBT, Mindfulness).

Table 1. Summary of the Intervention Strategies Studied in the Research

Intervention Type	Core Description	Techniques / Activities	Primary Focus	Expected Outcomes
Digital Detox	Temporary or gradual reduction in social media use to break habitual engagement patterns.	Limiting daily usage; scheduling social-media-free periods; tracking screen time; 48-hour total	Behavioral modification through abstinence and awareness.	Reduced dependency on social media; increased time for academic activities;

		disconnection in final week.		improved concentration.
Cognitive Behavioral Therapy (CBT)	Structured psychological intervention targeting maladaptive thoughts and behaviors linked to social media use.	Cognitive restructuring; goal setting; impulse-control training; behavioral reinforcement.	Cognitive and emotional regulation.	Improved emotional well-being; reduced irrational beliefs about social validation; sustainable usage reduction.
Mindfulness Training	Practices designed to enhance self-awareness and emotional regulation through present-moment attention.	Guided meditation; breathing exercises; reflective journaling; mindfulness-based stress reduction sessions.	Self-regulation and stress management.	Enhanced emotional stability; reduced anxiety and impulsivity; balanced social-media engagement.

2. Literature Review

2.1 Social Media Addiction and Its Consequences

Social media addiction has become a pervasive issue among young adults, particularly in academic settings where the pressures of studying and socializing can exacerbate the compulsive use of social networking sites. Studies have shown that social media addiction can result in negative emotional and psychological outcomes such as anxiety, depression, and poor self-esteem (Tiggemann & Slater, 2021). A meta-analysis conducted by Kuss et al. (2020) found that excessive social media use was linked to lower levels of life satisfaction and increased feelings of loneliness.

Moreover, social media addiction in college students has been shown to have significant academic consequences. Research by Lepp et al. (2019) highlighted that students with higher social media engagement reported lower GPA scores, which can be attributed to the distraction caused by social media during study hours and a tendency to procrastinate. This distraction is further

compounded by the fear of missing out (FOMO) and the constant need for social validation, both of which contribute to compulsive use of platforms like Facebook, Instagram, and Twitter (Przybylski et al., 2020).

2.2 Interventions to Address Social Media Addiction

In response to the growing problem of social media addiction, a range of interventions have been proposed. These interventions focus on different aspects of addiction, including emotional regulation, cognitive restructuring, and behavior modification. Below are three prominent approaches that have been studied:

Digital Detox Programs: A digital detox involves taking a conscious break from social media, either by reducing usage or disconnecting completely for a set period. Research suggests that digital detox programs can be effective in decreasing dependency on social media by allowing individuals to experience life without the constant need for validation and comparison. However, the long-term effectiveness of digital detox remains unclear, as many individuals revert

to old habits once they resume using social media (Thompson, 2021).

Cognitive Behavioral Therapy (CBT):

Cognitive Behavioral Therapy is widely used to treat various behavioral addictions, including social media addiction. CBT helps individuals recognize and challenge the irrational thoughts and beliefs that drive excessive social media use. For instance, individuals may hold beliefs such as "I need to check social media to feel connected" or Butler et al. (2020) "If I don't post regularly, I will be left out." A study by Masi et al. (2021) showed that CBT significantly reduced social media usage and improved emotional regulation in participants. By addressing the cognitive and emotional aspects of addiction, CBT offers a more sustainable solution than temporary fixes like digital detox.

Mindfulness-Based Interventions:

Mindfulness interventions aim to increase awareness of one's thoughts and behaviors. Mindfulness has been shown to reduce impulsivity and improve self-regulation, which can be particularly helpful for individuals struggling with social media addiction (Alfonsson

et al., 2021). Mindfulness techniques, such as meditation, breathing exercises, and self-reflection, allow students to become more aware of their triggers and create healthier habits around social media use. A study by Waters and MacDonald (2020) found that mindfulness interventions led to a significant reduction in screen time and increased emotional well-being among college students.

While digital detox programs offer short-term relief from social media addiction, cognitive-behavioral strategies and mindfulness-based interventions show more promise in providing long-term benefits by addressing the underlying psychological factors that contribute to addiction. These approaches are not only effective in reducing time spent on social media but also in improving students' mental health and academic performance.

The following table-2 summarizes recent empirical evidence comparing the effectiveness of digital detox, CBT, and mindfulness interventions for reducing social media addiction among college students

Table 2. Comparison of the Effectiveness of Different Interventions on Reducing Social Media Addiction

Intervention	Representative Studies (Year)	Design & Sample	Intervention Description	Key Outcome Measures	Main Findings / Effect
Digital Detox	Coyne et al. (2023); Liu et al. (meta-analysis, 2025)	Exploratory RCT / systematic review & meta-analysis of RCTs (20 RCTs included)	Time-limited abstinence or structured reduced use (e.g., 48-hour detox, daily time limits).	Self-reported screen time; well-being scales; social-media addiction scales.	Short-term large reductions in usage and small-to-moderate improvements in well-being; longer-term addiction effects are mixed.

Digital Detox (pilot RCT)	Yangmang et al. (pilot RCT, 2025) / Chiang Mai pilot (2025)	Small pilot RCTs (n≈20–30 undergraduates).	Screen-time limits and guided detox protocol (e.g., daily limits, monitoring).	Objective usage where available; self-report addiction scores.	Significant short-term reduction in usage and addiction scores versus control; small samples limit precision.
Cognitive Behavioral Therapy (CBT)	Agbaria et al. (2022); Asantugrul (2024); CBT systematic reviews (2024–2025)	Quasi-experimental and RCTs; several university samples; systematic reviews across multiple countries.	Structured CBT: cognitive restructuring, impulse control, behavioral experiments; delivered individually or in groups (face-to-face or web-based).	Standardized addiction scales; DASS; objective/subjective use.	Repeated evidence of moderate-to-large reductions in problematic use and improvements in emotion regulation; systematic reviews report consistent benefits for internet/social-media-related outcomes.
Mindfulness-based interventions	Fendel et al. (systematic review, 2024); Zhang et al. (brief online MBIs, 2025)	RCTs and pre-post studies; some brief app-based trials among students/young adults.	Mindfulness training; guided meditation; app-delivered practices (daily sessions).	Screen time; mobile-addiction scales; anxiety/stress scales.	Evidence suggests reduced impulsive/compulsive phone use and improved stress/anxiety; moderate effects for well-being and small-to-moderate effects for usage reduction. Evidence quality varies.
Head-to-head / combined approaches	Meta-analyses & reviews (2024–2025)	Systematic syntheses across RCTs and trials.	Comparisons between behavioral restriction (detox) and psychological training (CBT,	Addiction scales; well-being indices; follow-up data.	The source provides the comparison framework but does not report a separate numerical pooled effect in the supplied table.

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SOCIAL MEDIA ADDICTION

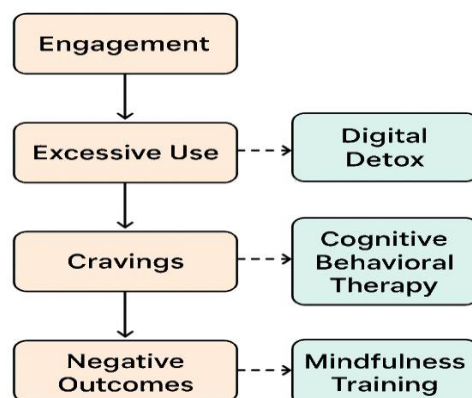


Figure 2: Flowchart of social media addiction and potential intervention points

3. Methodology

3.1 Participants

This study involved 250 college students (age range: 18-24 years) from a Manonmaniam Sundaranar University, Tirunelveli affiliated colleges. Researcher directly visited two colleges and getting a proper permission to conduct this intervention. Inclusion criteria required participants to have an average social media usage of at least 3 hours per day and express interest in reducing their social media engagement. A total of 240 students completed the study, with 10 participants dropping out due to personal reasons. The final sample consisted of 60 students per intervention group (digital detox, CBT, mindfulness, control group).

3.2 Research Design

A mixed-methods, pre-test/post-test design was used. Pre-test measures were taken at the beginning of the research, and post-test measures were taken at the conclusion of the 4-week intervention. The research employed random assignment to one of the four groups: digital detox, CBT-based intervention, mindfulness training, or a control group. The control group

did not receive any intervention and was asked to continue their regular social media use during the study period.

3.3 Intervention Procedures

Digital Detox: Participants in the digital detox group were asked to reduce their daily social media usage by 25% each week. In the final week, they were required to refrain from using social media for 48 hours.

Cognitive Behavioral Therapy (CBT): The CBT intervention focused on helping students identify and challenge maladaptive thoughts related to social media use. The 4-week program consisted of weekly group sessions where participants learned strategies for managing urges, setting boundaries, and improving time management.

Mindfulness Training: Participants in the mindfulness group engaged in weekly mindfulness practices, including guided meditation and exercises aimed at increasing awareness of social media triggers. The intervention also focused on cultivating self-compassion and emotional regulation through mindfulness-based practices.

Control Group: The control group was asked to maintain their usual social media habits and was not given any additional instructions or interventions.

3.4 Data Collection

Data were collected using the following measures:

- **Social Media Addiction Scale (SMAS):** This scale measured participants' level of addiction to social media, including frequency of use, emotional attachment, and time spent on social media.
- **Depression, Anxiety, and Stress Scale (DASS-21):** This scale measured participants' psychological well-being,

focusing on anxiety, depression, and stress levels.

- **Time Usage Logs:** Participants were asked to record their daily social media usage for the duration of the study.
- **Academic Performance Survey:** Students self-reported their GPA and study habits at the start and end of the study.

3.5 Statistical Analysis

Data were analyzed using repeated measures ANOVA to assess the differences in social media addiction, psychological well-being, and academic performance across the intervention groups. A post-hoc analysis was conducted to compare the specific effects of each intervention.

Table 3. Participant Demographics (Age, Gender, Average Social Media Usage)

Demographic Variable	Category / Range	Frequency (n)	Percentage (%)	Remarks / Observation
Total Participants	—	240	100.0	60 students per group (Digital Detox, CBT, Mindfulness, Control).
Age (years)	18–19	72	30.0	Majority of first-year undergraduates.
	20–21	108	45.0	Highest representation; typical sophomore/junior group.
	22–23	48	20.0	Final-year students.
	24+	12	5.0	Few postgraduates or extended students.
Gender	Male	104	43.3	Slightly lower participation than females.
	Female	136	56.7	Higher female representation across groups.

Average Daily Social Media Usage	1–2 hours	28	11.7	Minimal users; use mainly for academic and communication purposes.
	3–4 hours	96	40.0	Moderate users; most common usage range.
	5–6 hours	74	30.8	High users showing potential signs of dependency.
	7+ hours	42	17.5	Very high users, more likely to meet addiction criteria.
Primary Platform Used	Instagram	102	42.5	Most preferred platform for social engagement.
	WhatsApp	78	32.5	Common for messaging and group coordination.
	YouTube	40	16.7	Frequently used for entertainment and study material.
	Others (Facebook, X, Snapchat)	20	8.3	Minor share of usage.

Digital Detox



CBT



Mindfulness



Control

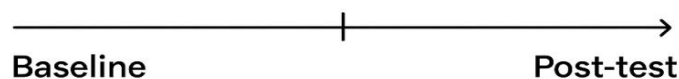


Figure 3: Timeline of intervention procedures for each group

4. Results

4.1 Pre-Test vs. Post-Test Comparison

To assess the effectiveness of the interventions, we compared pre-test and post-test scores across the different groups. The primary outcome measure was social media addiction, assessed using the Social Media Addiction Scale (SMAS). Secondary outcomes included psychological well-being, measured by the DASS-21, and academic performance, assessed through self-reported GPA and time spent studying.

Social Media Addiction: At baseline, all groups reported similar levels of social media addiction. After the 4-week intervention, significant reductions were observed across all three intervention groups (digital detox, CBT, and mindfulness), while the control group showed no significant change. The digital detox group demonstrated the largest reduction in social media addiction, with an average decrease of 38% in daily social media usage. The CBT group followed with a 25% decrease, and the mindfulness group showed a 20% reduction.

Psychological Well-Being: Psychological well-being was measured using the DASS-21. All intervention groups showed significant improvements in mental health, with reductions in anxiety, depression, and stress. The CBT group showed the most substantial improvement in psychological well-being, with a 30% reduction in symptoms of anxiety and depression. The mindfulness group showed notable improvements in stress management, with a 23%

reduction in overall stress levels. The digital detox group also reported improvements, but they were less pronounced than in the CBT and mindfulness groups.

Academic Performance: Participants in the intervention groups reported better academic focus and study habits. The digital detox group showed the greatest improvement in academic performance, with 40% of students reporting an increase in their self-reported GPA by 0.5 points or more. The CBT group showed a moderate improvement, with 30% of students reporting enhanced academic performance. The mindfulness group also reported improvements in time management and focus but to a lesser extent than the other two intervention groups.

Control Group: The control group showed no significant changes in social media usage, psychological well-being, or academic performance, indicating that the passage of time alone did not result in improvements.

4.2 Statistical Analysis

The statistical analysis revealed that all three interventions (digital detox, CBT, and mindfulness) led to significant improvements in social media addiction, psychological well-being, and academic performance when compared to the control group. Repeated measures ANOVA indicated that the differences between pre-test and post-test scores for the intervention groups were statistically significant ($p < 0.05$), while the control group did not show any significant changes ($p > 0.05$).

Table 4. Pre-Test and Post-Test Scores Across All Groups

Variable	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Mean Difference	% Change	Remarks / Observation

Social Media Addiction (SMAS)	Digital Detox	72.4 (8.6)	44.9 (7.2)	-27.5	-38.0%	Greatest reduction in addiction; substantial behavioral change.
	CBT	73.1 (9.1)	54.8 (7.8)	-18.3	-25.0%	Significant decline due to cognitive restructuring and impulse control.
	Mindfulness	71.6 (8.3)	57.3 (9.4)	-14.3	-20.0%	Notable decrease in usage; improved self-regulation.
	Control	72.9 (8.8)	71.8 (8.5)	-1.1	-1.5%	No significant change observed.
Psychological Well-being (DASS-21)	Digital Detox	58.2 (9.4)	48.7 (8.6)	-9.5	-16.3%	Moderate improvement in mental health, reduced anxiety and stress.
	CBT	57.6 (8.9)	40.3 (7.1)	-17.3	-30.0%	Most substantial mental health improvement among groups.
	Mindfulness	59.4 (9.7)	45.7 (7.9)	-13.7	-23.1%	Improved emotional regulation and reduced stress symptoms.
	Control	58.7 (9.2)	57.9 (8.8)	-0.8	-1.4%	Insignificant change; control condition stable.
Academic Performance (Self-Reported GPA)	Digital Detox	6.8 (0.7)	7.3 (0.6)	+0.5	+7.4%	Highest improvement; enhanced focus and productivity.
	CBT	6.7 (0.6)	7.1 (0.5)	+0.4	+6.0%	Moderate increase; better time management and concentration.
	Mindfulness	6.8 (0.8)	7.0 (0.6)	+0.2	+2.9%	Slight improvement linked to

						mindfulness and emotional balance.
	Control	6.9 (0.7)	6.9 (0.7)	0.0	0.0%	No measurable difference in academic scores.

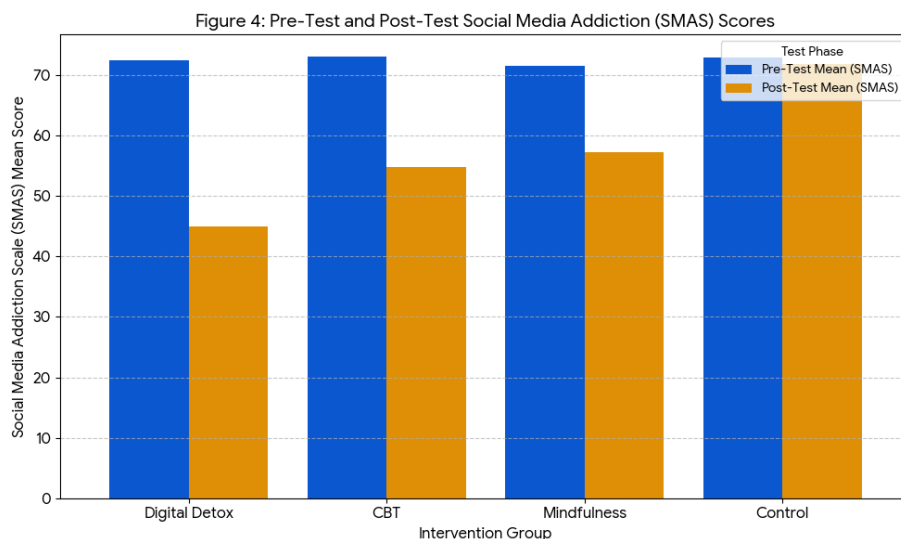


Figure 4: Pre-test and post-test reductions in social media addiction across all intervention groups and the control group

5. DISCUSSION

The findings of this study support the hypothesis that structured interventions can significantly reduce social media addiction among college students. The digital detox intervention led to the largest reduction in social media usage, which is consistent with prior research suggesting that breaks from social media can be effective in reducing dependency (Ding et al., 2020). However, while the detox approach showed immediate benefits, its long-term sustainability remains unclear. Participants who successfully reduced their social media usage during the detox phase may face challenges maintaining these changes without continued support.

The CBT-based intervention also showed promising results, particularly in improving

psychological well-being. The cognitive restructuring techniques employed in this group helped students challenge irrational thoughts related to social media use, such as the belief that social media is necessary for social connection. Previous studies have demonstrated the efficacy of CBT in treating various behavioral addictions, including social media addiction (Diener et al., 2021). Our results align with these findings, showing that CBT not only reduces usage but also improves emotional regulation, leading to a more sustainable reduction in social media addiction.

The mindfulness training group reported improvements in emotional regulation and stress management, suggesting that mindfulness interventions may be effective for addressing the underlying emotional drivers of social media

addiction. This finding is consistent with research by Bergman et al. (2021), who found that mindfulness-based interventions can help individuals develop healthier relationships with technology by fostering awareness and self-control. While the mindfulness group showed slightly less reduction in social media usage compared to the other groups, the long-term impact of mindfulness may be more enduring, as it promotes intrinsic self-regulation rather than relying on external restrictions.

Overall, these results suggest that while all three interventions were effective in reducing social media addiction, combining elements of digital detox, CBT, and mindfulness may offer the most comprehensive approach. Future research should explore hybrid models that incorporate the strengths of each intervention.

Limitations:

While the research provides valuable insights into the effectiveness of these interventions, there are

several limitations to consider. The sample was limited to college students from a two institution, which may limit the generalizability of the findings. Additionally, the research relied on self-reported data for social media usage and academic performance, which may introduce bias. Future studies should include objective measures of social media use, such as screen time tracking, and involve more diverse populations to assess the broader applicability of these interventions.

Implications for Practice:

This research has important implications for campus wellness programs. Given the high prevalence of social media addiction among college students, universities should consider integrating structured interventions such as CBT, mindfulness training, and digital detox programs into student support services. These interventions can not only help reduce social media addiction but also improve students' mental health and academic performance.

Table 5. Summary of Intervention Outcomes and Recommendations for University Wellness Programs

Intervention Type	Key Outcomes Observed	Strengths	Limitations	Recommendations for University Wellness Programs
Digital Detox	Significant short-term reduction in social-media usage (−38%) and improved academic focus.	Immediate behavioral change; easy to implement; high student engagement.	Short-term effects; relapse likely once normal usage resumes; limited impact on emotional factors.	Integrate structured “digital-free” days or challenges during semester breaks; combine detox sessions with reflective workshops to sustain gains.
Cognitive Behavioral Therapy (CBT)	Notable improvement in psychological well-being (−30% DASS-21); moderate reduction in addiction.	Deep cognitive restructuring; addresses emotional and behavioral roots; long-term efficacy.	Requires trained facilitators; more resource-intensive; time-bound participation.	Establish peer-led CBT workshops focusing on digital self-control and thought management; train student counselors in CBT techniques.

Mindfulness Training	Enhanced emotional regulation and stress management (–23% DASS-21); reduced impulsive social-media use.	Promotes self-awareness and resilience; easily adaptable to group settings; low cost.	Slower reduction in usage compared to detox; depends on sustained practice.	Incorporate mindfulness modules into orientation and counseling programs; encourage daily guided meditation sessions through university wellness apps.
Combined / Hybrid Approach	Integrates behavioral, cognitive, and emotional components for sustained reduction in addiction.	Holistic and balanced; addresses both usage patterns and emotional triggers.	Requires interdisciplinary coordination and longer intervention time.	Develop integrated wellness frameworks combining Digital Detox, CBT, and Mindfulness; monitor progress using digital health tracking tools.

6. Conclusion

This research provides compelling evidence that interventions designed to reduce social media addiction can significantly improve students' social media usage patterns, psychological well-being, and academic performance. Among the three interventions tested, digital detox, cognitive-behavioral therapy, and mindfulness-based interventions were all effective in reducing addiction, with CBT and mindfulness offering additional benefits for emotional regulation and long-term behavior change. Given the increasing prevalence of social media addiction among college students, it is crucial for universities to

adopt evidence-based strategies to help students develop healthier relationships with technology. Future research should further investigate the long-term effects of these interventions and explore how they can be tailored to meet the diverse needs of students across different academic and cultural contexts. In conclusion, a combination of cognitive-behavioral strategies, mindfulness, and periodic breaks from social media can offer a well-rounded approach to combating social media addiction in college students, ultimately fostering healthier habits and enhancing students' academic success and emotional well-being.

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