Article

Social Media Detoxification Through Screen Time Limits Among Pharmacy Students: A Pilot Randomized Controlled Trial [†]

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Abstract

This pilot randomized controlled trial evaluated the effectiveness of a social media detoxification intervention in reducing social media addiction and usage time among undergraduate pharmacy students at Chiang Mai University. A total of 23 students were randomly assigned to either an experimental group (n = 12) or a control group (n = 11). The intervention involved reducing screen time on mobile devices by 50% over four weeks using built-in screen time restriction settings, while the control group continued regular usage. The primary outcome was the Social Media Addiction Test (SMAT) score (16-item scale; higher scores indicate greater addiction), assessed at baseline and at week 4. The secondary outcome was weekly social media usage time (minutes per week, obtained from device screen-time reports), recorded over 4 weeks. Linear regression and Generalized Estimating Equation (GEE) models were used for the primary and secondary outcomes, respectively, with both models adjusting for baseline values. Results: At baseline, both groups were comparable in terms of key characteristics, SMAT score, and weekly usage. After 4 weeks, the experimental group had a significantly greater reduction in SMAT scores compared to the control group (adjusted difference = −7.92, 95% CI: −13.35 to −2.49, p = 0.006). For the secondary outcome, GEE analysis showed that the experimental group used social media for 1223.9 min/week (about 20 h/week) less than the control group (95% CI: −1720.6 to −727.1, p < 0.001). In short, social media detoxification through screen time restrictions appears to reduce social media addiction and usage time among pharmacy students. This intervention offers a promising and realistic way to help reduce social media addiction.

Keywords: social media addiction; social media detoxification; screen time reduction; digital well-being; technology use management

1. Introduction

Social media websites and applications have become an integral part of daily life, particularly among university students who often use them for communication, information sharing, information searching, and entertainment. Social media facilitates interaction within social networks through digital platforms connected to the Internet, allowing users

to create and share content, including text, images, and audio. Beyond its communication benefits, social media is now widely utilized for business purposes (Jeranathep 2022; Kaplan and Haenlein 2010; Vally and D'Souza 2019). Social media is an effective tool of interaction, especially for young people (Michikyan and Suárez-Orozco 2016). Social media addiction is generally conceptualized as a form of problematic, excessive, and compulsive use of social networking platforms that resembles behavioral addictions in its underlying mechanisms (Griffiths 2005; Andreassen 2015). It is characterized by behaviors such as constant thoughts about being online and feelings of anxiety during periods of disconnection (Phanichsiri and Tuntasood 2016; Nantasen and Prasertsin 2020).

Studies, including the 2019 Internet User Behavior Survey in Thailand, have highlighted the significant growth in social media usage, with an average daily Internet usage time of 7 h and 4 min. The age group with the highest internet usage is individuals born between 1977 and 1994, driven by the increasing prevalence of smartphone and tablet users (Ministry of Digital Economy and Society 2021). Prolonged social media usage has been linked to various negative outcomes, such as poor mental health, anxiety, depression, stress, reduced academic performance, physical health issues, and diminished interpersonal interactions (Uyaroğlu et al. 2022; Bumrungsri et al. 2021; Karim et al. 2020).

Social media detoxification, or taking a deliberate break from social media, is a self-regulation strategy aimed at managing screen time and reducing the negative effects of excessive use. It has been shown to improve mental health, sleep quality, and academic performance and reduce addiction scores (Bangkok Life Insurance 2022; Sikarin Hospital 2022; Hou et al. 2019; El-Khoury et al. 2021). As concerns grow over social media overuse among young people, detoxification offers a practical approach to promoting digital well-being. It is also aligned with Self-Determination Theory (SDT) (Ryan and Deci 2000), which emphasizes the role of intrinsic motivation in promoting sustained behavior change.

According to SDT, human motivation is influenced by the satisfaction of three fundamental psychological needs: autonomy (a sense of personal control), competence (a sense of effectiveness), and relatedness (a sense of connection with others) (Ryan and Deci 2000). When these needs are supported, individuals are more likely to engage in health-promoting behaviors with greater internal motivation. In the context of social media use, a detoxification program may support autonomy by giving participants the choice and agency to regulate their own usage, enhance competence by building awareness and strategies for self-control, and foster relatedness through supportive peer activities or group goals.

While research has highlighted the benefits of social media detoxification, little is known about its effectiveness among pharmacy students. Recent evidence indicates that pharmacy students in Thailand exhibit high levels of smartphone use and addiction, with nearly half meeting the criteria for smartphone addiction and the majority spending more than five hours daily on their devices. These findings suggest that pharmacy students may be particularly vulnerable to problematic social media use, justifying their selection as a study population in this trial (Chinwong et al. 2023). Previous evidence, together with our own unpublished report, demonstrates that time-limiting social media use is one of the strategies employed in self-directed detox practices. Although limiting screen time is generally considered feasible and acceptable, excessively strict regimens (e.g., restricting use to only 30 min per day) are often regarded as difficult to sustain (Horsiriluck et al. 2024). More recent empirical studies have confirmed that reducing usage by 50% of the baseline within a defined period is both practical and effective (Van Wezel et al. 2021). Building on this evidence, to address this gap, the present study evaluated the impact of a 4-week social media detox intervention on social media addiction scores and weekly usage time among undergraduate pharmacy students at Chiang Mai University. We hypothesized that stu-

dents in the experimental group would show greater reductions in both outcomes, the SMAT score and weekly social media usage time, compared to the control group. Specifically, we compared outcomes between experimental and control groups, as well as pre- and post-intervention changes within groups. The findings offer new knowledge and practical strategies for reducing social media addiction among young adults.

2. Materials and Methods

2.1. Study Design

This study was a pilot randomized controlled trial (RCT) conducted to evaluate the effectiveness of a social media detoxification intervention among pharmacy students. Participants were allocated to either an experimental group or a control group in a 1:1 ratio. The study duration was four weeks, and data collection was performed at baseline and post-intervention.

2.2. Participants, Recruitment, and Enrollment

Participants were pharmacy students at Chiang Mai University enrolled during the 2023 academic year who met the following inclusion criteria: (1) aged $\geq$ 20 years; (2) ownership of a device capable of accessing social media; (3) proficiency in Thai for speaking, listening, and reading to enable communication with the researchers; (4) social media addiction levels classified as "almost addicted (score 20–29)" to "addicted (score 30–48)", as assessed by the Social Media Addiction Test (SMAT) (Voraseyanont et al. 2024) before the study began (baseline); and (5) voluntary willingness to participate.

The sample size was calculated based on the study "Social media addiction: Its impact, mediation, and intervention" by Hou et al. (2019), which investigated 242 university students from Peking University. The study reported that the mean social media addiction score for the experimental group was 14.62 (standard deviation 3.72), while the control group had a mean score of 19.18 (standard deviation 3.07). Using STATA 14.0 software to calculate the required sample size for a two-sample difference with 90% power, it was determined that a minimum of 12 participants per group was needed, for a total of 24 participants.

Participants were recruited through flyer postings in the faculty's Line group and via snowball sampling. Interested individuals provided informed consent and completed the SMAT questionnaire to determine eligibility.

2.3. Randomization and Allocation

Participants were randomized into either the experimental or control group using a computer-generated randomization sequence. A researcher generated the sequence and concealed it in sealed, numbered envelopes. Participants were assigned to groups based on the order of their enrollment. Then, participants were informed of their group allocation (experimental or control) upon receiving their envelope after randomization. This open-label design was necessary due to the nature of the intervention, which required active participation and awareness by the participants. Each participant was given an identification code and individually briefed on the study procedures.

2.4. Intervention

The intervention for social media detoxification involved at least a 50% reduction in screen time over a 4-week period (Figure 1).
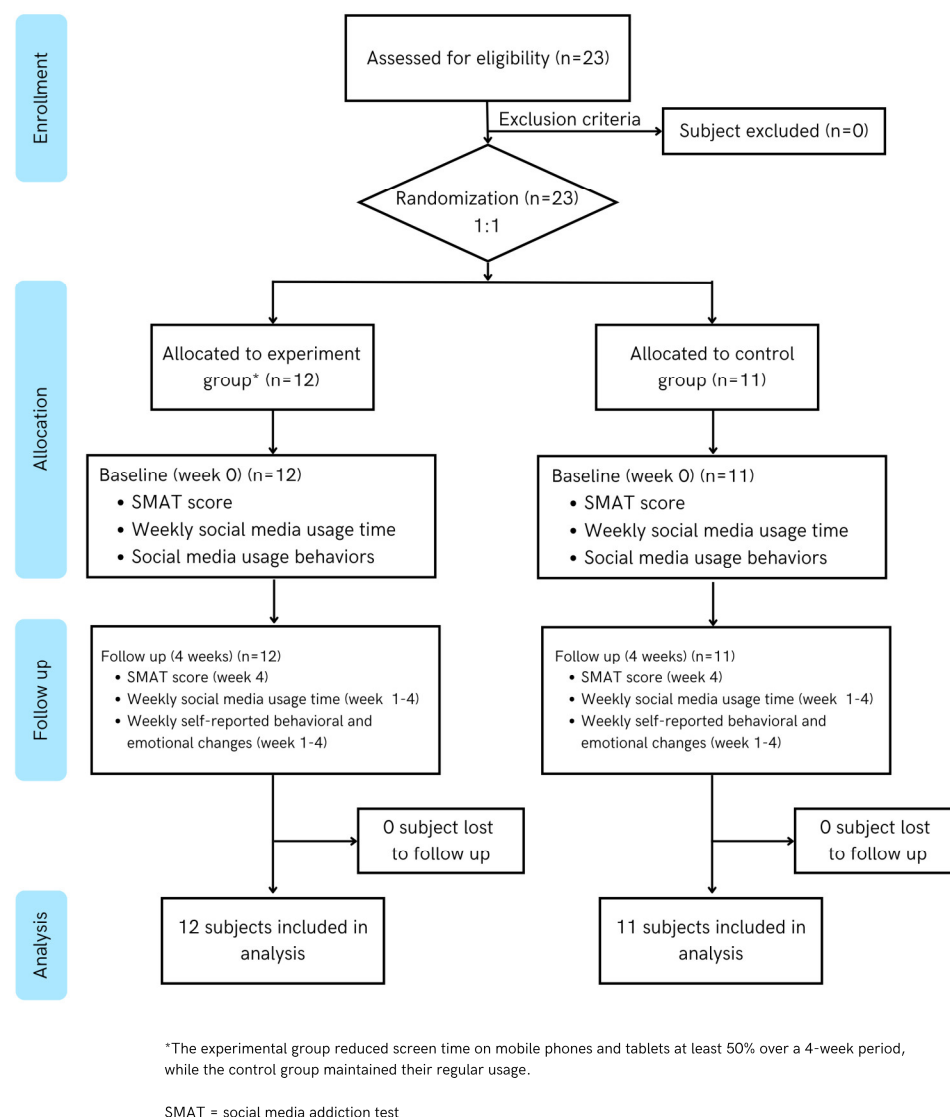
*The experimental group reduced screen time on mobile phones and tablets at least 50% over a 4-week period, while the control group maintained their regular usage.

SMAT = social media addiction test

Figure 1. Study flow diagram.

Participants in the experimental group followed a structured social media detoxification program. This included guidelines to reduce their social media usage by at least 50% compared to their baseline screen time on mobile phones and/or tablets, calculated from the week prior to the intervention. Baseline weekly usage data were collected, and screen time was adjusted accordingly using device settings. Participants completed the SMAT questionnaire twice: at baseline and at the end of the study in week 4. They also recorded weekly social media usage for 4 weeks, with weekly reminders sent via a link provided.

Participants in the control group maintained their regular social media usage without any restrictions imposed. Similarly to the experimental group, they completed the SMAT questionnaire at baseline and after four weeks, recorded their weekly social media usage with weekly reminders. As an ethical consideration, they received the intervention materials at the end of the study if needed.

2.5. Outcome Measures

The primary outcome is the reduction in social media addiction, which was assessed through decreases in SMAT scores. The SMAT is a validated tool comprising 16 items rated on a 4-point Likert scale (0 = not at all, 1 = unlikely, 2 = likely, 3 = definitely), with higher scores indicating greater levels of social media addiction. The total score is evaluated based on the following criteria: 0–19 indicates no social media addiction; 20–29 indicates almost

addicted; and 30–48 indicates addiction to social media (Voraseyanont et al. 2024). SMAT scores were measured at baseline and after four weeks, comparing the experimental and control groups.

The secondary outcome is the changes in weekly social media usage time at week 0 (baseline) and after 4 weeks of social media detoxification. Participants self-reported their weekly social media usage of five applications (Facebook, Twitter, Instagram, YouTube, and TikTok) and devices (tablet and/or mobile phone).

In addition, weekly behavioral and emotional changes between the experimental and control groups were assessed from week 1 to week 4 using a structured self-report checklist specifically developed for this study by the researchers. Item generation was based on a comprehensive review of the literature on social media use, digital detox, and behavioral addiction, ensuring that the content was directly aligned with the study's objectives. The checklist included indicators such as stress, boredom, withdrawal symptoms, increased interactions with others, and improved mental health. Participants reported on a weekly basis whether they had experienced each of these outcomes during the study period.

To ensure content validity, the items were reviewed by three independent experts with relevant academic and research experience, who evaluated their clarity, relevance, and comprehensiveness. Minor revisions were made based on their feedback.

2.6. Data Collection

Data were collected using online questionnaires to measure SMAT scores (week 0 and week 4) and social media usage behaviors (week 0). Additionally, participants self-reported their weekly time spent on social media and their behavioral and emotional responses from week 1 to week 4. Weekly logs were distributed to both groups to record social media usage and behavioral and emotional experiences. Data collection was performed from December 2023 to January 2024.

2.7. Statistical Analysis

Descriptive statistics (means, standard deviations, frequencies, and percentages) are used to summarize the participant characteristics and baseline data. Independent *t*-tests and chi-square tests or Fisher's exact tests, as appropriate, compared baseline variables between the experimental and control groups. The within-group changes were assessed using paired *t*-tests, and between-group comparisons were conducted using independent *t*-tests.

To evaluate the primary outcome (SMAT score at week 4) and secondary outcome (weekly social media usage over 4 weeks), both unadjusted and adjusted analyses were performed. Unadjusted outcomes were compared between groups using independent *t*-tests. For the adjusted primary outcome, linear regression was used to compare groups, adjusting for baseline SMAT scores. For the secondary outcome, a Generalized Estimating Equation (GEE) model with an identity link and unstructured correlation structure was applied, including group allocation (intervention vs. control) and baseline weekly usage as covariates and accounting for repeated measures. Statistical significance was set at $p < 0.05$. All analyses were conducted using STATA version 14.0.

2.8. Ethical Considerations

The study protocol was approved by the Ethics Committee of the of the Faculty of Pharmacy, Chiang Mai University, on 5 June 2023, (Cert. No. 009/2023/E, Study code: 008/2566/น). Participants provided written informed consent before enrollment and were assured of confidentiality. Participants in the control group were offered access to the intervention content after the study was completed, upon request.

3. Results

3.1. Baseline Characteristics of Participants

The study included 23 participants: 12 in the experimental group and 11 in the control group. The experimental and control groups were similar in demographic and baseline characteristics, with no statistically significant differences ($p > 0.05$) (Table 1).

Table 1. Characteristics of participants (n = 23).

	Experimental Group (n = 12)	Control Group (n = 11)	*p*-Value
Sex			
Male	2	1	1.000
Female	10	10	
Age (mean ± SD)	23.0 ± 0.60	23.9 ± 3.45	0.378
Electronic devices (select more than one option)			
Mobile phone	12	11	-
iPad/Tablet	12	11	-
Computer/Laptop	8	7	1.000
Monthly expenses related to social media usage (Baht) *			
<300 Baht	1	6	0.092
300–500 Baht	5	2	
501–1000 Baht	4	1	
>1000 Baht	2	2	
The most frequently used type of social media			
YouTube	2	5	0.597
Instagram	4	2	
Twitter	2	2	
TikTok	3	1	
Facebook	1	1	
Purpose of social media (select more than one option)			
Entertainment or stress relief	12	11	-
Communication	12	9	0.217
Education or learning	10	9	1.000
Online shopping	8	8	1.000
Experience with social media detoxification			
Never participated	6	7	0.714
Previously participated	6	4	
Social Media Addiction Test (SMAT) Score	38.0 ± 6.71	36.0 ± 8.50	0.536
Average weekly time spent on social media (minutes) (mean ± SD)	4208.7 ± 1651.75	3280.1 ± 1782.04	0.209

* Exchange rate: CHF 1 is approximately THB 40.

3.2. Social Media Addiction Scores, Weekly Usage Time, and Behavioral and Emotional Changes

Regarding unadjusted outcomes, at baseline, SMAT scores and weekly social media usage were not significantly different between groups. The experimental group showed a greater reduction in SMAT scores from baseline to week 4 (mean difference = 16.8 ± 4.91) compared to the control group (mean difference = 8.5 ± 7.33), with a significant between-group difference ($p = 0.004$).

Similarly, the experimental group showed a significant reduction in weekly social media usage across four weeks, from 4208.8 to 1303.2 min/week. In contrast, the control group showed a smaller reduction from 3280.1 to 2220.8 min/week. The between-group difference in change scores was statistically significant ($p = 0.012$) (Table 2, Figure 2).

Table 2. Social Media Addiction Test (SMAT) Scores and weekly social media usage time (minutes).

	Experimental Group (n = 12) (Mean $\pm$ SD)	Control Group (n = 11) (Mean $\pm$ SD)	*p*-Value **
Primary outcome			
SMAT score *			
Week 0 (Baseline)	38.0 $\pm$ 6.71	36.0 $\pm$ 8.50	0.536
Week 4	21.2 $\pm$ 7.08	27.4 $\pm$ 10.10	0.096
Difference	16.8 $\pm$ 4.91	8.5 $\pm$ 7.33	0.004
p-Value ***	<0.001	0.003	
Secondary outcomes			
Weekly social media usage time (minutes)			
Week 0 (Baseline)	4208.8 $\pm$ 1651.75	3280.1 $\pm$ 1782.04	0.209
Week 1	2207.8 $\pm$ 1173.05	3095.7 $\pm$ 2017.05	0.206
Week 2	1907.0 $\pm$ 877.33	2930.4 $\pm$ 1725.46	0.083
Week 3	1731.0 $\pm$ 843.99	2459.27 $\pm$ 1332.01	0.129
Week 4	1303.2 $\pm$ 702.52	2220.8 $\pm$ 1073.51	0.023
Difference	2905.6 $\pm$ 1608.79	1059.3 $\pm$ 1591.88	0.012
p-Value ***	<0.001	0.052	

* The 16-item SMAT questionnaire scored responses from 0 to 3, with higher scores indicating greater social media addiction. ** An independent *t*-test was used to compare the experimental and control groups. *** A dependent *t*-test was used to compare pre- and post-intervention outcomes within groups.
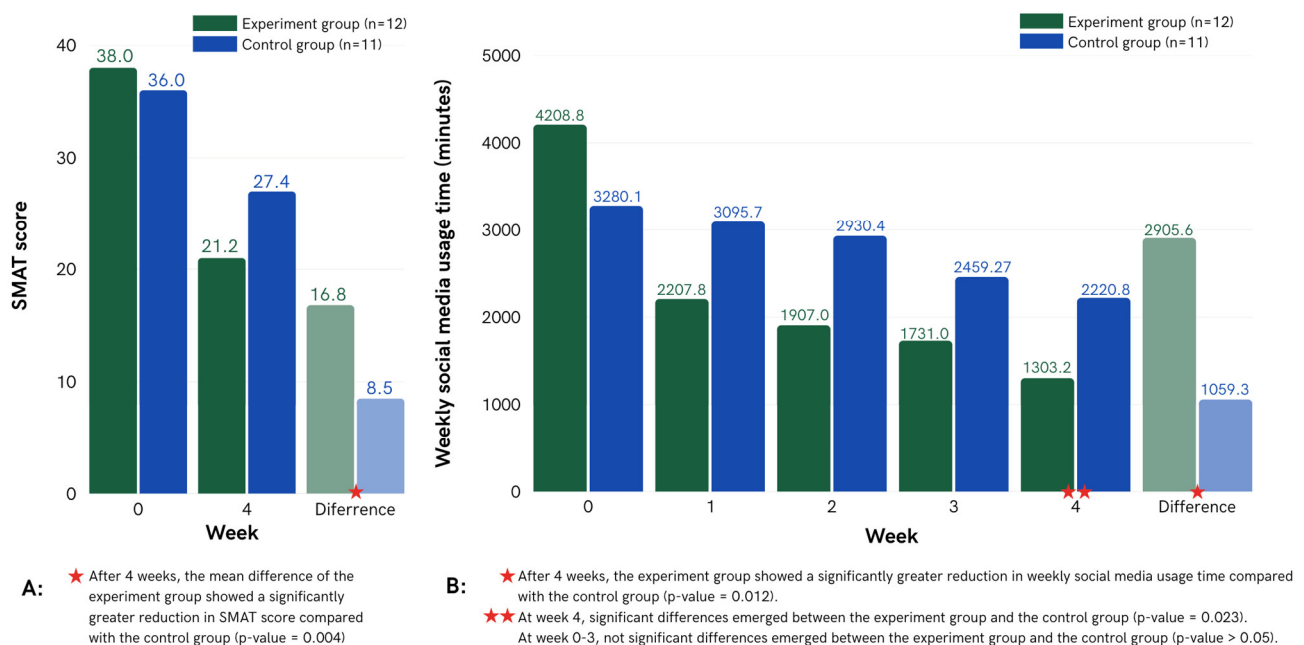

Figure 2. Social media addiction test (SMAT) scores (**A**) and weekly social media usage time (minutes) (**B**) compared between experiment and control groups.

Regarding adjusted outcomes, for primary outcomes, after adjusting for baseline SMAT scores using linear regression, the experimental group had significantly lower SMAT scores at week 4 compared to the control group (adjusted difference = −7.92, 95% CI: −13.35 to −2.49, $p = 0.006$).

For secondary outcomes, for weekly social media usage, the GEE model—adjusted for baseline use—showed a significant difference between groups across 4 weeks. The experimental group used social media 1223.9 min/week less than the control group (95% CI: -1720.6 to -727.1, $p < 0.001$) (Table 3).

Table 3. Comparison of SMAT scores at week 4 between experimental and control groups based on linear regression adjusted for baseline scores (n = 23), showing adjusted group differences *.

Outcome	Experimental Group (Mean ± SD)	Control Group (Mean ± SD)	Adjusted Difference (95% CI)	*p*-Value
Primary outcome (Linear regression) *				
SMAT score at week 4	21.2 ± 7.1	27.4 ± 10.1	-7.92 (-13.35 to -2.49)	0.006 ★
Secondary Outcome (GEE) ** Weekly social media usage (min/week)	1787.3 ± 945.5	2676.6 ± 1563.9	-1223.9 (-1720.6 to -727.1)	<0.001 ★

* Linear regression adjusted with baseline SMAT score; raw means ± standard deviations are shown. Adjusted group differences and 95% confidence intervals were estimated using linear regression with adjustment for baseline SMAT scores. ** GEE adjusted with baseline weekly social media usage; raw means ± standard deviations are shown for each group. Adjusted group differences and 95% confidence intervals were estimated using GEE with adjustment for baseline weekly social media usage. ★ The experimental group exhibited significantly results than the control group.

Regarding the self-reported behavioral and emotional responses, the experimental group reported greater improvements in interactions and mental health compared to the control group, while the control group experienced higher stress and boredom, especially in week 3 and week 4 (Table 4). Withdrawal symptoms, such as increased cravings for social media after stopping its use, were rare and showed no significant differences between the groups.

Table 4. Behavioral and emotional responses of participants to social media usage each week.

Behavior and Emotions *	Experimental Group (n = 12)	Control Group (n = 11)	*p*-Value **
Week 1			
Stressed	1	2	0.590
Bored	8	8	1.000
Withdrawal symptoms ***	1	0	1.000
Increased interactions with others	7	0	0.005 [a]
Improved mental health	4	1	0.317
Others	3	2	1.000
Week 2			
Stressed	2	5	0.193
Bored	8	8	1.000
Withdrawal symptoms ***	1	1	1.000
Increased interactions with others	9	3	0.039 [a]
Improved mental health	9	1	0.003 [a]
Others	1	1	1.000

Table 4. *Cont.*

Behavior and Emotions *	Experimental Group (n = 12)	Control Group (n = 11)	*p*-Value **
Week 3			
Stressed	0	4	0.037 [b]
Bored	3	7	0.100
Withdrawal symptoms ***	0	1	0.478
Increased interactions with others	11	4	0.009 [a]
Improved mental health	11	3	0.003 [a]
Others	1	1	1.000
Week 4			
Stressed	0	3	0.093
Bored	0	5	0.014 [b]
Withdrawal symptoms ***	0	1	0.478
Increased interactions with others	11	4	0.009 [a]
Improved mental health	12	5	0.005 [a]
Others	1	2	0.590

* Participants can select more than one response. ** Fisher's exact test was used to compare differences between the experimental and control groups. *** Withdrawal symptoms referred to feelings such as craving social media more than usual, similar to experiencing withdrawal, particularly when individuals stop using social media. [a] The experimental group exhibited significantly more behaviors and emotions than the control group. [b] The control group exhibited significantly more behaviors and emotions than the experimental group.

4. Discussion

The findings of this RCT study demonstrate the effectiveness of a structured social media detoxification program in reducing social media addiction and usage time among pharmacy students. The results showed a significantly greater reduction in SMAT scores and weekly social media usage time in the experimental group compared to the control group, highlighting the potential of the intervention to positively influence social media behaviors.

4.1. Comparison of Study Outcomes Between the Experimental and Control Groups

This study found a statistically significant reduction in SMAT scores following a four-week intervention targeting a reduction of at least 50% in total screen time based on participants' baseline usage across five social media platforms recorded one week prior to the study. By the end of the study, the experimental group showed a greater reduction in SMAT scores compared to the control group. These findings align with Coyne and Woodruff (2023), who reported significant reductions in Bergen's Social Media Addiction Scale (BSMAS) scores after limiting social media usage to 30 min per day over 2 weeks. However, the two studies differ in intervention duration and protocol. While Coyne and Woodruff (2023) implemented a shorter intervention of 2 weeks with a fixed daily limit of 30 min, this study implemented a 4-week intervention aiming for at least a 50% reduction in social media usage, requiring participants to self-report their social media usage. The longer intervention duration and self-monitoring likely contributed to the greater reduction in social media usage observed in the experimental group.

The results also align with Reed et al. (2023), who found that reducing social media usage by at least 15 min daily improved mental health and well-being over 3 months. This suggests that structured and monitored interventions, such as the approach employed in this study, are effective in reducing social media addiction and may contribute to improving mental well-being.

These findings can also be interpreted through the lens of SDT (Ryan and Deci 2000), which emphasizes the importance of fulfilling three basic psychological needs—autonomy,

competence, and relatedness—in supporting intrinsic motivation and sustained behavioral change. The design of the intervention in this study, which allowed participants to set personalized screen time goals and engage in self-monitoring over four weeks, likely supported these needs. By giving participants the freedom to manage their own usage (autonomy), providing tools to track progress (competence), and offering encouragement from the research team (relatedness), the intervention may have fostered internal motivation for digital behavior change. This theoretical alignment with SDT may help explain the significant reductions in social media addiction observed in the experimental group.

4.2. Comparison of Pre- and Post-Intervention Outcomes Within Each Group

Both groups demonstrated significant reductions in SMAT scores following intervention, from baseline to week 4, although the experimental group exhibited a more substantial decrease. These findings are consistent with prior studies, such as those by Ko et al. (2015), which reported significant reductions in smartphone addiction scores when daily usage was limited to 10 min to 2 h. However, the reduction in SMAT scores in the control group may be attributed to the Hawthorne effect, where participants modified their behavior due to awareness of being observed (Sedgwick and Greenwood 2015).

Weekly social media usage in the experimental group showed a statistically significant reduction, consistent with Hou et al. (2019), who implemented a one-week intervention combining self-regulation techniques, counseling, reminder cards, and journaling. While their program emphasized short-term cognitive reflection, our study similarly incorporated behavioral strategies such as usage monitoring and reduction goals, but over a longer, four-week period, potentially reinforcing more sustainable habits.

Furthermore, variations in participants' enrollment timing in both groups may have influenced the findings, as academic factors like exams or presentations could have impacted social media usage patterns during the study period. Despite weekly reminders, delays in completing social media usage logs and emotional records were observed due to individual responsibilities.

4.3. Participant Behavior and Emotional Responses

The behavioral and emotional responses presented in Table 4 reveal notable differences between the experimental and control groups throughout the four-week intervention. Participants in the experimental group consistently reported improvements in mental health and increased social interactions, especially from week 2 onward, while stress and boredom were more prominent in the control group during weeks 3 and 4. These findings suggest that structured reduction in screen time may promote positive offline engagement and emotional well-being.

However, these results should be interpreted within the broader discourse on screen time research. While this study observed mental health improvements following reduced social media usage, a study by Orben and Przybylski emphasized that the relationship between screen time and well-being in adolescents is often weak or inconsistent (Orben and Przybylski 2019). Their large-scale time-use diary-based studies found minimal evidence that reduced screen time alone significantly predicts psychological distress (Davis and Goldfield 2025). This discrepancy underscores the importance of not only the time spent online, but also how and why individuals engage with digital platforms.

This perspective aligns with a study using Valkenburg and Piotrowski's (Valkenburg and Piotrowski 2017) media effects model, which emphasizes content and context over mere duration. In our study, participants in the experimental group were encouraged to reflect on their social media usage and reallocate their time toward offline activities. This form of intentional engagement shift may have satisfied core psychological needs such as

autonomy and relatedness—principles rooted in SDT—thereby enhancing emotional outcomes despite lower screen exposure. In contrast, the control group maintained habitual usage, potentially lacking intentional regulation or purpose, which may have contributed to their higher stress and boredom levels.

These findings suggest that interventions aimed at mindful reduction, rather than absolute restriction, could yield more sustainable and psychologically meaningful outcomes.

4.4. Practice Implications and Future Research

This pilot study highlights the potential of a brief, low-cost social media detoxification intervention to reduce excessive screen time and improve digital well-being among university students. Given its simplicity and scalability, the approach could be integrated into student wellness programs, digital health curricula, or orientation workshops. By encouraging self-regulation and reflective digital habits, the intervention aligns with SDG 3 (Good Health and Well-being) by promoting mental health and SDG 4 (Quality Education) by supporting sustainable learning environments and responsible technology use.

Future research should expand to larger and more diverse populations, incorporate objective measures such as device-logged screen time, and explore long-term outcomes. It is also recommended to explore how such interventions can be personalized based on user motivation (e.g., using SDT) and integrated into broader digital literacy initiatives in higher education. Moreover, academic workload and contextual stressors, such as examination periods, may have acted as unmeasured confounding variables influencing social media use and emotional responses; thus, systematic consideration of these factors is needed to strengthen internal validity in future studies.

4.5. Limitations

This study has several limitations that should be acknowledged. First, the study relied on self-reported data for both SMAT scores and weekly social media usage, which are inherently prone to recall bias, social desirability bias, and inconsistencies. To mitigate these limitations, future studies should incorporate device-logged usage data and validated psychometric scales to enhance accuracy and reliability, as these methods can provide more objective assessments of social media use and strengthen the measurement of emotional and behavioral outcomes. Second, the open-label design, while necessary due to the nature of the behavioral intervention, may have introduced performance bias. Since participants were aware of their group assignment, their behavior and self-reported responses may have been influenced, particularly among those in the experimental group. Third, the short follow-up period limits the ability to evaluate the long-term sustainability of behavioral changes. Although the four-week intervention yielded useful preliminary insights, future studies should include extended follow-up periods to assess longer-term effects on social media usage and addiction. Fourth, although this study was guided by SDT, we acknowledge that incorporating perspectives from media ecology, digital sociology, and debates on techno-moral panic could provide a more critical understanding of digital detox practices; however, these are beyond the scope of the present study. Future research should adopt such interdisciplinary approaches. Finally, this study involved a small group of pharmacy students from a single institution, which limits the generalizability of its findings. Future research should include larger and more varied samples from different faculties and settings to better capture the role of demographic and cultural differences in shaping the effectiveness of social media detoxification interventions.

Despite these limitations, the study provides meaningful preliminary evidence and highlights key areas for improving the design of future large-scale trials. Although the number of participants was relatively small, the sample size was close to the calculated target.

5. Conclusions

This pilot randomized controlled trial conducted in pharmacy students from a university in Thailand provides preliminary evidence that a 4-week social media detoxification intervention, targeting at least a 50% reduction in screen time, can significantly reduce social media addiction scores and weekly usage time among university students. The intervention, grounded in SDT, empowered participants to self-regulate their digital behaviors, supporting improvements in digital well-being. The intervention enhanced students' autonomy, competence, and relatedness, supporting its applicability in promoting healthier social media use. Although limited by a small sample size and reliance on self-reported data, the findings suggest potential benefits of structured detox strategies and warrant further investigation in larger, more diverse populations.

Abbreviations

The following abbreviations are used in this manuscript:

SMAT	Social media addiction test
SDT	Self-determination theory

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