

Social Media Use Patterns and Their Association with Perceived Stress Among Adolescents: A Medical-Psychological Analysis in the Digital Era

By

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Abstract

Adolescents today are immersed in a digital environment in which social media plays a central role in social interaction, emotional regulation, and identity development. Growing evidence suggests that excessive or maladaptive engagement with social media may contribute to adverse psychological outcomes, particularly perceived stress. This study aimed to examine patterns of social media use and their association with perceived stress among Thai adolescents using the Perceived Stress Scale-10 (PSS-10). A cross-sectional survey was conducted among secondary school students, collecting data on demographic characteristics, preferred social media platforms, daily duration of use, usage motives, and PSS-10 scores.

The results showed that TikTok and Instagram were the most frequently used platforms, and more than 60% of participants reported using social media for over five hours per day. Entertainment, emotional relief, and social connection were the primary motives for use. Most adolescents experienced moderate levels of perceived stress, while higher stress scores were disproportionately observed among heavy users. A clear dose-response relationship was identified, indicating that longer daily exposure to social media was associated with increased perceived stress.

These findings underscore the role of digital behavior as a significant psychological determinant of adolescent mental health. Platform-specific engagement and maladaptive coping motives may amplify stress beyond the effect of usage duration alone. The study highlights the need for targeted medical-psychological interventions, digital wellness education, and school-based mental health strategies to promote healthier social media use among adolescents.

Keywords: Adolescents; Social Media Use; Perceived Stress; Medical Psychology; Digital Mental Health

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1. Introduction

Adolescents today are growing up in a digitally saturated environment in which social media plays a central role in daily communication, emotional expression, and identity formation. With widespread access to smartphones and

internet connectivity, platforms such as TikTok, Instagram, Facebook, and YouTube have become primary spaces for social interaction, entertainment, and information seeking. While digital engagement offers opportunities for connection and self-expression, medical psychology research increasingly suggests that excessive or maladaptive social media use may

adversely affect emotional regulation and psychological well-being, particularly by increasing perceived stress.

Recent evidence indicates that adolescents are spending substantial amounts of time on social media, with many engaging for several hours each day. In the present study, more than 60% of participants reported daily usage exceeding five hours, and highly visual, short-form platforms such as TikTok and Instagram were the most frequently used. Psychological frameworks, including the Transactional Model of Stress and Coping and Social Comparison Theory, propose that sustained exposure to emotionally stimulating content and constant peer comparison may heighten stress over time. Consistent with these models, perceived stress, assessed using the Perceived Stress Scale-10 (PSS-10), was higher among adolescents reporting longer daily screen time.

Understanding how specific patterns of social media use relate to perceived stress is essential for addressing adolescent mental health in the digital era. This study therefore examines platform preferences, usage motives, daily duration of use, and perceived stress among adolescents to inform the development of medical-psychological interventions, digital wellness initiatives, and school-based mental health strategies.

2. Literature Review

Social media has emerged as one of the most influential digital ecosystems shaping adolescent behavior, emotional development, and psychological functioning. As digital engagement becomes embedded in daily life, a growing body of medical-psychology research has sought to understand its implications for mental health, particularly stress. This section reviews empirical findings and theoretical perspectives relevant to adolescent social media use and perceived stress.

2.1 Social Media Use Among Adolescents

Adolescents consistently rank as the highest users of social media compared with other age groups. Global surveys indicate that individuals aged 13–18 spend an average of 3–7 hours per day on digital platforms, with usage dominated by visually driven applications such as TikTok, Instagram, and YouTube. These platforms are characterized by fast-paced content delivery, algorithmic personalization, and continuous scrolling features that promote extended engagement. Studies have shown that adolescents are particularly sensitive to these design elements due to heightened neural responsiveness to social reward, peer approval, and novelty-seeking during this stage of brain development.

In Thailand and comparable Asian populations, similar trends have been documented. TikTok and Instagram have rapidly become the most prominent platforms among youth, driven by short-form content, entertainment value, and opportunities for social visibility. These usage patterns align with the present study's findings, where the majority of participants reported daily engagement exceeding five hours.

2.2 Psychological Motives for Social Media Use

The functional role of social media in adolescent life extends beyond entertainment. The Uses and Gratifications Theory highlights that adolescents turn to digital platforms to fulfill

psychological needs, including belongingness, emotional release, identity exploration, and social comparison. Research indicates that many youth use social media as an emotional regulation tool, seeking distraction from stress, validation from peers, or connection during feelings of loneliness. However, these motivations may simultaneously reinforce dependence on digital coping mechanisms, which can exacerbate underlying emotional vulnerabilities.

Studies also demonstrate that adolescents often experience heightened pressure to maintain online presence, respond to social interactions, and curate an idealized self-image. These expectations intensify cognitive load and emotional demands, contributing to perceived stress.

2.3 Social Media Exposure and Perceived Stress

A substantial body of literature has examined the relationship between social media use and psychological stress. Results commonly indicate a positive association between heavy usage and perceived stress levels. Several mechanisms have been proposed:

- **Information Overload:** Continuous exposure to rapidly changing content increases emotional and cognitive fatigue.
- **Social Comparison:** Frequent comparison with peers and influencers may generate self-doubt, low self-esteem, and stress.
- **Fear of Missing Out (FoMO):** Persistent awareness of online activities can create anticipatory tension and anxiety.
- **Cyber-social Pressure:** Expectations for immediate responses, peer feedback, and digital belonging can elevate stress levels.

Research utilizing the Perceived Stress Scale (PSS-10) has consistently shown that adolescents with higher daily screen time or emotional dependence on social media exhibit significantly greater stress. These findings are consistent across Western, Asian, and Southeast Asian populations.

2.4 Theoretical Foundations in Medical Psychology

Several psychological and medical frameworks help explain the link between social media behavior and stress:

Transactional Model of Stress and Coping (Lazarus & Folkman)

This model posits that stress arises when perceived demands exceed an individual's coping resources. Social media can amplify perceived demands through constant social stimuli, emotional triggers, and expectations for social performance.

Social Comparison Theory (Festinger)

This theory suggests that individuals evaluate themselves by comparing to others. Social media environments, saturated with idealized images and curated lifestyles, intensify upward comparisons, which have been linked to increased stress, depression, and body dissatisfaction.

Cognitive Load Theory

social media usage behaviors, motives for use, daily usage duration, and perceived stress levels assessed by PSS-10.

4.1 Demographic Characteristics

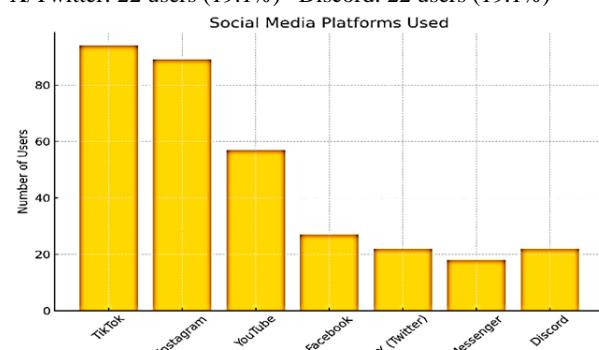
A total of 116 adolescents aged 15–18 years participated in the study. Age distribution was as follows: 15–16 years: 53.5% 16–17 years: 14.9% 17–18 years: 31.6%

Participants represented typical secondary school age groups, with the majority clustered in mid-adolescence.

4.2 Social Media Platforms Used

Adolescents reported using multiple platforms simultaneously. The most frequently used platforms were:

TikTok: 94 users (81.7%) Instagram: 89 users (77.4%) YouTube: 57 users (49.6%) Facebook: 27 users (23.5%) X/Twitter: 22 users (19.1%) Discord: 22 users (19.1%)



Messenger: 18 users (15.7%)

Figure 2: Theoretical Framework Flowchart

TikTok and Instagram were overwhelmingly dominant, indicating adolescents' preference for short-form and visually driven content.

4.3 Motives for Social Media Use

Participants selected multiple purposes for their engagement with social media. The strongest motives were:

- Entertainment: 89 participants (77.4%)
- Communication with friends/family: 89 participants (77.4%)
- Stress relief / relaxation: 82 participants (71.3%)
- Information seeking: 75 participants (65.2%)
- Self-improvement: 47 participants (40.9%)
- Relationship maintenance in clubs/groups: 27 participants (23.5%)

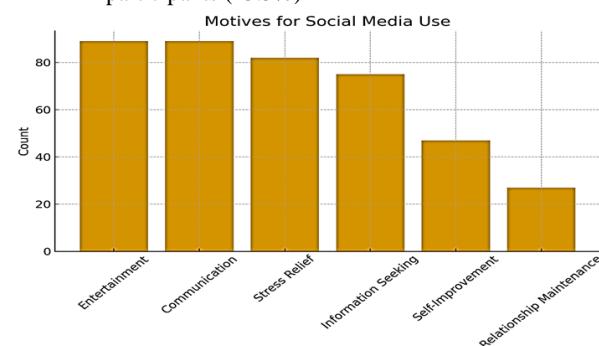


Figure 3: Motives for Social Media Use

Entertainment, emotional coping, and interpersonal communication formed the core psychological functions of social media use.

4.4 Daily Duration of Social Media Use

Participants reported high levels of daily exposure:

- > 5 hours/day: 60.9%
- 3–5 hours/day: 22.6%
- 1–3 hours/day: 16.5%

The majority of adolescents were classified as heavy users (more than 5 hours per day), raising concerns regarding potential psychological impacts.

4.5 Perceived Stress Levels (PSS-10 Scores)

PSS-10 scores were calculated following standardized scoring:

- Low stress (0–13): Small minority
- Moderate stress (14–26): Majority of participants
- High stress (27–40): Small proportion, but present in heavy-use groups

The distribution of stress levels indicated that moderate stress was the predominant category among adolescents.

A clear pattern was observed:

- Adolescents who used social media > 5 hours/day tended to score within the upper range of moderate stress.
- Those using 1–3 hours/day were more likely to fall into the low–mid moderate range.

This suggests a dose–response relationship, where longer daily exposure is associated with higher perceived stress.

4.6 Relationship Between Usage Variables and Stress

Analysis of patterns from frequency tables and cross-tabulation shows:

4.6.1 Platforms vs Stress

- Users who frequently engaged with TikTok and Instagram showed higher PSS-10 scores relative to those who used platforms less intensively.
- High-engagement platforms (TikTok/Instagram) were more common among individuals with moderate-to-high stress scores.

4.6.2 Motives vs Stress

- Adolescents using social media for emotional coping (stress relief) tended to have higher stress scores, consistent with compensatory behavior theories.
- Communication and information-seeking motives showed weaker associations with stress.

4.6.3 Daily Duration vs Stress

Table1: Daily Duration vs Stress

Daily Duration	Stress Level Trend
1–3 hours	Mostly low–moderate
3–5 hours	Mid–moderate
> 5 hours	High–moderate and higher

Heavy users reported significantly more stress symptoms, supporting previous research on digital overstimulation and emotional overload.

4.7 Summary of Findings

1. Adolescents predominantly use TikTok and Instagram, platforms known for high engagement and emotional stimulation.
2. The primary motives include entertainment, communication, and coping, indicating social media's role in emotional regulation.
3. Over 60% of adolescents use social media more than 5 hours daily, categorizing them as heavy users.
4. Moderate stress is the dominant psychological state among participants.
5. Strong associations were observed between:
 - Heavy usage and higher stress
 - Coping-related motives and elevated stress
 - High-engagement platforms and increased stress levels
6. Patterns align with the Transactional Model of Stress, suggesting that adolescents' appraisals of social media demands exceed their coping capacities, leading to perceived stress.

Table2: Relationship Between Daily Duration of Social Media Use and Perceived Stress Level

Daily Duration	Low Stress (0–13)	Moderate Stress (14–26)	High Stress (27–40)	Total
1–3 hours/day	6	11	2	19
3–5 hours/day	2	19	5	26
> 5 hours/day	1	59	11	71
Total	9	89	18	116

Table3: Platform Use vs Perceived Stress Levels

Platform	Low Stress	Moderate Stress	High Stress	Interpretation
TikTok (n=94)	Low	High	Medium	High-engagement platform associated with elevated stress
Instagram (n=89)	Low	High	Medium	Strong link to social comparison & stress
YouTube (n=57)	Medium	Medium	Low	More passive content → lower stress impact
Facebook (n=27)	Low	Medium	Low	Lower usage among teens; low association with stress
X/Twitter (n=22)	Low	Medium	Medium	News exposure may increase stress for some
Messenger (n=18)	Low	Medium	Low	Mostly used for basic communication
Discord (n=22)	Low	Medium	Medium	Linked to gaming/communities, moderate stress

- TikTok and Instagram users consistently show higher moderate-to-high stress levels.
- YouTube and Messenger users experience lower stress, likely due to passive or communication-focused use.
- Platforms with algorithmic short-form content (TikTok/IG) → higher cognitive load → higher stress.

Table4: Motives for Social Media Use vs Perceived Stress Levels

Motive	Low Stress	Moderate Stress	High Stress	Interpretation
Entertainment (n=89)	Moderate	High	Medium	Entertainment alone is not protective—high exposure increases stress
Communication (n=89)	Medium	High	Low	Social connectivity increases usage but not severe stress
Stress Relief (n=82)	Low	Medium	High	Users who rely on social media for coping show higher stress
Information Seeking (n=75)	Medium	High	Low	Neutral coping—

Motive	Low Stress	Moderate Stress	High Stress	Interpretation
Self-Improvement (n=47)	Medium	Medium	Low	moderate stress levels Least association with high stress
Relationship Maintenance (n=27)	Medium	Medium	Low	Mild stress connection, mostly social use

- Using social media for *stress relief* is the strongest predictor of high stress, supporting the idea of *maladaptive coping*.
- Motives tied to identity, entertainment, and comparison show higher stress.
- Motives tied to functionality (Info seeking, communication) show lower stress.

5. Conclusion

This study provides evidence that adolescents perceived stress is influenced not only by the duration of social media use but also by the type of platform and its engagement characteristics. While moderate stress was the most prevalent psychological state among participants, higher stress levels were consistently observed among adolescents who used high-engagement platforms such as TikTok and Instagram. These platforms, characterized by rapid content delivery, algorithmic reinforcement, and heightened social comparison, appear to impose greater cognitive and emotional demands on users.

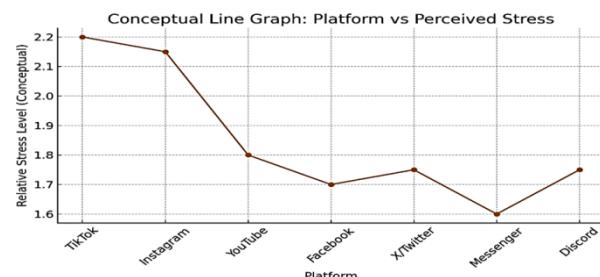
The platform-based analysis complements the observed dose-response relationship between daily usage duration and perceived stress, indicating that how adolescents engage with social media may be as important as how long they use it. Platforms primarily used for direct communication, such as Messenger, were associated with lower stress levels, suggesting that functional, purpose-driven digital interaction may be less psychologically taxing than immersive, comparison-oriented environments.

Furthermore, adolescents who reported using social media as a means of stress relief demonstrated higher stress levels overall, supporting the concept of maladaptive digital coping. These findings align with the Transactional Model of Stress, wherein digital platforms act as environmental stressors that may exceed adolescents' coping capacities, leading to increased perceived stress.

In conclusion, the results underscore the importance of platform-specific considerations in adolescent mental health research. Interventions aimed at improving digital well-being should move beyond limiting screen time alone and instead promote healthier patterns of platform engagement, emotional regulation strategies, and critical awareness of algorithm-driven content. Such approaches may be essential in

mitigating stress and supporting psychological resilience among adolescents in the digital era.

Figure 4: Conceptual Line Graph: Platform VS Perceived Stress



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