

Social Media Use And Mental Health In Hong Kong Youth: A Cross-Sectional Study On Anxiety And Depression

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Abstract: This cross-sectional study examined the connections between social media use and mental health in 106 young people in Hong Kong. Conducted in the post-pandemic era, it sought to understand how digital engagement influences the high rates of anxiety and depression among youth. Researchers employed an online survey to measure problematic social media use (via the Bergen Social Media Addiction Scale), anxiety symptoms (GAD-7), depression symptoms (PHQ-9), and various behavioural and psychological factors, including usage habits, social comparison, rumination, sleep quality, and perceived social support. Key findings revealed that addictive patterns of social media use (BSMAS scores) had the strongest positive link to both anxiety and depression. This was closely followed by the tendency to compare oneself to others online. Other significant predictors for anxiety included frequent checking of notifications, carefully editing one's profile, and ruminative thinking. For depression, frequent checking, rumination, and poor sleep quality were also significant contributors. A notable finding was that the total time spent on social media was inversely related to anxiety, suggesting that how one uses social media is more critical than the duration alone. The study concludes that the risk to mental health is primarily driven by compulsive, comparison-based usage rather than simple screen time. It underscores the urgent need for targeted public health strategies, such as promoting digital literacy and healthy sleep habits, to mitigate these risks while acknowledging the positive role social media can play in maintaining social connections.

Keywords: anxiety, adolescents, depression, social media addiction, sleep quality, youth.

1. INTRODUCTION

The global prevalence of anxiety and depressive disorders among adolescents and young adults (aged 10-24) has shown a concerning upward trend [1]. In Hong Kong, recent data indicates that 6.1% and 5.4% of youth aged 6-17 experience clinical anxiety and depression, respectively [2]. These figures align with global reports from the World Health Organization, which estimate that one in seven adolescents suffers from a mental disorder [3]. The COVID-19 pandemic has been identified as a significant catalyst, exacerbating these challenges by negatively impacting young people's physical health, emotional stability, and social connectedness [4]. Left unaddressed, these conditions can lead to severe long-term consequences, including impaired educational attainment, substance abuse, and increased risk of self-harm [5, 6]. In Hong Kong and China, factors such as intense academic pressure and evolving social relationships contribute to this mental health crisis [7, 8, 9]. Concurrently, the rapid expansion of digital technology and social media has fundamentally transformed how youth interact and communicate. While these platforms offer unprecedented connectivity and access to information, they also present risks such as cyberbullying, social comparison, and behavioural addiction [10, 11]. The observed rise in mental health issues has coincided with the widespread adoption of social media, raising urgent questions about its psychological impact [12]. A specific concern is the rise of Problematic Social Media Use (PSMU)—a behavioural addiction characterized by compulsive use that negatively impacts daily life. A previous Hong Kong study during COVID-19 found that 7.8% of adolescents met the criteria for PSMU, with heavy usage linked to poorer mental health [13]. However, empirical research on post-pandemic usage patterns and their effects remains scarce. Existing literature presents mixed findings; while some studies report negative impacts on well-being through mechanisms like upward social comparison and sleep disruption, others find little to no meaningful association [14, 15, 16]. Given the unique socio-educational pressures faced by Hong Kong youth, there is a critical need for localized research. This study aims to fill this gap by investigating the associations between specific social media use patterns (e.g., time spent, activities, addiction) and mental health outcomes (anxiety and depression), while accounting for confounding factors like sleep, rumination, and social comparison. Utilizing a cross-sectional design, this research provides a timely snapshot to help identify risk factors and inform targeted interventions.

2. METHODS

2.1 Research Design and Participant Recruitment

This study employed a cross-sectional design to investigate the associations between social media use patterns and mental health outcomes among secondary and tertiary school students in Hong Kong. Data collection occurred over a one-month period, from June 20 to July 20, 2025. Participants were recruited using a convenience sampling method. Invitations containing a welcome message and a hyperlink to an online survey were distributed through popular social media platforms and messaging apps, namely WhatsApp and Instagram. Prior to commencing the survey, all participants were required to review a detailed information sheet outlining the study's purpose, ethical considerations (including anonymity, voluntary participation, and data confidentiality), and their rights. Explicit informed consent was obtained digitally; only those who provided consent were granted access to the full questionnaire.

2.2 Ethical Considerations

This study was conducted in accordance with the ethical principles for online research set forth by the American Psychological Association (2017) and the British Psychological Society [4]. The protocol ensured full transparency: participants were informed of the study's objectives, their right to withdraw at any time without penalty, and the measures taken to protect their anonymity. All collected data were anonymized at source, with no personally identifiable information (PII) recorded. Data handling procedures complied with the General Data Protection Regulation (GDPR) [8]. The study design posed minimal risk, utilized secure online forms, and protected IP addresses to safeguard participant privacy.

2.3 Survey Instruments and Measures

The online questionnaire was divided into two parts: (1) The informed consent form and study information; (2) The main survey, which collected anonymous data on demographics, social media usage behaviours, and mental health status using validated psychometric scales. To ensure cultural relevance and validity, all instruments were adapted from established measures in the existing literature [3]. The survey assessed the following constructs as shown in Table 1.

Table 1: The constructs to be assessed by online survey

Constructs	Description
Problematic Social Media Use (PSMU)	Measured using the Bergen Social Media Addiction Scale (BSMAS) [2]. This 6-item scale assesses addiction across six criteria (salience, mood modification, tolerance, withdrawal, conflict, relapse) on a 5-point Likert scale (1=Very rarely, 5=Very often). A total score ≥ 24 was used as the clinical cut-off for PSMU, following validation studies with Chinese adolescents [15].
Anxiety	Assessed using the Generalized Anxiety Disorder-7 (GAD-7) scale [21]. Participants rated the frequency of seven anxiety symptoms over the past two weeks on a 4-point scale (0=Not at all, 3=Nearly every day). A total score ≥ 10 indicated a high risk of generalized anxiety disorder.
Depression	Assessed using the Patient Health Questionnaire-9 (PHQ-9) [12]. This 9-item instrument measures the frequency of core depressive symptoms over the past two weeks on a 4-point scale (0=Not at all, 3=Nearly every day). A score ≥ 10 indicated at least moderate depressive symptoms.
Sleep Quality	Measured using the Sleep Quality Scale (SQS) [26]. This 6-item scale assesses subjective sleep quality and disturbances on a 4-point Likert scale. Higher total scores indicate poorer sleep quality.
Social Support	Evaluated using the 4-item Friends Sub-Scale of the Multidimensional Scale of Perceived Social Support (MSPSS) [28]. Responses were recorded on a 7-point Likert scale (1=Very strongly disagree, 7=Very strongly agree).
Rumination	Measured using the 5-item shorter version of the Perseverative Thinking Questionnaire (PTQ-5) (Ehring et al., 2011), which assesses repetitive negative thinking on a 4-point scale (1=Never, 4=Almost always). A total score ≥ 12 indicates clinically significant rumination.

Social Media Behaviors	Several self-reported behavioural predictors were included, (1) Daily social media use (hours), (2) Frequency of checking for notifications, (3) Tendency to carefully edit one’s profile/posts, (4) Engagement in social comparison on social media, and (5) Primary type of social media activity (passive, active, messaging) [1].
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2.4 Data Analysis

Data analysis was conducted via statistical modelling using SPSS (v27). Scale Reliability was used to test the internal consistency of the multi-item scales and confirmed with Cronbach’s α ($\alpha = 0.739$), exceeding the recommended threshold of 0.70. The Variance Inflation Factor (VIF) was calculated for all predictors. All VIF values ranged from 1.13 to 2.19, well below the conservative threshold of 5, indicating no concerning multicollinearity. The continuous GAD-7 and PHQ-9 scores were dichotomized using their clinical cut-offs (≥ 10) to create binary outcome variables (GAD_binary and PHQ_binary) for clear clinical interpretation of risk status. Multivariate logistic regression analyses were performed to examine the associations between social media use patterns (independent variables) and mental health outcomes (dependent variables: GAD_binary and PHQ_binary), while controlling for demographic covariates (age, gender, education level).

2.5 Results

2.5.1 Participant Characteristics and Descriptive Statistics

A total of 111 surveys were distributed, and 106 were fully completed, yielding a high response rate of 95.5%. The demographic and behavioural characteristics of the participants are summarized in Table 2. The sample consisted of 61 males (57.5%) and 45 females (42.5%). Most participants were aged 23-24 (34.0%) or 16-19 (30.2%), with most being tertiary-level students (63.2%). Regarding social media use, nearly half of the respondents (49.1%) reported spending more than 3 hours per day on these platforms. A significant portion (56.6%) reported checking their social media notifications at least hourly (Figure 1).

Table 2: The demographic profile and descriptive statistics of the respondents (n=106)

	Freq (%)
Participant	106 (100)
Age Range	
12-15	9 (8.5)
16-19	32 (30.2)
20-22	29 (27.4)
23-24	36 (34.0)
Education Level	
Secondary	39 (36.8)
Tertiary	67 (63.2)

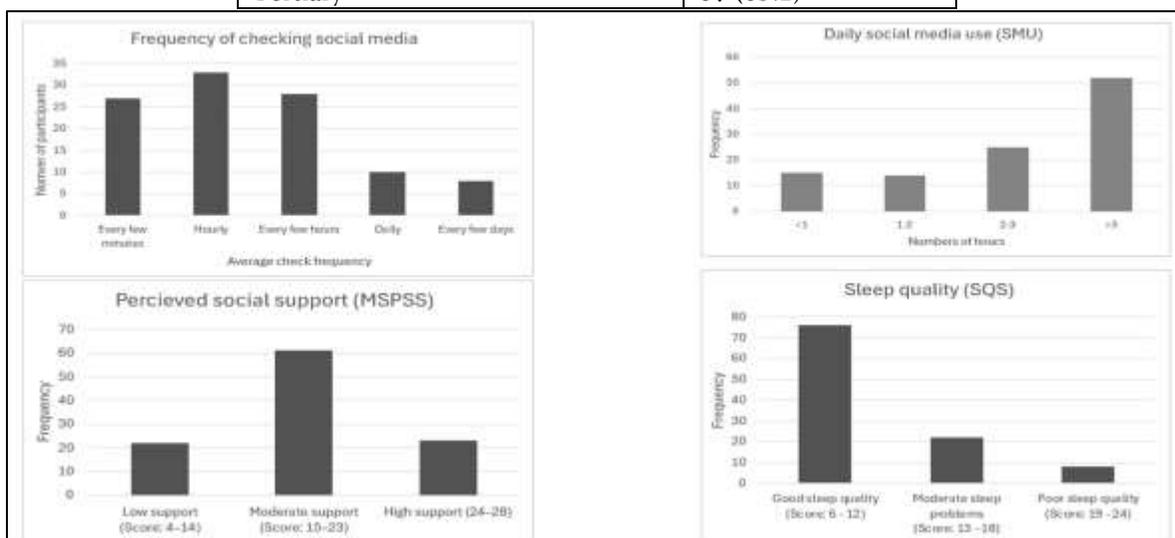


Figure 1. Bar charts for ‘Frequency of checking social media’, ‘Daily SMU’, ‘MSPSS’ and ‘SQS’

In terms of mental health risk, based on clinical cut-off scores, it was found that Problematic Social Media Use (PSMU): 19.8% of participants (n=21) scored at or above the BSMAS cut-off of ≥ 24 (Figure 2) [2.15];

Anxiety (GAD-7): 27.4% (n=29) were identified as being at high risk (score ≥ 10) [21]; Depression (PHQ-9): 36.8% (n=39) were identified as being at high risk (score ≥ 10) (Figure 3) [12]. Other measures revealed that 28.3% of participants reported moderate to poor sleep quality [26], 55.7% exhibited clinically significant levels of repetitive negative thinking (rumination) [7], and the majority (57.5%) reported a moderate level of social support from friends (Figure 1 & 2) [28].

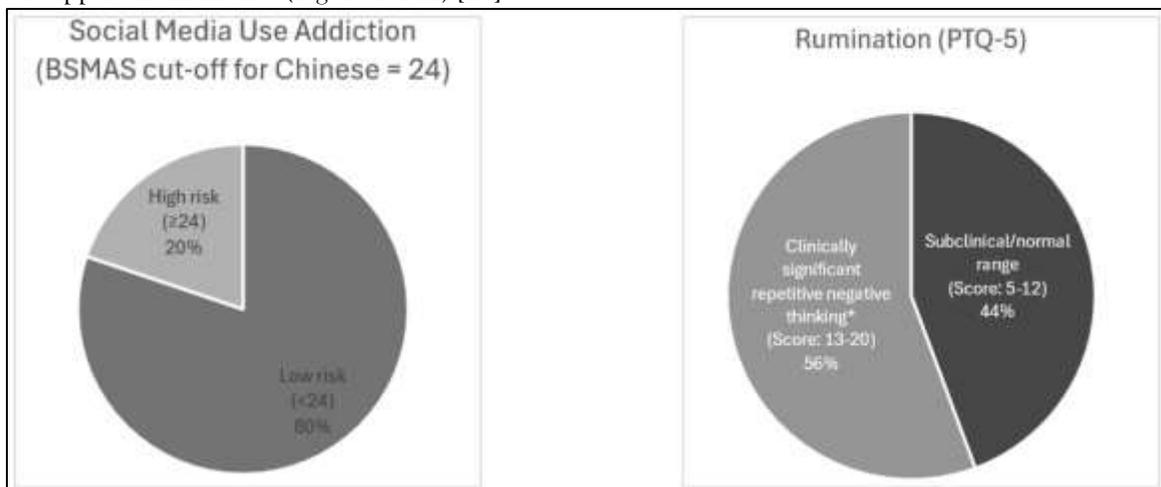


Figure 2. Pie charts for ‘BSMAS’ and ‘Rumination’

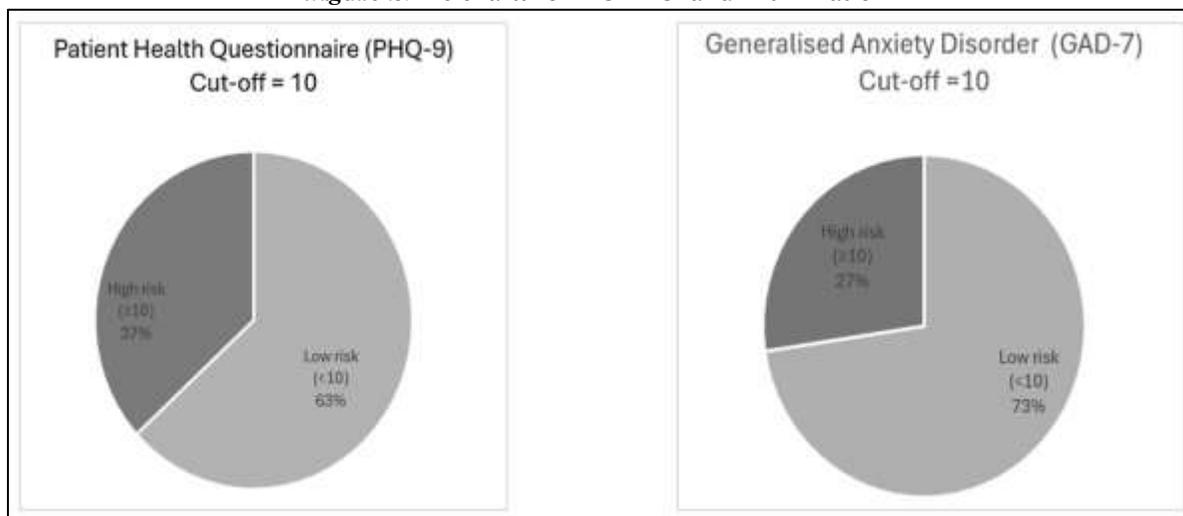


Figure 3. Pie charts for ‘PHQ-9’ and ‘GAD-7’

2.5.2 Statistical Findings

A Variance Inflation Factor (VIF) test confirmed that all predictors demonstrated values well below the threshold of 5 (range: 1.13–2.19), indicating no problematic multicollinearity. The internal consistency of the multi-item scales was excellent (Cronbach’s $\alpha = 0.739$). Multivariate Logistic Regression was performed. The regression models controlled for demographic factors and identified the unique contribution of each predictor (Table 3).

Table 3: Multivariate Logistic Regression for GAD-7 and PHQ-9

Predictors of Anxiety (GAD-7 ≥ 10)	Predictors of Depression (PHQ-9 ≥ 10)
<p>Six significant predictors were identified associated with high anxiety risk.</p> <ol style="list-style-type: none"> 1. BSMAS score was the strongest predictor (OR=1.13, $p<0.001$), indicating a 13% increase in the odds of anxiety for every one-point increase in the addiction scale [2]. 2. Social comparison (OR=2.10, $p<0.001$): Doubling the odds of anxiety [9]. 	<p>Five factors were significantly associated with a high risk of depression.</p> <ol style="list-style-type: none"> 1. BSMAS score was the strongest predictor (OR=1.14, $p<0.001$) [2]. 2. Social comparison (OR=1.94, $p<0.001$) [9]. 3. Checking frequency (OR=1.58, $p<0.01$) 4. Rumination (OR=1.11, $p<0.05$) [7]. 5. Poorer sleep quality (OR=1.10, $p<0.05$) [26].

Predictors of Anxiety (GAD-7 ≥ 10)	Predictors of Depression (PHQ-9 ≥ 10)
3. Rumination (OR=1.17, $p < 0.005$) [7]. 4. Checking frequency (OR=1.59, $p < 0.01$) 5. Profile editing (OR=1.40, $p < 0.05$) 6. Contrary to expectations, daily usage time was a significant negative predictor (OR=0.56, $p < 0.05$), associated with a 44% reduction in the odds of anxiety. Demographic variables (age, gender, education) showed no significant effects.	Unlike its association with anxiety, daily time spent on social media was not a significant predictor of depression. Demographic variables also showed no significant mediating or moderating effects.

3. DISCUSSION

This study provides a snapshot of social media engagement and its relationship with mental health among Hong Kong youth in the post-pandemic era. Our findings indicate that usage has intensified beyond already high pandemic levels [14], with nearly half of the participants spending over three hours daily on social media and a majority checking notification hourly. This suggests that the integration of digital platforms into daily life has become more entrenched. The prevalence of mental health risks in our sample remains alarmingly high, with over a quarter (27.4%) at risk for anxiety and more than a third (36.8%) for depression. These figures are substantially higher than pre-pandemic baselines [13, 23] and consistent with rates reported during the height of the pandemic [14]. This persistence suggests that while the acute stressors of the pandemic (e.g., lockdowns, fear of the virus) have receded [17], other chronic factors are sustaining this elevated level of psychological distress. The core of our analysis reveals that the nature of social media use is a more critical determinant of mental health than the sheer time spent. The most robust predictor of both anxiety and depression was problematic, addiction-like use (BSMAS score) [2]. This was closely followed by the tendency for upward social comparison—comparing one's own life to the curated highlights of others' lives online [9]. This behaviour effectively doubled the odds of anxiety and significantly increased the risk of depression, aligning with existing literature on its detrimental effects on self-perception [5, 25]. Furthermore, individual cognitive styles, particularly a predisposition to rumination (repetitive negative thinking) [7], emerged as a significant amplifier of the negative mental health impacts of social media. The finding that frequent checking of notifications and meticulous profile editing were linked to poorer outcomes underscores that a high-investment, high-vigilance approach to social media is associated with greater risk. A counterintuitive but important finding was the negative association between time spent and anxiety, suggesting that for some, prolonged engagement may serve a compensatory function, such as alleviating loneliness or providing distraction [18, 20]. This highlights the complex, non-uniform relationship between screen time and well-being. Finally, we identified poor sleep quality as a significant factor uniquely associated with depression [26], supporting existing evidence that sleep disruption acts as a key mediating pathway between digital habits and mental health deterioration [16]. The lack of significant effects from demographics like age and gender indicates that these risk factors are pervasive across the youth population in Hong Kong.

4. Limitations

Several limitations of this study must be acknowledged. First, the modest sample size (N=106) and convenience sampling method limit the statistical power and generalizability of the findings, as the participants may not be fully representative of all Hong Kong youth [19]. Second, the cross-sectional design inherently prevents the establishment of causality or directionality. The observed associations could be bidirectional; for instance, while social media use may lead to depression, it is equally plausible that individuals with depression may engage more heavily with social media as a coping mechanism [20, 25]. Third, the reliance on self-reported measures introduces potential for bias. Participants may underreport their actual screen time or overreport mental health symptoms, and the data is subject to recall inaccuracies [22]. Finally, the study did not account for several potential confounding variables, such as academic pressure [8, 23], family dynamics, offline social activities, or the specific emotional context of social media interactions (e.g., cyberbullying vs. supportive exchanges). This omission limits our ability to fully understand the mechanisms driving the observed relationships.

5. Recommendations

Based on these findings, we propose multi-level interventions. First, platform design should be address. Social media companies have a responsibility to mitigate harm by incorporating user-wellbeing features, such as mandatory usage breaks, warnings after prolonged use, and stricter content moderation, particularly for material related to self-harm and unrealistic body standards [11]. Second, policy and education should be considered. Regulatory bodies should limit predatory platform features designed to maximize engagement and addiction. Furthermore, evidence-based digital literacy education should be integrated into school curricula (e.g., Personal, Social & Humanities Education) to teach youth about algorithm manipulation, the psychology of social comparison [9], and the importance of critical engagement with online content. Third, public health, for example, interventions should promote healthy sleep hygiene as a protective factor against the negative effects of social media [16, 26]. Public awareness campaigns should focus on educating youth and parents about the signs of problematic use and the distinction between active, meaningful connection and passive, consumption-based scrolling [25].

6. CONCLUSION

In conclusion, this study demonstrates that social media use among Hong Kong youth is more prevalent than ever and is significantly intertwined with mental health challenges. The key insight is that the risk is driven not merely by time, but by addictive patterns of use [2, 15], engaging in social comparison [5, 9], and individual vulnerabilities like rumination [7]. These findings underscore the need to move beyond simplistic screen-time recommendations and toward more nuanced public health and educational strategies. These should aim to foster resilience against the specific mechanisms that link social media to psychological distress, such as promoting critical digital literacy, healthy sleep habits [26], and mindful engagement, while preserving the benefits of social connectivity that these platforms can offer [18].

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