

The Mediating Role of Digital Self-Control in the Relationship Between Fear of Missing Out, Passive Social Media Use, and Sleep Disturbance Among Adolescents

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Article Info

Article type:

Original Research

How to cite this article:

Hrivnáková, Z., Jenkins, S., & Escobar, R. (2026). The Mediating Role of Digital Self-Control in the Relationship Between Fear of Missing Out, Passive Social Media Use, and Sleep Disturbance Among Adolescents. *Journal of Adolescent and Youth Psychological Studies*, 7(10), 1-16.
<http://dx.doi.org/10.61838/kman.jayps.6306>



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ABSTRACT

Objective: This study aimed to examine the mediating role of digital self-control in the relationships of fear of missing out and passive social media use with sleep disturbance among adolescents in Canada.

Methods and Materials: This quantitative cross-sectional correlational study was conducted among 612 adolescents aged 13–18 years enrolled in secondary schools in Canada during the 2025–2026 academic year. Participants were recruited through a multistage sampling procedure. Data were collected using standardized self-report measures of fear of missing out, passive social media use, digital self-control, and sleep disturbance. Internal consistency was assessed using Cronbach's alpha and McDonald's omega. Pearson correlation coefficients were calculated to examine bivariate associations among the main variables. Regression-based mediation analysis was performed using IBM SPSS Statistics and the PROCESS macro, with fear of missing out and passive social media use entered as predictors, digital self-control as the mediator, and sleep disturbance as the outcome. Indirect effects were evaluated using 5,000 bootstrap resamples and 95% confidence intervals.

Findings: Fear of missing out significantly predicted lower digital self-control ($\beta = -.35, p < .001$) and greater sleep disturbance ($\beta = .25, p < .001$). Passive social media use also significantly predicted lower digital self-control ($\beta = -.27, p < .001$) and greater sleep disturbance ($\beta = .18, p < .001$). Digital self-control significantly and inversely predicted sleep disturbance ($\beta = -.38, p < .001$). The model explained 29.7% of the variance in digital self-control and 43.8% of the variance in sleep disturbance. Bootstrapping confirmed significant indirect effects of fear of missing out on sleep disturbance through digital self-control (effect = 0.119, 95% CI [0.085, 0.159]) and of passive social media use on sleep disturbance through digital self-control (effect = 0.842, 95% CI [0.567, 1.154]), indicating partial mediation.

Conclusion: Digital self-control is an important behavioral mechanism linking fear of missing out and passive social media use with sleep disturbance among adolescents, suggesting that strengthening digital self-regulation may help reduce sleep-related difficulties associated with social media engagement.

Keywords: Adolescents; Digital Self-Control; Fear of Missing Out; Passive Social Media Use; Sleep Disturbance; Social Media

1. Introduction

Adolescence represents a developmental period characterized by major biological, cognitive, emotional, and social transitions, while simultaneously being a stage in which digital technologies and social media have become deeply embedded in everyday routines, interpersonal communication, identity development, leisure, and peer interaction. For contemporary adolescents, social media environments are not merely optional channels of communication but important social spaces in which belonging, peer approval, social comparison, visibility, and awareness of ongoing events are continuously negotiated. Although these platforms provide opportunities for communication, social support, entertainment, and access to information, intensive or poorly regulated engagement may also create psychological and behavioral demands that interfere with well-being. In particular, the persistent accessibility of social media may encourage repeated checking, attentional fragmentation, prolonged engagement, and difficulty disengaging from rewarding or socially salient digital content. Research increasingly indicates that problematic patterns of digital technology use are associated with adverse psychological and behavioral outcomes, including emotional difficulties, maladaptive social media use, and impaired sleep (Fu et al., 2026). Among adolescents specifically, problematic social media engagement has been linked to emotional vulnerabilities, loneliness, and fear of missing out, suggesting that social media-related difficulties cannot be adequately understood merely in terms of time spent online but should instead be considered within broader processes of emotional regulation, motivation, and behavioral self-control (Chmiel et al., 2026). These concerns make it particularly important to identify the psychological and behavioral mechanisms through which everyday social media experiences may influence adolescent sleep, because sleep is a central developmental resource associated with emotional functioning, cognitive performance, physical health, school adjustment, and overall well-being.

Sleep disturbance has become an important concern in research on digitally connected adolescents and young adults because digital media can interfere with sleep through multiple pathways. Social media may displace time that would otherwise be devoted to sleep, extend wakefulness beyond intended bedtimes, increase physiological and cognitive arousal, expose users to emotionally stimulating content, and encourage repeated nighttime checking. Studies of social media addiction and sleep have consistently

indicated that problematic engagement is associated with poorer sleep outcomes. For example, school-based research has found meaningful associations between social media addiction and sleep quality among young people, reinforcing concern that habitual digital engagement may become intertwined with sleep problems during formative educational years (Pradhan et al., 2025). Similarly, social media addiction has been associated with negative emotional outcomes among adolescent populations, with sleep functioning emerging as an important explanatory pathway linking problematic social media behavior to psychological adjustment (Lin et al., 2025). Findings in university populations likewise suggest that social media-related behavioral patterns may contribute to sleep problems through psychologically meaningful intermediate processes rather than exclusively through total screen exposure (Yu & Gen, 2023). Sleep itself is also sensitive to broader psychological processes such as stress, rumination, social anxiety, and difficulty disengaging from emotionally salient concerns, illustrating that sleep disturbance is frequently the downstream outcome of interacting cognitive and behavioral mechanisms (Zhang & Wei-min, 2024). Research examining sleep quality within other psychosocial contexts similarly demonstrates that psychological vulnerabilities may operate indirectly through behavioral processes occurring before bedtime, such as bedtime procrastination or socially driven media engagement (Batool et al., 2025; Zheng et al., 2024). Consequently, understanding adolescent sleep disturbance in the digital era requires models that simultaneously incorporate social-media-specific motivations and adolescents' capacity to regulate their own digital behavior.

One particularly important psychological construct in this context is fear of missing out, commonly conceptualized as a persistent apprehension that others may be experiencing rewarding events, interactions, or opportunities from which the individual is absent, accompanied by a desire to remain continually informed about what others are doing. Social media environments are especially conducive to this experience because they provide constant streams of socially relevant information, visible peer activities, interpersonal feedback, and opportunities for comparison. Fear of missing out can therefore function both as an emotional state and as a motivational force that encourages repeated platform checking and sustained connectivity. Evidence indicates a robust association between fear of missing out and problematic or compulsive social media use, with recent systematic review and meta-analytic work identifying fear

of missing out as an important correlate of compulsive engagement across different demographic groups (Bakshi & Gait, 2026). Among adolescents, fear of missing out has also been situated within broader pathways involving loneliness, emotion dysregulation, and social media addiction, suggesting that it may represent an important mechanism through which social vulnerabilities become translated into problematic patterns of online behavior (Türk & Koçyiğit, 2025). Research further suggests that fear of missing out may mediate the relationship between loneliness and problematic social media use among adolescents, emphasizing its role as a psychologically meaningful process linking unmet social needs with maladaptive digital behavior (Chmiel et al., 2026). In addition, studies of social-emotional competence indicate that fear of missing out can participate in complex pathways connecting problematic social media use with internalizing difficulties and compromised psychosocial functioning (Fu et al., 2026). Taken together, these findings suggest that fear of missing out may be especially consequential during adolescence, when sensitivity to peer evaluation and social inclusion is heightened and continuous access to digital peer networks may make disengagement particularly difficult.

The relationship between fear of missing out and sleep disturbance is theoretically plausible because the desire to remain socially connected may directly interfere with processes required for healthy sleep. Adolescents experiencing elevated fear of missing out may find it difficult to stop checking social media at night, may worry about missing messages or social developments while offline, and may postpone bedtime in order to remain connected. Empirical evidence supports such pathways. Fear of missing out has been associated with bedtime procrastination and vulnerability to problematic social networking behavior, with negative affect further contributing to the relationship between fear of missing out, digital engagement, and delayed sleep-related behavior (Ha & Yang, 2024). Research examining mobile phone dependency has also indicated that bedtime procrastination and fear of missing out may operate as mediating mechanisms linking digital dependence with poorer sleep quality (Huang et al., 2023). Similarly, fear of missing out and smartphone addiction have been shown to mediate relationships between affective states and sleep quality, demonstrating that socially driven digital motivations may form part of a broader pathway through which psychological states become translated into disturbed sleep (Li et al., 2020). Direct evidence has additionally shown that fear of missing

out is associated with poorer sleep quality among highly connected student populations (Jullyane Laysa de Carvalho et al., 2024). Moreover, chain mediation findings suggest that fear of missing out may increase nocturnal social media use, which subsequently contributes to sleep problems (Yu & Gen, 2023). Collectively, these studies indicate that fear of missing out may affect sleep not only because it produces emotional arousal but also because it encourages persistent digital engagement precisely during periods when individuals should be disengaging from socially stimulating environments.

A second social media behavior that may be relevant to sleep is passive social media use. Passive social media use refers to consuming social media content without substantial direct interaction, such as repeatedly scrolling through feeds, viewing other users' posts or stories, reading comments, browsing profiles, or monitoring peers' activities without posting, messaging, or otherwise actively communicating. This form of engagement is theoretically distinct from active social media use because passive consumption may involve sustained exposure to curated portrayals of other people's lives while providing fewer opportunities for reciprocal interaction or social support. Such behavior may encourage upward social comparison, repetitive monitoring, cognitive preoccupation, or prolonged browsing and may therefore be particularly relevant to adolescents who are sensitive to peer activity. Evidence from middle-school populations indicates that passive social media use can be associated with maladaptive educational outcomes, including learning burnout, suggesting that apparently low-effort observational engagement may nevertheless carry meaningful psychological and functional consequences (Zhang et al., 2024). Passive use may also be especially closely connected to fear of missing out, because adolescents who are concerned about being excluded from social experiences may repeatedly monitor others' activities even when they do not actively communicate. Recent work examining state fear of missing out, loneliness, perfectionism, and social media use reinforces the broader proposition that momentary fears of social exclusion and individual psychological characteristics influence the way individuals engage with social media environments (Zhang et al., 2025). However, compared with the substantial literature on social media addiction or generalized problematic use, considerably less attention has been paid to passive social media use as a distinct predictor of sleep-related difficulties, particularly in adolescent populations.

One mechanism that may help explain why fear of missing out and passive social media use contribute to sleep disturbance is digital self-control. Digital self-control may be understood as the capacity to regulate impulses, habits, attentional capture, and goal conflicts arising during interaction with digital technologies. It encompasses behaviors such as resisting the urge to check notifications, delaying social media access when engaged in another activity, limiting excessive scrolling, stopping platform use at an intended time, and maintaining boundaries around device use during schoolwork, family activities, and bedtime. The concept has become increasingly relevant because contemporary digital environments are intentionally designed around features such as infinite scrolling, notifications, algorithmically personalized content, social feedback, and intermittent rewards, all of which can make disengagement difficult. Digital well-being frameworks have consequently emphasized self-control as a central construct for understanding how individuals manage conflicts between immediate digital temptations and longer-term goals (Lyngs et al., 2019). A complementary dual-systems perspective proposes that digital behavior often reflects competition between impulsive processes favoring immediately rewarding online activity and reflective processes that support intentional self-regulation, providing a theoretical basis for digital self-control interventions and self-control tools (Lyngs, 2019). From this perspective, problematic digital engagement is not solely a function of how appealing a platform is but also of whether users possess sufficient self-regulatory capacity to interrupt automatic checking and align technology use with longer-term goals.

The developmental relevance of self-control is particularly important during adolescence. Longitudinal and daily research has demonstrated meaningful associations between adolescent self-control and digital technology use, suggesting that self-regulatory capacity and digital behavior are dynamically related rather than independent domains (Burnell et al., 2023). Adolescents with stronger self-control may be better able to disengage from digital content when competing demands arise, whereas those with weaker self-regulation may remain online despite intentions to study, sleep, or engage in offline activities. In the context of fear of missing out, digital self-control may determine whether concern about missing peer activity results in compulsive checking or whether the adolescent can tolerate temporary disconnection. Similarly, passive social media use may become problematic when adolescents are unable to stop

scrolling even when the behavior has ceased to serve a deliberate purpose. This interpretation is consistent with emerging evidence demonstrating that social media problems are closely connected with affective and behavioral regulation processes. Research on problematic social media use has emphasized internalizing problems and fear of missing out as relevant mechanisms of impairment (Fu et al., 2026), while research on adolescent fear of missing out and loneliness has highlighted the roles of emotion dysregulation and social media addiction (Türk & Koçyiğit, 2025). Digital self-control may therefore represent a more proximal behavioral mechanism linking these emotional and usage-related vulnerabilities to concrete health-related consequences such as disturbed sleep.

The proposed mediating role of digital self-control is also consistent with evidence showing that sleep consequences of social media use frequently arise through intermediate behavioral processes. Social media addiction has been linked to academic engagement through sleep quality and fatigue, illustrating how digital behavior may contribute to downstream functioning partly by disrupting restorative processes (Khalaf et al., 2025). Likewise, social media use has been identified as a mediator between relationship stress and both subjective and objective sleep outcomes, demonstrating that digital behavior may become an intermediary through which broader psychosocial experiences affect sleep (Langlais et al., 2025). Similar mediation-based models have shown that psychological variables such as body image, social interaction anxiety, rumination, and bedtime procrastination help explain why upstream psychological stressors are associated with sleep disturbance or poor sleep quality (Batool et al., 2025; Zhang & Wei-min, 2024; Zheng et al., 2024). These findings support a conceptual shift away from simple direct-effect models of digital media and sleep toward models in which individual differences in regulation and behavior determine whether social media-related experiences translate into sleep difficulties. From this standpoint, fear of missing out and passive social media use may increase vulnerability to sleep disturbance because they place greater demands on adolescents' self-regulatory resources, while digital self-control may function as a behavioral buffer that enables individuals to disengage from social media despite ongoing psychological or environmental cues.

Despite growing interest in fear of missing out, problematic social media use, and sleep, several gaps remain. First, much of the existing literature has focused on university students or adults rather than adolescents, even

though adolescence is a particularly sensitive period for both social-media-related peer processes and sleep regulation. Studies involving university students have provided important evidence regarding fear of missing out, smartphone addiction, bedtime procrastination, and sleep quality (Huang et al., 2023; Li et al., 2020; Yu & Gen, 2023), but developmental differences in autonomy, peer salience, school schedules, and self-regulatory capacity mean that these findings cannot automatically be generalized to younger adolescents. Second, research has commonly examined problematic social media use or addiction rather than passive social media use as a distinct behavioral pattern. This distinction is important because passive browsing may be frequent even among adolescents who would not meet criteria for problematic or addictive use, yet it may still sustain social monitoring, comparison, or prolonged nighttime engagement. Third, although self-control has been linked longitudinally with adolescent digital technology use (Burnell et al., 2023), digital self-control has rarely been positioned explicitly as a mediator between specific social media-related antecedents and sleep disturbance. Finally, contemporary evidence on fear of missing out indicates that this construct interacts with multiple psychological characteristics and patterns of social media engagement (Bakshi & Gait, 2026; Zhang et al., 2025), suggesting a need for integrative models in which motivational, behavioral, and self-regulatory factors are examined simultaneously rather than in isolation.

Investigating these processes among Canadian adolescents may therefore contribute to a more precise understanding of how social media-related experiences become associated with disturbed sleep. A mediation model centered on digital self-control allows the analysis to distinguish between direct associations and indirect behavioral pathways. If fear of missing out predicts weaker digital self-control, this would suggest that socially driven concerns may undermine adolescents' ability to disengage from digital environments. If passive social media use similarly predicts lower digital self-control, this would indicate that habitual observational engagement may reflect or reinforce difficulties in regulating digital behavior. In turn, an association between lower digital self-control and greater sleep disturbance would provide evidence that the capacity to manage technology use may be an important behavioral pathway linking social media experiences with sleep. Such a model is also compatible with current approaches to digital well-being that emphasize agency and self-regulation rather than assuming that all technology use

is uniformly harmful (Lyngs, 2019; Lyngs et al., 2019). By focusing on digital self-control, the proposed framework may therefore help identify a potentially modifiable mechanism that could be targeted through educational, family-based, school-based, or digital well-being interventions designed to help adolescents establish healthier boundaries around social media use, particularly during the period preceding sleep.

Accordingly, the aim of the present study was to examine the mediating role of digital self-control in the relationships of fear of missing out and passive social media use with sleep disturbance among adolescents in Canada.

2. Methods and Materials

2.1. Study Design and Participants

This study employed a quantitative, cross-sectional, correlational design to investigate the relationships among fear of missing out, passive social media use, digital self-control, and sleep disturbance among adolescents and to examine the mediating role of digital self-control in the associations of fear of missing out and passive social media use with sleep disturbance. The study population consisted of adolescents enrolled in secondary schools in Canada during the 2025–2026 academic year. A total of 612 adolescents were included in the final analytic sample. Participants were recruited from public secondary schools in several urban and suburban communities through a multistage sampling procedure intended to provide adequate representation of adolescents from different grade levels and sociodemographic backgrounds. At the first stage, participating schools were selected from eligible secondary schools, and at the second stage, classes were selected from different grade levels. Students in the selected classes who met the eligibility criteria were invited to participate. Eligibility criteria included being between 13 and 18 years of age, currently enrolled in a Canadian secondary school, using at least one social media platform on a regular basis, being able to read and understand English sufficiently to complete the questionnaires, and providing informed assent together with parental or guardian consent when required. Adolescents were excluded if they submitted substantially incomplete questionnaires, demonstrated patterned or implausible responses, or failed to provide sufficient data on the principal study variables. Data were collected through an anonymous self-report questionnaire administered electronically in a supervised school setting. Participants received standardized instructions explaining the purpose

and procedure of the study and were informed that participation was voluntary, that their responses would remain confidential, and that they could discontinue participation at any point without penalty. No identifying information was included in the analytic dataset. Demographic information collected from participants included age, gender, grade level, average daily time spent on social media, and the primary social media platforms used. Ethical principles concerning research involving minors, voluntary participation, confidentiality, and informed consent were followed throughout the study, and data collection was conducted after obtaining the required institutional and educational permissions.

2.2. Measures

Fear of missing out was assessed using the Fear of Missing Out Scale developed by Przybylski et al. The instrument was designed to assess persistent apprehension that other people may be having rewarding experiences from which the individual is absent and the corresponding desire to remain continuously connected with what others are doing. The scale consists of 10 items addressing concerns regarding exclusion from rewarding experiences, preoccupation with the activities of peers, and the perceived need to remain informed about social interactions and events. Participants responded to each statement using a five-point Likert-type response format ranging from 1, representing “not at all true of me,” to 5, representing “extremely true of me.” Item scores were summed or averaged to obtain an overall fear of missing out score, with higher scores indicating greater levels of fear of missing out. The scale has been widely used in adolescent and young adult populations and has demonstrated satisfactory internal consistency and construct validity. In the present study, the total score was used as the observed indicator of adolescents’ fear of missing out, and internal consistency was evaluated using Cronbach’s alpha and McDonald’s omega before inclusion of the variable in the principal analyses.

Passive social media use was assessed by measuring the extent to which adolescents engaged with social networking platforms primarily as observers rather than active contributors. Passive social media behavior included activities such as scrolling through social media feeds, viewing other users’ profiles, reading posts and comments without responding, watching stories or short-form content without interacting with the creator, and monitoring the activities of peers without directly communicating with

them. Participants rated the frequency with which they engaged in these behaviors using a five-point Likert-type format ranging from 1, representing “never,” to 5, representing “very often.” Items were formulated to distinguish passive consumption of social media content from active behaviors such as posting, commenting, messaging, or directly interacting with other users. A composite passive social media use score was calculated by averaging the relevant items, with higher scores representing a stronger tendency toward passive social media consumption. Because passive use may occur across multiple platforms rather than being restricted to a single social networking service, participants were instructed to consider their overall behavior across the social media platforms they regularly used. The internal consistency of the measure was examined in the study sample, and item-total correlations and reliability coefficients were evaluated to confirm that the items represented a coherent construct before calculation of the composite score.

Digital self-control was assessed as adolescents’ perceived capacity to intentionally regulate digital media behavior, resist online distractions, terminate digital activities when appropriate, and maintain behavioral boundaries regarding smartphone and social media use. The measure covered core aspects of digital self-regulation, including the ability to resist the urge to check social media immediately after receiving a notification, delay online engagement when completing important activities, discontinue social media use at an intended time, avoid habitual or automatic checking of digital platforms, control digital media use during study or family activities, and refrain from excessive smartphone or social media use before sleep. Participants indicated the extent to which each statement described their typical behavior using a five-point Likert-type scale ranging from low to high perceived behavioral control. Negatively worded items were reverse-scored where appropriate, after which item scores were averaged to produce a total digital self-control score. Higher scores indicated greater ability to regulate online behavior and stronger control over habitual or impulsive digital media engagement. In the conceptual model of the present study, digital self-control was specified as the mediator because difficulties in regulating digital engagement were hypothesized to represent an important behavioral mechanism through which fear of missing out and passive social media consumption could contribute to impaired sleep. The reliability of the digital self-control measure was assessed using Cronbach’s alpha and McDonald’s omega,

while corrected item-total correlations were examined to determine whether individual items adequately contributed to the overall construct.

Sleep disturbance was evaluated using the PROMIS Sleep Disturbance Short Form, which assesses perceived difficulties related to sleep quality and sleep continuity during the recent past. The measure evaluates experiences such as difficulty falling asleep, problems remaining asleep throughout the night, perceptions of restless or unsatisfactory sleep, and difficulty obtaining sufficient or refreshing sleep. Participants rated the frequency or severity of each sleep-related experience using the response categories provided by the instrument. Following the recommended scoring procedure, responses were combined to generate an overall sleep disturbance score, with higher scores indicating more pronounced sleep-related difficulties. The measure focuses primarily on adolescents' subjective experience of sleep disturbance rather than objectively measured sleep duration and was therefore appropriate for examining psychological and behavioral correlates of perceived sleep problems in a large school-based sample. The internal consistency of the sleep disturbance measure was evaluated in the current sample prior to hypothesis testing. In addition to the four primary constructs, participants reported their average daily social media use and selected demographic characteristics so that these variables could be described and, where theoretically appropriate, considered as covariates in supplementary analyses.

2.3. Data Analysis

Data were analyzed using IBM SPSS Statistics and the PROCESS macro for mediation analysis. Prior to hypothesis testing, the dataset was screened for missing values, inaccurate data entry, outliers, and violations of relevant statistical assumptions. Cases containing substantial missing information on the principal variables were excluded from the final analysis, whereas the extent and pattern of remaining missing data were examined before computation of scale scores. Descriptive statistics, including means, standard deviations, minimum and maximum values, frequencies, and percentages, were calculated to summarize participant characteristics and the distributions of the main study variables. The normality of continuous variables was evaluated through skewness and kurtosis indices and visual inspection of their distributions. Potential multivariate problems were also examined by evaluating unusually influential observations and the assumptions associated with

regression-based mediation analysis. Internal consistency reliability was evaluated for each multi-item measure using Cronbach's alpha and McDonald's omega, with coefficients of .70 or higher considered indicative of acceptable reliability. Pearson product-moment correlation coefficients were calculated to examine bivariate relationships among fear of missing out, passive social media use, digital self-control, and sleep disturbance. Correlation coefficients were interpreted according to their magnitude and direction, and statistical significance was evaluated using two-tailed tests.

The primary hypotheses were examined using regression-based mediation analysis. Two parallel predictor pathways were specified in the conceptual model, with fear of missing out and passive social media use entered as independent variables, digital self-control specified as the mediating variable, and sleep disturbance specified as the dependent variable. This model permitted estimation of the direct associations of fear of missing out and passive social media use with sleep disturbance as well as their indirect associations through digital self-control while accounting for the simultaneous contribution of the other predictor. The first component of the mediation model estimated the relationships between fear of missing out and digital self-control and between passive social media use and digital self-control. The second component examined whether digital self-control predicted sleep disturbance after controlling for both predictors. Direct effects represented the associations of fear of missing out and passive social media use with sleep disturbance after digital self-control was included in the model, whereas indirect effects represented the extent to which each predictor was associated with sleep disturbance through variation in digital self-control. The statistical significance of indirect effects was evaluated using a nonparametric bootstrap procedure based on 5,000 resamples and 95% bias-corrected confidence intervals. An indirect effect was considered statistically significant when its confidence interval did not include zero. Unstandardized regression coefficients, standard errors, standardized coefficients where appropriate, *t* statistics, confidence intervals, and *p* values were reported to facilitate interpretation of the model. Multicollinearity was examined using tolerance statistics and variance inflation factors, and the assumptions of linearity, homoscedasticity, and independence of residuals were assessed before interpreting the regression models. Statistical significance for direct and bivariate analyses was established at $p < .05$, using two-tailed tests. The mediation analysis was interpreted primarily on the basis of bootstrapped confidence intervals rather than

reliance exclusively on significance tests for individual component paths.

3. Findings and Results

A total of 612 adolescents were included in the final analyses after data screening and exclusion of questionnaires with substantial missing responses or invalid response patterns. Participants ranged in age from 13 to 18 years, with a mean age of 15.61 years ($SD = 1.47$). Of the total sample, 309 participants (50.49%) identified as girls, 286 (46.73%) identified as boys, and 17 (2.78%) identified as another gender or preferred not to specify their gender. Regarding school grade, 102 participants (16.67%) were enrolled in Grade 8, 119 (19.44%) in Grade 9, 128 (20.92%) in Grade 10, 137 (22.39%) in Grade 11, and 126 (20.59%) in Grade

12. Participants reported an average daily social media use of 3.84 hours ($SD = 1.67$), with reported use ranging from approximately 1 to 9 hours per day. A total of 176 adolescents (28.76%) reported using social media for less than 3 hours per day, 259 (42.32%) reported between 3 and 5 hours per day, and 177 (28.92%) reported more than 5 hours per day. Instagram, TikTok, Snapchat, YouTube, and messaging-based social platforms were the most frequently reported forms of digital engagement, with most participants indicating regular use of more than one platform. Initial screening showed that the proportion of missing item-level data was low, no variable exhibited extreme departure from normality, and no substantial data-quality problem was identified that would preclude the planned parametric and mediation analyses.

Table 1

Descriptive Statistics, Distributional Characteristics, and Internal Consistency of the Main Study Variables

Variable	M	SD	Minimum	Maximum	Skewness	Kurtosis	Cronbach's α	McDonald's ω
Fear of Missing Out	30.84	7.16	12.00	49.00	0.27	-0.31	.89	.90
Passive Social Media Use	3.41	0.78	1.20	5.00	-0.19	-0.46	.86	.87
Digital Self-Control	3.18	0.74	1.15	4.95	-0.11	-0.38	.88	.89
Sleep Disturbance	24.67	6.41	9.00	40.00	0.33	-0.29	.91	.91

Table 1 presents the descriptive characteristics and reliability estimates for all principal study variables. Adolescents obtained a mean fear of missing out score of 30.84 ($SD = 7.16$), indicating substantial individual variation in the degree to which participants experienced concern about being excluded from rewarding social experiences or remaining unaware of peers' activities. Passive social media use had a mean of 3.41 ($SD = 0.78$) on the five-point scale, suggesting that passive behaviors such as scrolling, viewing others' content, and monitoring social activity without direct interaction occurred with moderate-to-high frequency in the sample. The mean score for digital self-control was 3.18 ($SD = 0.74$), indicating a moderate overall capacity among participants to regulate smartphone and social media behavior, resist habitual checking, and disengage from

digital activities when necessary. The mean sleep disturbance score was 24.67 ($SD = 6.41$), demonstrating considerable variability in perceived difficulties related to sleep initiation, sleep continuity, restfulness, and overall sleep quality. Skewness coefficients ranged from -0.19 to 0.33 and kurtosis coefficients ranged from -0.46 to -0.29, all of which were well within commonly accepted limits for approximately normal distributions. The reliability coefficients were also satisfactory. Cronbach's alpha values ranged from .86 to .91, while McDonald's omega coefficients ranged from .87 to .91, indicating strong internal consistency for all measures. These findings supported the use of the composite scores in the subsequent correlational, regression, and mediation analyses.

Table 2

Pearson Correlations Among Fear of Missing Out, Passive Social Media Use, Digital Self-Control, and Sleep Disturbance

Variable	1	2	3	4
1. Fear of Missing Out	1			
2. Passive Social Media Use	.54***	1		
3. Digital Self-Control	-.48***	-.43***	1	
4. Sleep Disturbance	.51***	.46***	-.57***	1

As shown in Table 2, all correlations among the four principal variables were statistically significant at $p < .001$ and were in the theoretically expected directions. Fear of missing out showed a moderate positive correlation with passive social media use, $r = .54$, indicating that adolescents who experienced stronger concerns about missing socially rewarding experiences were also more likely to engage in passive observation and consumption of social media content. Fear of missing out was negatively associated with digital self-control, $r = -.48$, suggesting that greater fear of missing out was accompanied by poorer ability to regulate digital engagement, delay checking behavior, and disengage from online platforms. Fear of missing out was also positively related to sleep disturbance, $r = .51$, indicating that adolescents with higher fear of missing out tended to report more pronounced sleep difficulties. Passive social media use was negatively associated with digital self-control, $r = -.43$,

and positively associated with sleep disturbance, $r = .46$. Thus, greater engagement in passive scrolling and monitoring behavior was related both to weaker digital self-regulation and to greater sleep-related difficulties. The strongest bivariate association in the correlation matrix was observed between digital self-control and sleep disturbance, $r = -.57$, demonstrating that adolescents with stronger capacity to regulate digital media behavior reported substantially lower levels of sleep disturbance. The magnitude of the coefficients indicated meaningful associations without evidence of excessively high correlations that would suggest problematic redundancy among the predictors. These results therefore provided preliminary support for testing the proposed mediation model in which digital self-control was hypothesized to account for part of the relationship between the two social media-related predictors and sleep disturbance.

Table 3

Regression Models Predicting Digital Self-Control and Sleep Disturbance

Outcome and Predictor	B	SE	β	t	p	95% CI for B
Outcome: Digital Self-Control						
Fear of Missing Out	-0.036	0.004	-.35	-8.83	<.001	[-0.044, -0.028]
Passive Social Media Use	-0.254	0.038	-.27	-6.68	<.001	[-0.329, -0.179]
Outcome: Sleep Disturbance						
Fear of Missing Out	0.223	0.031	.25	7.19	<.001	[0.162, 0.284]
Passive Social Media Use	1.519	0.292	.18	5.20	<.001	[0.946, 2.092]
Digital Self-Control	-3.314	0.319	-.38	-10.39	<.001	[-3.940, -2.688]

The regression results presented in Table 3 demonstrate that both fear of missing out and passive social media use significantly predicted lower digital self-control. Fear of missing out had a significant negative association with digital self-control, $B = -0.036$, $SE = 0.004$, $\beta = -.35$, $t = -8.83$, $p < .001$, indicating that increases in fear of missing out were associated with progressively weaker capacity to regulate digital behavior even after accounting for passive social media use. Passive social media use also significantly predicted lower digital self-control, $B = -0.254$, $SE = 0.038$, $\beta = -.27$, $t = -6.68$, $p < .001$. Together, fear of missing out and passive social media use accounted for 29.7% of the variance in digital self-control, $R^2 = .297$, adjusted $R^2 = .295$, $F(2, 609) = 128.71$, $p < .001$. In the model predicting sleep disturbance, all three predictors remained statistically significant. Fear of missing out positively predicted sleep disturbance, $B = 0.223$, $SE = 0.031$, $\beta = .25$, $t = 7.19$, $p < .001$, while passive social media use also had a significant

positive effect, $B = 1.519$, $SE = 0.292$, $\beta = .18$, $t = 5.20$, $p < .001$. Digital self-control emerged as the strongest predictor in the model and was inversely related to sleep disturbance, $B = -3.314$, $SE = 0.319$, $\beta = -.38$, $t = -10.39$, $p < .001$. This finding indicates that adolescents with stronger digital self-regulation reported substantially fewer sleep problems after statistically controlling for both fear of missing out and passive social media use. The complete outcome model explained 43.8% of the variance in sleep disturbance, $R^2 = .438$, adjusted $R^2 = .435$, $F(3, 608) = 158.03$, $p < .001$. Multicollinearity diagnostics were satisfactory, with variance inflation factor values ranging from 1.29 to 1.55 and tolerance values remaining above .64. Inspection of residual plots did not reveal substantial violations of linearity or homoscedasticity, and the standardized residuals showed no major departure from the assumptions required for interpretation of the regression estimates.

Table 4

Direct, Indirect, and Total Effects of Fear of Missing Out and Passive Social Media Use on Sleep Disturbance Through Digital Self-Control

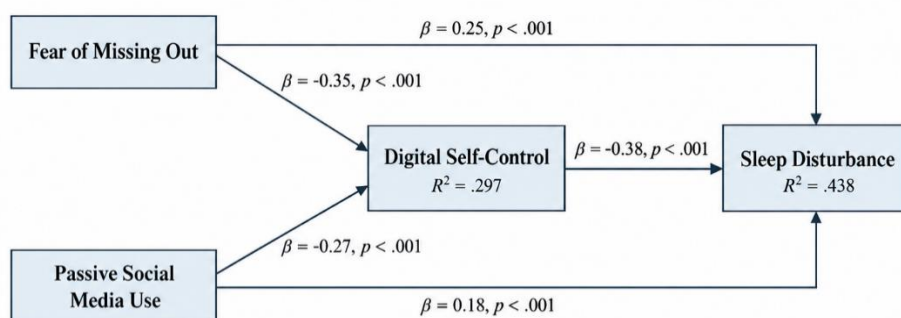
Predictor and Effect	Effect	Boot SE	95% Bootstrap CI Lower	95% Bootstrap CI Upper
Fear of Missing Out: Total Effect	0.342	0.030	0.283	0.401
Fear of Missing Out: Direct Effect	0.223	0.031	0.162	0.284
Fear of Missing Out → Digital Self-Control → Sleep Disturbance	0.119	0.019	0.085	0.159
Passive Social Media Use: Total Effect	2.361	0.282	1.808	2.914
Passive Social Media Use: Direct Effect	1.519	0.292	0.946	2.092
Passive Social Media Use → Digital Self-Control → Sleep Disturbance	0.842	0.151	0.567	1.154

The mediation analysis summarized in Table 4 demonstrated that digital self-control significantly mediated the relationships of both fear of missing out and passive social media use with sleep disturbance. The total effect of fear of missing out on sleep disturbance was positive and statistically significant, effect = 0.342, 95% CI [0.283, 0.401]. After digital self-control was introduced as the mediator, the direct effect remained statistically significant but decreased to 0.223, 95% CI [0.162, 0.284]. The indirect effect of fear of missing out on sleep disturbance through digital self-control was 0.119, Boot SE = 0.019, with a 95% bootstrap confidence interval ranging from 0.085 to 0.159. Because this confidence interval did not contain zero, the indirect pathway was statistically significant. This result indicates that higher fear of missing out was related to lower digital self-control, which in turn was associated with greater sleep disturbance. The direct pathway remained significant after accounting for the mediator, indicating partial rather than complete mediation. A similar pattern was observed for passive social media use. The total effect of passive social media use on sleep disturbance was 2.361, 95% CI [1.808, 2.914], whereas the direct effect after inclusion of digital

self-control was reduced to 1.519, 95% CI [0.946, 2.092]. The bootstrapped indirect effect through digital self-control was 0.842, Boot SE = 0.151, 95% CI [0.567, 1.154], again excluding zero and confirming a statistically significant mediation effect. Thus, more frequent passive engagement with social media was associated with lower digital self-control, which subsequently predicted greater sleep disturbance. The persistence of significant direct effects for both predictors indicates that digital self-control explained an important, but not exclusive, proportion of the association between social media-related vulnerabilities and adolescents' sleep difficulties. Based on the unstandardized effects, approximately 34.8% of the total association between fear of missing out and sleep disturbance operated indirectly through digital self-control, while approximately 35.7% of the total association between passive social media use and sleep disturbance was attributable to the same mediating pathway. Collectively, these findings provide consistent support for the hypothesized role of digital self-control as a behavioral mechanism linking adolescents' social media-related psychological and behavioral tendencies to sleep disturbance.

Figure 1

Mediation Model of the Relationships Between Fear of Missing Out, Passive Social Media Use, Digital Self-Control, and Sleep Disturbance Among Adolescents



The mediation model illustrated in Figure 1 summarizes the statistically significant pathways identified in the analysis. Fear of missing out was negatively associated with digital self-control ($\beta = -.35, p < .001$), and passive social media use likewise demonstrated a negative association with digital self-control ($\beta = -.27, p < .001$). Digital self-control, in turn, showed a substantial negative association with sleep disturbance ($\beta = -.38, p < .001$), indicating that stronger capacity to regulate digital engagement was associated with fewer sleep-related difficulties. Fear of missing out retained a significant positive direct relationship with sleep disturbance after inclusion of the mediator ($\beta = .25, p < .001$), as did passive social media use ($\beta = .18, p < .001$). The pattern of coefficients therefore supported partial mediation for both independent variables. In substantive terms, adolescents who were more concerned about missing social experiences and those who more frequently engaged in passive social media consumption tended to demonstrate weaker regulation of their digital behavior, and this reduced digital self-control was associated with increased difficulty initiating, maintaining, or experiencing satisfactory sleep. At the same time, the remaining direct pathways indicate that fear of missing out and passive social media use may also affect sleep through mechanisms not represented by digital self-control, such as emotional arousal, social comparison, cognitive preoccupation, delayed bedtime, nighttime notifications, or prolonged exposure to stimulating digital content. Overall, the model provides empirical support for digital self-control as a central behavioral mechanism in the relationship between social media-related experiences and sleep disturbance among Canadian adolescents.

4. Discussion

The present study examined the mediating role of digital self-control in the relationships of fear of missing out and passive social media use with sleep disturbance among Canadian adolescents. The findings supported the proposed model and demonstrated that both fear of missing out and passive social media use were significantly associated with greater sleep disturbance, while both were also significantly associated with lower digital self-control. Digital self-control, in turn, was inversely associated with sleep disturbance and emerged as the strongest predictor in the multivariable model. The mediation analysis further showed that digital self-control partially mediated the relationships of both fear of missing out and passive social media use with sleep disturbance. Specifically, approximately one-third of

the total association of each predictor with sleep disturbance was transmitted through digital self-control. These findings suggest that adolescents who experience stronger concerns about missing socially rewarding experiences, or who engage more frequently in passive forms of social media consumption, may be more vulnerable to sleep problems partly because they have greater difficulty regulating their digital behavior and disengaging from online environments. At the same time, the persistence of statistically significant direct effects indicates that digital self-control does not fully account for these relationships and that additional psychological, cognitive, and behavioral mechanisms are also likely to contribute.

The positive association between fear of missing out and sleep disturbance is consistent with a substantial body of literature identifying FoMO as an important psychological pathway linking digital engagement with impaired sleep. In the present study, adolescents with higher FoMO reported significantly more sleep disturbance, and this relationship remained significant even after digital self-control was included in the model. This finding accords with evidence showing that fear of missing out is associated with bedtime procrastination, heightened negative affect, and vulnerability to addictive or compulsive social networking behavior (Ha & Yang, 2024). It is also consistent with findings indicating that FoMO contributes to the relationship between mobile phone dependency and sleep quality through bedtime procrastination and related forms of delayed disengagement (Huang et al., 2023). Similarly, research among university students has demonstrated that FoMO and smartphone addiction can mediate the association between affective states and sleep quality, suggesting that FoMO operates not merely as a transient emotional experience but as a mechanism that can sustain digital engagement in ways that interfere with restorative sleep (Li et al., 2020). The present findings also align with evidence showing a direct association between fear of missing out and poor sleep quality in highly connected student populations (Jullyane Laysa de Carvalho et al., 2024). Together, these studies support the interpretation that adolescents with elevated FoMO may experience difficulty disengaging cognitively and behaviorally from peer-related digital activity, particularly during the evening and bedtime period.

The association between FoMO and poorer digital self-control is also theoretically coherent and supported by prior research on problematic social media use. FoMO has repeatedly been identified as a robust correlate of

compulsive social media engagement, and systematic evidence suggests that this relationship is sufficiently consistent to emerge across age and gender groups (Bakshi & Gait, 2026). Among adolescents, FoMO has also been shown to mediate the relationship between loneliness and problematic social media use, suggesting that concerns about exclusion and social disconnection may increase the motivational pull of digital platforms (Chmiel et al., 2026). Other work has demonstrated that fear of missing out contributes to pathways linking problematic social media use with internalizing problems and reduced social-emotional competence (Fu et al., 2026). The present finding that higher FoMO was associated with lower digital self-control may therefore reflect a conflict between social motivation and self-regulation. Adolescents who strongly fear missing peer interactions may experience repeated urges to check notifications, monitor social activity, and remain continuously connected, making it more difficult to inhibit impulses or terminate use despite competing goals such as sleeping, studying, or engaging in offline activities. This interpretation is consistent with research showing that FoMO among adolescents is intertwined with emotion dysregulation and social media addiction (Türk & Koçyiğit, 2025). In such a pattern, the perceived social cost of disconnecting may weaken the effectiveness of intentional self-regulation and thereby increase vulnerability to prolonged or poorly timed digital engagement.

The positive relationship between passive social media use and sleep disturbance represents another important finding of the study. Passive use, unlike active communication, involves observational behaviors such as scrolling through feeds, watching stories, browsing profiles, or reading comments without direct interaction. Although these behaviors may appear less socially demanding than active posting or messaging, the present results indicate that they are nevertheless meaningfully associated with poorer sleep. This finding is consistent with evidence that passive social media use can contribute to adverse outcomes among middle-school students, including learning burnout, suggesting that sustained observational engagement may carry psychological costs even in the absence of direct interaction (Zhang et al., 2024). Passive use may be particularly relevant to sleep because it can become open-ended and difficult to terminate. Unlike a discrete conversation, scrolling has no natural endpoint, and algorithmically selected content can sustain attention for extended periods. This may prolong wakefulness, delay bedtime, and increase cognitive or emotional activation.

Although the literature has more often focused on social media addiction than on passive use specifically, studies linking problematic social media engagement with poor sleep provide convergent support for the broader association observed here (Khalaf et al., 2025; Pradhan et al., 2025). The present results therefore extend existing work by suggesting that even non-interactive patterns of social media consumption may be relevant to adolescent sleep health.

The negative association between passive social media use and digital self-control also helps explain why passive engagement may become problematic. Adolescents who repeatedly browse content without a clear instrumental goal may be more likely to engage in habitual or automatic use, making disengagement increasingly dependent on self-regulatory capacity. This interpretation is compatible with digital well-being frameworks that place self-control at the center of understanding how individuals manage digital temptations (Lyngs et al., 2019). According to dual-systems perspectives, digital behavior often reflects competition between immediate reward-seeking processes and more reflective goal-directed control, and many digital self-control tools are designed specifically to strengthen the latter (Lyngs, 2019). The present finding suggests that passive social media use may be associated with stronger dominance of habitual or impulsive processes over intentional control. Repeated exposure to socially salient and algorithmically curated content may make it more difficult for adolescents to stop using social media when they intend to do so. This is especially plausible in adolescence, when peer information is highly salient and self-regulatory capacities are still developing. Longitudinal and daily research showing meaningful associations between adolescent self-control and digital technology use provides additional support for this interpretation (Burnell et al., 2023).

Digital self-control emerged as the strongest predictor of sleep disturbance in the regression model, with higher self-control associated with substantially fewer sleep problems. This result is particularly important because it suggests that the ability to regulate digital behavior may be more proximally related to sleep than either FoMO or passive social media use considered alone. Adolescents with stronger digital self-control may be more capable of resisting notifications, discontinuing scrolling, avoiding repetitive checking, and maintaining boundaries around device use before bedtime. Such capacities could reduce bedtime delay, nighttime awakenings caused by device engagement, and cognitive preoccupation with online content. The finding is consistent with prior work emphasizing the importance of

self-control in adolescent digital behavior (Burnell et al., 2023). It also aligns with conceptual work arguing that digital well-being should be understood partly as the ability to resolve conflicts between short-term digital rewards and longer-term personal goals (Lyngs, 2019; Lyngs et al., 2019). In the context of sleep, the longer-term goal may be timely disengagement and sufficient rest, while the short-term competing reward is continued access to socially or emotionally stimulating content.

The significant mediating role of digital self-control in the relationship between FoMO and sleep disturbance provides a more specific explanation for how social concerns may translate into sleep problems. The indirect effect indicated that adolescents with higher FoMO tended to report lower digital self-control, which in turn predicted greater sleep disturbance. This pattern is compatible with evidence showing that FoMO can trigger repeated checking and nocturnal social media use, thereby contributing to sleep problems (Yu & Gen, 2023). It also corresponds with findings that bedtime procrastination mediates the relationship between digital dependence and sleep quality (Huang et al., 2023). Although the present study did not directly assess bedtime procrastination, reduced digital self-control may function as an upstream behavioral vulnerability that makes procrastination more likely. Adolescents who have difficulty regulating their digital behavior may intend to stop using social media but repeatedly postpone disengagement in response to perceived social opportunities or concerns about missing updates. This interpretation helps integrate previous findings by positioning digital self-control as a mechanism that can explain why FoMO translates into concrete behavioral interference with sleep.

The mediation of the passive social media use–sleep disturbance relationship by digital self-control was similarly significant. This result suggests that passive use may not affect sleep only because of the amount or timing of exposure, but also because it is associated with weaker regulation of digital behavior. Passive consumption may become habitual and self-perpetuating, particularly when adolescents are exposed to an endless stream of socially relevant material. Over time, this pattern may erode the distinction between intentional and automatic use, making it harder to disengage at appropriate times. Research showing that social media use mediates the relationship between relational stress and sleep supports the broader proposition that media behavior can function as a pathway through which psychological pressures become translated into sleep outcomes (Langlais et al., 2025). Similarly, evidence that

social media addiction contributes to academic disengagement through impaired sleep and fatigue reinforces the idea that digital behavior and sleep are linked through intermediate processes rather than through direct exposure alone (Khalaf et al., 2025). The present study adds to this literature by identifying digital self-control as a plausible behavioral mechanism specifically in the context of passive social media use.

The broader pattern of partial mediation is also noteworthy. Because both FoMO and passive social media use retained significant direct associations with sleep disturbance after digital self-control was included, additional mechanisms are likely to be involved. For FoMO, these may include heightened arousal, rumination, social comparison, negative affect, or anxiety about exclusion. Existing evidence that stress affects sleep through rumination and social anxiety supports the relevance of such cognitive-emotional pathways (Zhang & Wei-min, 2024). Research linking FoMO to negative affect and bedtime procrastination similarly suggests that affective processes may operate alongside self-control deficits (Ha & Yang, 2024). For passive social media use, direct effects may reflect exposure to emotionally stimulating content, social comparison, prolonged blue-light exposure, or simple displacement of sleep time. Evidence that sleep quality can be influenced by social interaction anxiety and bedtime procrastination also underscores the likelihood of multiple interacting pathways (Zheng et al., 2024). Likewise, research on body image and sleep disturbance demonstrates that psychosocial concerns can affect sleep through complex mediating mechanisms rather than through a single process (Batoool et al., 2025). The present findings should therefore be understood as identifying digital self-control as one important mechanism within a broader network of factors.

5. Conclusion

The results contribute to the literature by focusing on adolescents rather than university students, who have been the dominant population in many previous studies. Much of the existing evidence regarding FoMO, sleep, and mobile or social media behavior has been derived from older student samples (Huang et al., 2023; Jullyane Laysa de Carvalho et al., 2024; Li et al., 2020; Yu & Gen, 2023). The present study suggests that similar mechanisms are already evident during adolescence, a developmental period in which peer belonging is highly salient and self-regulatory capacities are still maturing. This is particularly relevant given recent

findings showing that state FoMO and social media use are dynamically associated with loneliness and individual psychological characteristics (Zhang et al., 2025). The results also correspond with evidence linking social media addiction to poor sleep and anxiety in school-based samples (Pradhan et al., 2025) and to negative emotions among adolescent athletes through sleep-related pathways (Lin et al., 2025). Taken together, these findings indicate that the relationship between digital behavior and sleep should be viewed as a developmental issue rather than one confined to emerging adulthood.

6. Limitations & Suggestions

Several limitations should be considered when interpreting the findings. First, the cross-sectional design does not permit conclusions about temporal ordering or causality. Although the mediation model was theoretically specified with FoMO and passive social media use as predictors, digital self-control as the mediator, and sleep disturbance as the outcome, reciprocal relationships are possible. Poor sleep may reduce inhibitory control the following day, increase emotional reactivity, or intensify reliance on passive social media use, thereby producing bidirectional effects. Second, all variables were assessed through self-report, which introduces the possibility of recall bias, shared method variance, and social desirability effects. Adolescents may not accurately estimate the frequency of passive media use, their level of digital self-control, or the severity of sleep problems. Third, the study assessed perceived sleep disturbance rather than objective sleep parameters such as sleep latency, total sleep time, or nighttime awakenings measured through actigraphy. Fourth, the operationalization of passive social media use emphasized general observational behaviors across platforms and did not differentiate among specific platforms or content types, which may vary substantially in their effects. Fifth, although the sample was relatively large, it was drawn from Canadian secondary school settings and may not fully represent adolescents in rural areas, different cultural contexts, or those who are not enrolled in school. Finally, potentially relevant variables such as depressive symptoms, anxiety, family digital rules, parental monitoring, chronotype, caffeine intake, academic stress, and device use after lights-out were not included in the model and may account for additional variance in sleep disturbance.

Future studies should use longitudinal and intensive repeated-measures designs to clarify the temporal ordering

among FoMO, passive social media use, digital self-control, and sleep. Daily diary and ecological momentary assessment methods would be particularly useful for determining whether day-to-day fluctuations in FoMO predict evening social media behavior and whether digital self-control buffers subsequent sleep disruption. Experimental studies could also test whether strengthening digital self-control through app limits, notification management, intentional disengagement routines, or device-free bedtime periods reduces sleep disturbance. Future research should incorporate objective measures of both digital behavior and sleep, including smartphone usage logs, platform-specific screen-time data, actigraphy, and wearable sleep measures. It would also be valuable to distinguish passive use by platform, content type, time of day, and social context, as passive monitoring of peers may have different consequences from passive viewing of entertainment content. More complex models should examine additional mediators and moderators, including bedtime procrastination, rumination, negative affect, social comparison, loneliness, anxiety, parental monitoring, and chronotype. Cross-cultural research is also needed to determine whether the role of digital self-control is consistent across educational systems, family norms, and cultural expectations surrounding connectivity. Finally, developmental comparisons across early, middle, and late adolescence could clarify whether the strength of these pathways changes as self-regulatory capacities and peer relationships mature.

The findings indicate that interventions aimed at adolescent sleep should address not only the amount of social media use but also the ability to regulate digital behavior. Schools, families, and health professionals can emphasize practical digital self-control strategies such as disabling nonessential notifications, establishing clear device-free periods before bedtime, setting app-specific limits, using scheduled focus or sleep modes, and removing smartphones from the sleeping area. Adolescents may also benefit from psychoeducation about how FoMO can trigger automatic checking and prolonged engagement, helping them recognize that the urge to remain continuously connected does not necessarily require immediate action. School-based digital well-being programs should focus on self-regulation skills rather than relying solely on restrictive screen-time messages, because adolescents are more likely to encounter digital temptations in contexts where complete avoidance is unrealistic. Parents can support healthy digital routines by establishing consistent household expectations,

modeling appropriate evening technology use, and avoiding overly punitive restrictions that may intensify secrecy or resistance. Clinicians working with adolescents who report sleep problems should assess nighttime social media habits, passive scrolling, FoMO, and perceived difficulty disengaging from digital platforms as part of routine sleep-related evaluation. Interventions that combine sleep hygiene with digital self-regulation training may be especially useful because they target both the immediate behavioral context of bedtime and the underlying difficulty controlling digital engagement.

Acknowledgments

We would like to express our appreciation and gratitude to all those who cooperated in carrying out this study.

Declaration of Interest

The authors of this article declared no conflict of interest.

Ethical Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

Transparency of Data

In accordance with the principles of transparency and open research, we declare that all data and materials used in this study are available upon request.

Funding

This research was carried out independently with personal funding and without the financial support of any governmental or private institution or organization.

Authors' Contributions

All authors equally contributed to this article.

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