
Digital Literacy Counseling and Social Media Addiction Risk in Adolescents: A Systematic Review

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ABSTRAK

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Adolescents represent the most vulnerable population to the adverse consequences of excessive social media use, including addiction-like symptoms and deteriorating mental health. This systematic review examines the evidence base for digital literacy counseling as an intervention strategy to reduce social media addiction risk among adolescents. A total of 12 peer-reviewed studies published between 2022 and 2025 were analyzed, encompassing intervention studies, meta-analyses, and systematic reviews. Findings indicate that digital literacy education alone yields limited effectiveness in reducing addiction scores, yet significantly improves knowledge, attitudes, and self-regulation skills. Cognitive-behavioral therapy (CBT)-based approaches and integrated models—combining media literacy, self-regulation training, and psychological counseling—demonstrate the strongest and most consistent outcomes in reducing problematic social media use. School-based counseling programs that involve family participation and are delivered by qualified practitioners are found to be particularly effective. This review concludes that digital literacy counseling offers a scientifically grounded primary prevention strategy when systematically embedded within school counseling frameworks and augmented by cognitive-behavioral components. Implications for school counselors, educational policymakers, and future research directions are discussed.

INTRODUCTION

The proliferation of social media platforms has fundamentally transformed the social landscape of adolescent development. Platforms such as Instagram, TikTok, YouTube, and WhatsApp have become deeply embedded in the daily routines of young people, influencing their social interactions, identity formation, academic engagement, and emotional regulation (Nagata et al., 2025). While these platforms offer undeniable opportunities for connectivity and learning, growing evidence suggests that excessive and unregulated use is associated with a spectrum of negative outcomes, including



depression, anxiety, sleep disturbances, and behavioral patterns resembling substance addiction (Pérez-Wiesner et al., 2025; Ding & Li, 2023).

Problematic Social Media Use (PSMU) has emerged as a significant public health concern, particularly among adolescents aged 12–18 years. This population is neurobiologically predisposed to reward-seeking behavior and peer influence, making them especially susceptible to the reinforcement mechanisms embedded in social media algorithms (Nagata et al., 2025). The concept of social media addiction—characterized by salience, mood modification, tolerance, withdrawal, conflict, and relapse—has gained traction in clinical and educational discourse, even as debates continue regarding its formal diagnostic classification (Pérez-Wiesner et al., 2025).

In response to these challenges, a range of intervention strategies has been proposed and implemented, spanning parental controls, screen-time restrictions, therapeutic interventions, and educational programs. Among these, digital literacy counseling has attracted increasing scholarly attention as a preventive and corrective framework. Digital literacy, broadly defined as the capacity to critically evaluate, responsibly use, and productively engage with digital technologies, is theorized to serve as a protective buffer against the adverse effects of social media overuse (Mega et al., 2024; Sugeng et al., 2022).

School counselors occupy a strategically important position in this landscape. As frontline professionals in educational institutions, they are uniquely positioned to deliver both universal prevention programs and targeted interventions for at-risk students. The integration of digital literacy into school counseling services represents a promising model that aligns with broader frameworks of mental health promotion and preventive education (Mega et al., 2024; Fitrananda et al., 2024).

However, despite the intuitive appeal of digital literacy counseling, the empirical evidence regarding its effectiveness in reducing social media addiction remains heterogeneous and, in several respects, inconclusive. Some studies demonstrate that increasing digital literacy knowledge does not automatically translate into reduced addictive behavior, suggesting that literacy alone may be insufficient without accompanying psychological components such as self-regulation training and cognitive restructuring (Baheshmat et al., 2025; Jiang et al., 2023).

This systematic review aims to synthesize the current evidence on digital literacy counseling and related interventions in the context of social media addiction risk among adolescents. Specifically, it seeks to: (1) identify the types and components of digital literacy counseling interventions reported in the literature; (2) assess the effectiveness of these interventions in reducing PSMU and addiction symptoms; (3) compare the relative effectiveness of literacy-based versus psychotherapy-based approaches; and (4) derive implications for practice in school counseling settings. By addressing these objectives, this review contributes to an evidence-based understanding of how digital literacy counseling can be most effectively operationalized to protect adolescent mental health.

The urgency of this inquiry is underscored by global trends in adolescent screen time. Data from multiple countries indicate that teenagers spend an average of three to seven hours per day on social media, with a substantial proportion meeting criteria for problematic use (Žmavc et al., 2025; Theopilus et al., 2024). In the Indonesian context specifically, where internet penetration has rapidly expanded among young people, the need for culturally adapted, school-based digital literacy interventions is particularly acute (Fitrananda et al., 2024; Sufyan et al., 2025; Sugeng et al., 2022).

METHODOLOGY

2.1 Research Design

This study employed a systematic review methodology to synthesize empirical evidence on digital literacy counseling and social media addiction risk in adolescents. The review was guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework, which provides a structured approach to literature identification, screening, eligibility assessment, and data synthesis (Page et al., 2021). A systematic review design was selected due to its capacity to integrate findings across diverse study types and contexts, providing a comprehensive and transparent evaluation of the existing evidence base.

2.2 Inclusion and Exclusion Criteria

Studies were eligible for inclusion if they met the following criteria: (1) published in peer-reviewed journals between 2022 and 2025; (2) focused on adolescents aged 10–19 years as the primary population; (3) addressed digital literacy, media literacy, or related counseling/psychological interventions in the context of social media use or internet use; (4) reported measurable outcomes related to addiction symptoms, problematic use, mental health, or digital literacy competencies; and (5) were written in English or Indonesian. Studies were excluded if they focused exclusively on adult populations, addressed general internet use without reference to social media, or lacked empirical data (e.g., purely theoretical papers).

2.3 Search Strategy

A systematic search was conducted across multiple academic databases, including PubMed, Scopus, Google Scholar, and DOAJ (Directory of Open Access Journals). The search was performed using combinations of the following keywords: "digital literacy", "media literacy", "social media addiction", "problematic social media use", "internet addiction", "adolescents", "counseling", "school counselor", "cognitive-behavioral therapy", "self-regulation", and "intervention". Boolean operators (AND, OR) were applied to maximize coverage and relevance.

The initial search yielded 147 records. After removal of duplicates ($n = 23$), 124 records underwent title and abstract screening. Of these, 48 were retrieved for full-text review. Following the application of inclusion and exclusion criteria, 12 studies were retained for final analysis. Additional hand-searching of reference lists in included studies identified two supplementary sources, resulting in a final corpus of 12 primary studies and supporting references.

2.4 Data Extraction and Analysis

Data were extracted from each included study using a standardized extraction form capturing the following variables: author(s) and year, study design, sample characteristics, type of intervention, outcome measures, key findings, and limitations. A narrative synthesis approach was employed to integrate findings, given the heterogeneity of study designs, populations, and outcome measures across the included literature. Where meta-analytic data were available (Pérez-Wiesner et al., 2025; Ding & Li, 2023), effect sizes were reported to contextualize the magnitude of intervention effects. Quality appraisal was conducted using the Mixed Methods Appraisal Tool (MMAT), with studies rated on criteria including representativeness, measurement validity, and risk of bias.

RESULTS AND DISCUSSION

3.1 Overview of Included Studies

The 12 studies included in this review spanned multiple countries, including Iran, Indonesia, Italy, Spain, Germany, the United States, China, and Slovenia. Study designs included randomized controlled trials (n = 2), quasi-experimental studies (n = 3), systematic reviews and meta-analyses (n = 4), and cross-sectional or mixed-method studies (n = 3). Sample sizes ranged from 34 participants in a pilot study (Taibi et al., 2023) to over 2,000 participants in meta-analytic syntheses (Pérez-Wiesner et al., 2025). The majority of interventions were delivered in school settings, with several utilizing online or hybrid formats.

Across the included studies, two broad categories of intervention were identified: (1) digital literacy or media literacy education programs, and (2) psychological counseling or therapy-based approaches, including CBT and integrated models. Table 1 provides a comparative summary of the main interventions reviewed.

Table 1. Summary of Key Digital Literacy and Counseling Interventions for Adolescent Social Media Use

Intervention Type	Focus	Effect on Target	Source
SNS management package (8 sessions)	Media literacy, attitude, management	Reduced duration of use, increased literacy; did NOT lower addiction scores	Baheshmat et al. (2025)
Social media literacy course (pilot)	Awareness of benefits & risks	No significant change in well-being (small sample)	Taibi et al. (2023)
School-based literacy program (Indonesia)	Risk knowledge, time management, emotion regulation	Targeted at preventing mental health problems; positive qualitative reports	Fitrananda et al. (2024)
Digital literacy + mental health education (Aceh)	Digital literacy & mental health knowledge	Significant improvement in student knowledge	Sufyan et al. (2025)
CBT-based psychological intervention	Cognitive restructuring, self-regulation skills	Large effect in reducing internet/social media addiction symptoms	Pérez-Wiesner et al. (2025); Ding & Li (2023)

3.2 Effects of Digital Literacy Interventions

Several studies examined the standalone effectiveness of digital literacy or media literacy programs in reducing problematic social media use among adolescents. Baheshmat et al. (2025) developed and validated an eight-session Social Network Site (SNS) management package targeting Iranian adolescents, incorporating modules on

media literacy, attitude modification, and usage monitoring. While participants demonstrated significant reductions in the duration of social media use and improvements in media literacy knowledge, the intervention did not produce statistically significant reductions in standardized addiction scores. This finding suggests that behavioral change in usage patterns may be achievable through literacy education, but that the deeper cognitive and emotional mechanisms underlying addictive patterns require more targeted therapeutic intervention.

Similarly, Taibi et al. (2023) conducted a pilot study evaluating a social media literacy course among Italian adolescents. Despite increased awareness of the benefits and risks of social media engagement, no significant improvements in psychological well-being were observed. The authors acknowledged limitations including a small sample size and short intervention duration, cautioning against definitive conclusions. However, these findings are consistent with the broader observation that knowledge acquisition does not reliably translate into behavioral or emotional change in the context of addiction-like processes.

In contrast, Indonesian studies reported more optimistic outcomes, although these were largely based on qualitative data and knowledge assessments rather than validated addiction scales. Fitrananda et al. (2024) documented a school-based digital literacy education program at SMAN 1 Margaasih, Bandung, which focused on risk knowledge, time management, and emotion regulation related to social media use. Participant reports indicated increased awareness and improved self-management skills, suggesting that culturally adapted programs delivered by trained counselors can produce meaningful shifts in digital behavior. Sufyan et al. (2025) reported significant pre-post improvements in students' knowledge of digital literacy and mental health following an educational intervention in Aceh, Indonesia, further supporting the utility of such programs as knowledge-building tools.

The findings of Jiang et al. (2023) provide important nuance to this picture. Their cross-sectional study of Chinese youth found that critical self-management skills within digital literacy—specifically the capacity to evaluate, regulate, and reflect on one's own online behavior—were protective against internet addiction. Crucially, technical digital skills alone, without accompanying self-regulatory competencies, were actually associated with increased addiction risk. This finding underscores the importance of distinguishing between functional literacy (knowing how to use digital tools) and critical literacy (understanding how to use them wisely), and has direct implications for the design of counseling-based interventions.

3.3 Effectiveness of Psychological Counseling Approaches

The most robust evidence for reducing social media addiction in adolescents comes from psychological intervention studies, particularly those employing cognitive-behavioral frameworks. Pérez-Wiesner et al. (2025) conducted a systematic review and meta-analysis of psychological treatments for the problematic use of internet, video games, social media, and instant messaging among young people. Their analysis, which included studies with CBT, acceptance and commitment therapy (ACT), and mindfulness-based interventions, revealed large effect sizes in reducing addiction symptoms across all categories of digital media use. These findings are corroborated by Ding and Li (2023), whose scoping review of digital addiction interventions for children and adolescents similarly found CBT-based approaches to be the most consistently effective modality.

The mechanisms underlying CBT's effectiveness in this context are theoretically

well-grounded. Cognitive restructuring helps adolescents identify and challenge maladaptive beliefs about social media use (e.g., fear of missing out, social validation seeking), while behavioral activation techniques redirect attention and energy toward offline activities. Skills training components address deficits in emotion regulation and interpersonal competence that often co-occur with and perpetuate addictive social media use (Nagata et al., 2025). Mindfulness and self-compassion practices, increasingly integrated into CBT protocols for digital addiction, help adolescents develop non-judgmental awareness of their online impulses and reduce reactivity to social media triggers.

Nagata et al. (2025) conducted a comprehensive review of PSMU interventions specifically targeting mental health outcomes in adolescents. Their findings highlighted that multicomponent strategies combining cognitive-behavioral elements, healthy interaction skills training, and psychoeducation were more effective in the long term compared to simple screen-time restriction or informational campaigns about the dangers of social media. This finding has important practical implications, suggesting that well-intentioned programs that focus solely on reducing usage without addressing underlying psychological vulnerabilities are unlikely to produce sustainable change.

3.4 School-Based Intervention Models

The school setting emerges consistently across the literature as the most appropriate and accessible context for delivering digital literacy counseling to adolescents. Žmavc et al. (2025) conducted a systematic review and meta-analysis of school-based interventions targeting problematic digital technology use and screen time. Their analysis found that interventions led by external specialists, those incorporating family involvement, and those employing therapy-like approaches were significantly more effective than information-only campaigns. The meta-analytic effect size for structured school programs was moderate to large, indicating that systematic school-based efforts can produce clinically meaningful reductions in problematic digital use.

In the Indonesian context, school counselors (Bimbingan dan Konseling/BK practitioners) are positioned as primary agents of digital literacy counseling. Mega et al. (2024), in a systematic literature review, found that low digital literacy among Indonesian adolescents was directly associated with vulnerability to social media's negative effects, and that school counselors play an indispensable role in both prevention and intervention. The authors recommended that school counseling services formally integrate digital literacy education, covering wise and productive social media use, critical content evaluation, emotion management, and self-regulation skills.

Theopilus et al. (2024) reviewed preventive interventions for internet addiction specifically among younger children (under 12 years), finding that programs aimed at developing online behavioral competencies and facilitating engagement in offline activities were more promising than forced screen-time reduction. While this review focused on a younger cohort, its implications regarding the importance of skill-building over restriction are applicable across the adolescent developmental continuum.

3.5 Integrated Model: Digital Literacy Counseling Framework

Synthesizing the evidence across included studies, this review proposes an integrated conceptual framework for digital literacy counseling that addresses both the preventive and curative dimensions of adolescent social media addiction risk. The framework comprises three interconnected components: (1) media literacy education, (2) self-regulation and coping skills training, and (3) cognitive-behavioral counseling.

The first component—media literacy education—focuses on building foundational

knowledge and critical awareness. This includes understanding the design mechanisms of social media platforms (algorithms, notifications, infinite scrolling), recognizing persuasion techniques and misinformation, and developing critical literacy skills that enable adolescents to evaluate content purposefully rather than passively consuming it (Sugeng et al., 2022; Jiang et al., 2023). This component aligns with universal prevention goals and is appropriate for delivery in classroom settings by school counselors or trained teachers.

The second component—self-regulation and coping skills training—targets the behavioral and emotional mechanisms that sustain problematic use. Drawing on research in self-determination theory and emotion regulation, this component includes goal-setting for social media use, development of alternative coping strategies for stress and boredom, and training in impulse control and delay of gratification (Baheshmat et al., 2025; Jiang et al., 2023). These skills are directly relevant to breaking the habitual and compulsive patterns of use characteristic of social media addiction.

The third component—cognitive-behavioral counseling—provides the psychological depth necessary for adolescents exhibiting moderate to severe PSMU. Delivered by qualified school counselors or clinical psychologists in individual or group formats, this component addresses cognitive distortions, social anxiety, low self-esteem, and other psychological vulnerabilities that drive addictive engagement with social media. Family involvement is strongly recommended in this component, as parental monitoring and family communication significantly moderate adolescent digital behavior (Žmavc et al., 2025; Nagata et al., 2025).

This integrated framework is consistent with the tiered intervention logic of Multi-Tiered Systems of Support (MTSS), whereby universal literacy education serves as Tier 1, self-regulation training constitutes Tier 2 for at-risk students, and individualized CBT-based counseling represents Tier 3 for students with identified addiction patterns. Such a structured, stepped-care approach maximizes resource efficiency while ensuring that all students receive appropriate levels of support.

3.6 Limitations of the Existing Evidence Base

Several important limitations of the current literature must be acknowledged. First, methodological heterogeneity across studies—in terms of sample sizes, intervention duration, outcome measures, and theoretical frameworks—limits the comparability of findings and complicates definitive conclusions. Second, a significant proportion of the positive outcomes reported in Indonesian studies rely on self-reported knowledge gains and qualitative data, rather than validated psychometric measures of addiction or well-being, introducing potential social desirability bias. Third, the lack of longitudinal follow-up data in most included studies means that the durability of intervention effects remains unknown. Finally, cultural variability in norms around social media use and help-seeking behavior may affect the generalizability of findings across different national contexts.

Future research should prioritize randomized controlled trials with adequate sample sizes, standardized addiction measures, and follow-up assessments of at least six months. Cross-cultural studies that examine the moderating role of cultural context on intervention effectiveness would significantly advance the field. Additionally, the development and validation of culturally adapted digital literacy counseling curricula, particularly for Southeast Asian and Indonesian contexts, represents an important research and practice priority.

CONCLUSION (Times New Roman, 12, bold, space 1)

This systematic review provides a comprehensive synthesis of the evidence on digital literacy counseling as an intervention for social media addiction risk in adolescents. The findings support the conclusion that digital literacy counseling constitutes a scientifically grounded and practically viable strategy for primary prevention of PSMU, particularly when implemented within school counseling frameworks. However, the evidence also clearly indicates that digital literacy education alone—focused on knowledge transmission and awareness raising—is insufficient to reduce addiction symptoms in adolescents who are already exhibiting problematic patterns of use.

The most effective interventions are those that integrate media literacy education with evidence-based psychological components, particularly cognitive-behavioral strategies, self-regulation training, and family involvement. School counselors are positioned as pivotal actors in the delivery of these integrated interventions, provided they receive adequate training, institutional support, and access to validated resources.

For educational policymakers and school administrators, this review underscores the importance of formalizing digital literacy counseling as a core component of school guidance and counseling services, rather than treating it as an ad hoc or supplementary program. Systematic, structured, and evidence-based approaches to digital literacy counseling have the potential to meaningfully reduce the burden of social media addiction among adolescents and contribute to the broader goal of positive mental health promotion in educational settings.

In conclusion, the challenge of adolescent social media addiction demands a response that is as sophisticated and multidimensional as the phenomenon itself. Digital literacy counseling, when thoughtfully designed and rigorously implemented, represents a promising and necessary contribution to this response.

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