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**Review Article**

# The Multifaceted Effects of Digital Media Addiction on Mental Health and Academic Performance in Adolescents and Young Adults: A Systematic Review

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**Abstract**

**Background:** Digital media addiction—including problematic use of social media, smartphones, and internet platforms—is a growing mental health concern among adolescents and young adults. This systematic review synthesizes recent evidence (Jan 2020 to Feb 2025) on the impacts of digital media addiction on mental health and academic performance.

**Methods:** A systematic search was conducted across 7 academic databases, including Web of Science, ScienceDirect, Scopus, PubMed, Google Scholar, Magiran, and IranDoc. Studies involving individuals aged 12–25 and addressing mental health (e.g., anxiety, depression, stress) or academic performance were included. Screening and selection followed PRISMA guidelines, and methodological quality was assessed using the CASP checklist.

**Results:** Findings were narratively synthesized and categorized into mental health and academic performance outcomes. Among 17 included studies, 12 (70.6%) reported a significant link between digital media addiction and anxiety/depression, while 8 (47%) found negative academic outcomes such as procrastination or low GPA. Social media addiction was associated with increased symptoms of anxiety and depression. Smartphone overuse was frequently linked to sleep disturbances, emotional dysregulation, and reduced academic performance. Adolescents with poor self-regulation and females were found to be especially vulnerable. Overall, different forms of digital media addiction contribute to psychological distress and hinder academic success.

**Conclusion:** This review confirms the adverse effects of digital media addiction on youth mental health and academic performance. Unlike prior reviews that examined these outcomes separately, our study provides an integrated perspective by analyzing both domains simultaneously in the post-pandemic era. These findings highlight the need for targeted interventions that improve emotional regulation, reduce screen time, and enhance academic engagement, offering novel insights to inform policymakers, educators, and mental health professionals in developing prevention and support programs.

**Keywords:** Digital media addiction; Adolescents; Mental health; Academic performance


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## Introduction

The widespread use of smartphones, social media, and the internet has profoundly transformed how adolescents and young adults communicate, learn, and interact socially (1,2). These technologies have become an integral part of everyday life, offering unprecedented opportunities for connection, information access, and self-expression. However, their ubiquitous presence has raised growing concerns (3). Digital media addiction refers to a behavioral condition involving excessive and compulsive engagement with digital platforms—such as social media, smartphones, and internet applications—that disrupts daily functioning, academic responsibilities, and mental health despite negative consequences (4–8). This phenomenon is particularly alarming among adolescents and young adults, who are at a critical stage of psychological, social, and cognitive development (9). This developmental period—marked by emotional instability, heightened social sensitivity, and limited impulse control—renders young people particularly susceptible to digital stimuli (10). Moreover, difficulties in emotional regulation have been identified as key factors that contribute to the onset and persistence of addictive behaviors, highlighting the critical role of emotion regulation in understanding and treating digital media addiction (11).

Recent data demonstrate the widespread use of digital media among youth. According to the Pew Research Center (11), approximately 95% of American teens (ages 13–17) use at least one social media platform. Among young adults, 84% of those aged 18–29 reported using social media in 2021, likely including the 18–24 age range. Usage rates vary by platform, with Instagram (76%), Snapchat (75%), and TikTok (55%) being particularly popular among this age group (12).

Digital media addiction poses multiple challenges, especially concerning mental health and academic performance. This behavioral pattern involves the inability to reduce screen time, constant preoccupation with digital devices, and continued use despite negative consequences (13). Numerous studies have found associations between this form of addiction and heightened psychological distress, including symptoms of anxiety, depression, and stress. For instance, Javaid et al. (7) found that adolescents who spent excessive time on social media platforms reported higher levels of psychological distress, often triggered by social comparison, cyberbullying, and disrupted sleep patterns. These platforms, designed to maximize user engagement through algorithm-driven content, can exacerbate feelings of inadequacy and social isolation—especially among young users navigating identity formation (14). Excessive smartphone use has also been linked to decreased self-esteem and increased loneliness, as users may favor superficial digital interactions over meaningful face-to-face connections (15). The mental health effects extend beyond emotional discomfort, highlighting the urgent need to explore the underlying mechanisms of digital media addiction.

In addition to its psychological effects, digital media addiction negatively affects sleep patterns, emotional regulation, and lifestyle behaviors. Excessive use of digital media before bedtime exposes adolescents to blue light, disrupting circadian rhythms and reducing sleep quality, which in turn contributes to daytime fatigue (16,17). Adolescents with high smartphone usage experience impaired emotional regulation and cognitive functioning (18). Additionally, increased screen time contributes to sedentary lifestyles and elevates physical health risks. Constant connectivity fosters a state of hyper-alertness, limiting the capacity for rest and recovery. This cycle of compulsive use and fatigue underscores the broad psychological toll of digital media addiction (19).

Academic performance is another area profoundly impacted by digital media addiction. Continuous access to digital distractions—such as social media notifications and online entertainment—competes with academic demands, reducing focus and productivity (20). A longitudinal study by Liu et al. (20) found that excessive smartphone

use among youth was associated with lower grade point averages and decreased academic engagement, mediated by reduced attention span and poor time management. The phenomenon of "media multitasking"—using multiple digital platforms simultaneously—exacerbates these effects by disrupting cognitive processing and memory retention. Furthermore, the pressure to maintain an online presence diverts time and energy from studying, leading to academic underachievement. Digital media addiction not only undermines immediate academic outcomes but also jeopardizes long-term educational and career prospects (12).

The complexity of digital media addiction lies in its interaction with individual, social, and environmental factors. Adolescents and young adults, given their developmental stage, face unique vulnerabilities, including peer influence, the drive for social validation, and limited self-regulation skills. Socioeconomic and cultural contexts also play a role, as access to technology and social norms around its use vary widely. Addressing this issue requires a multifaceted approach involving educational initiatives, parental guidance, and policy interventions aimed at promoting healthy digital habits (21).

While earlier reviews examined either mental health or academic performance in isolation, no study has systematically integrated both domains. Moreover, the sharp increase in digital reliance during the post-pandemic era underscores the timeliness and novelty of this review. For example, Kerr et al. systematically reviewed the relationship between social media use and anxiety, reporting consistent associations but leaving out academic implications (22). Similarly, Paterna et al. conducted a meta-analysis showing that problematic smartphone use was modestly associated with lower academic achievement in adolescents, yet did not examine psychological outcomes (23). Therefore, the multifaceted impact of digital media addiction across both mental health and academic domains remains underexplored (22,23).

Accordingly, this systematic review aimed to fill this critical gap by synthesizing recent evidence (2020–2025) on the dual impact of digital media addiction on both mental health and academic performance in adolescents and young adults.

## Methods

This study was conducted as a systematic review to investigate the multifaceted impacts of digital media addiction—including addiction to social media, smartphones, and the internet—on mental health, and academic performance among adolescents and young adults.

A comprehensive literature search was performed across 7 electronic databases, including Web of Science, ScienceDirect, Scopus, PubMed, Google Scholar, Magiran, and IranDoc. The search strategy employed a combination of free-text keywords and Boolean operators. Sample search combinations included: ("digital media addiction" OR "social media addiction" OR "smartphone overuse" OR "internet addiction") AND ("mental health" OR "depression" OR "anxiety" OR "academic performance" OR "academic engagement ". To ensure comprehensiveness, the reference lists of included articles were also manually screened. Screening and selection of studies followed the PRISMA 2020 guidelines. Search was conducted between Feb and Apr 2025. The review was performed in 2025, focusing on studies published between Jan 2020 and Feb 2025.

The inclusion criteria were as follows: 1) quantitative (cross-sectional, longitudinal, correlational) or qualitative studies investigating digital media addiction; 2) studies conducted on adolescents and young adults aged 12 to 25 yr; 3) studies assessing at least one of the following variables: mental health (e.g., anxiety, depression, stress) and academic performance; and 4) articles with full-text availability published in peer-reviewed journals.

Exclusion criteria included: 1) studies focusing on populations outside the 12–25 age range; 2) studies addressing general internet addiction without a specific focus on digital media platforms; 3) non-English publications or those lacking peer-review; and 4) articles for which only abstracts were available, without access to full text.

The Critical Appraisal Skills Programme (CASP) checklist was used to assess the methodological quality of included studies. Two independent reviewers conducted the appraisal process. Discrepancies between reviewers were resolved through discussion and consensus. Formal assessment of publication bias (e.g., funnel plots or Egger's test) was not conducted due to the heterogeneity of study designs and outcome measures. This limitation is acknowledged in the discussion section.

## Results

As depicted in Fig. 1, the preliminary search yielded 42 potentially relevant articles. After removing duplicates and applying predefined inclusion and exclusion criteria, 17 studies (approximately 40.5%) were deemed eligible and included in the final synthesis.

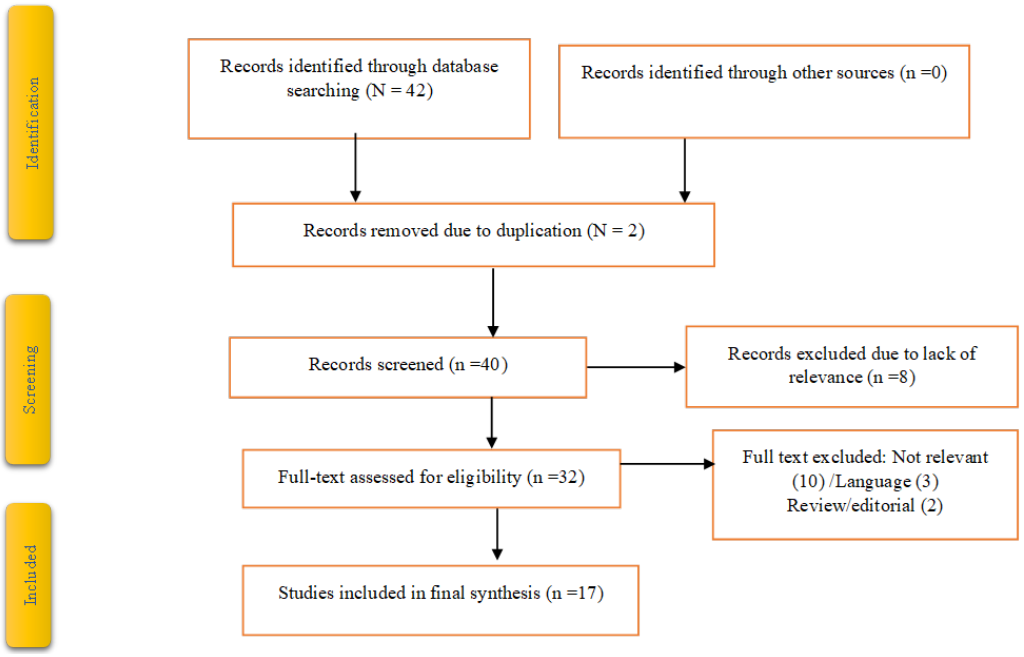


**Fig. 1:** Flowchart of Study Selection on the Effects of Digital Media Addiction on Mental Health, Well-being, and Academic Performance in Adolescents and Young Adults

These studies specifically investigated the impact of digital media addiction on mental health, well-being, and academic performance among adolescents and young adults.

To rigorously evaluate the methodological quality of the included studies, the Critical Appraisal Skills Programme (CASP) checklist was utilized. This instrument comprises ten questions organized into three fundamental domains: the validity of the study results, the clarity and significance of the findings, and the applicability of these results to local contexts. Each study was systematically appraised with this checklist to ensure the reliability and evidential basis of the conclusions drawn. Studies demonstrating higher methodological rigor were accorded greater weight in the synthesis.

For enhanced transparency, all seventeen studies included in this review were assessed using the CASP checklist, which employs a three-point rating scale (Yes=1, Unclear=0.5, No=0), resulting in an aggregate score ranging from 0 to 10. Based on these scores, studies were classified as high quality (scores ≥ 8), moderate quality (scores between 6 and

7.5), or low quality (scores<6). Table 1 provides a summary of the CASP scores, illustrating the distribution of study quality across the included literature. Of the 17 included studies, 5 (29.4%) were rated as high quality and 12 (70.6%) as moderate quality according to the CASP checklist, with no study classified as low quality (Table 1). Furthermore, Table 2 delineates the detailed characteristics and principal findings of the studies reviewed.

**Table 1:** A summary table of CASP scores for included studies

| Reference No. | CASP Score (0–10) | Quality Level |
|---|---|---|
| (6) | 8 | High |
| (12) | 6.5 | Moderate |
| (17) | 6 | Moderate |
| (21) | 8 | High |
| (24) | 7.5 | Moderate |
| (25) | 7.5 | Moderate |
| (26) | 9 | High |
| (27) | 7 | Moderate |
| (28) | 6.5 | Moderate |
| (29) | 8.5 | High |
| (30) | 7 | Moderate |
| (31) | 7 | Moderate |
| (32) | 8.5 | High |
| (33) | 7 | Moderate |
| (34) | 7 | Moderate |
| (35) | 7.5 | Moderate |
| (36) | 8 | High |

**Table 2:** Details Articles on the Effects of Digital Media Addiction on Mental Health, Well-being, and Academic Performance

| Reference No. | Measurement Tool | Digital Media Type | Main conclusion | CASP Score |
|---|---|---|---|---|
| (6) | SMAS (Social Media Addiction Scale), SAS (Smartphone Addiction Scale), SRSE | Instagram | Instagram overuse reduces academic and life satisfaction via upward social comparison. | 8 |
| (12) | Smartphone Addiction Scale (SAS); Social Media Addiction Scale (SMAS) | Short Video Platforms | Short video addiction raises anxiety and depression, reducing concentration. | 6.5 |
| (17) | Mobile Phone Addiction Scale (MPAS), Academic Procrastination Questionnaire | Smartphone | Smartphone use increases academic procrastination, lowering performance. | 6 |
| (21) | Smartphone Addiction Scale – Short Version (SAS-SV) Zung Self-Rating Depression Scale (SDS) | Smartphone | Smartphone addiction and depression have a two-way link, especially in female students. | 8 |
| (24) | Rosenberg Self-Esteem Scale (RSES), Problematic Mobile Phone Use Questionnaire (PMPUQ), Social Interaction Anxiety Scale (SIAS), UCLA Loneliness Scale | Smartphone | Low self-esteem leads to smartphone overuse via social anxiety and loneliness. | 7.5 |
| (25) | Adapted Mobile Phone Use Habits questionnaire for mobile phone addic- | Smartphone | Phubbing mediates the effect of smartphone addiction on depression, | 7.5 |

**Table 2:** Continued …

| | | | | |
|---|---|---|---|---|
| | tion<br>the Phubbing Scale (measuring the habit of snubbing others by phone use)<br>Depression Scale (CES-D, 10-item short form) | | especially in lonely boys. | |
| (26) | perceived stress (Perceived Stress Questionnaire, PSQ), well-being (WHO-5 Well-Being Index), depressive symptoms (PHQ-9), and sleep quality (Insomnia Severity Index) | Smartphone | Reducing screen time improves depression, stress, sleep, and well-being. | 9 |
| (27) | Standard questionnaires were used to measure smartphone addiction (likely SAS or similar), depression and distress (negative emotional states), "eustress" (positive stress), loneliness, and sleep deprivation symptoms | Smartphone | Even moderate smartphone use is tied to poor mental health in adolescents. | 7 |
| (28) | Problematic Smartphone Use Scale (MPAI), Bedtime Procrastination Scale, Pittsburgh Sleep Quality Index (PSQI), Self-reported academic performance (GPA) | Smartphone | Bedtime procrastination links smartphone use to poor sleep and lower GPA. | 6.5 |
| (29) | Liebowitz Social Anxiety Scale (LSAS)<br>Media Addiction Scale (Chinese BSMAS)<br>Utrecht Work Engagement Scale–Student (UWES-9S)<br>self-reported GPA. | Social Media | Social anxiety leads to problematic social media use, lowering academic engagement and GPA. | 8.5 |
| (30) | Smartphone Addiction Scale (SAS), Self-Regulation Questionnaire, Self-Efficacy Scale, GPA (Grade Point Average) | Smartphone | Smartphone addiction lowers self-regulation, self-efficacy, and academic achievement. | 7 |
| (31) | Bergen Social Media Addiction Scale (BSMAS), Smartphone Addiction Scale–Short Version (SAS-SV), Family Assessment Device (FAD) | Digital Media (general) | Poor family function is associated with higher digital media addiction in adolescents. | 7 |
| (32) | Bergen Instagram Addiction Scale (BIAS), Social Anxiety Scale, Depression Scale, Academic Performance Self-Report | Instagram | Instagram addiction impairs academic performance and increases social anxiety and depression. | 8.5 |
| (33) | Standardized questionnaires assessing digital media addiction, depression, anxiety, stress, and academic performance. | Digital Media | Digital media addiction increases depression, anxiety, stress, and lowers academic outcomes. | 7 |
| (34) | Mobile Phone Addiction Index (MPAI), Generalized Anxiety Disorder scale (GAD-7), Pittsburgh Sleep Quality Index (PSQI) | phone | Phone addiction correlates with anxiety and poor sleep in rural youth. | 7 |
| (35) | Social Media Addiction Scale (SMAS), Sleep Quality Scale (SQS), Fatigue Assessment Scale (FAS), Academic Engagement Scale (AES) | Social Media | Poor sleep and fatigue mediate the effect of social media addiction on academic engagement. | 7.5 |
| (36) | Young's Internet Addiction Test (IAT) or a similar scale<br>standard self-report scales for depressive symptoms (e.g. CES-D or SDS) and anxiety (e.g. State-Trait Anxiety Inventory or SAS) | Internet | Internet addiction mediates the link between anxiety and depression in male students. | 8 |

The PRISMA 2020 checklist and flow diagram were employed to ensure systematic reporting of the review process. The flow diagram (Fig. 1) illustrates the stages of identification (n=42), screening (n=30 after duplicates removed), eligibility assessment (n=22), and final inclusion (n=17), thereby ensuring methodological transparency and reproducibility.

Ultimately, this systematic review, by employing rigorous data synthesis, comprehensive quality

assessment, and in-depth thematic analysis, offers a robust foundation for understanding the multifaceted impacts of digital media addiction on adolescents and young adults. However, it is important to acknowledge certain limitations, including the potential for publication bias and the restriction of included studies to those published in English, considered when interpreting the findings.

Most reviewed studies demonstrated statistically significant associations between digital media addiction and increased psychological distress as well as reduced academic success among adolescents and young adults. In terms of overall outcomes, 12 of the 17 studies (70.6%) reported significant associations between digital media addiction and anxiety/depression, while 8 studies (47.0%) identified adverse academic consequences such as procrastination, disengagement, or low GPA. Reported associations were generally small to moderate, particularly concerning mental health indicators such as depression, anxiety, and stress (24-26). Across various study designs—including cross-sectional, longitudinal, and mediation analyses—excessive engagement with smartphones, social media, or internet platforms consistently predicted poorer mental health outcomes. Several studies also demonstrated that digital media addiction adversely affected aspects of well-being, especially sleep quality, life satisfaction, and emotional regulation (27-29). These findings were particularly pronounced among adolescents categorized as "addicted" or "at risk," who reported significantly higher levels of insomnia, loneliness, and emotional distress. Regarding media type, 10 studies (58.8%) primarily examined social media addiction, 5 (29.4%) focused on smartphone overuse, and 2 (11.8%) addressed broader internet or short-video addiction. Social media addiction was more strongly associated with anxiety and depressive symptoms, while smartphone overuse was frequently linked to sleep disruption and reduced academic performance.

In relation to academic performance, digital media overuse was associated with academic procrastination, reduced classroom engagement, and lower GPA in several studies (20,28,29). However, these effects were often indirect, mediated through variables such as fatigue, sleep deprivation, or academic disengagement. The magnitude of these negative effects was more substantial among youth with pre-existing vulnerabilities, such as low self-esteem, poor emotional regulation, or inadequate social support (23,32). Notably, adolescents with low self-regulation (30), poor family support (31), or low self-esteem (24) appeared especially vulnerable to the adverse effects of digital media addiction. Female participants were more affected by anxiety and depression in some longitudinal findings (21). Notably, three randomized or interventional studies (6,12,26) demonstrated that reducing problematic digital media use led to improvements in depression, stress, sleep quality, and academic outcomes, providing stronger causal evidence for the observed associations.

The majority of included studies were conducted in East and Southeast Asian countries, such as China, Taiwan, and South Korea, followed by a smaller number from Europe and the Middle East. This geographical distribution suggests that most findings reflect cultural contexts where digital media usage is highly prevalent among youth. Therefore, caution should be exercised when generalizing these results to Western or underrepresented populations. Overall, while the strength of associations varied, the majority of included studies supported the conclusion that digital media addiction is meaningfully linked to compromised mental health, well-being, and academic functioning in adolescents and young adults. Additional studies also reported associations between digital media addiction, anxiety, sleep disturbances, and academic outcomes across different populations and study designs (33–36).

## Discussion

Whereas earlier systematic reviews have typically addressed either mental health outcomes or aca-

demic performance in isolation (22,23), this review provides a more integrated perspective by examining both domains concurrently. Unlike Kerr et al., who focused exclusively on anxiety outcomes (22), and Paterna et al., who examined only academic achievement, our review integrates both domains, thereby filling an important gap in the literature (23). This dual focus allows for a more nuanced understanding of how digital media addiction affects multiple facets of adolescent development, offering valuable insight for holistic intervention planning. This integrated approach represents a novel contribution to the literature by bridging the previously separate domains of mental health and academic performance in the context of digital media addiction.

To our knowledge, this is the first systematic review to concurrently synthesize both mental health and academic outcomes in the post-pandemic era, a period marked by unprecedented digital reliance.

Most studies consistently demonstrate small to moderate effect sizes associating digital media addiction with heightened levels of depression, anxiety, and stress. These findings were observed across different research designs (cross-sectional, longitudinal, mediation models) and geographical locations, underscoring the generalizability of the results.

Furthermore, digital media overuse was found to significantly impair dimensions of well-being such as sleep quality, life satisfaction, and emotional regulation capacity. Sleep disturbances emerged as a frequent mediator, especially in studies focusing on bedtime procrastination or nighttime phone use. Consistent with this, high levels of social comparison and emotional dysregulation often exacerbated distress, particularly among female users and individuals with low self-esteem or poor family support (31,28).

Regarding academic performance, studies reveal that digital media addiction affects grades and academic engagement both directly and indirectly—often via fatigue, procrastination, or reduced classroom focus (27, 29, 21). However, a few studies emphasized that the effect is often mediated, suggesting that interventions targeting intermediate behaviors (such as reducing bedtime phone use or increasing academic self-regulation) could buffer these academic consequences.

Most included studies relied on self-reported questionnaires, which may introduce certain biases related to social desirability or recall error. Nevertheless, the widespread use of validated scales like BSMAS, SAS, and PSQI supports the reliability of findings.

Importantly, while some gender-specific patterns emerged—such as stronger associations between phone addiction and depression among females (25)—more nuanced, culturally contextualized research is needed to explore these moderators in depth. For instance, understanding how gender influences susceptibility to digital media addiction could inform more tailored, gender-sensitive intervention strategies. Additionally, most studies included in this review investigated general adolescent or college-aged populations; thus, future research may benefit from targeting clinical groups or high-risk youth.

Finally, although this review focused on correlational and observational studies, a few randomized controlled trials (6) suggested that reducing smartphone or social media use may causally enhance psychological well-being and academic functioning. These findings support the implementation of digital hygiene interventions in educational and mental health settings, especially during developmental periods marked by emotional sensitivity and identity formation.

This systematic review reinforces the urgency of implementing targeted interventions and policies to effectively address digital media addiction among youth. As evidence grows, targeted interventions that enhance self-regulation, promote digital balance, and reduce emotional vulnerabilities can serve as promising strategies to protect and improve the mental health, well-being, and academic success of the next generation. These findings underscore the importance of implementing multi-level strategies—such as training parents and educators in digital self-regulation techniques and promoting media literacy curricula—to mitigate the psychological and academic risks of digital media overuse. Additionally, these

insights highlight the need for multi-level strategies—such as equipping educators and parents with digital self-regulation tools and promoting school-based media literacy programs—to mitigate the adverse effects of digital media addiction. Future studies should utilize longitudinal and intervention-based designs to examine the causal pathways between screen time, emotional dysregulation, and academic disengagement. Due to considerable methodological and statistical heterogeneity, meta-analysis was not conducted, which limited the ability to estimate pooled effect sizes. Future reviews may benefit from standardized reporting of effect sizes to allow quantitative synthesis.

### *Limitations*

Although comprehensive, this systematic review has several limitations that should be considered. First, restricting the inclusion criteria to English-language publications may have resulted in the omission of relevant studies published in other languages, thereby limiting the global generalizability of findings. Second, only full-text peer-reviewed articles were considered, have excluded potentially informative studies available solely in abstract form. Third, despite consultation with a search methodology expert, relevant grey literature or studies employing non-standard terminology may have been overlooked. Fourth, although a meta-analytic approach could have enhanced the quantitative synthesis, it was not feasible due to considerable heterogeneity in effect size reporting, diverse measurement tools, and insufficient statistical data across studies. Finally, the exclusion of unpublished or non-peer-reviewed research raises the possibility of publication bias. Addressing these issues in future reviews—such as incorporating broader language criteria, grey literature, and standardized effect metrics—would contribute to more robust and generalizable conclusions. Most included studies were cross-sectional and relied on self-reported digital media use, which limits the ability to draw causal conclusions and may introduce response biases. Future research should utilize longitudinal designs and objective usage metrics to provide more precise insights. Additionally, publication bias was not formally assessed, which may affect the overall balance of evidence included in this review. Another limitation is that our review did not include a dedicated analysis of gender differences. Many studies did not report outcomes by gender, limiting our ability to determine whether the observed effects differ for male and female participants; future studies should address this gap by examining potential sex differences. Future reviews should also employ formal tests for publication bias, such as funnel plots or Egger's regression, to provide a more systematic assessment of potential bias.

## Conclusion

This systematic review synthesizes evidence from 17 studies, demonstrating that excessive and addictive digital media use adversely affects the mental health, psychological well-being, and academic performance of adolescents and young adults. To our knowledge, this is the first review to concurrently examine both mental health and academic outcomes of digital media addiction, offering an integrated perspective on its multifaceted impacts. Across diverse methodologies and contexts, digital media addiction was consistently associated with increased depression, anxiety, and stress; impaired sleep and well-being; and academic disengagement. Although observed effect sizes were generally small to moderate, these findings highlight the importance of addressing digital media addiction during critical developmental periods through targeted preventive and supportive strategies.

## Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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## Conflict of interest

The authors declare that there is no conflict of interests.

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