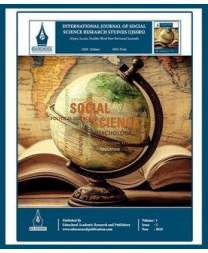
INTERNATIONAL JOURNAL OF SOCIAL SCIENCE RESEARCH STUDIES (IJSSRS)
(Open Access, Double-Blind Peer Reviewed Journal)
ISSN Online: 3108-1932 ISSN Print: 3139-4566



# The Impact of Social Media Use on Adolescent Mental Health: A Systematic Analysis of Digital Engagement, Social Comparison, and Psychological Well-being

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**Article information**

Received:13th November 2025
Received in revised form:15th December 2025
Accepted:16th January 2025
Available online:8th February 2026

Volume:2
Issue:1
DOI: https://doi.org/10.63090/IJSSRS/3108.1932.0011

**Abstract**

This study examines the multifaceted relationship between social media use and mental health outcomes among adolescents, with particular emphasis on depression, anxiety, and self-esteem. Drawing upon recent empirical research and theoretical frameworks including Social Comparison Theory and the Dual-Systems Model of socio-emotional development, this analysis synthesizes findings from multiple international studies conducted between 2020 and 2025. The research reveals that problematic social media use has increased from 7% in 2018 to 11% in 2022 among adolescents globally, with higher rates observed among girls (13%) compared to boys (9%). Adolescents spending more than three hours daily on social media face double the risk of experiencing symptoms of depression and anxiety. The study identifies key mediating mechanisms including social comparison, approval anxiety, and fear of missing out (FOMO) that explain the relationship between digital engagement and psychological distress. Furthermore, the research explores protective factors and intervention strategies, including digital literacy programs and mental health literacy interventions that have demonstrated effectiveness in reducing negative outcomes. The findings have significant implications for parents, educators, healthcare providers, and policymakers in developing evidence-based approaches to promote healthy digital citizenship among young people. This comprehensive analysis contributes to the growing body of knowledge necessary for addressing the youth mental health crisis in the digital age.

**Keywords**:- Social Media, Adolescent Mental Health, Depression, Anxiety, Social Comparison Theory, Digital Literacy, Psychological Well-Being, Screen Time

## Introduction

The prevalence of mental health disorders among youth and adolescents has been rising at an alarming rate over the past few decades, with conditions such as anxiety, depression, and related psychological disturbances becoming increasingly common (Masri-zada et al. 2025). This unprecedented increase has left parents, teachers, healthcare providers, and other stakeholders grappling with the question of what has caused such a significant rise in mental health challenges among young people aged 13 to 19 years. One contributing factor that has received growing attention is the role of social media and technology in shaping adolescent brain development, behavior, and emotional well-being.

The digital landscape has transformed dramatically over the past two decades. Up to 95% of young people aged 13 to 17 report using a social media platform, with nearly two-thirds of teenagers reporting daily use and

one-third using social media "almost constantly" (U.S. Department of Health and Human Services 2025). With over 5.17 billion users globally in 2024 and projections reaching 6.05 billion users by 2028, social media has become an inextricable part of modern life, particularly for younger generations who have never known a world without these digital platforms (Statista 2024).

The World Health Organization (WHO) has documented a sharp rise in problematic social media use among adolescents, with rates increasing from 7% in 2018 to 11% in 2022 (WHO Regional Office for Europe 2024). This trend, coupled with findings that 12% of adolescents are at risk of problematic gaming, raises urgent concerns about the impact of digital technology on the mental health and well-being of young people. The Health Behaviour in School-aged Children (HBSC) study, which surveyed almost 280,000 young people across 44 countries and regions, revealed that girls reported higher levels of problematic social media use than boys (13% versus 9%), highlighting important gender disparities in digital engagement patterns.

Recent data from the Pew Research Center indicates shifting perspectives on social media's role in adolescent life. The share of teens who credit social media as a support system has declined from 67% in 2022 to 52% in 2024, suggesting growing awareness of both the benefits and limitations of these platforms (Pew Research Center 2025). Additionally, 55% of parents report being extremely or very concerned about the mental health of teens today, compared to 35% of teens themselves, indicating a potential disconnect in perceptions of risk and harm.

This research article aims to provide a comprehensive analysis of the relationship between social media use and adolescent mental health by examining the current state of empirical evidence, theoretical frameworks that explain underlying mechanisms, and potential intervention strategies. The study addresses several key research questions:

- What is the nature and extent of the relationship between social media use and mental health outcomes in adolescents?
- What psychological mechanisms mediate this relationship?
- How do individual differences such as gender, age, and pre-existing mental health conditions moderate these effects?
- And finally, what evidence-based interventions show promise in mitigating negative outcomes while preserving potential benefits of digital connectivity?

# Literature Review

## Theoretical Foundations

Several theoretical frameworks have been employed to understand the relationship between social media use and adolescent mental health. Social Comparison Theory, originally proposed by Festinger (1954), posits that humans possess a fundamental drive to assess their opinions and abilities by comparing themselves to others. The highly curated and idealized content prevalent on social networking sites encourages users to engage in upward social comparisons, where they compare themselves to seemingly superior others (Henriques & Patnaik 2020). Studies have consistently shown that frequent use of social media is linked to an increase in these upward comparisons, which can negatively affect self-perceptions, particularly self-esteem (Gomez et al. 2022; Schmuck et al. 2019; Vogel et al. 2014).

The Dual-Systems Model of socio-emotional development provides additional theoretical grounding for understanding adolescent vulnerability to social media effects. This model suggests that adolescents are particularly susceptible to feedback and validation cues due to developmental differences in cognitive and emotional processing systems (Casey et al. 2008). Empirical evidence suggests that adolescents' self-esteem is less stable and more susceptible to fluctuations in social acceptance compared to that of adults (Reitz 2022; Yang et al. 2024). These developmental distinctions likely interact with platform affordances that enhance social comparison and normative influence, especially in feedback-rich environments.

Symbolic interactionist theories of self-concept formation also contribute to our understanding of how social media shapes identity development. Drawing on the work of Mead (1934) and Goffman (1959), researchers have conceptualized social media platforms as "socio-digital mirrors" that can mold, sustain, or undermine self-esteem through real-time indicators of social evaluation such as likes, shares, and comments (Hadi et al. 2024; Collins & Winer 2024). These feedback loops act as continuous sources of social information that adolescents incorporate into their developing sense of self.

## Empirical Evidence on Mental Health Outcomes

A substantial body of research has documented associations between social media use and various mental health outcomes among adolescents. According to the U.S. Surgeon General's Advisory on Social Media and Youth Mental Health, children and adolescents who spend more than three hours a day on social media face double the risk of mental health problems, including experiencing symptoms of depression and anxiety (HHS 2025). This finding is particularly concerning given that recent surveys show teenagers spend an average of 3.5 hours daily on social media platforms.

A narrative literature review by Burgess (2025) analyzing articles published from 2016 to 2024 points to social media use as a contributing factor to the unprecedented increase in depression, anxiety, and suicidal thoughts and behaviors in young people. The review identified several recurring themes including negative psychological and physical effects of increased social media use, various types of addiction related to social media, fear of missing out (FOMO), cybervictimization, contagion phenomenon, and low perceived support.

Research from UT Southwestern Medical Center found that 40% of depressed and suicidal youth reported problematic social media use, defined as experiencing upset feelings or discontent when not using social media (Kennard 2025). These youth also reported higher rates of screen time and expressed more and higher depressive symptoms, anxiety, and suicidal thoughts, along with poorer overall well-being. The study provides important clinical evidence linking emotional overattachment to social media with increased severity of mental health symptoms among young people being treated for depression, anxiety, and suicidal ideation.

A scoping review of reviews examining the effects of social media use on youth and adolescent mental health conducted between July 2020 and July 2024 found that while the relationship between social media and mental health is complex and multifaceted, the evidence consistently suggests that overall time spent using social media is associated with negative mental health outcomes (Journal of Medical Internet Research 2024). The review noted an important increase in longitudinal studies since the COVID-19 pandemic, which allows for analysis of changes over time and suggests potential causal relationships between social media use and mental health outcomes.

## Mediating Mechanisms

Research has increasingly focused on identifying the specific mechanisms through which social media exerts its influence on mental well-being. Using the Multidimensional Model of Social Media Use, Yang et al. (2025) explored how four types of activities with various content characteristics intimate directed communication, intimate broadcasting, positive broadcasting, and positive content consumption are associated with depression and anxiety through three psychosocial mediators: social support, approval anxiety, and social comparison.

Their findings highlight the importance of distinguishing between different social media activities when assessing risks and benefits. Intimate directed communication, intimate broadcasting, and positive content consumption became risk factors for increased anxiety and depression through approval anxiety, social comparison, or both. However, positive broadcasting was related to better mental health because of its direct associations with lower depression and anxiety, suggesting that not all social media engagement is equally harmful.

Social comparison has emerged as a particularly important mediating mechanism. Studies have found that adolescents who engage in upward comparisons on social media report poorer self-esteem, while those who engage in downward comparisons report greater self-esteem (Choukas-Bradley et al. 2022). Notably, lateral comparisons (viewing oneself as similar to others) are far more common than upward or downward comparisons in naturalistic settings, but they are not consistently correlated with self-evaluations. Overall depressive symptoms appear to be a risk factor for engaging in upward comparisons, creating potential negative feedback loops.

## Gender Differences

Consistent gender differences have been documented in the relationship between social media use and mental health. The Pew Research Center (2025) found that larger shares of girls than boys report having negative experiences on social media. For example, 34% of teen girls say social media platforms make them feel worse about their own lives, compared with 20% of boys. Teen girls are also more likely to say they have tried to reduce their screen time, with approximately half of girls reporting attempts to cut back on social media and smartphone use, compared to 40% of boys.

Research by Nature Human Behaviour (2025) using a nationally representative UK sample found that adolescents with mental health conditions spent more time on social media and were less happy about online friends than adolescents without conditions. The study revealed important differences by condition type: adolescents with internalizing conditions reported spending more time on social media, engaging in more social

comparison, and experiencing greater impact of feedback on mood. These findings suggest that young people with existing mental health vulnerabilities may be particularly susceptible to negative effects of social media engagement.

A study by Menon et al. found gender differences across self-esteem evaluations, with females reporting lower levels of self-esteem and being more likely to make unfavorable upward social comparisons compared to males (Springer 2024). This finding was consistent across all 48 ethnicities examined in the study, suggesting that gender may be a more robust predictor of social comparison tendencies than cultural background.

# Methodology

## Research Design

This study employed a systematic narrative review methodology to synthesize existing research on the relationship between social media use and adolescent mental health. The approach aligns with established guidelines for conducting comprehensive literature reviews in the social sciences, following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) framework where applicable.

## Search Strategy

A comprehensive search was conducted across multiple academic databases including PubMed, Web of Science, Scopus, PsycINFO, and Google Scholar. The search utilized Boolean operators to combine key terms including: "social media use" AND "adolescent mental health," "depression" OR "anxiety," "social comparison," "self-esteem," "digital literacy," and "intervention." Additional searches were conducted using specific platform names (Instagram, TikTok, Facebook) combined with mental health outcome terms.

## Inclusion and Exclusion Criteria

Studies were included if they met the following criteria: published between 2020 and 2025, written in English, peer-reviewed, focused on adolescents aged 10 to 19 years as defined by the World Health Organization, and examined relationships between social media use and mental health outcomes including depression, anxiety, self-esteem, or psychological well-being. Studies were excluded if they focused exclusively on adults, examined only general internet use without specific attention to social media platforms, or were opinion pieces, editorials, or conference abstracts without full methodology descriptions.

## Data Extraction and Analysis

Data extraction focused on study characteristics (design, sample size, geographic location), measurement approaches (self-report scales, clinical assessments, behavioral measures), key findings related to mental health outcomes, identified mediating and moderating variables, and intervention strategies where applicable. A thematic analysis approach was used to synthesize findings across studies and identify consistent patterns, contradictions, and gaps in the literature.

# Results

## Prevalence and Patterns of Social Media Use

The review findings confirm that social media use among adolescents is nearly ubiquitous, with usage patterns showing both continuity and change over recent years. According to data from the Health Behaviour in School-aged Children study, over a third (36%) of young people reported constant contact with friends online, with the highest rates among 15-year-old girls (44%). A third (34%) of adolescents played digital games daily, with more than one in five (22%) playing for at least four hours on days when they engage in gaming (WHO 2024).

Importantly, adolescent perspectives on their own social media use appear to be shifting. The share of teens who say they spend about the right amount of time on social media has dropped from 64% in 2023 to 49% in 2024 (Pew Research Center 2025). Furthermore, 44% of teens report having cut back on using social media, and an identical share say the same for their smartphone use both increases from 2023 figures of 39% and 36%, respectively. These trends suggest growing self-awareness among adolescents regarding potential overuse.

## Mental Health Associations

The synthesis of empirical evidence reveals consistent associations between problematic social media use and negative mental health outcomes. A meta-analysis examining the effects of digital social media detox found a significant reduction in depressive symptoms following gradual reduction in digital or social media usage,

although effects on other mental health indicators such as overall well-being, life satisfaction, and stress were not statistically significant (Masri-zada et al. 2025).

The relationship between social media use and mental health appears to be dose-dependent. Research indicates that individuals who use seven or more social media platforms are three times more likely to experience anxiety compared to those using fewer platforms (Primack et al. 2023). The incidence of social media-induced anxiety and depression has been found to be directly related to the duration, frequency, and number of social media networks being used, supporting a threshold model of risk.

Specific patterns of use also matter. The New York City Department of Health Special Report on Social Media and Mental Health found that teens who use social media in part from boredom are more likely to have indicators of depression (28%) compared with teens who do not use social media when bored (8%). These teens were also more likely to worry about things often and to report always worrying about the future, suggesting that the motivational context of use influences outcomes.

### Mechanisms of Influence

Social comparison emerged as a central mechanism linking social media use to mental health outcomes. Research demonstrates that upward social comparisons on social media are associated with lower self-esteem and increased depressive symptoms (McComb et al. 2023; Sun et al. 2023). A comparative study examining state self-esteem responses to social media feedback loops found that the effect of feedback valence on state self-esteem was significantly stronger among adolescents than adults, supporting developmental models of heightened sensitivity during this period (Frontiers in Psychology 2025).

Approval anxiety represents another important pathway. Research using the Multidimensional Model of Social Media Use found that several types of social media activities became risk factors for increased anxiety and depression specifically through approval anxiety as a mediator (Yang et al. 2025). This suggests that concerns about gaining approval from others online may be particularly detrimental to adolescent mental health.

Cybervictimization and online harassment also play significant roles. Research indicates that cyberbullying is widespread, affecting 59% of U.S. teens, with almost all teens recognizing online harassment as a problem affecting others their age (NYC DOH 2024). The victims of online harassment are twice as likely to suffer from anxiety and depression, and social media harassment cases have increased by 40% since 2020.

### Protective Factors and Interventions

The review identified several promising approaches for mitigating negative effects of social media on adolescent mental health. Digital mental health literacy (DMHL) interventions have demonstrated moderate effects in enhancing distal mental health outcomes (standardized mean difference = 0.42) and large effects in increasing proximal mental health literacy outcomes (standardized mean difference = 0.65) (Yeo et al. 2024). These interventions appear to be effective across different developmental stages and cultural contexts.

A systematic review and meta-analysis of mental health literacy interventions for adolescents found statistically significant improvements in mental health knowledge, help-seeking behaviors, and reductions in stigma associated with mental health issues (Sun et al. 2025). The effectiveness varied by region, with particularly strong results in Asia for help-seeking and stigma reduction. Interventions featuring frequent interactions proved particularly effective, showing significant increases in mental health knowledge and help-seeking.

School-based interventions represent a primary setting for adolescent mental health care, as schools provide unique opportunities to identify and address emotional and behavioral issues early by leveraging teachers, peer groups, and school counselors (PMC 2025). Core intervention strategies in this setting include emotion regulation training, social skills development programs, mental health literacy education, and crisis response protocols. Digital platforms such as Thought Spot and POD Adventures have shown increases in mental health awareness and stress management when integrated into school programs.

At the individual level, research suggests that limiting social media use to 30 minutes per day reduces anxiety and depression by 35%, while taking social media detoxes is associated with higher levels of happiness and improved mental clarity. Disabling notifications can decrease social media-induced stress by 25%, and engaging in offline hobbies reduces negative effects by 40%. These practical strategies offer accessible approaches for adolescents and their families.

## Discussion

The findings of this systematic review contribute to our understanding of the complex relationship between social media use and adolescent mental health. Several key themes emerge that warrant further discussion and have implications for research, practice, and policy.

First, the evidence supports a nuanced view of social media effects rather than a simplistic "good" or "bad" characterization. While problematic social media use is consistently associated with negative mental health outcomes, the relationship is moderated by multiple factors including the type of use, content consumed, individual characteristics, and developmental stage. Not all social media engagement is equally harmful; positive broadcasting activities, for example, appear to have beneficial effects on mental health (Yang et al. 2025). This complexity suggests that interventions should focus not on eliminating social media use but on promoting healthier patterns of engagement.

Second, the central role of social comparison processes in mediating the relationship between social media use and mental health outcomes has important theoretical and practical implications. Drawing on Social Comparison Theory (Festinger 1954), the research demonstrates how curated, idealized content on social media platforms facilitates upward comparisons that negatively affect self-esteem and psychological well-being. The developmental sensitivity of adolescents to such comparisons, as explained by the Dual-Systems Model, underscores the need for age-appropriate interventions that address the unique vulnerabilities of this population.

Third, the consistent gender differences observed across studies highlight the need for gender-sensitive approaches to prevention and intervention. Girls appear to be more vulnerable to negative effects of social media, possibly due to higher rates of social comparison, greater engagement with appearance-focused content, and higher susceptibility to cyberbullying and online harassment. Interventions should address these gender-specific risk factors while avoiding stereotyping or limiting opportunities for positive digital engagement.

Fourth, the evidence regarding interventions is encouraging but highlights important gaps. While digital mental health literacy programs show promise, their effectiveness varies by context, and more research is needed on long-term outcomes and scalability. The WHO Regional Director for Europe has noted that digital literacy education remains inadequate in many countries, and where available, often fails to keep pace with rapidly evolving technology (WHO 2024). This gap between research evidence and implementation presents both a challenge and an opportunity for stakeholders.

Several limitations of the current research base should be acknowledged. Many studies rely on self-report measures of both social media use and mental health outcomes, introducing potential biases. Cross-sectional designs remain common, limiting conclusions about causality. The rapid evolution of social media platforms and usage patterns means that findings may quickly become outdated. Additionally, most research has been conducted in Western, industrialized countries, limiting generalizability to other cultural contexts.

# Conclusion

This comprehensive review of the relationship between social media use and adolescent mental health reveals a complex picture that defies simple characterization. The evidence consistently demonstrates that problematic social media use is associated with increased risk of depression, anxiety, and reduced self-esteem among adolescents. However, the magnitude of these effects depends on multiple factors including the type and duration of use, individual characteristics, and the broader social context in which digital engagement occurs.

Key findings from this review include the documentation of rising rates of problematic social media use globally, from 7% in 2018 to 11% in 2022; the identification of social comparison, approval anxiety, and cybervictimization as central mechanisms linking social media to mental health outcomes; the recognition of important gender differences with girls showing greater vulnerability; and the emergence of digital mental health literacy interventions as promising approaches for prevention and early intervention.

The U.S. Surgeon General's conclusion that we cannot currently determine that social media is sufficiently safe for children and adolescents underscores the urgency of addressing this public health challenge (HHS 2025). However, given the ubiquity of social media in adolescent life, approaches focused solely on restriction are unlikely to be effective or acceptable. Instead, a multi-stakeholder approach is needed that combines digital literacy education, evidence-based intervention programs, family engagement, platform design changes, and regulatory frameworks that prioritize youth safety and well-being.

Future research should prioritize longitudinal designs that can establish causal relationships, examine moderating factors that distinguish resilient from vulnerable youth, evaluate the effectiveness of interventions in diverse cultural contexts, and explore how emerging technologies and platform features affect adolescent mental health. Only through sustained, collaborative efforts across research, practice, and policy domains can we hope to harness the benefits of digital connectivity while protecting the mental health of the next generation.

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