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# PSYCHOLOGICAL MECHANISMS LINKING SOCIAL MEDIA USE AND ADOLESCENT MENTAL HEALTH: A NARRATIVE REVIEW

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## ABSTRACT

The rapid expansion of social media use among adolescents has coincided with increasing concerns about their mental health. Rates of depressive symptoms and anxiety have risen in many countries, leading researchers to question whether intense online engagement may contribute to these trends. This article presents a narrative review of recent literature to examine current evidence on the relationship between social media use and mental health outcomes in adolescents and young adults, with particular attention to problematic use, emotional investment, gender differences, Fear of Missing Out (FOMO), and sleep disturbances.

This study is based on a narrative review of recent systematic reviews, meta-analyses, and longitudinal research. Research findings indicate that the association between social media use and mental health is small but relatively consistent across studies. Importantly, overall screen time appears to be a weak predictor of psychological distress. Patterns of engagement—especially passive use, compulsive checking, and high emotional investment—show stronger associations with depressive and anxiety symptoms. Sleep disturbances emerge as an important mediating factor that may partially explain this link.

The evidence indicates that social media is not inherently harmful. However, it may intensify existing vulnerabilities, particularly among adolescent girls. Preventive efforts should therefore focus on digital literacy, emotional regulation, and sleep hygiene rather than simple time restrictions.

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## KEYWORDS

Social Media, Adolescents, Depression, Anxiety, Sleep Deprivation, Problematic Use

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## CITATION

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## Introduction

The widespread availability of smartphones and social media platforms has transformed adolescent social life within little more than a decade. At the same time, increasing levels of depressive symptoms, anxiety, and suicidal behaviors among young people have attracted significant public and scientific attention. The coexistence of these trends has led to ongoing debate about whether social media contributes to declining mental health.

Early research often relied on overall screen time as the primary indicator of exposure. However, such measures provide limited insight into how adolescents actually engage online. Recent studies increasingly emphasize that patterns of use, emotional involvement, and individual vulnerability may be more important than duration alone. Passive scrolling, problematic or addictive tendencies, and heightened social comparison appear more consistently associated with distress than active or purposeful engagement.

This paper aims to analyze mechanisms that may link social media use with anxiety and depression in adolescents and young adults. Particular attention is given to problematic social media use, gender differences, FOMO, and sleep as a mediating factor. Clarifying these mechanisms may help move the discussion beyond simple cause-and-effect assumptions.

## Materials and Methods

This study was conducted as a narrative literature review using PubMed, Scopus, Web of Science, and Google Scholar. The following keyword combinations were applied: “social media” AND (“adolescents” OR “young adults”) AND (“mental health” OR “depression” OR “anxiety” OR “sleep” OR “problematic use” OR “social comparison” OR “FOMO”).

The search was limited to peer-reviewed articles published in English between 2016 and 2025 to capture recent technological and social developments. Both empirical studies (cross-sectional and longitudinal) and quantitative syntheses (meta-analyses and umbrella reviews) were considered.

The initial search yielded approximately 50 records. After removing duplicates and screening titles and abstracts for relevance, 32 articles were assessed in full. Following application of predefined inclusion and exclusion criteria, 21 studies were retained for final synthesis. Eligible publications examined adolescents or young adults (approximately 12–25 years old) and explored associations between social media use and mental health outcomes. Studies focusing on general internet use, non-psychological outcomes, or non-peer-reviewed materials were excluded. Sample sizes ranged from small qualitative adolescent samples ( $N = 54$ ) to large population-based cohorts exceeding 10,000 participants.

Given the diversity of study designs and outcome measures, the findings were synthesized narratively and organized around recurring mechanisms identified in the literature, including social comparison, fear of missing out (FOMO), problematic use, sleep disturbance, and gender differences.

**Table 1.** Characteristics of Studies Included in the Narrative Review ( $N = 21$ )

Author (Year)	Country	Sample (Age; N)	Design	Main Variables	Key findings
Ahmed et al. (2024)	Multiple	28 studies (meta-analysis)	Systematic review & meta-analysis	Social media use, sleep, mental health	Small-to-moderate association between social media use and poor sleep; sleep linked to depression and anxiety
Azhari et al. (2022)	Singapore	Female adolescents; $N = 203$	Cross-sectional	Social media use, anxiety, loneliness, sleep	High use associated with anxiety, loneliness, and sleep disturbance
Bérard et al. (2023)	France	Adolescents; $N \approx 1,500$	Longitudinal	Social media use, sleep, depression, anxiety	Sleep quality mediated association between social media use and internalizing symptoms
Boer et al. (2021)	Netherlands	Adolescents; $N = 3,826$	Longitudinal	Intensity, problematic use, depression	Stronger directionality for girls; problematic use predicted depressive symptoms
Burnell et al. (2024)	USA	Experimental studies (review)	Review of experimental literature	Social media exposure, affect	Short-term mood changes observed; long-term causal effects unclear
Coyne et al. (2020)	USA	Adolescents; $N \approx 500$	Longitudinal	Time spent, mental health	Screen time weakly associated with later depression
Keles et al. (2020)	Multiple	13 studies	Systematic review	Social media use, depression, anxiety	Small but consistent associations
Levenson et al. (2016)	USA	Young adults; $N = 1,788$	Cross-sectional	Social media use, sleep disturbance	Greater use associated with increased sleep disturbance
Marciano et al. (2022)	Multiple	25 studies	Systematic review & meta-analysis	Digital media, mental health	Context and type of use moderated effects
Marchant et al. (2017)	Multiple	14 studies	Systematic review	Internet use, self-harm	Mixed evidence; both risks and protective effects

Author (Year)	Country	Sample (Age; N)	Design	Main Variables	Key findings
Naslund et al. (2016)	USA	Conceptual review	Narrative review	Peer support via social media	Online support may reduce isolation
Ndubisi et al. (2025)	Multiple	Review of reviews	Scoping review	Social media use, sleep quality	Consistent link between high use and poor sleep
Odgers & Jensen (2020)	Multiple	Annual research review	Narrative review	Digital media, adolescent mental health	Small average effects; heterogeneity emphasized
O'Reilly et al. (2018)	UK	Adolescents; N = 54	Qualitative	Perceptions of social media	Mixed experiences; social connection valued
Pirdehghan et al. (2021)	Iran	Adolescents; N = 402	Cross-sectional	Social media, sleep	High use associated with sleep problems
Riehm et al. (2019)	USA	Youth; N = 6,595	Cross-sectional	Time spent, internalizing/externalizing	Time associated with internalizing symptoms
Shannon et al. (2022)	Multiple	18 studies	Meta-analysis	Problematic use	Moderate association with depression
Shensa et al. (2017)	USA	Young adults; N = 1,787	Cross-sectional	Problematic use, depression	Stronger depressive symptoms in high PSMU group
Valkenburg et al. (2022)	Multiple	Umbrella review	Review	Social media, adolescent mental health	Small average effects; differential susceptibility
van den Eijnden et al. (2016)	Netherlands	Adolescents; N = 1,000+	Scale validation	Social media disorder	Validated problematic use scale
Viner et al. (2019)	UK	Adolescents; N ≈ 11,000	Longitudinal	Social media, sleep, wellbeing	Sleep and cyberbullying mediated associations

## Results

The main characteristics of the 21 studies included in the review are presented in Table 1.

Across study designs, associations between social media use and depressive or anxiety symptoms were generally small but statistically significant. Importantly, total time spent on social media demonstrated weak and inconsistent associations with mental health outcomes in longitudinal analyses (e.g., Coyne et al., 2020). In contrast, problematic or compulsive patterns of use showed more robust associations with depressive symptoms and psychological distress (e.g., Boer et al., 2021; Shensa et al., 2017; Shannon et al., 2022).

Sleep disturbance emerged as one of the most consistently supported mediating mechanisms. Both cross-sectional and longitudinal studies indicated that intensive social media use was associated with reduced sleep duration and poorer sleep quality, which in turn predicted internalizing symptoms (e.g., Bérard et al., 2023; Viner et al., 2019). Meta-analytic evidence further supported the link between problematic social media engagement and sleep disruption (Ahmed et al., 2024; Ndubisi et al., 2025).

Passive consumption of content tends to show stronger links with depressive symptoms than active interaction. Emotional investment and problematic or compulsive patterns of use demonstrate stronger associations with psychological distress than total time spent online.

Gender differences were frequently observed, with adolescent girls showing higher associations between emotional investment in social media and depressive symptoms. Review-level evidence emphasized

heterogeneity in effects and highlighted the role of individual susceptibility and contextual factors in shaping outcomes (Valkenburg et al., 2022; Odgers & Jensen, 2020).

FOMO is consistently related to compulsive checking behaviors and elevated anxiety.

Sleep disturbances are also strongly associated with intensive social media use, particularly when platforms are used before bedtime. Reduced sleep duration and poorer sleep quality partially mediate the relationship between online activity and mental health outcomes.

Taken together, the findings suggest that while average effect sizes remain small, specific patterns of engagement—particularly problematic use and sleep disruption—may increase vulnerability to anxiety and depression among adolescents and young adults.

### **Discussion**

Compared to 2014, when approximately 80% of youth owned a mobile phone or smartphone, current estimates indicate that nearly 95% of adolescents in the United States have access to a mobile device, and 89% own a smartphone. An additional noteworthy finding is that approximately one third of internet users worldwide are under the age of 18. A significant increase in depressive symptoms and suicide rates has been observed in the United States over the past decade. Although many epidemiological trends are based on U.S. data, similar patterns have been observed in other high-income countries.

Although suicide rates have increased across multiple age groups, the rise has been particularly pronounced among young adolescent girls, where there has been a tripling of suicide rate among 10- to 14-year-old girls from 1999 through 2017. Population-level trends have raised growing concerns that constant digital connectedness may negatively affect young people's mental health and well-being (Valkenburg et al., 2022).

Despite widespread concern, clear causal evidence demonstrating that social media directly worsens adolescents' well-being remains limited. Commonly used measurement methods such as total screen time are not enough to decide whether using any platform has positive or negative impact on young people. Most existing research is correlational which means that studies show associations but it is hard to prove whether technology causes detrimental changes in brains of young adults. Reported associations are typically little and they can only explain a tiny portion of the variation on well-being. Looking through the research papers, results are often mixed- some show only slight negative links, some of them stay neutral, and a few even suggest positive effect depending on context and type of use (Keles et al., 2020; Valkenburg et al., 2022). The way to properly measure the correlation between social media and mental health is to improve future research using better methods that can distinguish cause from effect.

A further methodological challenge involves moving beyond simple screen-time measures, which provide limited insight into patterns of social media use. In times of globalization and migration we should include diverse global samples, which would help us understand different groups of our society (Valkenburg et al., 2022).

Another important issue is to identify the groups most vulnerable to negative effects of social media and the risk of the potential harm caused by them.

Another study draws attention to a major problem which is the distinction between time spent in front of the screen and the type of use. Simply spending more time on social media did not always predict poor mental health and far-reaching consequences such as anxiety, depression or problems with focus and concentration. And the second thing is the type of use, which according to various research papers is even more mattered. We can distinguish two forms of spending time using social media- one of them is a passive use such as scrolling, reading. Research says that that this form is associated with increased risk of depression in young adults (Keles et al., 2020). On the other hand, the active use such as posting or interacting with friends shows mixed results, not necessarily causing adverse outcomes (O'Reilly et al., 2018).

It is also important to consider another significant factor- emotional attachment, commonly called, investment in content encountered on social media. More young adults pay attention to what they see online and compare, internet life to their own life, the higher risk of depressive symptoms to occur (Shensa et al., 2017).

### **Gender differences**

There is a significant correlation between aforementioned investment and the gender of users. Research indicates that girls are more prone to engage in social media actions. Females were generally found to report higher social media addiction and stronger mental health associations than males (Boer et al., 2021; Keles et al., 2020).

Another problem is that girls are more exposed to comparison and envy. Growing up, seeing one's body drastically changing can be very harmful while seeing a lot of idealized pictures online, not to mention the fact that most of them are enhanced by filters. It may contribute to the formation of unrealistic standards and expectations, which young women want to meet. Moreover, they may experience pressure to maintain a perfect online image which can be another cause of anxiety induced by social media. Physical attractiveness and peer feedback are part and parcel of growing up. This may intensify body dissatisfaction and self-criticism. Furthermore, girls often report greater emotional investment in online interactions, which may increase vulnerability to negative feedback or perceived exclusion (Shensa et al., 2017).

Therefore, the suicidal rate in young women is higher as mentioned at the very beginning of that article. Longitudinal evidence suggests that problematic social media use predicts later depressive symptoms more strongly in girls (Boer et al., 2021). However, boys may experience different types of risks, including exposure to cyber-aggression or social pressure related to status and performance. Therefore, gender differences may reflect variations in usage patterns rather than inherent vulnerability.

### **FOMO**

A frequently discussed psychological mechanism is Fear of Missing Out (FOMO). It is a feeling of anxiety that an exciting or interesting event may currently be happening elsewhere, in that case, on social media.

Social media platforms are designed to provide continuous updates about peers' activities. This constant stream of social information reinforces the perception that one must remain connected to avoid social exclusion.

Adolescents reporting high levels of FOMO are more likely to experience emotional distress when disconnected and demonstrate problematic patterns of engagement (Shensa et al., 2017). People may feel that they are missing important updates or online interactions when they are not actively using their phones. It is a very popular phenomenon, especially among young adults, whose daily functioning is closely attached to social media platforms. As mentioned, it can cause an issue itself without even involvement of the smartphone or any other device- anxiety.

Importantly, FOMO may function both as a predictor and consequence of anxiety. Individuals with preexisting anxiety may use social media to monitor social dynamics excessively, while continuous monitoring may further intensify anxious rumination. (Valkenburg et al., 2022)

### **Developmental Sensitivity**

Age and developmental stage are significant to gauge the risk of social media use and predict the impact on mental health. Early adolescence is characterized by heightened sensitivity to peer evaluation and social belonging. During this period, neural and psychological systems involved in reward processing and social cognition are still developing (Valkenburg et al., 2022).

Younger adolescents may lack fully developed emotional regulation skills, making them more vulnerable to negative online experiences. Longitudinal studies indicate that increased social media use during early adolescence can precede increases in depressive symptoms, although effect sizes remain small (Coyne et al., 2020).

Importantly, adolescence is not a homogeneous stage. Individual differences in temperament, self-esteem, and baseline mental health significantly influence outcomes. Social media may amplify preexisting emotional vulnerabilities rather than independently causing psychopathology.

### **Impact on relationships**

Another risk factor that can be identified is lower interpersonal trust and poor family functioning. Increased screen engagement has been associated with reduced face-to-face family interactions, which may contribute to weakened family cohesion. The reason behind it is time spent in front of the screen, not only in solitude, but also by the table, celebrating family events. Parents also can be part of the problem- low parental monitoring and poor interpersonal trust may intensify problematic patterns of use. Social media may become a compensatory environment for adolescents experiencing social difficulties offline. In such cases, excessive engagement may reflect underlying distress. Conversely, adolescents who report strong family communication and supportive relationships tend to present weaker associations between social media use and depressive symptoms (O'Reilly et al., 2018).

### **Counterargument**

There are some major limitations- most studies were cross-sectional, only a few longitudinal studies examined long-term effects, which does not give us needed tools to unanimously decide whether social media are bad or not. Some of the potential benefits include support found among people online having similar problems, another benefit is an easy access to mental health information, which cannot entirely eliminate, but can prevent young adults from mental health incidents such as depression episodes or anxiety attacks. Online communities can provide access to peer support and identity affirmation unavailable in offline contexts (Valkenburg et al., 2022).

Sexual minority youth, for example, often report that online spaces facilitate connection with supportive peers and reduce feelings of isolation. Social media platforms can be the place where minority groups can find their own community giving them an opportunity to feel seen and safe. This highlights both sides of social media environments: they may contribute to psychological distress in hostile contexts but promote resilience in supportive ones.

### **Mechanisms Linking Social Media Use to Anxiety and Depression**

As the previous sections suggest, findings on social media and mental health are often inconsistent, indicating that this relationship is far from straightforward. Although many studies report only small effect sizes, the consistency of associations suggests that certain psychological mechanisms may explain why social media contributes to emotional distress in vulnerable individuals (Keles et al., 2020; Valkenburg et al., 2022). Recent studies increasingly focus not only on how long adolescents use social media, but also on how they engage with it and what motivates their use.

### **Social Comparison and Idealized Self-Presentation**

One of the most widely discussed mechanisms is social comparison to other people. Social media platforms provide constant exposure to carefully curated and idealized representations of others' lives. Adolescents are the most sensitive group to peer evaluation and social ranking, making them particularly vulnerable to upward comparisons (Valkenburg et al., 2022).

Research indicates that passive consumption of social media content—such as scrolling through photos and observing others' achievements—can intensify feelings of not being enough and low self-esteem (Keles et al., 2020). Unlike offline interactions, online environments amplify selective self-presentation. Users often share achievements, attractive photos, and positive experiences without including the negative aspects of life, which can distort perceptions of social reality and increase dissatisfaction.

These comparison processes appear to be especially influential among adolescent girls. Longitudinal research has demonstrated that problematic social media use predicts increased depressive symptoms over time, particularly in female populations (Boer et al., 2021). The heightened importance of appearance, peer approval, and social belonging during adolescence may strengthen the emotional consequences of online comparison.

### **Problematic and Addictive Patterns of Use**

An increasing number of studies highlight connection between excessive social media engagement within a behavioral addiction framework. Although not formally recognized as a clinical disorder in diagnostic manuals, problematic social media use shares characteristics with addictive behaviors, including mood modification, tolerance, withdrawal, and loss of control (Keles et al., 2020).

Adolescents who report compulsive checking behaviors and difficulty limiting use demonstrate higher levels of depressive and anxiety symptoms (Boer et al., 2021). Reinforcement mechanisms embedded within

platform design—such as notifications, “likes,” and algorithm-driven content—may contribute to habitual engagement. These features may reinforce habitual engagement through reward-related processes (Keles et al., 2020). Cluster analyses have shown that people with high emotional investment in social media present significantly greater psychological distress compared to moderate or low users (Shensa et al., 2017). This suggests that the intensity of emotional attachment, rather than time alone, plays a crucial role in mental health outcomes.

### **Emotional Investment and Identity Formation**

Adolescence represents a critical period for identity development. Social media offers opportunities for self-expression and experimentation with identity. However, it may also create pressure to maintain a coherent and socially desirable online profile. Research highlights that adolescents often perceive social media as a space where social status is publicly displayed and continuously evaluated. Followers and likes may reflect popularity which can externalize self-worth, increasing vulnerability to mood changes when online validation is lacking (O'Reilly et al., 2018).

Taken together, available evidence suggests that the relationship between social media use and anxiety or depression is shaped by interacting mechanisms involving social comparison, emotional dependency, and developmental sensitivity. Therefore, social media itself may not be inherently harmful; however, it can intensify emotional difficulties in adolescents who are already vulnerable (Valkenburg et al., 2022).

### **Educational and preventative strategy**

Educational and preventive strategy is a key element in promoting the use of modern technologies in a way that supports mental health. Adolescence is a crucial developmental period related to identity formation, learning emotional regulation, and responding to social evaluation. During this stage, individuals are particularly sensitive to external feedback, which makes them more vulnerable to the influence of social media mechanisms such as likes, comments, and social comparison (Keles et al., 2020; Valkenburg et al., 2022).

However, not only adolescents require special attention in the context of protection against the potential risks associated with global access to the Internet. Educational interventions should begin at an early age, as children are increasingly exposed to digital media before developing sufficient critical thinking and emotional regulation skills. Younger users are therefore more vulnerable to harmful content and unreflective patterns of media consumption (Odgers & Jensen, 2020; Riehm et al., 2019). The widespread availability of mobile devices means that access to social media now concerns almost all age groups.

The reviewed literature consistently indicates a link between intensive or problematic social media use and negative mental health outcomes, including depressive symptoms, anxiety, mood disorders, and emotional difficulties (Keles et al., 2020; Marciano et al., 2022).

Authors emphasize the importance of educating young users about the mechanisms underlying social media platforms and the risks associated with unreflective content consumption. Understanding how social media algorithms work and how content is curated may help users better filter information and engage more intentionally with online environments (Odgers & Jensen, 2020; Valkenburg et al., 2022). The context of use, including intentional versus passive engagement, type of activities, and individual predispositions, appears to play a significant role in moderating mental health outcomes (Marciano et al., 2022).

Evidence also suggests a bidirectional relationship between problematic use and mental health problems. Some individuals may be drawn to emotionally charged or inappropriate content, while others use social media as a compensatory coping strategy for pre-existing anxiety or depressive symptoms (Riehm et al., 2019; Marciano et al., 2022). This dynamic may lead to a feedback loop in which increased online activity and deteriorating mental health reinforce each other.

From a preventive perspective, educational strategies should therefore focus on developing digital literacy, emotional awareness, and self-regulation skills. Interventions involving parents, schools, and mental health professionals may help young users recognize harmful patterns of use and adopt healthier online behaviors. Such approaches appear particularly important given the rapid evolution of digital platforms and the changing nature of online risks.

### **Design and regulations of social media.**

The topic of addressing the growing influence of online platforms is as new as the platforms themselves. Studies show that, rapid development of social media does not appear to have a positive impact on adolescents' psychological well-being or sense of identity (Odgers & Jensen, 2020; Viner et al., 2019). Technological innovation and algorithmic optimization far outpace the pace of scientific research and regulation, limiting effective protection against negative effects of abuse from social media platforms (Viner et al., 2019).

Recent studies increasingly point to growing public and political concerns about the influence of manipulative strategies, used on the Internet, to attract, and retain the attention of young people using these new technologies (Odgers & Jensen, 2020). Recommendations emphasize that governments and those responsible for online content, should strengthen mechanisms of platform accountability, for example: imposing penalties for negligence in content moderation, expanding the definition of "harmful content" to include socially important issues such as body dysmorphia or gender violence, paying attention to creating and equipping platform creators with tools for effective supervision and enforcement of abuses (Viner et al., 2019).

In order to maximize work on improving the quality of algorithms, used by social media creators, to ensure the greatest possible safety of use and to minimize negative effects on the psyche of young people, the authors of the publication emphasize the importance of transparency and providing detailed data regarding the mechanisms used by creators. This includes publishing detailed reports on content moderation practices and disclosing advertising policies and targeting methods (Odgers & Jensen, 2020; Marciano et al., 2022). These actions should result in ongoing, open cooperation between platforms, regulators, scientists, psychologists, parents and public health organizations, prioritizing user safety over commercial incentives (Viner et al., 2019).

Improving design of tools aimed at consumer protection, personal data protection, effective moderation of harmful content, counteracting hate, cyberbullying and online violence would provide users with tools that can help them effectively protect themselves against dangerous content and give them greater control over filtering information directed to them (Burnell et al., 2024).

Another, more controversial approach to protecting the youngest users is age restrictions, recommended by some publications. Most research suggests age verification and greater selection of content should apply to people under 16 years of age. Younger people tend to spend more time in front of screens and are more likely to be impacted by social media use. Limiting content, that could have a destructive impact on the psyche, that is developing at such a young age, can help reduce the long-term effects and minimize the harmfulness of content intended for adults (Riehm et al., 2019; Keles et al., 2020).

### **Protective and interventional potential of social media**

Despite documented risks, the literature also highlights the potential - although context-dependent and unevenly distributed - benefits of social media platforms for mental health support. For young individuals experiencing isolation, marginalization or difficulties in offline relationships, social media platforms can provide an alternative space for contact, helping to reduce loneliness and increase the sense of belonging. (Naslund et al., 2016; Viner et al., 2019). They offer peer support, psychoeducational and intervention tools and help destigmatize mental health disorders. Educational campaigns, reports from public figures and user initiatives contribute to the normalization of conversations about depression, anxiety and suicidal thoughts. Especially for people who, for example due to financial conditions or difficult access, cannot use traditional forms of assistance (Naslund et al., 2016; Odgers & Jensen, 2020).

The opportunity to establish relationships with people with similar health experiences helps normalize psychological distress and reduce the feeling of stigmatization. In this context, social media can act as a "safe space" for sharing emotional experiences (Naslund et al., 2016). However, the effectiveness of such interventions depends on the user's knowledge of how to select valuable content, the supervision of parents and specialists, and the ethical design of platforms. The lack of regulation facilitates the spread of pseudoscientific advice, which constitutes a significant threat to mental health literacy (Marciano et al., 2022).

### **Sleep disorders related to social media use**

Sleep disorders are one of the most frequently described mechanisms linking social media use to the mental health of adolescents and young adults. Sleep appears to play a crucial role in emotion regulation, cognitive functioning, and resilience, and its deficiency, especially during adolescence, is associated with an increased risk of depression, anxiety, and social problems. In recent years, numerous empirical studies and systematic reviews have indicated that intensive and problematic use of social media platforms is significantly associated with reduced sleep quality.

Literature reviews show that higher levels of social media use are associated with later bedtime, reduced total sleep time, more frequent nocturnal awakenings, and increased daytime sleepiness (Ndubisi et al., 2025; Ahmed et al., 2024). Particularly significant is the use of social media platforms in the evening and immediately before bedtime, which contributes to both delayed sleep onset and poorer subjective sleep quality.

The literature identifies several mechanisms responsible for this relationship. First, exposure to blue-wavelength light emitted by mobile device screens suppresses melatonin secretion, which disrupts the circadian rhythm and hinders sleep initiation. Second, the content present on social media, often emotionally charged, idealized, or conflictual, may contribute to increased mental and physiological arousal, which hinders the process of winding down before bed. Third, as mentioned at the beginning, the fear of missing out (FOMO) characteristic of social media promotes compulsive content checking, further reducing sleep time.

Cross-sectional studies cited confirm these associations. Pirdehghan et al. (2021) found that teenagers who used social media extensively were significantly more likely to experience sleep disturbances and depressive symptoms. Similarly, Azhari et al. (2022) found that high levels of social media engagement among adolescents were associated with increased sleep problems, anxiety, and loneliness. These findings are consistent with large population-based studies that indicate a lack of clear guidelines for electronic device use before bed is associated with increased daytime sleepiness and poorer mental functioning (Levenson et al., 2016).

Taken together, the available data clearly indicate that sleep disturbances represent a significant cost of intensive social media use among young users. At the same time, sleep represents a potential point of intervention that may mitigate the negative psychological consequences associated with online activity.

### **Sleep as a Mediator of the Relationship Between Social Media Use and Mental Health**

Many studies indicate that sleep is not merely a side effect of social media use but also serves as an important mediator in the relationship between online activity and mental health. This means that the impact of social media on symptoms of depression, anxiety, and mood disorders may be largely mediated by reduced sleep quantity and quality. The longitudinal studies cited above provide particularly strong evidence for this mechanism.

Bérard et al. (2023) demonstrated that sleep quality and duration significantly mediated the relationship between social media use and symptoms of depression and anxiety among adolescents, especially during periods of high use. Similar conclusions can be drawn from meta-analyses, which indicate that the previously mentioned problematic social media use increases the risk of sleep disturbances, which significantly increases the likelihood of developing mental health problems (Ahmed et al., 2024).

The relationship between insufficient sleep and executive function, the ability to regulate emotions, and limbic system reactivity explains why young people are more susceptible to negative social stimuli and rejection. Consequently, users experiencing chronic fatigue may react more intensely to social media content, which contributes to the development of depressive and anxiety symptoms.

The bidirectional nature of this relationship is also important, as we have emphasized in previous chapters. People struggling with mental health problems are more likely to use social media as a form of emotion regulation or to compensate for offline relationships, which can lead to further sleep deprivation and a perpetuation of the negative cycle (Burnell et al., 2024). In this perspective, sleep, like pre-existing mental health problems, becomes a feedback loop between mental health and online activity.

From a clinical and preventive perspective, these results have important implications. Interventions aimed solely at reducing time spent on social media may be insufficient. Increasingly, there is an emphasis on sleep hygiene interventions, such as limiting the use of electronic devices before bed, establishing clear rules for nighttime online activity, and educating individuals about the impact of sleep on mental health. Research suggests that such strategies can effectively reduce the negative impact of social media on young people's mental well-being (Levenson et al., 2016; Ahmed et al., 2024).

To sum up, sleep plays a key mediating role in the relationship between social media use and the mental health of adolescents and young adults. Considering this mechanism allows for a better understanding of the complexity of this relationship and suggests new, potentially effective directions for preventive and therapeutic interventions.

### **Research limitations and directions for future analyses**

Despite significant progress in research on the impact of social media on the mental health of adolescents and young adults, the current evidence base remains fragmented and methodologically uneven. A key challenge remains the limited number of longitudinal and experimental studies, which makes it difficult to clearly determine the direction of the relationship between social media use, sleep, depression, anxiety, and mental health in general.

Another significant limitation is the insufficient consideration of mediating and moderating factors, such as sleep quality, individual psychological predispositions, previous mental health problems, and family and peer context.

Another area that requires further investigation is the analysis of individual and cultural differences. Most available studies focus on Western populations, which means the results are not inclusive. Future research should better consider cultural, socioeconomic, and gender differences, which may influence both social media use patterns and their psychological consequences. In the context of further research directions, the need to conduct long-term longitudinal studies and randomized intervention studies aimed at assessing the effectiveness of preventive measures is emphasized.

Further research in this area requires the use of more rigorous research methods and consideration of complex mediating mechanisms. Such an approach could contribute to a better understanding of the relationship between social media and young people's mental health and lead to the development of more effective prevention and intervention strategies.

### **Conclusions**

This narrative review indicates that the association between social media use and symptoms of depression and anxiety among adolescents is generally small but consistent across study designs. Importantly, the evidence suggests that problematic or dysregulated patterns of engagement are more strongly associated with psychological distress.

Sleep disruption emerges as one of the most robust mediating pathways, highlighting the role of behavioral and biological mechanisms in shaping mental health outcomes. Additionally, gender differences and developmental sensitivity appear to moderate these associations, suggesting that individual vulnerability plays a significant role.

These findings support a shift away from screen-time reduction as a primary preventive strategy. Instead, interventions may benefit from focusing on digital self-regulation, emotional resilience, and the promotion of healthy sleep behaviors. Such an approach acknowledges both the potential risks and the social and developmental functions that digital platforms can serve.

At the same time, social media platforms may provide meaningful opportunities for social connection, peer support, and identity exploration. Therefore, the current evidence does not support simplistic conclusions that social media use is inherently harmful. Instead, a more nuanced perspective is required, one that distinguishes between patterns of engagement, contextual factors, and individual susceptibility.

Future research should prioritize longitudinal and experimental designs, standardized measures of problematic use, and the identification of protective factors that may buffer negative outcomes. Such efforts are essential for informing evidence-based educational strategies and digital policy interventions.

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