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Adolescence is a period of substantial change, occurring across biological, psychological, behavioral, and social systems. Young adolescents (ages ~12-14) experience significant development in personal autonomy, identity formation, and coping skills (Arnett, 2015), while planning and self-control skills (generally referred to as executive functioning) mature in later adolescence (ages ~17-18; Tervo-Clemmens et al., 2023). Adolescents also undergo a realignment of sleep physiology and sleep/wake regulation (Carskadon, 2011). These changes allow teens to learn the skills needed to be good students, friends, and, eventually, healthy adults (Tottenham & Galván, 2016).

The social world of young people becomes more complex during adolescence. Peer relationships become increasingly important, family relationships change as teens strive for independence, and social media is introduced (Gerwin et al., 2018; Shifflet-Chila et al., 2016). For some teens, negotiating such rapid change is challenging and can result in stress and conflict with family members, peers, and others. As such, early adolescence is characterized by a marked increase in mental health challenges (McLaughlin & King, 2015; Miech et al., 2020).

These challenges have become more common among adolescents in recent years, with rising rates of depression (Keyes et al., 2019), psychological distress, anxiety (Collishaw, 2015), attention-deficit hyperactivity disorder (ADHD; Xu et al., 2018), and suicidal behaviors (Keyes & Platt, 2023).

Recent adolescent mental health trends have occurred in parallel with an increased use of social media. Social media refers to interactive websites or applications (i.e., apps) that allow users to generate, share, and view content with others, create personal profiles, and develop online social networks (Obar & Wildman, 2015). Over the past 20 years, it has become a central part of the social environment, and a key part of adolescent development.

Nearly all (97%) US adolescents use at least one social media platform, on which they spend an average of three hours per day. A third of teens say that they engage with social media "almost constantly" (Vogels et al., 2022). Social media facilitates the identity exploration, autonomy, friendships, and peer acceptance that are important for social development and mental health of young people (Gerwin et al., 2018).

The social media environment is complex and dynamic, with features that are beneficial and harmful for adolescent mental health, both directly and indirectly through sleep disruption. Additionally, the experience of social media use likely differs based on the personal identity of the user, including their age, race, sexual orientation, etc. Understanding these complexities is critical to developing effective policies and practices to reduce high-risk social media use behaviors and reduce adolescent mental health problems.



# **Prevention and Identification Strategies**

#### The Effects of Social Media Use on Mental Health

Social media use often exposes the user to public social commentary and experiences intended to provide an emotional reward to the user (e.g., when posted content receives 'likes' from friends). These rewards can be observed in the brain, through activation of regions involved in reward processing, social cognition, and attention (Sherman et al., 2016). In developing youth, social media features may contribute to negative self-evaluations, maladaptive interpersonal behaviors, such as excessively seeking feedback from others, upward social comparisons, and harmful coping strategies like excessive focus or discussion of problems or negative feelings (Nesi et al., 2018; Nesi & Prinstein, 2015).

Over time, these heightened emotional responses may disrupt the development of a positive self-identity and healthy peer relationships, increasing depression and anxiety symptoms, including suicidal thoughts and behaviors, as a result. Social media use may disrupt attention, as content is often highly stimulating and delivered rapidly, making it more difficult to later engage in tasks requiring sustained attention (Thorell et al., 2022). Additionally, users may lose the ability to regulate their attention internally after having gotten used to external regulation through social media (Madore et al., 2020).

Despite these negative effects, it is important to note that certain features of social media may facilitate positive mental health. Anonymous use allows the user to control what personal information is shared, in content, format (e.g., text, audio, visual), and timing, which may increase opportunities for approval and social acceptance in turn. Social media may also increase access to mental health-promoting resources, by exposing users to meaningful conversations, normalizing help-seeking, providing informational resources, and reducing the stigma around mental health (Betton et al., 2015; O'Reilly et al., 2018). Adolescents report frequently seeking mental health resources on social media (Vogels et al., 2022).



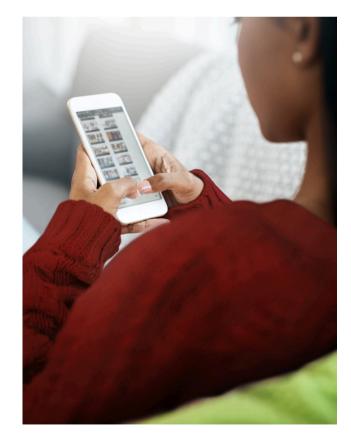
### How We Measure Social Media Use is Important

Despite substantial attention on the role of social media use as a potential cause of adolescent mental health problems, our understanding of the risk is still unclear. This is primarily due to the limitations of previous research. Most studies use simplistic and self-reported measures, recorded at a single point in time. Self-reported data significantly underestimates how much time teens spend using social media (Wade et al., 2021), especially among those with the riskiest social media use behaviors (Wenz et al., 2024). While it is important to assess how much time adolescents spend on social media, more detailed measures are needed to capture important risk and protective factors from use, including sleep disruption.

### The Effects of Social Media Use on Sleep

Although sleep need does not change throughout adolescence (~ 9h/night) (Ohayon et al., 2004), a combination of biological, psychological and societal changes limits sleep opportunity for teens. Changes in brain circuity makes it easier to resist sleep; the biological clock of adolescents dictates them to go to bed later at night and wake up later in the morning. Numerous psychosocial factors push adolescents towards later bedtimes: academic pressures, extracurricular activities, increased social interaction, and social media. At the same time, earlier school start times compound sleep deficits, increasing negative outcomes, including physical health problems, cognitive deficits, and mental health challenges (Owens, 2014).

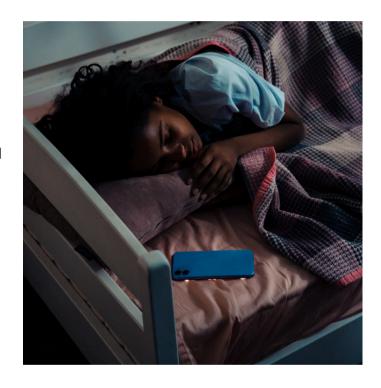
While smartphones and social media have become widespread only in the last decade. electronic media and screens have been introduced to sleep environments long before. In fact, based on the National Sleep Foundation's 2006 Sleep in America poll, 97% of US adolescents had at least one electronic media device in their rooms, and those with multiple devices in their bedrooms were more likely to experience profound daytime sleepiness. Strikingly, less than 20% of adolescents get an optimal 9 hours of sleep on school nights, with 60% reporting a sleep duration of 7 hours or less. Bedtime screen behaviors (social media, talking/texting, streaming, video games) or leaving phone alerts on during the night are strongly associated with trouble falling asleep and maintaining sleep (Nagata et al., 2023).



Beyond delaying and disrupting sleep, nighttime social media use interferes with the biological clock because of exposure to artificial light from backlit screens. Melatonin is a natural hormone that signals to brain circuitry the optimal time for sleep onset. Its production typically follows a regular rhythm, with highest levels in darkness (immediately before bedtime), and lowest levels during the day, reflecting that melatonin is highly influenced by light exposure.

In fact, blue light exposure from screens suppresses melatonin production, with lengthier exposure to blue light delaying sleep onset (Tähkämö et al., 2019; West et al., 2011). Importantly, the negative effects of screen use on sleep disruption are found to be highest for adolescents who are more likely to be considered as "night owls" and are naturally more active during the later parts of the day (Kortesoja et al., 2023).

Chronic sleep restriction in adolescents has been shown to increase negative affect, depression and anxiety, and reduce self-esteem (Fredriksen et al., 2004; Kelly & El-Sheikh, 2014; McMakin & Alfano, 2015). Further, night-to-night variability in sleep quality has been linked to day-to-day variability in mood and emotions (Ben Simon et al., 2020; Shen et al., 2022). Disrupted sleep may have effects on the ways adolescents interact with social media. For instance, following a night of disrupted sleep, teens may be more likely to choose exposure to higharousing negative content or engage in more negative personal interactions (e.g. more argumentativeness).



Consequently, these negative interactions may cause mild levels of hyperarousal (irritability, anxiety, hypervigilance, and impulsivity) which have been shown to disrupt sleep by delaying sleep onset, decreasing sleep time, increasing awakenings, and reducing perceived sleep quality.

In summary, social media plays an important role in nearly all adolescents' social lives, however, its risks and benefits remain unclear due to the simplistic ways that it has been studied. Certain aspects of social media have important consequences for adolescent mental health, including excessive use, use that may disrupt sleep, and use that triggers strong negative emotional responses.



# **Intervention Strategies**

The American Psychological Association (APA) advisory on social media use in adolescence highlights several indicators that necessitate intervention (APA, 2023). These include excessive use of social media that the teen is unable to curb, consistently losing track of time and neglecting other activities, spending excessive attention to posted photos and the feedback to photos, becoming socially isolated and spending less time personally interacting with peers, failing to keep up with school or family responsibilities, and experiencing more negative emotions like irritability and anger. While parents have the most intimate and direct access to their child, both home and school interventions can be used to promote a healthy relationship with social media. Below, we detail practical solutions for both parents and schools.

Despite overwhelming support by US adults (81%) for requiring parental consent for minors to create social media accounts (Anderson & Faverio, 2023), lack of such regulations means that parents need to play a primary role in setting and monitoring social media limits. Setting effective social media boundaries is best done in conversation and collaboration with the teen themselves (Wachs et al., 2021). Discussing the negative effects of unlimited social media use and working with your teen to identify potential harmful content can empower parents and adolescents to identify solutions for some of the unhealthy aspects of social media.



When creating boundaries around social media use, considering the maturity level of the teen is important. Children aged 10 to 14 might require additional assistance in safely navigating social media (Magis-Weinberg et al., 2021) and may need more extensive monitoring. Parents should coach teens on how to identify and navigate social media pitfalls such as cyberhate, health-risk behaviors (e.g. self-harm, disordered eating), cyberbullying, and privacy concerns (APA, 2023).

Some parents and teens might benefit from using social media contracts for each family member, to set guidelines and responsibilities with mutual accountability. For some teens, setting a specific time limit for social media platforms might be appropriate, with more autonomy provided as teens mature and gain social media literacy skills. Parents can also install apps that block certain websites, as well as enforce time limits. Establishing specific times during the day (e.g., while eating dinner) that are "social media free" or "technology free" for the entire family also can discourage excessive use.



Another important step is curbing social media and phone use around bedtime (see above for more details). Having a phone in the bedroom, even if the teen is not using it, can also affect sleep quality as the mere presence of the phone can create psychological alertness in teens (Elsheikh et al., 2023). Consider establishing a screen downtime at least two hours before bedtime and setting up an overnight device zone away from bedrooms to store all family devices. If screen use must occur in the evening, restricting blue light exposure with the use of amber-lens glasses may improve sleep onset delay (Knufinke et al., 2019).

Additional strategies to curb the disruptive effects of screen use on sleep and biological rhythms include maximizing natural bright light exposure during the day, establishing daily activity and bedtime routines, and avoiding the use of the bed for anything other than sleep.

Finally, parents and educators may also wish to discuss potentially positive aspects of social media, to emphasize that any social media boundaries come from a complete, thoughtful, and well-meaning standpoint. Social media can be a powerful tool for fostering opportunities for social support and connection, especially during times of isolation (Charmaraman et al., 2022) and steering teens toward those functions can be helpful. Self-disclosure is an important part of adolescent development and is shown to increase help-seeking behavior (Valkenburg & Peter, 2011). Online communities can be used to enhance opportunities for social support (Wang et al., 2021; Wang et al., 2019), increase access to mental health-promoting resources, and encourage open conversations around mental health that reduce stigma (Betton et al., 2015; O'Reilly et al., 2018).



# **Key Implications for Practice**

Beyond interventions implemented by parents, schools can also play an important role in establishing healthy social media boundaries. Below are some key implications for practice in schools.



Integrate Social Media Literacy instruction into curricula. Whether selecting to incorporate specific lesson plans or an entire curriculum, these opportunities typically address knowledge and skills to access and create purposeful content, critically evaluate the quality of information, and participate online in socially responsible and safe ways.



Encourage shared decision making and student voice in developing social media policies. Incorporating student perspectives in proposed solutions and providing a clear rationale for establishing access and use policies is important for building a climate of transparency and shared agency.



Consider policies that address social media access in school to limit unfettered social media use during school hours. For example, schools may: restrict access to some social media platforms on school wi-fi networks, use secure classroom-specific social media platforms, implement content filters to screen harmful or inappropriate content, or can require students to hand over their phones during class time to limit distractions.



Create a cyberbullying plan, along with instruction and information provided to students, staff, and caregivers on how to identify and report cyberbullying.



Provide clear guidelines for teachers and staff regarding their own social media use and maintaining professional conduct in their interactions with students on social media.



Provide access to resources to enhance social media literacy for parents and caregivers and introduce practical tools for addressing their teen social media use.



Provide information for parents and caregivers on school and community resources and activities accessible after school and during school breaks to help create schedules that encourage physical movement and in-person social interaction.



Regularly review and update policies to address changing social media trends.



Incorporate sleep hygiene education into curricula. Adolescents who are better informed about negative mental health consequences of insufficient sleep will be more likely to keep regular sleep hours.



## **Related Resources**

#### To Understand the Risks of Social Media Use

- · Social Media and Self-Doubt (Child Mind Institute)
- Social Media and Body Image (The Jed Foundation)
- Understanding Social Comparison on Social Media (The Jed Foundation)
- · Screen Time and Technology (Child Mind Institute)

## To Develop Practical Interventions

- · How to create a screen time contract
- Selfies, Social, & Screens: 2023 Back-to-School Toolkit (Mental Health America)
- I Don't Know How To Navigate My Child's Technology Use (Mental Health America)
- · How to Make a Family Social Media Plan (On Our Sleeves)
- · Am I a Cyberbully? Examples of Cyberbullying and How to Stop (The Jed Foundation)
- Help Teens Avoid Online Mistakes (Center for Parent & Teen Communication)

## To Promote Healthy Use Behaviors

- · Conversation starters to talk to kids about social media use
- Safe Spaces How Digital Environments Can Serve Youth (Mental Health America)
- How to Know if Your Child Has a Social Media Problem (On Our Sleeves)
- Mindful Consumption of Social Media Can Support Our Mental Health (Active Minds)
- How to Protect Your Space and Well-Being on Instagram (The Trevor Project)

## To Understand and Improve Sleep Hygiene

- · Healthy Sleep in Teens
- · Winding Down Worksheet (Boston Children's Hospital)
- · How to Sleep Well (Teen Sleep Guide)



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