



# Impact of COVID-19 on adolescent health and use of social media

Natasha Ramsey<sup>a</sup>, Malik Obeidallah<sup>b</sup> and Anisha Abraham<sup>c</sup>

## Purpose of review

The coronavirus disease 2019 (COVID-19) pandemic changed access to healthcare and decreased mental and physical wellbeing. It also significantly altered teens' relationship with social media. This article is a current review of the literature on the impact of COVID-19 on adolescent health overall. In addition, how social media use has both improved and worsened the impact of COVID-19, along with strategies providers should consider in wanting to address social media use with teens.

## Recent findings

The COVID-19 pandemic has affected adolescents through increased social isolation and decreased access to healthcare resources. Social media use has both positive and negative effects on adolescent health. Positive effects include sustained connection to friends, family and community while negative effects include lower self-esteem and increased incidence of eating disorders.

## Summary

Our findings underscore the multifaceted impact of social media on adolescent mental health, physical wellbeing, and healthcare access. Of particular relevance to the physician is the potential of leveraging social media to promote healthy behaviors in vulnerable age groups and populations. Social media can be used to connect teens with reputable websites where they can seek medical or health information that would otherwise not readily be available.

## Keywords

adolescents, coronavirus disease 2019 pandemic, mental and physical wellbeing, social media

## INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic profoundly disrupted the lives of adolescents around the world, leading to increased social isolation, a loss of a sense of control, changed access to healthcare and decreased mental and physical wellbeing including an increase in eating disorders. It also significantly altered teens' relationship with social media. This article is a review of the literature on the impact of COVID-19 on adolescent health overall. In addition, how social media use has both improved and worsened the impact of COVID-19, along with strategies providers should consider in wanting to address social media use with teens.

## CORONAVIRUS DISEASE 2019 IMPACT ON ADOLESCENT HEALTH

The COVID-19 pandemic affected adolescents' ability to receive routine healthcare services with specific impacts on sexual and mental health. This in turn has resulted in decreased access to sexual and reproductive healthcare services, such

as contraception, screening, and treatment of sexually transmitted infections (STIs). Access to sexual and reproductive healthcare services is particularly important for youth, aged 15–24, as they have the highest rates of unintended pregnancy and STIs [1]. Youth routinely access sexual and reproductive health services through school or community-based health centers. During the pandemic access to physical health services and routine screening for STIs among teens decreased. A retrospective cross-sectional analysis of electronic health record (EHR) data

<sup>a</sup>School Health Program, Montefiore Medical Group, Bronx, New York,

<sup>b</sup>Department of Global Studies, Asian and Middle Eastern Studies Program, College of William and Mary, Williamsburg, Virginia and

<sup>c</sup>Division of Adolescent and Young Adult Medicine, Children's National Hospital, Washington, District of Columbia, USA

Correspondence to Anisha Abraham, MD, MPH, Children's National Hospital, Division of Adolescent and Young Adult Medicine, 111 Michigan Avenue NW, Washington, DC 20010, USA. Tel: +1 202 880 9947; e-mail: Aabraham2@childrensnational.org

**Curr Opin Pediatr** 2023, 35:362–367

DOI:10.1097/MOP.0000000000001248

## KEY POINTS

- Increased social isolation and decreased access to healthcare resources has affected adolescents throughout the coronavirus disease 2019 (COVID-19) pandemic.
- Social media use has had both positive and negative effects on adolescent mental and physical health during the COVID-19 pandemic.
- Social media's positive effects include sustained connection to friends and loved ones while negative effects include lower self-esteem and increased incidence of eating disorders.
- Important recommendations for parental oversight of social media use include avoiding over monitoring, ensuring teens have access to face-to-face interactions, and using "social media contracts."

from a 31-clinic, hospital-affiliated, pediatric primary care network in Pennsylvania found that STI testing volume decreased drastically, while STI positivity rates increased during the pandemic [2<sup>a</sup>]. Rapid advances in virtual healthcare services were necessary to allow many youth to access confidential and private virtual care. Virtual care allowed for triage of patients who may have needed in person services such as an abdominal exam to assess for pelvic inflammatory disorder or long acting reversible contraception [3].

Globally, adolescents experienced higher rates of anxiety and depression due to the COVID-19 pandemic [4<sup>a</sup>]. Teens were particularly at risk for the isolation caused by the pandemic because social interaction is an integral part of adolescent development and they rely heavily on peers and social interactions for emotional support. According to an annual longitudinal research study conducted in the urban area of New South Wales, Australia having COVID-19-related worries, difficulties with online learning, and increased family conflict were associated with negative psychological impact [5].

During the pandemic, the risk of developing eating disorders among teens escalated dramatically. In the months following March 2020, the call volume to the National Eating Disorders Association Helpline spiked as much as 40%. Of the surveyed callers, as many as 35% were between 13 and 17 years old which marks a 30% increase from the previous year. The COVID-19 pandemic has also affected adolescents with known or previously diagnosed eating disorders. Hospital admissions related to eating disorders have increased significantly among adolescents during the pandemic period. A chart review at a children's hospital in Indiana found that

emergency department (ED)-related admissions was more than double the mean number of admissions per year for the same time frame [6,7<sup>a</sup>]. In a recent study conducted in Turkey, only 39.5% of teen participants reported eating regular meals. Regression analysis revealed that depression had the highest predictive value for eating disorder behavior. Due to the increased depression rates among adolescents during the pandemic and its correlation with a worsening of eating disorders outcomes, special attention should be given to screening for depression such as administering a patient health questionnaire survey for adolescents (PHQ-A), especially those battling eating disorders [8].

A recent Canadian study investigated the impact of COVID-19 pandemic on substance use among adolescents. 1045 adolescents completed an online survey, in which they reported on their frequency of alcohol use, binge drinking, and vaping in the 3 weeks before and directly after social distancing practices had taken effect. Survey results showed that the percentage of users decreased for most substances. However, the frequency of both alcohol and cannabis use increased. The survey found that while many of the adolescents (49.3%) engaged in solitary substance use, some were still using with peers virtually (31.6%) and others face to face (23.6%) despite emergency stay at home orders. Of note, solitary adolescent substance use is associated with worse mental health outcomes [9].

## CORONAVIRUS DISEASE 2019 AND SOCIAL MEDIA USE AMONG ADOLESCENTS

During the pandemic, adolescents used digital devices to overcome the social isolation caused by physical distancing measures. Digital media include any form of media that is distributed through electronic devices, from social media to video games. Digital devices allowed for remote learning and social connectedness among adolescents during lockdown. [10]. Social media allows teens to make new friends, exchange pictures, develop interests, and try out new forms of self-expression. When youth use social media, they can learn basic skills that are important for day-to-day functioning [11]. Teens who struggle with social skills, or who do not have direct contact with others can benefit from connecting through this medium.

## ADOLESCENTS AND SOCIAL MEDIA PLATFORMS

Popular social media platforms among adolescents include YouTube, Instagram, Snapchat, Twitter, and

TikTok. A 2018 Pew Study confirms that nearly 85% of US teens use YouTube, 72% Instagram, 69% Snapchat, and 51% Facebook, followed by Twitter, Tumblr, and Reddit [11,12]. YouTube allows users to share original videos while Snapchat allows users to share photos and events that disappear after 24 h. This is often used by teens who do not want their messages around for a long time (although in the era of screenshots, teens need to be reminded that images and posts can still be saved and forwarded). Instagram enables users to share their experiences via photos or videos while Facebook's platform allows for users to share photos, videos, and articles. TikTok is a social media platform that allows users to share short videos and live events. Finally, Twitter has the shortest messaging capability; it allows users to share their thoughts and personal updates in 280 characters or less.

Despite the constant presence of social media in their lives, there is no clear consensus among teens about what they think regarding its impact. According to the Pew Study, nearly 45% of all teens surveyed believe social media has neither a positive nor negative effect on people their age. Meanwhile, 31% say social media has had a mostly positive impact, whereas 24% describe its effect as mostly negative [12].

## CHALLENGES OF SOCIAL MEDIA USE

University College of London researchers, Dr Russell Viner and Neza Stiglic examined the harm of screen time versus its benefits by searching electronic databases for systematic reviews in 2018. 13 reviews were systematically reviewed on teens and screen time. They found that higher levels of screen time were strongly associated with obesity, an unhealthy diet, depressive symptoms, and poor quality of life [13]. Digital technology also impacts vision, physical activity levels, and mental health negatively. For example, the rate of near-sightedness in children has increased dramatically in the past 40 years as media use has gone up.

According to the National Center for Health Research, the number of social media platforms used, and frequency of use often can contribute to social isolation, even if teens are not physically isolated. A small study of teens by the UCLA Brain Mapping Center found that receiving a high number of "likes" on posted photos showed increased activity in the reward center of a teen's brain. More specifically, 32 teenagers, ages 13–18, were told they were participating in a small social network like the photo-sharing app, Instagram. Researchers showed them photographs on a computer screen for 12 min, including photos that each teen submitted, and

analyzed their brain activity using functional magnetic resonance imaging. Each photo also displayed the number of likes it had supposedly received from other teenage participants. When teens saw their own photos with a high number of likes, researchers saw activity across a wide variety of regions in the brain. Teens were influenced to like photos, regardless of content, based on a high number of likes. It goes without saying that for many teens it feels good to be 'liked' [14]. Unfortunately, many teens will also be unsupervised in the online world and are at risk of issues like cyberbullying.

Problematic interactive media use occurs with excessive use of video games, social media, pornography, and online information-seeking. The most common symptom of problematic interactive media use is a fixation with screen media. However, symptoms include poor personal hygiene, a decrease in school performance, relationship conflicts, and social withdrawal. Children and teens suffering from problematic interactive media use may also suffer from other conditions, such as attention deficit hyperactivity disorder (ADHD), social anxiety, depression, or substance use. Warning signs, such as spending time with screens for long periods, lying about or hiding the amount of time spent, or using media to escape from other issues such as anxiety. Adults need to create rules for healthy media use, such as time limits, and that children use media for a specific purpose (such as homework), and not in place of other activities or to avoid dealing with problems [15].

## ADVANTAGES OF SOCIAL MEDIA

In many communities and countries, being connected improves access to educational opportunities where there might otherwise be limited learning channels. It also provides novel ways to learn about the world. For many teens, social media keeps them connected socially with peers and family, help them to access unique content, and serves as a form of relaxation and entertainment. Social media has been documented as a great tool for the recruitment method for hard-to-reach populations and observational studies [16].

Social media use has been increasing in public health and health promotion because it can remove geographic and physical access barriers. However, these interventions also have the potential to increase health inequities for people who do not have access to or do not use social media. One study aimed to assess the effects of interactive social media interventions on health outcomes, behavior change and health equity. Researchers used a sensitive search strategy to identify systematic reviews and

included those that focused on interventions. Researchers found that social media interventions were effective in certain populations at risk for disadvantage (youth, older adults, low socioeconomic status, rural), which indicates that these interventions may be effective for promoting health equity. However, more research is evolving on how social media can be used as a tool for engaging youth in studies, disseminating information, and implementing other public health interventions [17<sup>\*\*\*</sup>].

Digital tools such as apps and text messaging can be used to promote healthy behaviors. Being online can also connect young people with disabilities or who are otherwise marginalized with others who have similar needs. Being online and using a reputable site, can be useful for teens who are trying to seek medical or health information, but are not able to get information readily at school or at home or are embarrassed to ask. For example, sites that give information on puberty or sexually transmitted infections can offer useful advice to kids that have concerns. Having a cell phone can be an important way to ensure kids travel safely from school or work.

Using social media in public health to engage adolescents has several benefits including promoting health education in a way that adolescents can easily access, enabling behavior change, providing legitimacy as a youth friendly organization, disseminating information about services, and allowing for timely updates and interactions [17<sup>\*\*\*</sup>].

The enforcement of public health measures at the start of the COVID-19 pandemic significantly impacted the routines and social lives of adolescents globally. As such, researchers sought to address questions concerning the use of social media by adolescents as a coping mechanism. Though years of research has documented the adverse effect of social media on the mental health of youth anxiety and depression, recent research suggests that social media usage can have varying results across populations.

## SOCIAL MEDIA USE AND COPING

Three distinct types of coping (i.e., active coping, social relations coping, and humorous coping) were operationalized to evaluate the effect of social media on feelings of loneliness and anxiety among Flemish adolescents. Cauberghe *et al.* [18] defined “active coping” as “accepting the current situation, searching information on the measures, activating others to follow measures, and thinking positively about the situation.” “Social relations coping” is understood as the way in which social media is used to compensate for a lack of social relations. Lastly, “humorous coping” is described as the use of social

media for entertainment. A survey was completed by 2165 Flemish students between 13 and 19 years old. The results indicated that anxiety was significantly related to active and social coping, indicating the anxious individuals relied on social media to manage the crisis and maintain social relations. Loneliness was significantly related to social coping, indicating that lonely individuals relied on social media to reduce loneliness. Importantly, only active coping was found to positively mediate the effect of anxiety on happiness, suggesting some benefit from social media use.

In a mixed-methods study by Goodyear *et al.* [19] participants were found to derive benefits for their health and wellbeing from social media. Study participants reported that social media facilitated the self-management of behaviors related to physical activity, diet and quality of life, through access to information to inform workouts and dietary quality, and the opportunities for interaction with peers, family members and within social groups.

Social media also has allowed for adolescents to stay connected to their friends, access accurate information about the virus, volunteer or get involved with a campaign, nonprofit, or charity, enhance their creativity by sharing ideas, music, and art, meet and interact with others who share similar interests, and communicate with educators and fellow students. During the pandemic, youth serving organizations such as COVID-19 Student Support in Michigan, COVID and Beyond in Washington, D.C., TeensPACT in New York City, and Latin American Youth Center in Washington D.C. utilized social media to communicate, educate, and engage adolescents [20].

Despite anecdotal benefits of social media for adolescents, a systematic literature review of social media used as a health intervention in adolescent health found modest research in the area. Of the three social media interventions reviewed, none had a significant or sustained impact on the primary outcomes. Three studies used social media as a health intervention in adolescent health. Facebook was the social media of choice. The way this social media tool was incorporated as the intervention varied. None of the social media interventions had a significant or sustained impact on the primary outcomes of the studies reviewed. Measures of social media process were limited and lacked meaning. This highlights the need for rigorous methodological processes when using social media as a health intervention and the need to develop further knowledge on adolescents’ use of social media [21]. Additional studies are evolving that examine the positive impact social media has had on increasing access to information and care during the pandemic. One

study utilized social media to look at adolescents' motivations to engage in social distancing during the COVID-19 pandemic. Findings from this study were used to inform strategies to increase social distancing engagement, reduce pathogen transmission, and identify individual differences in mental and social health during the COVID-19 pandemic [22]. Overall, more research is needed on the topic of using social media as a health intervention for teen health.

### STRATEGIES FOR PROVIDERS ADDRESSING SOCIAL MEDIA USE AT POINT-OF-CARE

Providers should consider the concepts listed below when discussing social media use with adolescents and caregivers [15].

- (1) Ask about use: Ask teens what sites they are using, how often, and what health information they are getting from social media and how it affects them.
- (2) Discuss the need for "likes": Help teens to avoid focusing on likes and making comparisons with others they see on social media. The need to gain "likes" can cause teens to make choices they would not otherwise make.
- (3) Be aware: Have teens and parents stay alert when using social networking sites. Encourage teens to tell adults if they feel uncomfortable, upset, or threatened by anything they see or read online. Teach teens to notify a parent immediately if they receive any threatening or uncomfortable messages. Also have conversations early on with adolescents about pornography use and sexting.
- (4) Ensure face-to-face connections: Social interaction skills require daily practice, even for teens. It is difficult to build empathy and compassion when teens spend more time 'engaging' online than they do in-person. Ensure teens have time for in-person conversations and relationships.
- (5) Model tech-free behavior: Teens often demonstrate the same behaviors they see their parents or other adults around them engaged in. In fact, according to recent research, more and more kids are sleeping next to their mobile devices – just like their parents and caregivers. Encourage families to keep meals and social gatherings tech-free and model that behavior. Also, charge devices overnight outside of the bedroom and make devices less accessible in general.
- (6) Use social media contracts: One way to create rules and guidelines is for caregivers to act as 'coaches' and create a media contract to outline the specifics of what is and is not acceptable.

Rules may include no smartphone use after a certain time at night or turning off the phone while sleeping. There are good social media contracts available from the American Academy of Pediatrics and Common-Sense Media: <https://www.aap.org/en/patient-care/media-and-children/>.

- (7) Get buy-in: For regulations to be effective, parents must keep in mind that teenagers want to be treated like adults and have some independence in the decision-making. Creating a joint agreement improves the likelihood that teens will feel a personal commitment to the contract. A 'joint agreement' should also include things the adult will do to keep the agreement effective.
- (8) Avoid over-monitoring: There is a fine balance between checking teens' accounts and backing off. Monitor conversations intermittently at the beginning and if going well, allow more independence. Although it is tempting to frequently monitor sites, this can backfire and result in conflict. Providers and caregivers should talk about appropriate media use early and build a relationship of trust surrounding social media. Obviously, if there is a clear break in contract regarding online behavior, this may flag the need to monitor again.

### CONCLUSION

Overall, the pandemic has significantly altered teen health including their mental well being and access to healthcare. Social media use has both positive and negative effects on adolescent health; its growing use requires further research. Positive effects include sustained connection to friends, family and community while negative effects include lower self-esteem and increased incidence of eating disorders. Providers need to continue to screen for social media use and have active discussions with teens and caregivers. Finally, more research is needed in determining the effects of social media on teens and the use of social media as an intervention for improving adolescent physical and mental well being.

### Acknowledgements

*The authors would like to thank Madhavi Sarkar for her help in editing this article.*

### Financial support and sponsorship

*None.*

### Conflicts of interest

*There are no conflicts of interest.*

## REFERENCES AND RECOMMENDED READING

Papers of particular interest, published within the annual period of review, have been highlighted as:

- of special interest
- of outstanding interest

1. Ahmed Z, Sonfield A; Guttmacher Institute. The COVID-19 outbreak: potential fallout for sexual and reproductive health and rights 2020; Available at: <https://www.guttmacher.org/article/2020/03/covid-19-outbreak-potential-fallout-sexual-and-reproductive-health-and-rights> [cited 2022 Jun 29]
2. Bonett S, Petsis D, Dowshen N, *et al.* The impact of the COVID-19 pandemic on sexually transmitted infection/human immunodeficiency virus testing among adolescents in a large pediatric primary care network. *Sex Transm Dis* 2021; 48:e91–e93.

Bonett *et al.* present evidence that the volume of STI tests decreased among adolescents and young adults and that STI test positivity simultaneously increased during the COVID-19 pandemic. The findings suggest that limited testing capacity resulted in a hierarchy of prioritization with symptomatic patients at the top. Given that the majority of 15–21 year-olds with STIs present without symptoms, it is likely that many asymptomatic cases remained undetected and untreated. This study offers the first estimates of STI testing counts, case counts, and positivity rates in the eight months before and after the onset of the COVID-19 pandemic.

3. Mmeje OO, Coleman JS, Chang T. Unintended consequences of the COVID-19 pandemic on the sexual and reproductive health of youth. *J Adolesc Health* 2020; 67:326–327.
4. Jones EAK, Mitra AK, Bhuiyan AR. Impact of covid-19 on mental health in adolescents: a systematic review. *Int J Environ Res Public Health* 2021; 18:1–9.

Jones *et al.* aim to bridge the information gap on the toll of the COVID-19 pandemic on adolescent mental health globally. They conducted a systematic review of quantitative studies on COVID-related mental health among individuals aged 13–17 years. The results indicate a general association between the COVID-19 pandemic and depression, anxiety, and other psychological disorders. The authors suggest that negative coping skills, perceptions of low social support, and engagement in alcohol and drug use are primary contributors to pandemic-related psychological distress among adolescents around the world.

5. Magson NR, Freeman JYA, Rapee RM, *et al.* Risk and protective factors for prospective changes in adolescent mental health during the COVID-19 pandemic. *J Youth Adolesc* 2021; 50:44–57.
6. Otto AK, Jary JM, Sturza J, *et al.* Medical admissions among adolescents with eating disorders during the COVID-19 Pandemic. *Pediatrics* 2021; 148:e2021052201.
7. Spettigue W, Obeid N, Erbach M, *et al.* The impact of COVID-19 on adolescents with eating disorders: a cohort study. *J Eat Disord* 2021; 9:65.

Spettigue *et al.* identified the COVID-19 pandemic as a direct trigger for eating disorder onset in 40% of adolescent participants. Of these, nearly 80% were in a medically unstable condition as opposed to 55.2% of those whose eating disorder was not triggered by the pandemic. This is the first study to examine the ways in which the pandemic has impacted new eating disorder presentations in adolescents and to report a significant increase in eating disorder severity.

8. Akgül S, Akdemir D, Nalbant K, *et al.* The effects of the COVID-19 lockdown on adolescents with an eating disorder and identifying factors predicting disordered eating behaviour. *Early Interv Psychiatry* 2022; 16:544–551.
9. Dumas TM, Ellis W, Litt DM. What does adolescent substance use look like during the COVID-19 pandemic? Examining changes in frequency, social contexts, and pandemic-related predictors. *J Adolesc Health* 2020; 67:354–361.
10. Marciano L, Ostroumova M, Schulz PJ, Camerini AL. Digital media use and adolescents' mental health during the COVID-19 pandemic: a systematic review and meta-analysis. *Front Public Heal* 2022; 9:793868.
11. Mir E, Novas C. Social media and adolescents' and young adults' mental health. National Center for Health Research; 2019; [http://www.center4research.org/social-media-affects-mental-health/\[center4research.org](http://www.center4research.org/social-media-affects-mental-health/[center4research.org)
12. Anderson M, Jiang J. Teens, social media & technology 2018. Pew Research Center; 2018; [https://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/\[pewinternet.org\]-2018/](https://www.pewinternet.org/2018/05/31/teens-social-media-technology-2018/[pewinternet.org]-2018/).
13. Stiglic N, Viner RM. Effects of screentime on the health and well being of children and adolescents: a systematic review of reviews. *BMJ Open* 2019; 9:e023191.
14. Sherman LE, Payton AA, Hernandez LM, *et al.* The power of the like in adolescence: effects of peer influence on neural and behavioral responses to social media. *Psychol Sci* 2016; 27:1027–1035.
15. Abraham A. Raising global teens: a practical handbook for parenting in the 21st century. Summertime Publishing 2020; 7:91–95.
16. Topolovec-Vranic J, Natarajan K. The use of social media in recruitment for medical research studies: a scoping review. *J Med Internet Res* 2016; 18:e286.
17. Welch V, Petkovic J, Pardo J, *et al.* Interactive social media interventions to promote health equity: an overview of reviews. *Health Promot Chronic Dis Prev Can* 2016; 36:63–75.

Welch *et al.* explore how social media has been increasingly used for public health promotion. They conducted an overview of eleven systematic reviews. Several reviews reported mixed effects on health outcomes and healthy behaviors. Some targeted studies reported that social media interventions were effective in specific populations in terms of age, socioeconomic status, ethnicities and place of residence. Some reviews reported qualitative benefits such as satisfaction, finding information and improved social support. More research is needed, particularly in populations at risk for disadvantage, to assess effects on health outcomes and health equity.

18. Caubergher V, Van Wesenbeeck I, De Jans S, *et al.* How adolescents use social media to cope with feelings of loneliness and anxiety during COVID-19 lockdown. *Cyberpsychol Behav Soc Netw* 2021; 24:250–257.
19. Goodyear VA, Boardley I, Chiou SY, *et al.* Social media use informing behaviours related to physical activity, diet and quality of life during COVID-19: a mixed methods study. *BMC Public Health* 2021; 21:1333.
20. Youth Serving Organization References: <https://www.chnyc.org/for-patients/teens-pact/><https://www.layc-dc.org/><https://www.instagram.com/covid19studentsupport/?hl=en> [https://www.instagram.com/covid\\_and\\_beyond/?hl=en](https://www.instagram.com/covid_and_beyond/?hl=en).
21. Shaw JM, Mitchell CA, Welch AJ, Williamson MJ. Social media used as a health intervention in adolescent health: a systematic review of the literature. *Digit Health* 2015; 1:2055207615588395.
22. Oosterhoff B, Palmer CA, Wilson J, Shook N. Adolescents' motivations to engage in social distancing during the COVID-19 pandemic: associations with mental and social health. *J Adolesc Health* 2020; 67:179–185.