

Social Media as It Interfaces with Psychosocial Development and Mental Illness in Transitional-Age Youth



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KEYWORDS

- Social media • Depression • Anxiety • Facebook • Emotional contagion
- Cognitive neuroscience • Sleep • Social networks

KEY POINTS

- Social media has grown substantially, with more than 4.2 billion new users worldwide in the past 25 years.
- Nearly all transitional-age youth use social media, and most use it daily.
- Social media use has increased during the time of COVID-19.
- Large nationally representative studies demonstrate consistent, linear associations between social media use and depression and anxiety among young adults.
- However, social media networks also may be leveraged to identify individuals with mental health concerns and engage transitional-age youth in treatment.
- Future research will be important to determine best practices for optimal use of social media to retain its benefits but minimize its drawbacks.

INTRODUCTION

Definition and Scope of Social Media

Social media (SM) can be defined as “a group of Internet-based applications that allow the creation and exchange of user-generated content.”¹ This includes formation of on-line communities and sharing of information, ideas, opinions, messages, images, and videos. Therefore, although all online video games would not necessarily count as SM, video games that allow for substantial sharing of information and development of on-line communities do fit this definition. SM has become an integral component of how people worldwide connect with friends and family, share personal content, and obtain

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news and entertainment.^{2,3} Use of SM is particularly prevalent among transitional-age youth (TAY), usually defined as individuals aged 16 to 24 years, who are at critical junctures around developmental tasks such as identity development and establishment of social norms.⁴

Currently, the most commonly used SM platform is Facebook^{3,5,6}; however, there are many other commonly used SM sites, such as YouTube, Twitter, TikTok, Instagram, WhatsApp, SnapChat, Pinterest, and Reddit.⁷ Furthermore, various SM platforms lend themselves to different types of communication and applications.⁸ For example, many TAY maintain Facebook accounts but use them primarily for posting photos and receiving information from formal groups, such as college-related activities. These individuals may use Instagram or SnapChat instead for private conversations with close friends. Meanwhile, Twitter and Reddit are common sources of news, whereas LinkedIn can be important for occupational social networking. Finally, sites such as Pinterest tend to be more popular among individuals with cooking, artistic, and/or craft-related aspirations.

Growth of Social Media

It is difficult to overstate the rapid growth of SM use. Many people consider the birth of modern SM to be in the mid- to late-1990s, with a platform called SixDegrees. The subsequent decade was marked by the success of MySpace and the emergence of multiple other platforms. However, it was not until the mid-2000s that today's most frequently used sites, such as Facebook and Twitter, became more mainstream. In 2020, it was estimated that 4.2 billion individuals used SM worldwide.⁹ This represents a greater-than-90% increase in SM use globally since 2015.

Use has been particularly high among TAY. For example, in the United States, approximately 84% of young adults aged 18 to 29 years use SM, and most users visit these sites at least once a day.^{2,3} About 95% of youth aged 13 to 17 years own smartphones, and nearly all of them use SM.^{2,3} However, use in other age groups is also substantially increasing. For example, use among adults aged 65 years and older in the United States grew from 34% to 45% between 2016 and 2021.⁹ Overall, average SM use by Internet users worldwide is estimated at 145 minutes per day.^{2,3}

Globally, Facebook currently maintains approximately 2.7 billion users,² which makes its population approximately 8 times that of the United States. The next most widely used SM platform is YouTube with 2.3 billion users.² WhatsApp has 2 billion users, Facebook Messenger has 1.3 billion users, Instagram has 1.2 billion users, and WeChat has 1.2 million users.² It is important to note that platform usage differs significantly by age. For example, adults aged 30 years and older tend to use Facebook and YouTube, whereas TAY more commonly use Instagram, SnapChat, and TikTok.³

Coronavirus Pandemic

In December 2019, the United States, along with the rest of the world, began to experience the effects of the outbreak of the coronavirus pandemic (COVID-19). This included substantial morbidity and mortality and the shutdown of schools, places of worship, restaurants, and other public facilities. Many families transitioned to work and education at home. The resulting social isolation, along with the necessity of more time on the computer to complete school, likely resulted in more time on SM for TAY.¹⁰

Preliminary research indicates that mental health problems increased substantially among adolescents during the pandemic. For example, a study conducted in China found that, during the COVID-19 outbreak, individuals aged 12 to 18 years had a

43% likelihood of depression, 37% anxiety, and 31% with both, and these numbers are much higher than usual.¹¹

However, the net influence of SM during the pandemic is unclear. On the one side, SM usually is associated with psychological distress, depression, and anxiety.¹² However, SM may also have facilitated positive social and school connections. Time out of school is associated with increased screen time, irregular sleep patterns, decreased physical activity, and a less healthy diet, all of which increase adolescents' risk for mental health issues.¹³ While well-controlled long-term research on the impact of the pandemic on SM use is still underway, this review will include studies published to the current time related to COVID-19.

Social Media, Mental Illness, and the Purpose of This Review

Any rapid social and behavioral change is likely to influence mental health. There has been a fair amount of research exploring how SM interfaces with both psychosocial development and mental health conditions among young adults. We aim in this article to broadly summarize major understandings that have been gleaned to date and to summarize important future directions for research. Because of the continuously emerging situation related to COVID-19, which for reasons described earlier may relate to both SM use and emotional health conditions among transition-age individuals, we carefully assessed literature published by May 1, 2021, the last feasible date to complete this review.

PUBLISHED LITERATURE AROUND SOCIAL MEDIA, DEVELOPMENT, AND MENTAL HEALTH

Neuroscience and Developmental Psychology Around Social Media

The rapid growth of SM, as well as several studies showing an increasing time spent on SM sites among adolescents and young adults, has generated interest in the potential impact of SM on the developing brain of adolescents and young adults.^{6,8,12–14} However, few rigorous studies have focused on this area to date. A recently published review found only 11 articles covering the topic with adolescents aged 11 to 18 years between 2012 and 2020.¹⁵ One study used functional MRI to analyze social cognition and social influences.¹⁶ Researchers measured activity in neural regions of adolescents, while they were looking at a simulated Instagram like feed of images. The findings showed that adolescents were more inclined to “like” photos that already had been “liked” many times. Additionally, there was a positive association between the number of “likes” seen and activity of neural regions usually linked to attention, imitation, social cognition, and reward processing.¹⁶ According to the investigators, these findings suggest that SM may trigger a unique type of peer pressure through quantifiable social endorsement, which in turn might reinforce the importance of self-presentation during adolescence, including on SM.¹⁶

There are also observations from related work that may be relevant.¹⁷ For example, because of its mobility and tendency to provide interruptions, SM use may be associated with increased multitasking, which has been linked with negative cognitive and mental health outcomes.^{18,19} For example, multitasking has been related to decreased ability to sustain attention,^{20,21} poor academic performance,^{22–24} decreased subjective well-being,²⁵ and higher levels of depression and anxiety.^{26,27} It will be valuable for future research to examine more closely associations between SM use and pathways to these outcomes via multitasking.

SM messages tend to be brief and to link to multiple other sources. This may affect the ability to pay attention, which has also been associated with negative mental

health outcomes. Because individuals in the United States use SM for approximately 2 to 3 hours per day,²⁸ this may present a substantial challenge, especially for youth who already have attention problems.

Other research has linked increased use of technology and Internet to aggression and desensitization to pain and suffering. For example, one study used functional MRI to evaluate the impact of Internet use and video games in older adolescents.²⁹ Because their findings showed suppressed activation of the amygdala during portrayal of violent imagery, the investigators surmise that exposure to these messages may be associated with an increase in aggressive behavior during adulthood.²⁹ It is not clear whether these speculations extend to SM as well.

On the other hand, some studies have suggested benefits of SM use for some adolescents, especially those lacking in social skills.³⁰ Prolonged SM use may positively affect adolescent affective and cognitive empathy, broadening the ability to express the feelings and appreciate feelings of others. Video games have also been associated with certain improvements in visual, cognitive, attention, and motor skills.³¹ For example, avid video game players may exhibit better visual memory and were flexible in switching between tasks.³¹ Therefore, it will be valuable for future work to determine if these related findings extend to SM in terms of its potential for affecting both positive and negative developmental and cognitive outcomes.

Benefits and Concerns Around Social Media to Provide Mental Health Treatment

SM may present opportunities to augment traditional mental health treatment. For example, researchers have used publicly available SM data to provide surveillance and determine if patients are exhibiting suicidal and/or psychotic behavior.^{32–35} However, this type of surveillance has also been criticized as a potential invasion of patients' privacy.^{32,34}

SM and related Internet tools—such as telepsychiatry and mobile apps—may also provide useful alternatives to traditional clinical care. This is particularly the case because factors such as stigma, logistics, and finances have been identified as important barriers to mental health care. Thus, especially for those of transitional age who are highly accustomed to using SM, accessing care in this way may help lift those barriers.

The outbreak of COVID-19 in 2019—and all the mental health issues that surfaced because of the associated fear, anxiety, and social isolation—resulted in a rapid transition for mental health professionals to virtual or remote care. The Centers for Medicare & Medicaid Services (CMS) and the Substance Abuse and Mental Health Services Administration (SAMHSA) established practice guidance that included information on the impact of the pandemic on minoritized groups, telepsychiatry, and billing.³⁶ These guidelines were adopted by the American Psychiatric Association (APA) as part of their COVID-19 practice guidance.³⁷ Some prior requirements related to HIPAA, prior authorization, and referral were waived to quickly transition to virtual mental health services. Research on the impact of telepsychiatry services during the pandemic is limited. A recent systematic review used a PubMed search for peer-reviewed research from January 1990 to March 2020.³⁸ Themes that emerged from this study included privacy and legal issues, advantages and disadvantages of telepsychiatry, treatment of psychiatric disorders and psychotherapy via telepsychiatry, and modern technologies in mental health care.³⁸ Advantages included improved access to care, safety and comfort using devices, ability to receive services in native languages without an interpreter, and improved access to services.³⁸

Concerns about the provision of mental health care using SM and telepsychiatry services existed before the pandemic. For example, therapeutic relationships formed

over SM networks may be inferior to those developed using person-to-person interactions.³⁹ Second, therapists are trained to use many nonverbal cues and language in their assessments. Other important issues are related to professional liability ramifications tied to the provision of treatment over SM. Finally, it will ultimately be important and practical for mental health professionals to understand reimbursement models and billing requirements for these services.

Other concerns that have emerged since COVID-19 include inability of the mental health professionals to take physical action to help their patients, interruptions caused by technical difficulties, and the lack of mental health professionals trained specifically for telepsychiatric services.³⁸

Benefits and Concerns Around Social Media to Provide Social Support and Education Among Individuals with Mental Illness

SM may facilitate forming connections among people with potentially stigmatizing health disorders, including depression, anxiety, schizophrenia, and autism spectrum disorders (ASDs).^{40–44} This may happen over traditional SM sites, such as Facebook, Reddit, and Tumblr. However, there are also specialized SM sites related to mental health, such as “Together All” (www.togetherall.com) and “Mental Health is Health” (www.mentalhealthis-health.us). These sites, which offer the ability for individuals with mental health concerns to support each other, emphasize factors such as respecting privacy and confidentiality.⁴⁵ There are also Web sites from organizations such as the National Alliance on Mental Illness that educate about mental illness and provide a helpline conferring information and support for those struggling with mental health issues, including peer-to-peer support services.⁴⁶

SM can also facilitate self-disclosures that can provide education, support, and comfort to individuals with mental health concerns.⁴⁷ TAY who are comfortable with SM platforms find these interventions engaging, accessible, and value the support they provide.⁴⁸ The average user will often not self-disclose potentially stigmatizing information such as struggling with a mental illness.⁴⁹ However, a growing number of individuals post self-disclosures around mental illness.^{49–51} The information these individuals post may provide high-quality resources around mental health and spark valuable conversations.^{49–51}

A study conducted with 25 transitional-age participants on Tumblr who had posted about depression demonstrated that receiving online mental health resources was associated with greater satisfaction.⁵² A different study focused on 165 Instagram, Twitter, Facebook, Reddit, Tumblr, and online depression forum participants who had major depression and had symptoms in the past 2 weeks about depression-related topics. They found that online platforms were an effective way to recruit participants who want mental health support.⁴⁷

Mental health messages can come from ordinary users or from “virtual celebrities,” who make their livelihood by posting material online. Because these videos can have millions of views, when the information provided in these videos is accurate, they can be valuable to the public for three reasons. First, they may provide information to individuals who do not have access to health care professionals,⁴⁷ either for logistical reasons or due to embarrassment. Second, peer-to-peer education and support are known to improve mental and physical well-being.⁴⁸ Third, these messages can demystify these previously stigmatizing conditions.⁴⁸

However, there remain concerns if the information provided is not accurate.³⁹ A high-profile example of this is the damage that was done by a prominent celebrity who prominently disseminated unsubstantiated concerns regarding vaccines and autism.⁴⁹ Additionally, self-disclosures during acute crises of mental disorders may

lead to “oversharing,” with potential consequences such as increased stigmatization and cyberbullying.^{50–52} Moreover, use of temporary SM accounts, which provide some degree of anonymity, can be associated with problematic outcomes, such as higher negativity, cognitive bias, self-attention-seeking posts, and decreased self-esteem.^{50–52} Semianonymity may thus fulfill a unique need, allowing users to express views and thoughts about a topic, such as depression, that is usually considered highly sensitive. There is also the potential for individuals to use SM to form bonds with each other around emotional concerns. It is an important developmental task of youth and young adults to form peer relationships, and SM may facilitate this. However, there also are questions as to whether online social contact with family members or close friends is a more productive way to approach the development of social relationships than with strangers and acquaintances.^{53,54} A recent study looked to address this question and found that face-to-face emotional support was associated with lower odds of depression than social media-based support.⁵⁵ This finding was further corroborated in a study that examined the real-life relationship individuals had with their SM contacts. It found that having no face-to-face relationship with social media contacts was associated with increased symptoms of depression, while close relationships with SM contacts was associated with decreased symptoms of depression.⁵⁶

Population-Level Monitoring of Mental Health Concerns

Researchers have capitalized on readily available SM data to learn about human behavior and social phenomena. For example, SM data show promise for prediction of political election results.^{57,58} SM data also have been useful in monitoring health-related issues, such as disaster response to earthquakes⁵⁹ and outbreaks such as influenza.^{60–62} Therefore, there has been interest in leveraging these tools to better understand mental health. For example, some researchers have used SM data to better understand factors surrounding suicide attempts.^{63,64} A recent systematic review identified current evidence on utilization of SM as a tool for suicide prevention. After analyzing 30 studies, the investigators found most studies were descriptive or qualitative and that no studies had reported on actual interventions. These findings underscore the need for more empirical research. They also suggest that SM platforms can be accessed by a large number of otherwise-difficult-to-engage participants, providing an anonymous, yet accessible and nonjudgmental environment. Ultimately, this may allow interventions to be conducted after an expression of suicidal ideation is made online.⁶⁵

Data from focus groups conducted among SM users with and without depression suggest that there is a wide range of reactions to this type of research. Although many individuals appreciate the value of using public domain information as a resource to improve mental health monitoring, others are concerned about issues related to privacy and lack of oversight.⁶⁶

A systematic review assessed the validity of using social media markers for depression screening. The review included studies involving Facebook, Twitter, Instagram, and Snapchat profiles. While the reviewed studies used different methods, which made some comparisons challenging, the authors of the review were able to find criteria that indicated that screening social media profiles could be a valid way to detect depression.⁶⁷ Another study found that depressive symptoms change the way individuals use social media and may be helpful to identify the markers of someone who is at risk for depressive symptoms.⁶⁸

Another study analyzed a random sample of 2000 tweets to assess depression-related content. Researchers found that although 40% of the chatter consisted of

supportive or helpful tweets, 32% disclosed feelings of depression. More than 65% of all tweets contained one or more DSM-5 symptoms necessary for the diagnosis of a major depressive disorder. These findings underline the potential avenue that SM offers for prevention and awareness campaigns.⁶⁴

Emotional Contagion

In-person interaction can be a powerful purveyor for “emotional contagion,” resulting in the potential exacerbation and/or amelioration of emotional states. It is an important task of adolescence and young adulthood to develop identity based on shared interests and experiences.

There has been interest in determining whether this contagion effect applies in the SM milieu. One large study suggested that emotional states can be transferred among participants of SM via observation of others’ positive experiences.⁶⁹ The investigators conducted an experiment among real Facebook users without their knowledge. They altered the amount of emotional material that was presented in certain users’ News Feed and observed whether there were changes in participants’ person-to-person interactions. They found that when positively valenced expressions were reduced, participants spontaneously produced fewer positive posts and more negative posts. They also found that when negative expressions were reduced, there were fewer negative posts and more positive posts. The investigators concluded that in-person interaction and nonverbal cues are not strictly necessary for emotional contagion.⁶⁹

Research also suggests that the likelihood of feeling happy after reading a positive post on Facebook is significantly related to strength of the relationship between the 2 individuals.⁷⁰ Although this may seem intuitive, these findings are important because they suggest potential avenues for intervention. For example, if individuals can be encouraged to increase positive posts through intervention, this may decrease overall negative cognitions.

Social Media and Mental Health Outcomes Among Young Adults

There is controversy as to whether, among young adults, overall SM use is associated with mental health outcomes. Some studies suggest that SM users may experience an increase in social capital, perceived social support, and life satisfaction.^{71,72} Similarly, use of SM may provide opportunities for keeping in touch with family and friends, as well as other social interactions that may increase social capital and alleviate mental health concerns, such as depression and anxiety.^{71,73,74} However, large-scale cross-sectional epidemiologic studies conducted among this population tend to find associations between increased SM use and negative outcomes related to mental health, such as depression, anxiety, poor sleep, eating concerns, and poor emotional support.

Depression

Initial work examining associations between SM use and depression was cross-sectional. A nationally representative study based in the United States looked at individuals aged 19 to 32 years. It found consistent, linear associations between quartile of SM use and degree of depression as measured with the Patient-Reported Outcomes Measurement Information System (PROMIS) brief depression scale.⁷⁵ Results were consistent whether SM use was approximated by self-reported time spent on SM or by a frequency of use measure based on the Pew Internet Research study. For example, compared with those in the lowest quartile, individuals in the highest quartile of SM site visits per week had significantly increased odds of depression [adjusted odds ratio (AOR): 2.74, 95% confidence interval (CI): 1.86 to 4.04].⁷⁵ Similar findings have been

reported internationally. For example, a study of 340 Lebanese medical students suggested that there was a significant association between depression and Facebook use, including the specific use of Facebook-related tools, such as the “like” and “add friend” buttons.⁷⁶ Additionally, a study of 467 Scottish adolescents, which examined SM use and its association with sleep, anxiety, and depression, found that those who used more SM had lower sleep quality, worse self-esteem, increased anxiety, and increased depression.⁷⁷

Because these studies are cross-sectional, they do not help determine causality. For example, it may be that individuals who are depressed turn to SM to self-soothe. On the other hand, depressive cognitions may be triggered in frequent SM users. For example, frequent SM users may substitute SM for potentially more valuable face-to-face social interactions.^{78,79} Alternatively, frequent exposure to highly curated, unrealistic portrayals on SM may give people the impression that others are living happier, more connected lives, which may make people feel more depressed in comparison.

More recent research confirms prior cross-sectional findings in the longitudinal setting. For example, a study published in 2020 explored temporal associations between depression and SM use.⁸⁰ In this study, SM use at baseline was strongly associated with the development of depression among nondepressed individuals over the subsequent 6 months. In fact, even while controlling for covariates, those in the highest quartile of SM use had about three times the odds for developing depression compared with those in the lowest quartile of SM use. However, interestingly, the presence of depression at baseline was not associated with an increase in SM use over the subsequent 6 months.⁸⁰ While no study can demonstrate causality, this temporal association between initial social media use and development of depression—without any indication of depression leading to increase SM use—was noteworthy.

Studies also suggest value in studying nuanced contextual factors of SM as they relate to depression. For example, one study found that negative experiences online were associated with *increased* depressive symptoms, whereas positive experiences were not associated with *decreased* depressive symptoms.⁸¹ These results were consistent with “negativity bias,” for which negative experiences can be more powerful than positive experiences. Another study found an association between social media dependence and depressive symptoms. The depressive symptoms were significant in university students that preferred Twitter instead of Instagram and Facebook.⁸²

In a systematic review that explored whether youth use SM to share ideas and thoughts about deliberate self-harm, depressive language was present in 19% of participants.⁶⁵ This review also found a number of beneficial suggestions that were shared among SM users, such as ideas for formal treatment and advice on how to stop self-harming behavior. However, some concerning ideas were also shared, such as normalization of self-harming behavior, concealment of suicidal plans or ideas, and live enactments of self-harm acts.⁸³

The positive and negative effects of SM are evident in specific populations as well. In the lesbian, gay, and bisexual (LGB) population, a systematic review found that SM can have both positive and negative effects when it comes to depression. The benefits of SM for LGB individuals can be decreased isolation and loneliness, while the negative effects can be increased cyberbullying and other SM usage patterns that are associated with depression.⁸⁴

A meta-analysis examined the multidimensional constructs of SM use by reviewing depressive symptoms separately.⁸⁵ Symptoms included intensity of SM use, problematic SM use, and time spent using SM. The association between symptoms of

depression to problematic SM use was moderate and was significantly higher than time spent using SM or intensity of SM use.⁸⁵ Symptoms of depression were significantly, though mildly, associated with time spent and intensity. Gender, age, year of study publication, and mode of recruitment were not significant moderates. Thus, more in-depth research focusing on individuals who are participating in problematic SM use would be beneficial.

Anxiety

A population-based study of Scottish adolescents also found associations between increased SM use and anxiety.⁷⁷ Also, an online survey conducted in Norway among 23,533 individuals aged 16 years and older found a positive and significant association between symptoms of anxiety and obsessive compulsive disorder and potentially addictive use of SM.⁸⁶ Another study based in the United States involved a sample of 243 college students. These researchers found that there were significant associations between problematic use of Facebook, social anxiety, and the need for social assurance.⁸⁷

Poor sleep

Researchers examined a nationally representative sample of young adults and found that increased SM use was independently associated with poor sleep.⁸⁸ Sleep disturbance was assessed using the brief PROMIS sleep disturbance measure. In models that adjusted for all sociodemographic covariates, participants with higher SM use volume and frequency had significantly greater odds of having sleep disturbance. For example, compared with those in the lowest quartile of SM use per day, those in the highest quartile had an AOR of 1.95 (95% CI: 1.37–2.79) for sleep disturbance. Similarly, compared with those in the lowest quartile of SM use frequency per week, those in the highest quartile had an AOR of 2.92 (95% CI: 1.97–4.32) for sleep disturbance. All associations demonstrated a significant linear trend.⁸⁸

Research has found consistent results among 467 Scottish adolescents; again increased SM use was associated with poor sleep.⁷⁷ In this study, the researchers also found that nighttime-specific SM use was associated with poorer sleep, even when models controlled for related mental health factors, such as anxiety, depression, and self-esteem.⁷⁷

A recent study evaluated the impact of SM on the sleep of teenagers and the effects of sleep deprivation.⁸⁹ Researchers found that having access to SM is associated with reduced sleep, especially if teenagers have a cell phone in their room. They also found that this negatively impacted their mood and daily function and that this worsens as they age.

Eating concerns

Multiple concerns have been raised in the literature regarding the availability on SM sites of problematic content that encourages disordered eating behaviors. For example, there are many so-called “pro-anorexia” communities on SM that encourage eating behaviors that physical health professionals would consider extremely problematic and dangerous, such as severe calorie restriction.⁹⁰ However, it also has been noted in the literature that there is also a growing community of individuals on SM who post “anti-pro-anorexia” messages.⁹¹ Therefore, it is valuable for clinicians who work with individuals who have eating disorders to understand the complex dynamic environment of SM around this particular issue. It has also been noted that pro-anorexia SM content can be influential with regard to male body image issues.⁹²

One large, nationally representative study examined this issue on a population level instead of focusing on those under specific eating disorder criteria.⁹³ In particular, the researchers examined overall SM use and the likelihood of having more eating-related

and body image-related concerns in general. They found that, compared with those in the lowest quartile, participants in the highest quartiles for SM use volume and frequency had significantly greater odds of having eating concerns (AOR: 2.18, 95% CI: 1.50–3.17 and AOR: 2.55, 95% CI: 1.72–3.78, respectively). There were significant positive overall linear associations between the SM use variables and eating concerns ($P < .001$).⁹³ Although this was a cross-sectional study and directionality could not be established, these findings suggest that unhealthy messages around body image and eating behaviors may be a concern even in general SM environments and not only in the more extreme cases.

Autism spectrum disorders

The literature regarding ASDs and SM is still emerging. Most studies are descriptive in nature.^{94–96} Additionally, data have primarily been obtained from parents or caregivers, and most of these studies have focused solely on reporting prevalence of SM among people living with ASDs.^{94–96} In general, these studies have found that although young adults with ASDs spend most of their free time using television or video games, only a small fraction uses SM in general.^{94–96}

Emotional support

Some relatively small and localized studies indicate that frequent use of SM may be associated with declines in subjective well-being, life satisfaction, and real-life community.⁹⁷ These data are borne out in larger studies as well. For example, a nationally representative study of US young adults found that increased daily time devoted to SM use was independently associated with lower perceived emotional support. In particular, the researchers' multivariable model including all sociodemographic covariates and accounting for survey weights demonstrated that, compared with the lowest quartile of time on SM, being in the highest quartile was significantly associated with decreased odds of having higher perceived emotional support (AOR: 0.62, 95% CI: 0.40–0.94). Interestingly, however, this same study did not find a significant association with emotional support when SM was operationalized in terms of the number of sites visited per week.²⁸

FUTURE DIRECTIONS

Need for Longitudinal Research

Although one strong longitudinal study has been published,⁸⁰ most data linking SM use and mental health outcomes have been cross-sectional. When a study finds that there is a broad association between SM use and depression, for example, this may indicate that individuals with depression tend to use more SM; depressed individuals with a diminished sense of self-worth may turn to SM-based interactions for validation.^{98,99} Subsequently, individuals may suffer from continuous rumination and guilt surrounding Internet use, while feeling compelled to continue the cycle owing to low self-efficacy and negative self-appraisal.^{98,100} Owing to the high accessibility of SM and the possibility of socialization in a controlled setting, individuals with underlying depression and anhedonia may be more drawn to SM interactions rather than to face-to-face interactions.^{101,102} However, it also may be that those who use increased amounts of SM subsequently develop or increase depressive symptoms.

Multiple studies have linked SM use with declines in subjective mood, sense of well-being, and life satisfaction.^{28,97,103} For example, passive consumption of SM content, as opposed to active communication, has been associated with decrease in bonding and bridging social capital and increase in loneliness.¹⁰³ One explanation may be that exposure to highly idealized representations of peers on SM elicits feelings of envy

and the distorted belief that others lead happier and/or more successful lives. Consequently, these envious feelings may lead to a sense of self-inferiority and depression over time.¹⁰³ It is also possible that the feeling of “time wasted” by engaging in activities of little meaning on SM negatively influences mood.¹⁰³ Moreover, in a nationally representative survey that assessed general health among college-age students, Internet use and computer games have consistently been identified among the top 5 factors impacting their academic performance.¹⁰⁴ Additionally, the substantial increase in the amount of time young individuals spend on the Internet, particularly on SM, has led some to call for the recognition of “Internet addiction” as a distinct psychiatric condition that is closely associated with depression.^{105,106} This consideration is more crucial with the influence of the pandemic on SM use. Finally, it is possible that increased SM exposure may increase the risk of cyberbullying, which also may increase symptoms of depression.¹⁰⁷

Need for Clinically Based Research

Because most research in this area has focused on community-based populations, it will be valuable for future work to involve clinical populations to facilitate discoveries with clinically relevant conclusions. For example, discovery of associations between SM use and mental disorders suggests that it may be valuable for clinicians to assess SM use among depressed individuals to probe for maladaptive patterns of use, which may be contributing to mood dysregulation. However, clinicians are extremely busy, and the actual value of this additional task has not been systematically studied. Still, because SM use is so common and integral to TAY, bringing up a discussion of SM use would seem to have potential value simply in getting to know a patient better.

Because SM has become an integral component of human interaction, it is important for clinicians interacting with young adults to recognize the important balance to be struck in encouraging potential positive use but redirecting from problematic use. Although much of the high-profile research has found overall associations between SM use and mental health problems, suggesting major limitation of use may be viewed by patients as insensitive or misguided.

Use of Social Media to Screen for Mental Health Problems

There may be useful ways of leveraging SM to identify individuals at risk, such as detecting self-disclosures of depression on SM.^{51,52} The teams behind some SM sites have already begun to reach out to users who show signs of mental disorders. At one point, when one searched blog site Tumblr for tags indicative of a mental health crisis, such as “depressed,” “suicidal,” or “hopeless,” the search function redirected to a message that began with “Everything okay?” and provided links to pertinent resources. Similarly, Facebook has tested a feature by which users’ friends could anonymously report worrisome posts. Authors of problematic content received pop-up messages on their next visit to the site voicing concern and encouraging them to speak with a friend or helpline worker.

Continued research into the factors that relate SM and depression will allow sites to refine these procedures and reach out to those with greatest potential need. This is especially critical given the increased risk of suicide since the COVID-19 pandemic. A recent study examined suicide risk among 11- to 21-year-olds from January to July 2020.¹⁰⁸ Suicidal ideation was significantly higher in March and July of 2020, with higher rates of attempts of suicide in February, March, April, and July 2020 than in the same months in the previous year. The mean age of participants in the study was 14.72 years, with 47.7% Latinx, 26.7% white, and 18.7% Black.¹⁰⁸ This is likely an indicator of the stress and social isolation felt by TAY during the pandemic.

Additionally, SM has been valuable in recruiting hard-to-reach populations for research purposes. By using audience-specific strategies, researchers have been able to recruit participants quickly and with low cost. Despite questions related to data quality, this remains a promising way to recruit participants.¹⁰⁹

Understanding Nuances of Different Types of Social Media Use

It will be an important task of future qualitative and quantitative research to more comprehensively assess content and contextual elements related to SM use. Much of the previous research has grouped multiple different ways of using SM together. By better understanding contextual factors associated with SM use, it will ultimately be easier to determine best practices for it.

Active versus passive social media use

Time on SM may be primarily spent viewing profiles, or it may be spent as an active participant, and these distinct patterns of use may have differential associations with mood conditions. Those who primarily observe are sometimes called “lurkers.” It may be that those who are more active users feel more engaged and derive more sense of social capital from SM interactions. However, it also may be that active users are more prone to having negative exposures, which can affect self-cognitions.

One study found that active users of SM had 15% lower odds of depression, while passive users had 44% higher odds of depression. This study indicates that there is a difference in active versus passive SM use and how it affects mental health, but more information is needed to determine how much SM use impacts depression outcomes.¹¹⁰

Emotional valence of social media use

Additionally, it will be important to assess the overall emotional valence of SM interactions. Some individuals may primarily spend time “liking” others’ posts, wishing friends happy birthday, and making positive comments. Others, however, may be prone to posting negative status updates or engaging in contentious interactions, which may be detrimental to relationship-building and lead to depression.¹¹¹

Personality characteristics and social media use

People with different personality characteristics might have substantially different experiences with SM as it relates to mental disorders. For example, personality characteristics, such as extraversion, neuroticism, and openness, have been associated with increased online communication and SM use.^{112,113} Therefore, it is possible that people with these characteristics might obtain more benefit from SM use. As a trait, extraversion is associated with high levels of engagement with the outside world, energy, and sociability, and this tendency may carry into the world of SM. Neuroticism is associated with anxiety, negative affect, and self-consciousness, all of which may also impact how individuals interact in a context related to SM. Conscientiousness is associated with organization, diligence, and impulse control. These qualities similarly may be relevant to how an individual approaches social interaction online. Finally, agreeableness is associated with altruism, consideration, and caring for others, all of which may be relevant to how individuals interact in SM-related situations. It would be valuable to more systematically assess how SM and personality characteristics interact so as to develop targeted interventions and recommendations.

Online and offline use

It would be valuable for future work to more comprehensively address associations between online and offline use. Some previous research studies have suggested

that there may be a substitution effect; those who commit more time and attention to online activities may subsequently develop fewer close and meaningful offline relationships.^{78,79} However, other studies suggest that those with increased online activities did not have any decrease in the quality of offline relationships.¹¹⁴ Therefore, these will be important areas for further research. Ultimately, for example, it would be useful to know under what circumstances online interactions may be leveraged to improve offline support. This is especially true because individuals living with mental disorders may find it relatively easy to begin to engage in the online milieu, even when they have anhedonia, lack of energy, anxiety, and/or other symptoms preventing them from immediately engaging with the “real” world. This research is also important to help us in better understanding how to generate support for TAY with regard to relationship development. For example, among young adults aged 18 to 24 years and 25 to 34 years, 27% and 22% reported to use online dating sites to find potential sentimental partners, respectively, which represents a threefold increase from 2013.¹¹⁵

Use of multiple platforms

Associations between SM use and self-reported depression and anxiety may also be related to the use of multiple SM platforms. The number of different SM platforms used is rising substantially. On the one hand, increased use of multiple platforms may be associated with an increase in one’s social capital and social support, which subsequently may be related to improvement of depression and anxiety symptoms.¹¹⁶ However, use of multiple platforms also may involve multitasking, which as noted previously has been associated in the past with negative cognitive and mental health outcomes. Use of multiple SM platforms may also be related to negative mental health outcomes even if the different platforms are not all used at once. For example, the use of multiple platforms can lead to identity diffusion, which has been related to poor emotional health in the past.¹¹⁷ This may be related to additional opportunities for online misunderstandings, negative interactions, and/or feelings of being left out, each of which may be associated with negative mood states.¹¹⁸

Balance of Risks and Opportunities for Use of Social Media in Treatment of Mental Health Conditions

There are both potential benefits and risks around using SM in the treatment of mental health conditions. Identified benefits include the ability to form therapeutic relationships even when there are barriers to seeking care, such as stigma, finances, or logistics. However, patient–provider relationships formed over SM may be inferior to those developed in person. Therefore, an important task of future research will be to determine under what circumstances and for whom SM-mediated mental health care is most valuable. For example, it may be useful to leverage SM in cases in which the barriers to in-person care are particularly profound. Similarly, there may be a role for the use of SM in the prevention of relapse. For example, SM could be leveraged to include medication reminders.

SUMMARY

In summary, SM has rapidly become an integral component of how transitional-age individuals connect with others. This has increased exponentially with the onset of the COVID-19 pandemic. Although literature around the influence of SM on development is still emerging, SM may facilitate a unique type of peer pressure through quantifiable social endorsement. There are potential benefits of using SM to alleviate mental health concerns, such as facilitation of connecting individuals with conditions such as depression, anxiety, and schizophrenia. Also, SM may be leveraged to

provide mental health care and surveillance of mental health concerns. However, large cross-sectional epidemiologic studies suggest that increased SM use is linearly associated with prevalence of mental health concerns, such as depression, anxiety, and sleep disturbance. Future research should help to examine directionality of these associations and the role of contextual factors, such as style of SM use, personality, and the use of multiple platforms.

DISCLOSURE

The authors have nothing to disclose.

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