



# The Impact of Social Media on College Mental Health During the COVID-19 Pandemic: a Multinational Review of the Existing Literature

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## Abstract

**Purpose of Review** During the COVID-19 pandemic, both social media use and rates of anxiety and depression among college students have increased significantly. This begs the question, what is the relationship between social media use and college student mental health during the COVID-19 pandemic?

**Recent Findings** Prior studies have found mixed results regarding the relationship between social media use and college student mental health. This relationship has become increasingly complex during the COVID-19 pandemic. We found that excessive or problematic social media use during the COVID-19 pandemic was correlated with worse mental health outcomes that could be mitigated by dialectical thinking, optimism, mindfulness, and cognitive reappraisal.

**Summary** The COVID-19 pandemic acts as a moderator by strengthening the relationship between social media use and mental health. Future studies should consider the impact of social media on college student mental health and concentrate on intervention initiatives to ensure the psychological well-being of college students during a global pandemic outbreak.

**Keywords** COVID-19 · Pandemic · College students · Mental health · Social media · Literature review

## Introduction

The novel coronavirus (SARS-CoV-2) and its corresponding disease (COVID-19) have had tremendous impacts on mental health across the globe [1–5]. College students have been among the most strongly affected by the COVID-19

pandemic [6–8]. According to the Household Pulse Study, rates of anxiety and depression in college-age individuals have grown rapidly during the pandemic [9••]. In addition to depression and anxiety, college students have experienced worsening rates of low self-esteem, loneliness, stress, substance misuse, and suicidality [10–17]. This may be because college students are encountering unique stressors including interruptions in their education, technological concerns about online learning, hindrance of physical activity and extracurricular activities, social isolation, lack of college belongingness, decreased family income, financial concerns threatening their future education, and uncertainty about future employment [18–20].

Social media use has increased among almost all cohorts during the COVID-19 era [21], but younger people have been particularly affected [22, 23]. Generation Z, defined as the generation born after 1996, constitutes the majority of current college students. College students today are “digital natives”; they were raised during the age of digital technology and therefore have been familiar with the internet and social media from an early age. Although college students’ social media use is ubiquitous at baseline, it has intensified

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during the COVID-19 pandemic [24•, 25]. An increased level of engagement with the internet was required for educational and other purposes due to the pandemic, which potentially predisposed college students to a range of experiences that may be either positive or negative.

Prior studies regarding the relationship between social media use and college student mental health have had mixed findings. Some have shown that excessive screen time during the pandemic has a negative impact on mental health [26•, 27]. Social media use in particular appears to be linked to depression and secondary trauma during the pandemic [28•, 29•]. Psychological distress from social media may be partially explained by extensive COVID-19 coverage [30, 31], in part due to the algorithmic structure of social media programming [32•]. Although social media may exacerbate COVID-19-related stress [33•], social media use has skyrocketed during the pandemic [21], and at least one study found an inverse relationship between social media use and depression [34••]. This seemingly bidirectional relationship is complex and indicates that social media use during the pandemic has both positive and negative properties (Table 1).

To the best of our knowledge, this is the first literature review to explore the impact of social media on the mental health of college students during the COVID-19 pandemic. As such, the authors seek to answer the following question: *What is the role of social media on college student mental health during the COVID-19 pandemic?*

## Methods

### Search Methodology

This article is a narrative review of the existing literature regarding the impact of social media on college student mental health during the COVID-19 pandemic. However, our search initially began by reviewing all literature regarding college student mental health in the setting of the pandemic to determine predominant themes. A search of the PubMed electronic database and Google Scholar was undertaken using the following search terms: Coronavirus, COVID-19, 2019-ncov, SARS-cov-2, Mental illness, Mental health, Psychiatry, Psychology, Anxiety, Depression, College, and University. All combinations of these keywords were included. As such, the PubMed search used the following query:

((Coronavirus [Title/Abstract]) OR (COVID-19[Title/Abstract]) OR (2019-ncov [Title/Abstract]) OR (SARS-cov-2[Title/Abstract])) AND ((Mental illness [Title/Abstract]) OR (Mental health [Title/Abstract]) OR (Psychiatry [Title/Abstract]) OR (Psychology [Title/Abstract]) OR (Anxiety [Title/Abstract]) OR (Depression [Title/Abstract])) AND ((College [Title/Abstract]) OR (University [Title/Abstract]))).

Articles published between the beginning of the COVID-19 pandemic and January 3rd, 2021 (date of last search) were screened for inclusion and exclusion criteria.

**Table 1** Pros and cons of social media during the COVID-19 pandemic

Pros of social media	Cons of social media
<p>Social-emotional benefits:</p> <ul style="list-style-type: none"> <li>• Maintains social connectedness for those who are otherwise isolated [35••]</li> <li>• Facilitates peer-to-peer communication</li> <li>• Creates a sense of unity</li> <li>• Medium for structured support groups</li> <li>• Normalizes behaviors and encourages compliance with government directives and interpersonal distancing [32•]</li> <li>• Maintains public morale [32•]</li> <li>• Connects people from all over the world</li> </ul> <p>Source of news and information:</p> <ul style="list-style-type: none"> <li>• Disseminates factual and timely information [32•, 35••]</li> <li>• Platform for reputable organizations (e.g., World Health Organization)</li> <li>• Engages the public [36]</li> <li>• Facilitates local-level responses [36]</li> <li>• Conduit for communication between members of the scientific and medical communities [32•]</li> <li>• Allows for monitoring and response to misinformation, public reaction, and concern during an emergency [36]</li> </ul> <p>Miscellaneous</p> <ul style="list-style-type: none"> <li>• Opportunities for remote employment</li> <li>• Online learning and content discovery</li> </ul>	<p>Social-emotional detriments:</p> <ul style="list-style-type: none"> <li>• Associated with increased levels of stress, anxiety, worry, and sleep disruption [32•, 35••]</li> <li>• Associated with loneliness, low self-esteem, and depression [35••]</li> <li>• “Reverse causality”: positive feedback loop where more psychological distress leads to more social media usage [35••]</li> <li>• Cyberbullying</li> </ul> <p>Source of news and information:</p> <ul style="list-style-type: none"> <li>• Spreads false information that proliferates in the absence of updates from official channels [32•]</li> <li>• Abundance of information makes it difficult to discern fact from fiction</li> <li>• Algorithmic structure of social media programming exacerbates excessive, repeated COVID-19-related information [32•]</li> <li>• Confirmation bias and distortion of risk perception [32•]</li> </ul> <p>Miscellaneous</p> <ul style="list-style-type: none"> <li>• Addictive potential</li> <li>• Exacerbates political polarization in the USA and elsewhere [35••]</li> <li>• Promotes consumer panic buying [37]</li> <li>• Perpetuates help-seeking behavior disproportionate to actual need (i.e., inappropriate demands for COVID-19 testing) [32•]</li> </ul>

## Inclusion and Exclusion Criteria

Inclusion criteria for incorporation into the narrative review included the following: (1) observational studies (i.e., non-interventional), (2) original research, (3) English language, (4) studies that evaluated depression among college students using validated instruments, (5) studies that evaluated anxiety among college students using validated instruments, (6) included data on social media, (7) included COVID-specific data, and (8) provided demographic data or other predictors of mental illness.

Exclusion criteria included the following: (1) unrelated research works, (2) duplicate studies, (3) case reports or non-original research (e.g., letters to the editor and review studies), (4) abstracts without full text, (5) studies not exclusive to college students, and (6) studies that did not have data on social media.

## Definition of Social Media and Thematic Analysis of Selected Articles

After inclusion and exclusion criteria were applied, remaining articles were examined. The COVID-19 pandemic increased reliance on social media for all forms of communication during a time where in-person contact was inherently dangerous. Despite much focus on social media in the scientific literature, a reliable definition has yet to emerge,

likely due to its rapidly evolving nature. For the purposes of this review, we define social media broadly as interactive, digitally mediated social networks.

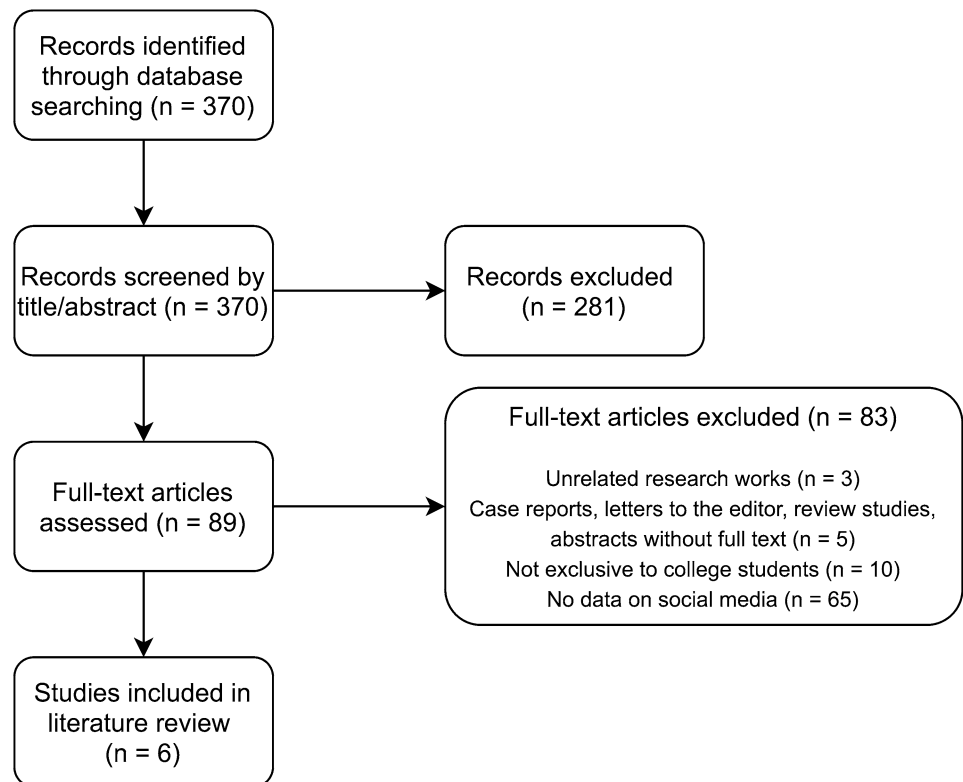
Two broad themes were ultimately identified in the literature regarding the impact of social media on college student mental health: (1) mental health problems related to social media use during the COVID-19 pandemic and (2) emotion-regulation strategies in relation to social media use and mental health during the COVID-19 pandemic.

## Results

### Study Eligibility

A total of 360 articles were retrieved. Articles were manually screened by title and abstract while considering the inclusion and exclusion criteria, which resulted in removal of 281 articles. Data were then extracted from the remaining 89 articles, and 83 additional articles were excluded thereafter (per exclusion criteria) (Fig. 1). The remaining 6 articles were all original observational studies of college mental health related to social media use during the COVID-19 pandemic. Details and characteristics of these articles are provided in Table 2. Of note, several studies did not meet full criteria for inclusion, but included some relevant data and are thus briefly discussed herein.

**Fig. 1** Eligibility flow diagram of study selection



## The Relations Between Social Media Use and College Student Mental Health Symptoms During the COVID-19 Pandemic

Three out of six articles studied the potential effects of social media on college student mental health during the COVID-19 pandemic. Overall, study results were mixed in that social media use had negative, positive, and null effects on mental health among community samples of college students. Each article is summarized below.

One study from China collected data at two stages of the pandemic: shortly after the start of the pandemic (T1) and 1 month later (T2) [39••]. Compared to T1, social media use during T2 was significantly lower ( $\chi^2/t=158.18, p<0.001$ ), indicating more frequent social media use during the start of the pandemic. Heavy social media use (> 3 h/day) at T1 was found to be a significant predictor of acute stress ( $p<0.001$ ) and anxiety symptoms ( $p<0.001$ ), but not of depressive symptoms ( $p<0.05$ ). Students who reported higher levels of acute stress during T1 were more likely to report higher levels of depression, anxiety, and worry about contracting COVID-19 during T2. The authors conclude that heavy social media use is associated with increased rates of depression and anxiety. These results suggest that social media may have a negative influence on short- and long-term mental health.

A second large-scale Chinese cross-sectional study [34••] also found that social media was associated with negative mental health measures. Social media use (average time spent per day accessing COVID-19-related content) was significantly associated with secondary trauma ( $b=0.18, p<0.001$ ), depressive symptoms ( $b=0.11, p=0.019$ ), and anxiety symptoms ( $b=0.12, p=0.014$ ). Additionally, high social media use was positively associated with depressive symptoms when college students reported higher levels of COVID-19 stress (assessed using a 10-item COVID stressor scale, e.g., witnessed a close death, lack of medical care, and lack of disinfectants), an interaction that the low COVID-19 stressor group did not exhibit. This suggests that COVID-19 stress moderates the relationship between social media use and depression. COVID-19 stress was not found to moderate the relationship between social media and anxiety or secondary trauma. Furthermore, negative affect (assessed using the Positive and Negative Affect Schedule) accounted for the relationship between social media use and mental health.

Finally, one study from the Netherlands [42••] did not find that social media use (e.g., overall habits and total number of friends on social media platforms) had a negative impact on mental health outcomes during the COVID-19 pandemic. In fact, researchers found that social media use was negatively associated with depressive symptoms ( $r=-0.156; p<0.05$ ), suggesting that social media use and depression have an inverse relationship. There was no

statistically significant association between social media use and anxiety ( $r=0.078; p>0.5$ ), loneliness ( $r=-0.116; p>0.5$ ), or the COVID-19 stressor (impact of events on student life;  $r=0.112; p>0.5$ ).

Given the mixed results, the relationship between social media use and college student mental health during the COVID-19 pandemic appears to be complicated and may be explained by moderating factors such as COVID-19 stress [34••]. There may be other mediating and moderating factors that affect this relationship, which could explain why social media use and depression were inversely related in a study that accounted for social media intensity and meaning [42••]. It may be that social media use attenuates depressive symptoms in college students who have meaningful relationships through social media (i.e., sense of belonging to an online community), who use it as a form of coping, or who use it as a replacement for maladaptive behaviors.

## Literature Addressing Emotion-Regulation Strategies in Relation to Social Media Use and Mental Health During the COVID-19 Pandemic

A few studies explored whether cognitive thought patterns or emotional regulation strategies could affect the relationship between social media use and mental health during the COVID-19 pandemic. They will be described below.

One study in Italy [43•] considered the association between different thinking styles and the levels of distress felt by university students during lockdown. University students were invited to join a free online emotional support service that included secure messaging and video chats with providers. Before joining the service, students completed several validated instruments to assess depression and anxiety symptomatology, along with narrative questions regarding their emotions/worries. The investigators asked participants to keep a digital diary, which showed that students with “all or nothing” thinking — seeing the world only in terms of extremes — were five times more likely than other students to report posttraumatic symptomatology. Presence of this maladaptive thinking pattern may predict the severity of stress reactions to traumatic and/or life-changing events. Unsurprisingly, students with an “optimistic” thinking style reported fewer depressive, anxious, or posttraumatic symptoms, suggesting that optimism can be an important resource for adjustment to stressful situations.

Investigators in China [40••] surveyed college students on social media use, mindfulness, rumination, and measures of psychological distress during COVID-19. They found that social media exposure was associated with rumination and that students with ruminations were more likely to have negative cognitions and higher levels of psychological distress. They also found that mindfulness was a protective factor that attenuated the adverse effect of social media on mental

**Table 2** Original observational studies of college mental health related to social media exposure during the COVID-19 pandemic

Author	Country of origin	Methodology	Survey date(s)	Population(s) studied	Survey instruments	Assessment of social media use	Results pertaining to social media
<b>Li et al. [38•••]</b>	China	Cross-sectional online survey	March 3–15, 2020	College students ( $n = 1,676$ ), mean age $20.17 \pm 1.5$ years	Phobia subscale of the self-reported Symptom Checklist 90 (SCL-90) [45] Health Anxiety Inventory (HAI) [46] Novel scale assessing health risk communication of COVID-19	Sources used to obtain COVID-19-related information (e.g., WeChat, Sina Weibo, websites, television, newspapers, broadcast, government notices, family members, or friends) Asked, “What do you think is the most trusted source of information regarding COVID-19?” Answers divided into mainstream and nonmainstream media	Trust in mainstream media (OR 0.613, 95% CI 0.461–0.816) was a protective factor against health anxiety Almost 37.6% of students (631/1676) felt that their social contacts were impacted by the home quarantine measures
<b>Li et al. [39•••]</b>	China	Repeated cross-sectional survey (longitudinal)	T1: February 3–10, 2020 T2: March 24, 2020 to April 3, 2020	College students ( $n = 164,101$ at T1, $n = 68,685$ at T2)	Patient Health Questionnaire (PHQ-9) [47] Generalized Anxiety Disorder (GAD-7) [48] Impact of event scale-6 (IES-6) [49, 50]	Number of hours per day spent on social media (< 1 h, 1–3 h, or > 3 h) More hours on social media per day indicative of more social media use	At T2 (during remission), respondents reported significantly less frequent exposure to social media than at T1 (during outbreak) ( $\chi^2/t = 158.18, p < 0.001$ ) Social media exposure was associated with mental health problems in adjusted analyses (AOR $\geq 1.20$ )
<b>Hong et al. [40•••]</b>	China	Cross-sectional online survey	March 14–18, 2020	College students ( $n = 439$ ), mean age $20.4 \pm 1.8$	Child and Adolescent Mindfulness Measure [51, 52] Event-Related Rumination Inventory [53] Kessler Psychological Distress Scale [54]	Social Media Exposure Questionnaire adapted from Gao et al., 2020: To what extent are participants exposed to COVID-19 news or information on the six most commonly used social media platforms in China (WeChat, QQ, Sina Weibo, Tik Tok, Zhihu, Baidu Tieba)	Ruminations mediate the relationship between exposure to COVID-19 social media exposure (SME) and psychological distress: SME was associated with rumination ( $b = 0.23, p = 0.01 < 0.05$ ), which in turn was associated with psychological distress ( $b = 0.54, p < 0.001$ ) Mindfulness moderated relationship between ruminations and SME: When the level of mindfulness was low, SME predicted rumination ( $b = 0.33, p < 0.001$ ). In contrast, when the level of mindfulness was high, SME did not predict rumination ( $b = 0.05, p = 0.13 > 0.05$ )

Table 2 (continued)

Author	Country of origin	Methodology	Survey date(s)	Population(s) studied	Survey instruments	Assessment of social media use	Results pertaining to social media
Zhao and Zhou [34•••]	China	Cross-sectional online survey	March 20, 2020 to April 20, 2020	College students ( $n=512$ ), mean age $22.12 \pm 2.5$	PHQ-9 GAD-7 Secondary Traumatic Stress Scale for Social Media Users (STSS-SM) [55] Positive and Negative Affect Schedule (PANAS) [56] 10-item COVID stressor scale adapted from the measurement of SARS-related stressors [57]	Adapted from Lin et al. (2016): Total hours per day using social media Time spent specifically accessing COVID-19-related information on social media More hours on social media per day indicative of more social media use	Associations of social media use with secondary traumatic stress (STS; $b=0.18$ , $p<.001$ ), depression ( $b=0.11$ , $p=.019$ ), and anxiety ( $b=0.12$ , $p=.014$ ) were significant The interaction of social media use and the COVID-19 stressor was significantly associated with depression ( $b=0.09$ , $p=.043$ ) Social media use was indirectly associated with higher levels of STS ( $b=0.98$ , 95% CI [0.32, 1.64]), depression ( $b=0.42$ , 95% CI [0.13, 0.70]), and anxiety ( $b=0.41$ , 95% CI [0.13, 0.68]) through negative affect Most common coping activity reported was spending more time on social media platforms ( $n=269$ , 70.6%)
Al-Tammemi et al. [41•••]	Jordan	Cross-sectional online survey	May 20, 2020	College students ( $n=381$ ), mean age $22.6 \pm 3.2$	Kessler Psychological Distress Scale	Coping activities during COVID-19 pandemic and the nationwide curfew in Jordan from list of 13 activities, including spending time on social media	Social media use is positively associated with university satisfaction ( $r=0.273$ ; $p<0.01$ ) and social capital ( $r=0.311$ ; $p<0.01$ ), and negatively associated with depression ( $r=-0.156$ ; $p<0.05$ ) There was no statistically significant association between social media use and anxiety ( $r=0.078$ ; $p>0.05$ ), loneliness ( $r=-0.116$ ; $p>0.05$ ), or the COVID-19 stressor ( $r=0.112$ ; $p>0.05$ )
Misirlihs et al. [42•••]	Netherlands	Cross-sectional online survey	April 6, 2020 to May 6, 2020	College students ( $n=248$ )	Hospital Anxiety and Depression scale (HADS) [58] UCLA Loneliness scale [59] Ellison, Steinfield, and Lampe [60] scales to measure social capital [60] Social media use: social media intensity scale [60], the bounded self scale [61], and the liminal self scale [62] University satisfaction: Three-Factor Psychological Sense of Community scale [63] COVID-19 stressor scale adapted from IES, GAD-7, and Center of Epidemiologic Studies Depression (LES-D) [64–66]	Questions from social media intensity scale: Total friends on social media platforms Time spent per week using social media Likert scales from social media intensity scale included: "Facebook/Instagram/other has become part of my daily routine." "I feel out of touch when I haven't logged onto Facebook/Instagram/other for a while." "I feel I am part of the Facebook/Instagram/other community." Likert scales from bounded self scale included: "I do not worry if I get a negative reaction to my social media posts." "I am completely comfortable with being open about myself on social media." Likert scales from liminal self scale included: "I do not like to be reminded of who I used to be by old posts on social media." "I like to edit or restrict access to old posts to reflect who I am now." "I wish I could erase and reinvent my social media identity."	Social media use is positively associated with university satisfaction ( $r=0.273$ ; $p<0.01$ ) and social capital ( $r=0.311$ ; $p<0.01$ ), and negatively associated with depression ( $r=-0.156$ ; $p<0.05$ ) There was no statistically significant association between social media use and anxiety ( $r=0.078$ ; $p>0.05$ ), loneliness ( $r=-0.116$ ; $p>0.05$ ), or the COVID-19 stressor ( $r=0.112$ ; $p>0.05$ )

health through rumination. In fact, social media exposure was positively associated with rumination in students who had low levels of mindfulness; however, this relationship did not exist in students with high levels of mindfulness. The study authors concluded that students who utilized mindfulness more frequently were better able to regulate their intention and were less susceptible to ruminative thinking patterns. Thus, mindfulness may be a strategy to lessen the negative impact of social media on the mental health of students.

Another group in China [44•] explored the relationships between social media use, emotional regulation strategies, and overall mental health in the context of the COVID-19 pandemic. In particular, they focused on cognitive reappraisal (i.e., reinterpreting an emotion-provoking situation to reduce its emotional impact). Authors found that cognitive reappraisal was associated with increased positive mental health indicators (life satisfaction, adequacy) and decreased negative mental health indicators (depression). Interestingly, higher levels of cognitive reappraisal mitigated the adverse relationships between social media and mental health outcomes; among participants with high cognitive appraisal, the relationships disappeared between (1) judgement of others on social media and life satisfaction, (2) increased COVID-19 online discussion and increased anxiety, and (3) sharing COVID-19 information and feelings of adequacy. Cognitive reappraisal might be a potential strategy to buffer the emotional charge of engaging with social media.

In summary, dialectical thinking (i.e., avoiding “all or nothing” thinking), optimism, mindfulness, and cognitive reappraisal are all possible strategies to mitigate the negative impact of social media on mental health during the COVID-19 pandemic.

## Discussion

### Summary of the Evidence

The selected studies investigate the factors that affect the relationship between social media use and mental health among college students. Social media use appears to be associated with mental health symptoms, but the direction of these relations is mixed, likely due in part to moderating factors (e.g., excessive COVID-19 exposure, perceived social connectedness, and emotion-regulation strategies). The direction of causality of these associations cannot be determined with the current study designs as the large majority were cross-sectional; however, the authors hypothesize that college students are more reliant on social media because of the limitations in in-person interactions. Finally, these studies do not speak or explain the extent to which the pandemic may have strengthened the role that social media use might

have on mental health. There are likely additional moderating variables that explain the relationships between the pandemic, social media, and college student mental health that were not accounted for in the included studies.

### Practicality of Social Media as a News Source

While social media can serve as a tool for fostering connection during periods of physical isolation, the mental health implications of social media being used as a new source are tenuous. Several qualitative studies suggest that social media is most useful for rapidly disseminating timely information via widely accessible platforms. In the context of the COVID-19 pandemic, social media’s prevalence worldwide was helpful in connecting users through existing networks. The ability to quickly communicate information about the pandemic was especially critical in the early months of the pandemic, as social media may have had instrumental value in rapid adaptation to sudden shifts in public health mandates. Information about COVID-19 has the potential both to empower and to overwhelm. Thus, social media’s content may moderate the relations between social media use and mental health.

Vaccination is especially relevant today, and several recent studies have focused on social media as a news source of vaccine information. For example, a cross-sectional study of 6,922 Chinese college students investigated associations between intention to vaccinate and social media exposures [67]. Findings indicated that social media exposure is directly related to COVID vaccination intention, with both positive and negative associations depending on type of exposure. Future research should consider the influence of social media on public health issues, particularly in college students.

## Theoretical and Practical Implications

### Defining Social Media

The conceptualization of social media is challenged by the rate in which technology is expanding and evolving, such that new social media platforms are constantly being developed, modified, and abandoned across the globe. The most common social media services today include Facebook, YouTube, WhatsApp, Facebook Messenger, Instagram, WeChat, TikTok, QQ, Kakao, Douyin, Sina Weibo, Telegram, Snapchat, Kuaishou, Reddit, Pinterest, Twitter, and Quora [21]. Further complicating the terminology and definition, the acceleration of digital communication secondary to the COVID-19 pandemic has blurred the lines between social media services and other forms of technology used for communication purposes (e.g., e-mail, fax machine, and telephone).

The functionality of social media is also variable. While social media was initially developed to facilitate inter-user connectivity, communication, and community-building, some users primarily use social media for consuming information and content discovery. In the context of pandemic-related lockdowns, clinicians must consider whether social media is being used due to limited availability of alternative activities or as a primary coping strategy. Furthermore, there is currently no consensus on the definition for the term *social media addiction*. In the current Diagnostic and Statistical Manual of Mental Disorders (DSM), it is listed as a “condition for further study,” and there is controversy as to whether excessive time spent on internet-based social media is an additive behavioral disorder. Developing standardized, universally accepted definitions for the terms *social media*, *social media use*, and *social media addiction* would increase the internal reliability and external validity of future research studies.

### Best Practices for Clinicians

It is common to see a surge in social media usage after natural disasters as individuals are gathering information [68, 69]; anxiety levels tend to rise as individuals are inundated with information about the crisis on social media [68]. Thus, we would expect to see heightened anxiety in the setting of increased social media use by college students during the COVID-19 pandemic. However, given that smartphone usage is so ingrained into our daily lives and some social media use may facilitate supportive interpersonal relationships, completely abstaining from social media may be counter-productive. In fact, research has shown that positive usage of social media can be a form of psychological “first aid” in disastrous situations [69]. Therefore, the focus should be prevention of problematic social media use through moderation and active engagement rather than complete abstinence [70, 71]. Particularly, clinicians should be aware of social media’s influence on college student mental health so that they can identify high-risk patients and guide them towards healthy social media behaviors. Clinicians should begin by asking college students to think deeply about their social media use. Then, there are a variety of screening tools designed to identify problematic social media use. The Young’s Internet Addiction Test, Online Social Support Scale, Bergen Social Media Addiction Scale, Smartphone Addiction Scale, Internet Gaming Disorder Scale, and Instagram and Well-Being Questionnaire address the six domains of salience, impulsivity, mood modifications, tolerance withdrawal, and relapse to assess problematic social media use.

- *Salience*: Do you spend a lot of time thinking about social media or planning how to use it? [72]

- *Impulsivity*: Do you have a hard time concentrating in class, while doing assignments, or while working due to social media use? [73]
- *Mood modifications*: Do you use social media in order to temporarily escape or relieve a negative mood? [72, 74]
- *Tolerance*: Do you feel the need to spend increasing amounts of time engaged on social media in order to achieve satisfaction or pleasure? [75]
- *Withdrawal*: Do you feel more irritable, anxious, or sad when you are prohibited from using social media? [72, 75]
- *Relapse*: Have you repeatedly made unsuccessful efforts to control, cut back, or stop social media use? [76]

Anticipatory guidance during wellness visits with college-aged patients, especially those that they identify as high-risk for problematic social media use, may include encouraging healthy habits, sleep hygiene, moderating social media use, active (rather than passive) engagement with social media, establishing media-free times during meals and studying, and privacy considerations [77•].

### Future Directions

While not the focus of the current article, it is crucial to note that social media use may present unique challenges for individuals with preexisting psychiatric disorders during the COVID-19 pandemic due to vulnerabilities associated with each disorder. As opposed to neurotypical individuals, neurodiverse individuals have a complex and heterogeneous relationship with social media, especially in the setting of online learning [78]. For example, the characteristic impulsivity and distractibility associated with attention-deficit/hyperactivity disorder (ADHD) may cause individuals to have trouble limiting time spent on social media, causing them to spend more time than desired on social networking sites at baseline; the pandemic may exacerbate these troubles and cause patients with ADHD to spend more time viewing pandemic-related content. For individuals with autism spectrum disorder (ASD), distance learning may eliminate social pressures that can feel overwhelming or distracting; however, the heterogeneity of skills, abilities, and needs of neurodiverse students can cause academic and personal difficulties [79]. In fact, symptoms of ADHD, ASD, major depressive disorder, and anxiety were shown to account for significant variance in problematic social media use in a large cross-sectional study of 16–88-year-olds prior to the pandemic [72]. Additionally, a cross-sectional study among college students prior to the COVID-19 pandemic showed that less frequent social media use was associated with reduced symptoms of depression [80], which needs to be interpreted cautiously in the setting of research showing



many mediating and moderating factors affecting the relationship between social media use and both depression and anxiety [81•, 82•, 83]. Living in a COVID-19 pandemic world may increase the amount of time spent online, making this relationship stronger.

The rapid evolution of social media platforms—and changes in users' intentions when seeking them out—also merits further consideration, given that shifts in social usage may have unique psychological ramifications. For example, using social media as a news source may have implications for anxiety, particularly during the COVID-19 pandemic, when inflammatory content and misinformation circulated widely on these platforms. Several qualitative studies [84•, 85•, 86] not discussed in this paper suggested that social media is useful for rapidly and broadly disseminating timely information, but noted that rampant misinformation on these platforms contributed to confusion and stress throughout the COVID-19 pandemic. Future research might parse the nuances of how and why college users engage with particular forms of social media (including relying on it as a news source) and describe the psychological effects of each. These findings may contribute to the creation of a comprehensive, standard definition of social media.

While most of the scientific literature focusing on the relationship between social media use and mental health outcomes was prior to the COVID-19 pandemic, it is reasonable to infer that these relationships remain consistent, if not stronger, during a time where social media is more heavily relied on for all types of communication. Additionally, integrating previous literature with new findings during the pandemic may lead to interesting new insights. For example, one pre-pandemic study found that using social media to relieve boredom was correlated to anxiety 3 years later; however, using social media for information gathering was not [82•]. As discussed previously, the high COVID-19 stressor changes the relationship between high social media use and depression during the pandemic [34••]. A natural question then emerges: how do these entities integrate? Do stressors related to disasters become a mediating factor that was not considered prior to the COVID-19 pandemic? Or do our new findings seamlessly integrate so that using social media to relieve boredom leads to more anxiety in the setting of high COVID-19 stressors? More research will be needed to elucidate these new relationships.

## Limitations

The studies selected for this review were conducted during a global pandemic in which new issues and challenges were frequently emerging, limiting the repository of available data. Furthermore, most of our selected articles were based out of China and may not be generalizable to the global population. Due to strict eligibility criteria, there is a possibility

that we failed to identify studies relevant to the mental health and social media use of college students. Our conclusions and recommendations are therefore based on limited data, which calls for caution with interpreting the results. Future literature reviews utilizing larger datasets are required to confirm our findings.

## Conclusion

This literature review explored the impact of social media use on college student mental health during the COVID-19 pandemic. Social media use has increased among almost all cohorts during the COVID-19 era, but college students have been especially affected. The pandemic made internet use nonnegotiable. College students had both positive and negative experiences online depending on a variety of factors. We found that excessive or problematic social media use was correlated with worse mental health outcomes overall, especially depression. COVID-19 acts as a moderator by strengthening the relationship between social media use and mental health. Dialectical thinking, optimism, mindfulness, and cognitive reappraisal are all possible strategies to mitigate the negative impact of social media on mental health during the COVID-19 pandemic. Clinicians should ask college students about their social media use to screen for associated mental health issues and to promote healthy internet use. The paucity of literature available about this topic limits the generalizability of this review. Future studies should consider the impact of social media on college student mental health and concentrate on intervention initiatives to ensure the psychological well-being of college students during a global pandemic.

## Compliance with Ethical Standards

**Conflict of Interest** The authors declare no competing interests.

**Human and Animal Rights and Informed Consent** This article does not contain any studies with human or animal subjects performed by any of the authors.

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