ABSTRACT: Social media has played a significant role in people’s lives and can be helpful to them in a variety of ways. However, if misused, social media can also be problematic. Social media impacts how kids establish their identities because it gives them access to a platform that may also cause them to feel anxious, insecure, and depressed since they work so hard to maintain their online reputations. Allowing young people to use social media can lead to issues such as cyberbullying, sexting and Facebook suffering. Teenagers may turn to drugs and alcohol as a coping mechanism if they are unsure how to handle the problems. Teenagers can experience benefits and risks from using the internet, so physician services must cooperate with adolescents and their families to support the benefits that young people get from using social media while also assisting them in developing preventative and coping mechanisms to deal with any potential risks.

KEYWORDS: Cognitive function, Mental illness, Social bullying, Social media.

INTRODUCTION
Researchers have been intrigued by the social effects of social media [1]. Social media sites like Facebook, Twitter, Instagram, and TikTok help people improve their social connections, lonely people gain social support, and students build their social capital [2]. They meaningfully interact with personality, provide people a platform to express themselves and build their identities, and inspire and facilitate social movements [3]. Researchers have focused on understanding social media’s influence on sociality simply because social aspects of human existence are so significant [4]. Socialization is essential [4]. The harmful effects of loneliness and social isolation on general health, particularly in later life, justifies focusing on the social advantages of technology and social media [5]. The ways in which social technologies help decrease loneliness in older people have come to light as a result of [6]. Since, platforms like Facebook, Twitter, Instagram, and TikTok encourage social connection, they may offer accessible and reasonably priced ways to improve social connection, consequently, life quality as people age [1]. The relationship between sociality and cognitive ability capacity in later life is noteworthy [7]. For instance, social isolation and loneliness are risk factors for cognitive deterioration in those over 65 [8]. The occurrence of supportive social contact can delay the onset of dementia and cognitive decline [9, 10]. Social connection aids older people in overcoming memory decline brought on by aging [11]. Therefore, it is rather unexpected that other, non-social areas have not been extensively examined among users at later ages in social media impacts research [12]. This article focuses on the social media impact on adolescent cognitive and mental health.

A. Adolescent identity development and social media
Adolescence is considered a pivotal time in identity development as young people explore various ways to present themselves and “be” in the world. Identity development involves an adolescent's active search for their role, contemplation of personal strengths and weaknesses, and the ability to make meaning of their context and experiences [13]. This phase is focused on the struggle between identity and identity confusion [14]. The cognitive and socioemotional development occurring helps to lead feelings, personal coherence, and consistency [14]. To construct our identity, we need an individual’s interpretation of context and other mediating events to support healthy identity formation [14]. As young people experiment with many ways to express themselves and stand in the world, adolescence is seen as a crucial period in identity development [15]. Identity development entails an adolescent’s active seeking out their position, reflecting on their own virtues and flaws, and the skills, and having a capacity [16]. The adolescent brain develops using the following strategies: decision-making, emotional and social reactions, and identity exploration [1, 2]. Adolescence is a developmental period characterized by suboptimal decisions, and actions that are associated with an increased incidence of unintentional injuries, violence, substance abuse, unintended pregnancy, and sexually transmitted infections (STIs) [17, 18]. It is also a phase of increased emotional reactivity [18]. During this period, the social environment is changing such that more time is spent with peers versus adults, and more conflicts arise between the adolescents and their parents.
There are a multitude of elements working inside the brain of a teenager when it comes to making good decisions [20]. These include cognitive, psychological, social, cultural, and societal factors [21]. Researchers have found that adolescents find it more difficult to control impulsive behaviors if they are with their peers or if high emotions are involved [22]. Examples include delinquent behavior in peer groups and at-risk behavior caused by decreased emotion regulation abilities [23]. In a recent review of the literature on human adolescent brain development, cognitive development during adolescence is associated with progressively greater efficiency of cognitive control and affective modulation [1]. An increase in activity in the prefrontal regions as an indication of maturation, and diminished activity in irrelevant brain regions are described as the neurobiological explanation for the behavioral changes associated with adolescence [17]. This general pattern of improved cognitive control and emotion regulation with maturation of the prefrontal cortex suggests a linear increase in development from childhood to adulthood [1]. In addition, goal-directed behavior requires the control of impulses or delay of gratification for optimization of outcomes, and this ability appears to mature across childhood and adolescence [24]. Social media has the power to influence a teen's decision-making skills by connecting them to their peers [1]. This can especially impact health-risk behaviors like the use of alcohol and tobacco [25]. Teenagers are able to be connected to social media 24 hours a day and 7 days per week, allowing them constant exposure to carefully molded profiles that project perfected images [26]. Social media has been known to evoke anxiety, low self-esteem, and depression problems in teenagers [27]. Thus, people, especially teenagers, work feverishly on maintaining their reputation on social media [2].

**B. Mental diseases derived from social media data**

Disorders of mental health are a significant and ubiquitous public health concern. In particular, depression affects around 300 million individuals globally and is a crucial factor leading to suicide, the third largest cause of mortality for 10–24 year olds [28]. In addition, depression is grossly underdiagnosed and undertreated, with more than half of depressed individuals not obtaining therapy [29]. People with mental problems are sometimes hesitant to consult a trained physician for assistance in managing their condition [30]. However, individuals increasingly turn to social media to communicate their problems and seek emotional support [5]. This suggests a significant opportunity for automatic processing of social media data to detect changes in mental health states that would otherwise go unnoticed prior to severe health consequences [31]. Identifying individuals who begin to exhibit symptoms of a mental illness in its earliest stages is crucial for managing its progression and, in some situations, can be lifesaving [32]. Since 2017, it has been committed to recognising early indicators of mental diseases from a user's social media postings before the user is diagnosed with the disorder, including disorders such as depression, anorexia, and suicidal ideation [30]. Recently, the COVID-19 pandemic is anticipated to exacerbate this condition, hurting mental and physical health by inducing anxiety, despair, and even trauma [33]. Primarily, mental problems emerge and may be identified via daily conversation [32, 34]. Previous computational research has demonstrated that people with mental problems exhibit changes in their language and behaviour, such as increased negative emotions and heightened self-attentional concentration [1]. Whether or not the condition is addressed, a speaker's language may convey significant indications of a mental disorder [3]. These can appear both openly at the level of the issues addressed and implicitly at the level of the emotional charge of the writing, as well as through more subtle aesthetic cues (such as the increased use of personal pronouns [26, 35]. Thus, the need for automation is driven not only by the impossibility of manually analysing the large amounts of data generated daily on social media platforms but also by the potential of artificial intelligence to exploit large amounts of data in order to identify implicit markers of mental disorder risk, which can be difficult to detect even by the patient herself [36]. According to published research, automatic depression screening based on social media may achieve prediction performance halfway between unassisted physician evaluation and screening questionnaires [35, 37]. As an affluent and relatively easy-to-obtain sort of data, as well as a constantly expanding supply of real-time information, social media data may be utilised to get several significant insights into an individual’s behaviour and mental state and its growth [38, 39]. Then, computational models capable of adequately predicting the development of mental diseases might be incorporated into applications with significant societal impacts, such as tools to warn users at risk of developing a problem and conversational bots [38, 39]. The computational study of mental health as observed in social media data might provide physicians with data for a more profound knowledge of mental diseases and perhaps lead to the creation of new diagnostic tools [32]. According to psychological research, emotions play a significant role in individuals’ cognitive styles [12]. A cognitive or thinking style is a cognitive psychology term that describes how individuals think, interpret, and recall information [21]. Some of these steady modes of thinking have been identified as more prominent in depressed and anorexic people [34].
C. The risk of youth use of social media

Using social media poses a greater risk to teens than the majority of adults realise [27]. Peer-to-peer, unsuitable material, a lack of knowledge of online privacy concerns, and outside effects of third-party advertising organisations account for most dangers [40].

D. Online bullying and cyberbullying

Cyberbullying is the intentional use of digital media to spread inaccurate, humiliating, or hostile information about another individual [41]. It is the most prevalent peer-to-peer internet danger for adolescents [22]. Although "online harassment" is frequently used interchangeably with "cyberbullying," it is a distinct phenomenon [42, 43]. According to current evidence, online harassment is less prevalent than physical harassment, and involvement in social networking sites does not place most children at risk of online harassment [44]. Cyberbullying, on the other hand, is highly prevalent, may happen to any young person online, and can have devastating psychosocial consequences, including despair, anxiety, severe isolation, and ultimately, suicide [32].

E. Sexting

Sending, receiving, or transmitting sexually explicit texts, pictures, or images through a mobile phone, computer, or other digital devices is the definition of sexting [33, 45]. According to a recent poll, 20% of kids have sent or uploaded naked or semi-naked images or videos of themselves [46]. Numerous of these photographs are swiftly disseminated via mobile phones and the Internet [47]. Other adolescents who have engaged in sexting have been threatened or prosecuted for illegal child pornography, but some jurisdictions have begun classifying such conduct as a violation of juvenile law [48]. In addition, perpetrators may be suspended from school, and victims may have emotional hardship and mental health concerns [49]. In most cases, however, the sexting episode is not communicated with anybody outside of a small peer group or a couple and is not considered worrisome [45].

F. Facebook Suffering

Researchers have proposed a new phenomenon called "Facebook depression," which is a sadness that develops when preteens and teenagers spend considerable time on social media sites like Facebook and then begin to display common depressive symptoms [7]. Peer acceptance and interaction are essential components of teenage development [50]. It is believed that the intensity of the internet environment may create a depression in some teens [51]. Teenagers and pre-adolescents with Facebook depression, like those with offline depression, are at risk of social isolation and may seek "help" from dangerous Internet sites and blogs that advocate substance abuse, unsafe sexual practices, or aggressive or self-destructive behaviour [52].

G. Possible Effects of Social Media Use on Health Behaviours and Perceptions of Adolescents

Using social media is one of the most popular pastimes among teenagers nowadays. Social media sites are virtual communities in which members may connect in various ways across several platforms [53]. Furthermore, new websites are constantly popping up [54]. A range of socially pleasurable activities is available to users, including talking with friends, meeting new people, exchanging images and videos, blogging, online dating, and gambling [18]. Developing and maintaining one's identity and reputation is vital to social media [27].

Similar to other addictions, social networking sites give users ongoing social rewards, with pleasure and need fulfilment as the primary goals [55]. While online gaming disorder and problematic internet usage have been included in the most recent version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), problematic social media use is still the subject of discussion (PSMU) [2, 24, 56]. Some may underestimate the significance of PSMU due to its exclusion from the DSM-5 but accumulating data points to a probable behaviour addiction [57]. This phenomenon lacks a clear definition as of yet. In the literature, the phrases "problematic social media usage," "social media addiction," and "social media disorder" are used indiscriminately, with no distinguishing criteria defined [57]. Despite this lack of definition, the biopsychosocial theoretical model accepts that PSMU is characterised by a spectrum of behavioural addiction symptoms, including the inability to limit one's usage of social media sites [57]. These symptoms are classified into various aspects [29, 58]:

1. Mood modification is an excessive social media use leading to altered mood states such as pleasurable feelings or numbing effects.
2. Salience is a total preoccupation with social media use.
3. Tolerance increases the time and energy spent engaging in and using social media to achieve the same feelings as initial usage.
4. Withdrawal symptoms are negative feelings and psychological symptoms such as irritability and anxiety when social media use is restricted.
5. A conflict is an interpersonal problem, i.e., interpersonal conflict.
6. Relapse is the return to excessive social media users following a time of abstinence.

Despite adverse outcomes, the continuance of the practice is a crucial contrast between excessive non-problematic habitual usage and PSMU [56]. Recent research indicates that frequent social media usage is one of the most significant risk factors for developing PSMU, with those using many social media sites have a greater risk [56]. Due to their quick adoption of new technology, insufficient capacity for self-regulation, fear of missing out, and nomophobia, adolescents are viewed as more susceptible to developing PSMU [56]. It might be believed that adolescents use social media more frequently owing to these characteristics [24]. PSMU may be associated with psychological and individual characteristics [2]. Some of these elements are unique and indicate personality characteristics. Recent research indicates that girls are more susceptible to PSMU, whereas boys tend to be more susceptible to internet gaming problems. These results hold for both the teenage and adult populations [24]. It has also been demonstrated that personality qualities such as self-esteem, agreeableness, conscientiousness, openness to experience, and emotional stability might predict PSMU in teenagers [24]. Neuroticism predicts addiction in adults only in conjunction with other predisposing characteristics, such as agreeableness [2]. High scores on empathy and exhibitionist narcissism have also been associated with teenagers' increasing use of social media, along with a corresponding decline in self-esteem [2, 56].

Other research examining the psychological ramifications has discovered associations between PSMU and an individual's emotional state [2, 56]. Several studies have linked depression and anxiety to PSMU; however, the data is insufficient to determine whether this is a cause or a result of PSMU. Relationship problems and disconnection have also been demonstrated to be associated with PSMU [56]. Some scholars argue that relational conflict and separation with peers result from PSMU, while others argue that these factors may have contributed to its emergence [56]. Despite conflicting opinions, it is evident that PSMU is associated with conflict and disconnection. Positive social support tends to postpone the beginning of PSMU, but if social media use becomes problematic, social support diminishes [54]. PSMU has been proven to have a detrimental impact on well-being and life satisfaction [56]. However, when pre-existing mental health problems are considered, the number of hours spent on social media sites is no longer a predictor of the development of new mental health issues [35].

The majority of research focuses on physical exercise [5]. The linkages between physical activity and social media revealed that internet addiction and a lack of physical activity were the only two independent characteristics influencing teenage obesity [59]. According to studies, heavy Internet usage is also related to a less healthy lifestyle [59]. Similarly, Facebook addiction disorder is connected with reduced physical activity and increased daily stress [9, 59].

Sleep is another critical lifestyle component of social media use [60]. Several studies have indicated a negative association between sleep quality and PSMU [61, 62]. It has been discovered that social media use, i.e., staying up late to post on social media, lowering sleep hours, emotional or cognitive stimulation producing sleep disruptions, and melatonin suppression, delays sleep onset [63]. Those with pre-existing sleep issues may utilise late-night social media as a sleep aid. Meanwhile, poor sleep quality is more of a symptom than a cause of social media use [20, 64].

F. Conclusion

At least in part, adolescents are increasingly forming identities and relationships, including those of a sexual nature, in online environments, notably via SNSs. As a vehicle for identity and relationship formation, these online settings offer young people advantages and threats. Therefore, it is essential for clinical providers working with adolescents and their families to offer support for the positives that youth experience through technology while also assisting them in developing preventative and coping strategies to address the risks they may encounter in online environments. In females, mental health effects associated with the widespread use of social media may be attributable to exposure to cyberbullying or displacement of sleep or physical activity, whereas, in boys, different processes appear to be at play. To improve teens' mental health, cyberbullying should be avoided or made harder to do. Teens should also get enough sleep and exercise.

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