

# Facebook Addiction: An Emerging Problem

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As of July 2016, Facebook had more than 1.71 billion active users per month, with 1.1 billion log-ins every day (1). It has been estimated that the average American spends approximately 40 minutes per day on Facebook and that approximately 50% of 18–24 year-olds visit Facebook as soon as they wake up (1). The ubiquitous nature of Facebook has sparked a growing body of literature that suggests its addictive potential (2). The present article is a review of the literature on the emerging problem of compulsive Facebook use and its potential as an addictive disorder.

## METHOD

A literature search was performed using PubMed and Google Scholar. The following search terms, as well as their derivatives, were entered: “Internet addiction,” “Facebook,” “social media,” “social networking sites,” “addiction,” “dependence,” and “addictive behavior.” The search on Internet addiction retrieved a large number of articles, and ultimately five were reviewed in depth. The search on Facebook and social media and addiction retrieved 58 articles, of which 25 were reviewed in depth. Fifteen of these articles focused on Facebook addiction.

## ADDICTIVE BEHAVIOR ONLINE

The first attempts to study online addiction date back almost two decades, when Kimberly Young, one of the first researchers in the area, proposed diagnostic criteria for a phenomenon known as “Internet addiction” (3). Although not included in DSM-5, Internet addiction is thought to share some key traits with substance use disorder, such as tolerance, withdrawal, and negative repercussions (4). Today, Internet addiction is viewed as a spectrum of online addic-

tions, and compulsive Facebook use falls within that spectrum.

## FACEBOOK ADDICTION

“Facebook addiction” is a term coined by researchers that is applied to individuals who engage in excessive, compulsive Facebook use for the purposes of mood alteration, with negative personal outcomes (5). In other words, a person with Facebook addiction may subjectively experience a loss of control while continuing to use Facebook excessively despite its detrimental effects on the individual’s life (6). However, excessive use may not be considered addictive unless it is compulsive; for example, one may spend long hours on Facebook for the purposes of work without being addicted (5). Because Facebook is currently the most popular social networking site, and empirical studies of Facebook use outweigh studies of other social networking sites (7), the present review focuses on the emerging problem of Facebook addiction.

Facebook allows users to create profiles and form connections with other users called “friends.” Friends may interact with each other by messaging and sharing photos, videos, or personal interests while traversing information about the activities of their friends and their friend’s friends. Users can enhance their profiles with a multitude of apps; for instance, users can play games, gamble, and generate polls, as well as integrate other social networking sites such as Twitter and Instagram. Facebook can also be used by professionals to market their services and connect with their audiences. Users are constantly notified of new online activity by a live news feed, which could encourage addiction by acting as classically conditioned cues on a variable interval reinforcement schedule (8).

As Facebook addiction is an emerging focus of study, current screening instruments have been designed based on measures of other behavioral addictions (5). Most of these scales are rooted in the six core components of addiction (9). For instance, the Bergen Facebook Addiction Scale is based on six items measured on a Likert scale, with each item reflecting a symptom of addictive behavior: 1) salience (“You spend a lot of time thinking about Facebook or planning how to use it”); 2) tolerance (“You feel an urge to use Facebook more and more”); 3) mood modification (“You use Facebook in order to forget about personal problems”); 4) relapse (“You have tried to cut down on the use of Facebook without success”); 5) withdrawal (“You become restless or troubled if you are prohibited from using Facebook”); and 6) conflict (“You use Facebook so much that it has had a negative impact on your job/studies”) (10). Although these scales have been independently psychometrically validated, factor analysis reveals inconsistencies in measurements, indicating lack of construct validity (5). This lack of consensus regarding the conceptualization and diagnosis of Facebook addiction is the main point of contention in this developing area of research.

## PATHOPHYSIOLOGY

Addiction is associated with an imbalance between activity in two key brain systems: the impulsive amygdala-striatal system and the reflective inhibitory prefrontal brain system. In substance addiction, the amygdala-striatal system is hyperactive, resulting in intensified impulses for addictive behavior, whereas the prefrontal cortex is hypoactive, resulting in an inability to stop impulsive behaviors after they have been triggered (11). Turel et al. (12) examined the in-

volvement of these neural systems in Facebook addiction. Participants first completed a Facebook addiction questionnaire. Then, using a go/no-go paradigm with functional MRI, the researchers examined how these brain systems responded differently between Facebook signs and traffic signs and correlated addiction scores with brain activity. They found that both substance addiction and Facebook addiction were associated with hyperactivity in the amygdala-striatal system. However, Facebook addiction was not associated with alterations in prefrontal cortex activity, suggesting that individuals with Facebook addiction may have the capacity to stop their impulsive behavior (12). This pattern of hyperactive impulsivity and unchanged impulse inhibition is similar to that observed in Internet gaming addiction (13). Although this study is limited by its cross-sectional design, these findings suggest that Internet-based addictions and substance addiction have differing underlying pathophysiology.

## RISK FACTORS

Facebook addiction is most commonly studied in college students and tends to have a female preponderance. Certain personality traits such as extraversion, narcissism, high levels of neuroticism, and lower levels of self-esteem correlate highly with compulsive Facebook use (10, 14). According to Caplan's social skill model, lonely, depressed individuals who develop preference for online means of interaction are prone to problematic Internet use (15). In line with this, researchers found a relationship between anxiety and depression and compulsive Facebook use (16), suggesting that individuals with poor psychosocial health may use Facebook as an escape from daily life. Moreover, Muench et al. (17) suggested that social insecurities, such as social comparison ("I feel that others have better lives than I do"), fear of missing out ("I feel I am missing out on enjoyable social interactions more than others"), and fear of negative social evaluation ("I worry about what other people think of me"), are associated with dysfunctional Facebook use. However,

## KEY POINTS/CLINICAL PEARLS

- Facebook addiction is a behavioral addiction derived from Internet addiction that is characterized by excessive, compulsive use of Facebook.
- Risk factors of Facebook addiction include narcissism, extraversion, neuroticism, and social insecurity.
- Similar to other addictions, individuals with Facebook addiction can present with symptoms of tolerance, withdrawal, salience, conflict, and relapse.
- Treatment strategies for Facebook addiction include psychotherapy and pharmacotherapy to treat existing comorbidities.

there is no association between Facebook addiction items and the existence of positive offline social relationships, suggesting that Facebook addiction is driven primarily by social insecurity rather than a lack of positive social relationships (17).

## CONSEQUENCES

When used in moderation, Facebook can facilitate relationships and improve self-esteem (18); however, maladaptive use can lead to negative life consequences. Facebook can be detrimental to academic performance, as Kirschner et al. (19) found that Facebook users have lower grade-point averages and spend fewer hours studying than non-Facebook users. Of those who reported that it had a negative effect on their academic performance, 74% stated that using Facebook to procrastinate made them feel like they were working (19). Compulsive Facebook use has also been shown to disrupt sleep. People scoring high on Facebook addiction scales report delayed bedtimes and rise times on both weekdays and weekends compared with people with lower Facebook addiction scores (10). The freedom of self-presentation can make Facebook users prone to presenting idealized versions of themselves online, and researchers have found that consuming large amounts of information about other people can elicit feelings of envy. That is, people who regularly use Facebook are more likely to agree that others have better lives than them and that life is unfair, whereas those who have a more active offline social life appear to have a more balanced view of other people's lives (20). Using the social

rank theory of depression, Tandoc et al. (21) argue that envy arising from competition for social status can make people vulnerable to depression. They found that feelings of envy triggered by using Facebook for surveillance predicted symptoms of depression, with surveillance referring to purposely consuming others' personal information (21). Furthermore, concerning romantic relationships, Elphinstone et al. (22) found a link between compulsive Facebook use and relationship dissatisfaction due to jealousy and surveillance behaviors.

## TREATMENT

Currently, there are no specific treatment approaches for Facebook addiction, and therefore researchers suggest using strategies used to treat Internet addiction (6). Psychotherapeutic approaches include cognitive-behavioral therapy and multilevel counseling. In the former, clients are taught to cognitively restructure certain negative beliefs and catastrophic thinking, such as "everyone has better lives than I do." In the latter, clients are led through the stages of change using motivational interviewing while involving family and peers. Pharmacologic agents are generally chosen based on existing comorbidities, such as depression (6).

## CONCLUSIONS

Facebook addiction is an emerging problem, and research on compulsive Facebook use is in an incipient stage. The majority of evidence is based on cross-sectional studies using self-reported data among populations confined to college

students. Thus, future research could employ more longitudinal study designs among more generalizable populations. Qualitative data may help in understanding users' expectations and symptoms on a day-to-day basis, and their empirical correlates can contribute to developing scales with construct validity. Until then, more research is needed to validate Facebook addiction as a clinically significant entity.

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