



Facebook Use and Negative Behavioral and Mental Health Outcomes: A Literature Review

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Abstract

The purpose of this study was to review research that is associated with Facebook use and negative behavioral and mental health outcomes. Facebook was chosen over other social media due to its widespread use, significant influence on peoples' lives, and increased research attention. A total of 22 articles met the inclusion criteria and were selected for this paper. Facebook use was associated with four mental health domains: Facebook addiction-intrusion, depression, anxiety, and other mental health outcomes. This review emphasized the importance of improving measurement validity through the development of more consistent and complex Facebook use measure instruments.

Keywords: Facebook use; Facebook addiction; Anxiety; Depression; Stress

Introduction

The way individuals interact and communicate has dramatically changed since the advent of Social Networking Sites (SNSs). They are not only popular among individuals, but also businesses. For instance, by 2016, 46% of the world population had access to and used the internet, with 31% being active social media users and 51% possessing a smartphone [1]. When it comes to social media, Facebook is by far the most popular form of social networking. In 2016, it had more than 1.71 billion active users per month, with 1.1 billion log-ins every day [2]. Facebook is also widely used among adolescents, with more than 71% of the users being between 13 and 17 years old.

General opinion about Facebook can be polemic; while some attribute advantages to it, such as increasing connectivity, sharing ideas, facilitating learning, and providing social support [1,3,4], others see it as an addictive cyberspace that can damage personal interactions. Given its popularity, and advancements in SNSs and behavioral health research, scholars coined terms such as Facebook intrusion and Facebook Addiction Disorder (FAD). In fact, the literature defines Facebook addiction (also Facebook intrusion) as an excessive attachment to Facebook that frequently causes problems in every day social functioning [5]. Indices of Facebook addiction include thinking about Facebook when not using it; becoming distressed when not being able to access it; and being unable to reduce time spent on Facebook [1,6]. The literature has indicated that some of the negative outcomes associated with Facebook usage are feelings of isolation, problematic Facebook use, psychological distress, feelings of jealousy and dissatisfaction with intimate relationships, lower self-esteem, depression, anxiety, impaired general health, and decreased sleep quality [7-11]. More recently, a report on the impacts of social media in children and adolescents by the American Academy of Pediatrics (AAP), indicated that Facebook usage could lead to depression [12].

Study Rationale

The purpose of this study was to review research that associated Facebook use and negative behavioral and mental health outcomes. Facebook was chosen over other social media due to its widespread use, significant influence on peoples' lives [13], and increased research attention. Even though several studies have indicated the correlation between Facebook and mental and behavioral disorders, there is still lack of concrete evidence [4]. As mental illnesses are a significant cause of morbidity in individuals, and given the pervasiveness of Facebook usage, a causal relationship in future research could signal an important and broad health risk [14]. Therefore, it is essential to underscore the importance of continuous research on this topic. Given the dearth of literature reviews specifically addressing Facebook use and behavioral and mental health outcomes, this review will help shed light on the impacts of Facebook use on individuals' behavioral and mental health, so that future research and practice can develop successful strategies around healthy social media use.

Methods

The literature search was conducted using academic databases such as EBSCO, PsycINFO, ScienceDirect, and ProQuest. Such databases were chosen because they provide access to a large selection of scientific peer-reviewed journal articles from different disciplines.

Research studies that were of interest in this review were those relating to the negative impact of Facebook usage on behavioral and mental health. Search was performed using the following search terms: ('Facebook') AND ('behavioral disorder' OR 'mental illness' OR 'depression' OR 'problematic use' OR 'addiction' OR 'anxiety' OR 'stress'). The inclusion criteria were: empirical studies, published between 2008 and 2018 that referred to the negative impact of Facebook usage on behavioral and mental health. Articles excluded were those that did not specifically measure Facebook, but social media in general, and those that employed the terms Facebook and social media interchangeably. Also, studies that were not written in English, peer-reviewed, empirical, not full-text accessible and predated the year of 2008 were excluded. After applying the selection criteria, a

total of twenty-two articles were included in this review. Table 1 provides a summary of each article.

Author(s)	Year	Sample	Type of Study	Measure(s)	Variables	Findings
Brailovskaia et al. [6]	2017	175 Students from a university in Germany (77.1% Female)	Quantitative longitudinal survey study	Satisfaction with Life Scale (SWLS)		FAD was significantly positively related to the personality trait narcissism and to negative mental health variables (depression, anxiety, and stress symptoms).
				Questionnaire Social Support	Facebook Addiction	
				Depression Anxiety Stress Scales 21 (DASS-21)	Life satisfaction	
				Bergen Facebook Addiction Scale (BFAS)	Social support	
				EuroQuol Visual Analogue Scale	Depression	
				Media use Likert Scale	Anxiety	
				Narcissistic Personality Inventory (NPI-13)	Stress	
					Narcissism	
					Physical health	
		Media usage	FAD fully mediated the significant positive relationship between narcissism and stress symptoms, which demonstrates that narcissistic people can be specifically at risk to develop FAD.			
Atroszko et al. [9]	2018	1157 students from a university in Poland (51.9% Female)	Quantitative Cross-sectional	Bergen Facebook Addiction Scale	Facebook Addiction	Facebook addiction was related to higher extraversion, narcissism, loneliness, social anxiety, and lower general self-efficacy.
				Ten Item Personality Inventory (TIPI)	Personality	
				General Self-Efficacy Scale (GSES)	Self-efficacy	
				Single Item Narcissism Scale (SINS)	Narcissism	
				Self-esteem single-item scale	Self-esteem	Facebook addiction was further related to impoverished well-being (impaired general health, decreased sleep quality, and higher perceived stress)
				Atroszko et al. [9] log, rload (p. 731)	Loneliness	
				Short Loneliness Scale (SLS)	General health, sleep quality, and quality of life.	
				General health, sleep quality, and quality of life scales	Social anxiety	
				Liebowitz Social Anxiety Scale	Perceived stress	
Perceived Stress Scale (PSS-4)						
Casale et al. [29]	2018	535 students from a university in Italy (50.8% Female)	Quantitative Cross-sectional survey	Bergen Facebook Addiction Scale	Facebook addiction	Results from structural equation modelling show that the association between grandiose narcissism and Fb addiction levels was completely mediated by the need for admiration and the need to belong. On the other hand, vulnerable narcissism was not found to be associated
				Narcissistic Personality Inventory	Narcissism	
				Admiration-seeking	Vulnerable narcissism	
				Behavior Scale	Admiration seeking	
				Hypersensitive	Need to belong	
				Narcissism Scale		

				Need to belong, Italian version of the 5-item scale developed by Seidman.		either directly or indirectly with Fb addiction levels.
Al Mamun et al. [17]	2018	341 students from a university in Bangladesh (100% males)	Quantitative Cross-sectional survey	The Bergen Facebook Addiction Scale (BFAS)	Facebook addiction	The prevalence of FA was 39.7% (cutoff score was ≥ 18 on the BFAS). Using a regression analysis, the risk of being addicted to Facebook was predicted by being single, having less involvement in physical activities, sleep disturbance (more or less than 6 to 7 hours of sleep), time spent on Facebook (≥ 5 hours per day), and depression symptoms. Based on the sample in the present study, the risk of Facebook addiction (as assessed using the BFAS) appears to be a significant issue among Bangladeshi students, and depression appears to be one of the main comorbid factors.
				PHQ-9 depression subscale	Depression	
				Sociodemographic and behavioral measures	Age, gender,	
					Physical and psychological comorbidities	
					Physical activities	
					Sleep duration	
Kulak-Bejda et.al [30]	2016	440 students from a medical school in Poland (58% Female)	Quantitative Cross-sectional survey	Facebook Addiction Test (FAT)	Facebook addiction	The main findings showed that about 5% of the students at the Medical University of Bialystok were classified as having Facebook addictions.
				self-assessment test	Self-esteem	
				Satisfaction with Life Scale (SWLS)	Life satisfaction	
Elphinston et al. [7]	2011	342 students from a university in Australia (64% Female)	Quantitative Cross-sectional survey	Facebook Intrusion Questionnaire (FIQ)	Facebook intrusion	The results of this study suggest that young people's levels of Facebook intrusion can impact their romantic relationships negatively.
				Short-Form Multidimensional Jealousy Scale	Romantic jealousy	
				Jealousy Scale	Relational satisfaction	
Folaranmi [31]	2013	994 students from a university in Nigeria (Does not mention gender)	Quantitative Cross-sectional survey	Facebook Addiction Symptoms Scale (FASS).	Facebook addiction	Findings show 'meeting people' and 'chatting' as the most frequent activities of undergraduates on Facebook. 'Facebook chat', 'Wall post', and 'Picture uploading' were features used most. Many undergraduates access Facebook account every passing hour, every two hours and every day. The study reveals low level addiction (1.6%) particularly among university undergraduates in private universities
Turel [15]	2015	284 students from a university in the United States	Quantitative Short-term longitudinal study survey	Likert Scale Past Increase in Facebook use	Past increase in Facebook use	The findings suggest that increase in hedonic IS activity over the past three months facilitate the development of higher levels of
				Likert Scale Addiction to using Facebook	Facebook addiction	

				Daily General use frequency	General use frequency	technology related addiction at time 1 t1 which in turn influences the five dimensions of system use at t2 which are General use frequency, Daily use duration, Daily active use frequency, Usage comprehensiveness, Device heterogeneity
				Daily use duration	Use duration	
				Daily active use frequency (updates)	Active usage frequency	
				Usage comprehensiveness	Usage comprehensiveness	
				Device heterogeneity	Age	
					Gender	
Toma [19]	2018	242 participants in Romania (72.3% Female)	Quantitative Cross-sectional survey	Internet Addiction Test, adapted for Facebook (IAT adapted for Facebook; Young)	Facebook addiction	In the case of the Pearson correlation analysis, it has been noticed that the scores for extraversion, agreeableness and conscientiousness present significant and negative correlation with Facebook addiction. Neuroticism, loneliness and need to belong present significant and positive correlation to Facebook addiction. Openness to experience and communal narcissism do not correlate with Facebook addiction
				Big Five Inventory	extraversion agreeableness conscientiousness	
				Revised (UCLA) Loneliness Scale	neuroticism openness to experience	
				Need to Belong Scale	loneliness	
				Communal Narcissism Inventory (CNI)	Need to belong	
					Narcissism	
Blachnio et al. [16]	2015	284 participants in Poland (83% Female)	Quantitative Cross-sectional survey	Facebook Intrusion Questionnaire	Facebook intrusion	Dysfunctional self-control system can be related to Facebook addiction. An insufficient self-control and low level of failure-related action orientation are those psychological characteristics that put Facebook users "at-risk" of Facebook addiction.
				Brief Self-Control Scale	Self-control	
				Self-Regulation Scale	Self-regulation	
				Action Control Scale (ACS-90)	action control	
				Multitasking Scale	ability to multitask	
Blachnio et al. [16]	2016	452 participants in Poland (64% Female)	Quantitative Cross-sectional survey	18 item Bergen Facebook Addiction Scale	Facebook addiction	Consciousness was negatively correlated with the time of Facebook use. By contrast, in previous studies openness was positively correlated with social media use Positive orientation was also related to Facebook addiction. Facebook-addicted users had lower self-esteem, evaluated their life less positively, and had lower optimism. In the study Facebook addiction was associated with Internet addiction. Wilson et al. (2010) showed that self-esteem was a predictor of SNS addictive tendency.
				8 item Facebook Intensity Scale	Intensity and frequency of Facebook usage extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience tendency to see positive aspects of life	
				8 item Positive Orientation Scale		
				Ten Item Personality Measure		
Chow et al. [20]	2017	282 participants in China (31% Female)	Quantitative Cross-	44-item Big Five Personality Inventory	extraversion, agreeableness, conscientiousness, emotional	In the present study, we did not find a significant

			sectional Survey		stability, and openness to experience	association between time spent on Facebook and depressive symptoms in an age and ethnic diverse sample
				Self-reported time spent on Facebook	Time spent on Facebook, Facebook social comparison, Envy, Depression	
				Facebook Social Comparison Scale [23] Envy scale, Depression Anxiety and Stress Scale		
Davidson et al. [24]	2014	336 students from a university in the United States (70% Female)	Quantitative Cross-sectional Survey	Facebook intensity scale, the social anxiety scale, the role conflict scale, and the self-monitoring scale.	Time spent on Facebook Social anxiety measured the types of groups present in the respondent's social network (such as family, classmates, coworkers, and the like Facebook anxiety Role conflict	Facebook intensity is associated with role conflict
				The number of unique groups (adapted from McCarty, Killworth, Bernard, Johnsen, & Shelby, 2001)		Of all the variables, role conflict appears to be at the heart of this study in terms of Facebook activity and the two types of anxiety. These connections support past studies that also showed a negative impact of role conflicts on social well-being
				General social anxiety scale adapted for Facebook anxiety		We found that role conflict correlates with Facebook intensity, Facebook-specific anxiety, and social anxiety.
Won [23]	2015	243 students from a university in the United States (71.6% Female)	Quantitative Cross-sectional Survey	Fenigstein's Six-items social anxiety scale	Social anxiety	Social anxiety and need for social assurance had a significant positive association with problematic use of Facebook. Data demonstrated that need for social assurance served as a significant moderator of the relationship between social anxiety and problematic Facebook use. The positive association between social anxiety and problematic Facebook use was significant only for Facebook users with medium to high levels of need for social assurance but not for those with a low level of need for social assurance
				Robbins' eight-items Need for Social Assurance scale developed by Lee and Robbins	Need for social assurance	
				Koc's and Gulyac eight-items problematic Facebook use scale, The Leibowitz Social Anxiety Scale for Children and Adolescents	Problematic Facebook use	
Muzzafar et.al [22]	2018	102 Adolescents in the United States (+50% Female)	Quantitative Cross-sectional survey	Demographics questionnaire, Facebook use questionnaire, 10 items Mini Mood and Anxiety, Symptom Questionnaire (Mini-MASQ); eight items anhedonic depression subscale of the Mini-MASQ eight items from the general distress subscale of the Mini-MASQ, Facebook Behaviour scale, Facebook Behaviour Repetitive scale	Age, sex, race, US born	We found that increased total number of Facebook friends, increased time spent per day on Facebook, and increased anxious arousal symptoms were each significantly associated with increased Facebook behavior and increased repetitive Facebook
					Facebook use intensity	
					Number of Facebook friends	
					Social anxiety	
					Generalized anxiety	
Depression						

					General distress	behavior. Social anxiety symptoms, depressive symptoms, and general distress were each not associated with Facebook behavior and repetitive Facebook behavior.
					Facebook behavior	
					Facebook repetitive behaviour	
Chen et al. [8]	2013	513 students from a university in the United States (52% Female)	Quantitative Cross-sectional survey	six items adapted from the Kessler Psychological Distress Scale	Psychological distress	Frequent Facebook interaction is associated with greater distress directly and indirectly via a two-step pathway that increases communication overload and reduces self-esteem.
				eight item frequency of Facebook activities scale	Facebook interaction	
Kross et. al [10]	2013	82 participants in the United States (100% Female)	Short-term quantitative longitudinal survey	Satisfaction with life scale	Life satisfaction	Our results indicate that Facebook use predicts negative shifts on both variables over time. The more people used Facebook at one time point, the worse they felt the next time we text-messaged them; the more they used Facebook over two-weeks, the more their life satisfaction levels declined over time. Interacting with other people "directly" did not predict these negative outcomes. They were also not moderated by the size of people's Facebook networks, their perceived supportiveness, motivation for using Facebook, gender, loneliness, self-esteem, or depression. On the surface, Facebook provides an invaluable resource for fulfilling the basic human need for social connection. Rather than enhancing well-being, however, these findings suggest that Facebook may undermine it.
				Beck Depression Inventory	Depression	
				Rosenberg Self-Esteem Scale	Self-esteem	
				Modified Social Provision Scale	Perception of Facebook support	
				Motivation to use Facebook questionnaire	Facebook use	
				Affect, worry, and loneliness questionnaire	Affect	
				Revised UCLA Loneliness Scale	Worry	
					Loneliness	
Lee et.al [8]	2015	156 university students from a university in Malaysia (67% Female)	Quantitative Cross-sectional survey	Facebook Intrusion Questionnaire (FIQ; Elphinston et al. [7], Obsessive Compulsive Inventory-Revised (OCI-R), Obsessive Belief Questionnaire-20 (OBQ-20)	Facebook intrusion	In sum, users with high level of Facebook use had significantly higher means for the intrusiveness of Facebook, OCD severity, and obsessive-compulsive beliefs. The relationship between Facebook use and OCD severity was found to be mediated by obsessive-compulsive related beliefs. The role of obsessive-compulsive related beliefs as a significant mediator
					Obsessive compulsive disorder	
					Obsessive belief	

						suggests that Facebook use contributes to OCD severity through these beliefs, which often consist of stress inducing beliefs.
Malik et al. [18]	2015	200 students from a university in Pakistan (50% Female)	Quantitative Cross-sectional survey	18 item Bergen Facebook Addiction Scale	Facebook addiction	The study found a significant relationship between Facebook addiction and narcissistic behavior. Facebook addiction significantly predicted narcissistic behavior and low-levels of self-esteem.
				Rosenberg's Self-esteem Scale	Self-esteem	
				Hypersensitive Narcissism Scale	Narcissism	
Jelenchick et.al [14]	2012	190 students from a university in the United States (58% Female).	Quantitative Cross-sectional survey	Patient Health Questionnaire-9 (PHQ), experience sample method (ESM) data collection	Depression	Using a real-time assessment of Internet use and a validated clinical screening instrument for depression, we found no association between SNS use and depression in a sample of older adolescents
			Facebook usage			
Shaw et.al [25]	2015	75 students from a university in the United States (52.2% female)	Quantitative Cross-sectional survey	Social Phobia Scale (SPS)	Social anxiety	We found that greater social anxiety symptoms were associated with spending more time on FB overall and engaging in more frequent passive FB use. Results from mediational analyses expanded on the cognitive-behavioral model of SAD and clarified how one potential response style-brooding-may link passive FB use and social anxiety. Our finding that spending more time on FB was associated with higher social anxiety symptoms suggests that FB has the potential to be an important social sphere for socially anxious individuals depending on how it is utilized. In considering specific patterns of use, social anxiety symptoms had a robust relationship with passive FB use, controlling for depression and anxiety symptoms.
				Facebook Activity Measure (FAME)	Facebook use	
				Ruminative Response Scale (RRS)	Ruminative response style	
				Center for Epidemiological Studies Depression Scale	Depressive Symptoms	
				Mood and Anxiety Questionnaire (MASQ) – Short form	Mood and anxiety symptoms	
Sriwilai et al. [4]	2014	211 adults in Thailand (50% Female)	Quantitative Cross-sectional survey	Bergen Facebook Addiction Scale	Facebook addiction, Mindfulness, Coping strategies, Emotional exhaustion job demands, job position, working class, age, gender and educational level.	People who are highly addicted to social media tended to have lower mindfulness and tended to use emotion-focused coping to deal with stress. Lack of mindfulness and the decision to use emotion-coping strategy are also
				15 item Mindfulness		
				Attention and Awareness Scale		
				6 item problem focused coping scale		

				Maslach Burnout Inventory		subsequently associated with higher emotional exhaustion
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Table 1: Summary of articles.

Results and Discussion

This section comprises the review of studies' outcomes, limitations, and future research recommendations. There were four main mental health domains identified, that is, Facebook addiction-intrusion, depression, anxiety, and other mental health outcomes. Several of the selected studies addressed more than two variables related to the four mental health domains.

Facebook addiction and Facebook intrusion

One challenging aspect of evaluating this domain was the interchangeable use of the terms Facebook addiction and Facebook intrusion. Given that both Facebook addiction and Facebook intrusion had the same definition and symptomatology [5], this review will group them under the same domain. Facebook addiction-intrusion was addressed in thirteen articles. There were three articles that addressed it as mental health outcome, and ten articles addressed it as a predictor of poor mental health outcomes. There were eleven cross-sectional studies and two longitudinal studies. Three studies concomitantly measured intensity of Facebook use and Facebook addiction or intrusion; and their findings suggested that intensity of Facebook usage could be a predictor of Facebook addiction [6,15-17]. All thirteen studies revealed that Facebook addiction was associated with general impoverished wellbeing. For instance, Facebook addicted users presented lower self-esteem, evaluated their life less positively, and were fewer optimists [16].

Additionally, the literature sheds light on risk factors for Facebook addiction that go beyond intensity of Facebook usage. The findings show that narcissistic individuals could be at a higher risk to develop Facebook addiction [6,9,18]. Another important factor is that Facebook addiction was related to personality traits. For instance, extraversion, agreeableness, and conscientiousness presented significant negative correlation with Facebook addiction; while neuroticism presented a significant positive correlation with Facebook addiction [19]. Finally, other risk factors that predicted Facebook addiction were being single, having less involvement in physical activities, sleep disturbance, and depression symptoms [17].

Depression

Facebook use, Facebook addiction, and depression were addressed in three cross-sectional and one longitudinal study. In one study, findings showed that having depression symptoms was a strong predictor for Facebook addiction [17]. While two studies did not find correlation between Facebook use and depression [14,20], the longitudinal study found that Facebook addiction was significantly positively related to negative mental health variables including depression [6]. It is important to emphasize that two studies evaluated the association between general Facebook use in relation to depression [14,20] while Brailovskaia and Margraf [6] found positive association between Facebook addiction, depression and other mental disorders. That said, when evaluating not only depression, but also other mental health outcomes, general Facebook use and Facebook addiction should be understood as independent constructs [21]. In other words, while

Facebook use per se might not be correlated with negative mental health outcomes, problematic Facebook use that was classified as addictive, was found to be associated with depression and other behavioral and mental disorders [6,7,16].

Anxiety

Anxiety was associated with problematic Facebook use in six cross-sectional studies. For instance, generalized anxiety and social anxiety symptoms in adolescents and adults were associated with increased Facebook behavior, repetitive Facebook behavior, and Facebook addiction [6,9,22,23]. Interestingly, role conflict as a result of excessive Facebook use, was also correlated with Facebook-specific anxiety and social anxiety [24]. Another eye-opening point is that social anxiety symptoms showed a robust relationship with passive Facebook use, instead of interactive Facebook use. Such findings suggest that depending on how it is utilized, Facebook has the potential to be an important social sphere for social anxious individuals [25].

Other mental health outcomes

There were five cross-sectional studies that measured other mental health outcomes such as obsessive-compulsive disorder severity, relational dissatisfaction, impoverished sense of wellbeing, and distress [6-10]. Interestingly, Chen and Lee [8] explored communication overload and self-esteem as possible mechanisms that underlie the relationship between Facebook interaction and distress. Even though their findings revealed that communication overload did not significantly mediate the relationship between Facebook interaction and distress, it did link them in a two-step pathway through reduced self-esteem. Their analyses also indicated that instead of a direct negative relationship between Facebook interaction and self-esteem, the variables are linked indirectly through communication overload.

Methodological Problems

While these studies shed light on the negative impacts of Facebook use on behavioral and mental health, they come with limitations. Inconsistencies of measurement of Facebook use [26] as well as inconsistencies of terms that define Facebook related disorders, leaves one under the impression that concepts and definitions are scattered in the field. For instance, considering that addicted individuals tend to underestimate the level of their addictive behavior, one major limitation found in all studies was that data collection was self-reported. In order to mitigate underestimation of addictive behavior, physiological functions such as blood pressure and heart rate should be considered as potential physiological markers of Facebook addiction in future research [6]. Oppositely, the literature has also shown that self-report questions may lack necessary specificity, thus leading participants to overestimate their time spent on Facebook [27]. Therefore, in order to meet the various nature of Facebook addiction and improve measurement validity, it's essential that future investigations develop more complex and consistent measurement

instruments [6]. Other methodological issues were related to the cross-sectional nature of the studies, gender bias, and sample sizes.

Implications

This review has demonstrated that Facebook use may impact on different behavioral and mental health domains. Thus, it has several implications for further research and practice. The most prominent implication is the need for education regarding the potential negative behavioral and mental health outcomes related to Facebook use. Besides education, there is the need for the exploration of this phenomenon in daily clinical practice. Through the development of screening tools, physicians and clinicians should document problematic Facebook usage. In addition, consistent with treatment approaches to other types of excessive behaviors, health professionals should inquire patients about their Facebook use and behaviors. That is particularly important when primary care physicians and mental health providers are treating adolescents with generalized anxiety symptoms [7,22]. More specifically, as the American Academy of Pediatrics (AAP) promote education related to risks of children and youth using social media, such as problematic social media use and Facebook related depression [12,28-31], it is strongly recommended that AAP update their social media recommendations to include the possibility of the occurrence of generalized anxiety symptoms with increased adolescent social media use [22]. Equally important, if Facebook use becomes problematic and starts to interfere with social functioning and mental health, reducing access to it could help manage use. Additionally, problematic Facebook use should be treated with interventions that address underlying loss of control as the primary intervention target [21].

Study Limitations

This study has limitations of its own. The capacity to synthesize study findings was limited due to inconsistent terms that define Facebook related disorders, as well as inconsistent Facebook use measures. Additionally, during literature search, several studies that employed the terms social media and Facebook interchangeably were excluded. Such articles might have contained important data that is not present in this review.

Conclusion

While this review helped clarify the negative behavioral and mental health outcomes associated with Facebook use, due to inconsistencies of measurement of Facebook use as well as inconsistencies of terms that define Facebook related disorders, one is under the impression that concepts and definitions are scattered in the field. That said, in order to meet the complex nature of Facebook related disorders, improve measurement validity, and achieve more concrete evidence that attest Facebook related disorders, it's essential that future investigations develop more complex and consistent measurement instruments.

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