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 everyday 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) | Facebook Addiction | FAD was significantly positively related to the personality trait narcissism and to negative mental health variables (depression, anxiety, and stress symptoms). |
|                    |      |                                             |                          | Questionnaire Social Support | Life satisfaction                                 |                                                                            |
|                    |      |                                             |                          | Depression Anxiety Stress Scales 21 (DASS-21) | Social support                                   |                                                                            |
|                    |      |                                             |                          | Bergen Facebook Addiction Scale (BFAS) |                                            |                                                                            |
|                    |      |                                             |                          | EuroQuol Visual Analogue Scale | Depression                                       |                                                                            |
|                    |      |                                             |                          | Media use Likert Scale | Anxiety                                          |                                                                            |
|                    |      |                                             |                          | Narcissistic Personality | Stress                                           |                                                                            |
|                    |      |                                             |                          | Inventory (NPI-13) | Narcissism                                       |                                                                            |
|                    |      |                                             |                          | Medical usage |                                          |                                                                            |
| 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 |                                            |                                                                            |
| Study | Year | Sample Size | Study Design | Instruments | Measures | Findings |
|-------|------|-------------|--------------|-------------|----------|----------|
| Al Mamun et al. | 2018 | 341 students from a university in Bangladesh (100% males) | Quantitative Cross-sectional survey | Need to belong, Italian version of the 5-item scale developed by Seidman. | either directly or indirectly with Fb addiction levels. | 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. |
| Kulak-Bejda et al. [30] | 2016 | 440 students from a medical school in Poland (58% Female) | Quantitative Cross-sectional survey | Facebook Addiction Test (FAT) Self-esteem self-assessment test Satisfaction with Life Scale (SWLS) | Facebook addiction The main findings showed that about 5% of the students at the Medical University of Białystok were classified as having Facebook addictions. |
| Elphinston et al. [7] | 2011 | 342 students from a university in Australia (64% Female) | Quantitative Cross-sectional survey | Facebook Intrusion Questionnaire (FIQ) Short-Form Multidimensional Jealousy Scale | Facebook intrusion Romantic jealousy Relational satisfaction The results of this study suggest that young people’s levels of Facebook intrusion can impact their romantic relationships negatively. |
| 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 Likert Scale Addiction to using Facebook | Facebook addiction The findings suggest that increase in hedonic IS activity over the past three months facilitate the development of higher levels of Facebook addiction |
| Study | Year | Participants | Study Design | Instruments | Findings |
|-------|------|--------------|-------------|-------------|----------|
| 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), Big Five Inventory, Revised (UCLA) Loneliness Scale, Need to Belong Scale, Communal Narcissism Inventory (CNI) | 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. |
| Blachnio et al. [16] | 2015 | 284 participants in Poland (83% Female) | Quantitative Cross-sectional survey | Facebook Intrusion Questionnaire, Brief Self-Control Scale, Self-Regulation Scale, Action Control Scale (ACS-90), Multitasking Scale | 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. |
| Blachnio et al. [16] | 2016 | 452 participants in Poland (64% Female) | Quantitative Cross-sectional survey | 18 item Bergen Facebook Addiction Scale, 8 item Facebook Intensity Scale, 8 item Positive Orientation Scale, Ten Item Personality Measure | 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. |
| Chow et al. [20] | 2017 | 282 participants in China (31% Female) | Quantitative Cross-sectional survey | 44-item Big Five Personality Inventory | In the present study, we did not find a significant relationship between Facebook use and negative behavioral and mental health outcomes. |
| Authors | Year | Sample Size | Study Design | Demographic and Demographic | Measures | Findings |
|--------|------|--------------|--------------|----------------------------|----------|----------|
| Davidson et al. [24] | 2014 | 336 students from a university in the United States (70% Female) | Quantitative Cross-sectional Survey | Self-reported time spent on Facebook, Facebook Social Comparison Scale [23] Envy scale, Depression Anxiety and Stress Scale | Time spent on Facebook, Facebook social comparison, Envy, Depression | The number of unique groups (adapted from McCarty, Killworth, Bernard, Johnsen, & Shelby, 2001) and Facebook anxiety Role conflict appear 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. |
| Won [23] | 2015 | 243 students from a university in the United States (71.6% 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) | We found that role conflict correlates with Facebook intensity, Facebook-specific anxiety, and social anxiety. |
| 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, Facebook use intensity, Number of Facebook friends, Social anxiety, Generalized anxiety, Depression | 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 use. |
General distress behavior. Social anxiety symptoms, depressive symptoms, and general distress were each not associated with Facebook behavior and repetitive Facebook behavior.

| Study | Year | Sample | Design | Measures | Findings |
|-------|------|--------|--------|----------|----------|
| 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. |
| Kross et al. [10] | 2013 | 82 participants in the United States (100% Female) | Short-term quantitative longitudinal survey | Satisfaction with life scale, Beck Depression Inventory, Rosenberg Self-Esteem Scale, Modified Social Provision Scale, Motivation to use Facebook questionnaire, Affect, worry, and loneliness questionnaire, Revised UCLA Loneliness Scale | Life satisfaction, Depression, Self-esteem, Perception of Facebook support, Facebook use, Affect, Worry, Loneliness | 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. |
| 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, Obsessive compulsive disorder, Obsessive belief | 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. |
suggests that Facebook use contributes to OCD severity through these beliefs, which often consist of stress inducing beliefs.

| Author(s)          | Year | Sample Description | Research Design | Measurement Tools | Findings |
|--------------------|------|--------------------|-----------------|-------------------|----------|
| 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. |
| Jelenchick et al. [14] | 2012 | 190 students from a university in the United States (58% Female). | Quantitative Cross-sectional survey | Rosenberg's Self-esteem Scale | Facebook usage, 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 |
| 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. |
| 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 |

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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 [8], 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.
implications for further research and practice. The most prominent implication is the need for education regarding the potential negative behavioral and mental health outcomes associated with 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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