CYBERPSYCHOLOGY, BEHAVIOR, AND SOCIAL NETWORKING
Volume 17, Number 10, 2014

DOI: 10.1089/cyber.2014.0070

Online Social Networking and Mental Health

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Abstract

During the past decade, online social networking has caused profound changes in the way people communicate and interact. It is unclear, however, whether some of these changes may affect certain normal aspects of human behavior and cause psychiatric disorders. Several studies have indicated that the prolonged use of social networking sites (SNS), such as Facebook, may be related to signs and symptoms of depression. In addition, some authors have indicated that certain SNS activities might be associated with low self-esteem, especially in children and adolescents. Other studies have presented opposite results in terms of positive impact of social networking on self-esteem. The relationship between SNS use and mental problems to this day remains controversial, and research on this issue is faced with numerous challenges. This concise review focuses on the recent findings regarding the suggested connection between SNS and mental health issues such as depressive symptoms, changes in self-esteem, and Internet addiction.

Introduction

DURING THE PAST 10 YEARS, the rapid development of social networking sites (SNSs) such as Facebook, Twitter, MySpace, and so on has caused several profound changes in the way people communicate and interact. Facebook, as the biggest social networking Web site, today has more than one billion active users, and it is estimated that in the future, this number will significantly increase, especially in developing countries. Facebook is used for both business and personal communication, and its application has brought numerous advantages in terms of increasing connectivity, sharing ideas, and online learning.

Recently, however, some researchers have associated online social networking with several psychiatric disorders, including depressive symptoms, anxiety, and low self-esteem. Since social networks are a relatively new phenomenon, many questions regarding their potential impact on mental health remain unanswered. On the other hand, due to the popularity of these online services in the general population, any future confirmed connection between them and psychiatric diseases would pose a serious public health concern.

This concise review focuses on the recent research regarding the suggested connection between social networking and depressive symptoms, changes in self-esteem, and other potential psychiatric problems and issues. The articles cited in this text were selected from the Web of Science citation indexing database (Thomson Reuters) using KoBSON search tool (Konzorcijum biblioteka Srbije za objedinjenu nabavku; Serbian Library Consortium for Coordinated Acquisition). The search was conducted using a total of 50 different keywords related to social networking and mental health, such as ''Facebook,'' ''Twitter,'' ''Depression,'' ''Addiction,'' ''self-esteem,'' and so on. The priority was given to the articles published during the past 10 years in the journals with high 2 year and 5 year impact factors (the upper 50% rank in the journal category), as well as to the articles with higher number of citations. The number of citations for selected article was determined using the Elsevier Scopus database.

Facebook and Symptoms of Depression

Although several studies have made the connection between computer-mediated communication and signs and symptoms of depression, this issue remains controversial in current psychiatry research. There are many potential reasons why a Facebook user may have a tendency to become depressed, as there are numerous factors that may lead an already depressed individual to start to use or increase their use of SNS.

In 1998, Kraut et al. published one of the first studies to indicate that Internet use in general significantly affects social relationships and participation in community life.[1] In this research, the authors found that increased time spent online is related to a decline in communication with family members, as well as the reduction of the Internet user's social circle, which may further lead to increased feelings of depression and loneliness. This work was later followed by several other publications where it was suggested that computer use may have negative effects on children's social development.[2]

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At the time when these studies were conducted, most of today's social networks did not exist. For example, Facebook was founded in 2004, and became popular among children and adolescents a few years later. Instead, most works were focused on the investigation of possible effects of Internet browsing, e-mail checking, and other online and offline behaviors (i.e., violent video games) on mental health.

With the development of social networks, the time children and adolescents spend in front of the computer screens has significantly increased. This has led to the further reduction of intensity of interpersonal communication both in the family and in the wider social environment. Although social networks enable an individual to interact with a large number of people, these interactions are shallow and cannot adequately replace everyday face-to-face communication.

Since social networks are a relatively recent phenomenon, this potential relationship between their use and feelings of loneliness and depression has not yet been properly investigated. Most of the research on this issue has been published during the past few years, and so far, the scientific community has not been able to interpret and discuss the results fully.

In our recent study in a high school student population, we found a statistically significant positive correlation between depressive symptoms and time spent on SNS.[3] Depression symptoms were quantified using the Beck Depression Inventory (BDI-II). On the other hand, no such correlation was detected between BDI score and time spent watching television. Other authors have reported that there is no relationship between SNS and depressive symptoms in a sample of older adolescents—university students using the Patient Health Questionnaire-9 depression screen.[4] Apart from differences in applied methodology, there is a possibility that different age groups (i.e., high school children vs. older adolescents) may react differently to SNS content and challenges.[5]

In 2013, Kross et al. published a study on the relationship between Facebook use and subjective well-being in young adults.[6] The design of this research was based on text messaging the participants five times per day for 2 weeks in order to evaluate their mood, feeling of loneliness, social interactions, and social Facebook use. This approach was combined with the application of a conventional set of questionnaires, such as the Beck Depression Inventory, Rosenberg Self-Esteem Scale, Social Provision Scale, and Revised UCLA Loneliness Scale.[6] The results indicated that users' subjective perception of well-being and life satisfaction may be undermined. It goes without saying that any decline of this sort may increase depressive signs and symptoms.

One of the reasons why time spent on SNS may be associated with depressive symptoms is the fact that computer-mediated communication may lead to the altered (and often wrong) impression of the physical and personality traits of other users. This may lead to incorrect conclusions regarding physical appearance, educational level, intelligence, moral integrity, as well as many other characteristics of online friends. Recently, Chou and Edge published an article about the potential impact of using Facebook on students' perceptions of others' lives. The study carried out on 425 undergraduate students of at a state university in Utah reported that Facebook use is linked to participants' impression that other users are happier, as well as the feeling that the ''life is not fair.''[7] Perceiving others as happier and more successful does not necessarily result in depression. However, in individuals who already have certain depressive predispositions as well as other psychiatric comorbidities, this may further negatively impact mental health.

As it is thought that Facebook may be one of the factors influencing the development of depressive symptoms, it is also assumed that certain characteristics of online behavioral may be predictive factors in depression identification and assessment. Today, it is clear that SNS such as Facebook can be useful in the early detection of depression symptoms among users. Recently, Park et al. published a study in which they suggested that the more depressive the user is, the more he/she would use Facebook features that focus on depression tips and facts. The authors designed a unique application — EmotionDiary—that was proven to be capable of evaluating symptoms of depression in individuals.[8] In other words, certain depressive behavioral characteristics of a social network user can be quantified, and that quantification has a potentially high predictive value for a future diagnosis of depression. Apart from these results, this work also presented some evidence that a depressed Facebook user has other characteristics, such as a fewer friends and location tagging. Since these traits can be quantifiable, they could also be valuable predictors for possible future depression screening.

However, it should be stressed that there is still no conclusive evidence that use of Facebook and other SNS causes depression or even a single symptom of depression. Kraut et al., the authors of the above-mentioned study on Internet and depression, recently published results indicating that online communication with friends and family (today mostly done on SNS) is actually associated with a decline in depression.[9] It seems that when social networks and the Internet in general are used to strengthen and maintain social ties, particularly within family members and close friends, the resulting social support has beneficial effects on mental health. On the other hand, extensive use of SNS outside these circles might weaken existing close family and friend interactions and increase feelings of loneliness and depression.

Social Networking and Self-Esteem

Many authors define the term ''self-esteem'' as ''the evaluative component of the self—the degree to which one prizes, values, approves or likes oneself.''[10,11] It is an important factor in developing and maintaining mental health and overall quality of life.[12–14] Low self-esteem is associated with the pathogenesis of numerous mental illnesses, including depression, eating disorders, and addiction.[15–22] Recent studies have presented conflicting results regarding the potential influence of Facebook and other SNS on self-esteem.

One of the possible explanations regarding the negative relationship between Facebook and self-esteem is that all social networking platforms where self-presentation is the principal user activity cause or at least promote narcissistic behavior.[23–27] A report by Mehdizadeh described the findings of a study in which 100 Facebook users at York University provided self-esteem and narcissistic personality self-reports. The results indicated that individuals with lower self-esteem are more active online in terms of having more self-promotional content on their SNS profiles. In other words, certain Facebook activities (such as ''The Main Photo'' feature) were negatively correlated with self-esteem measured with the Rosenberg Self-Esteem Scale.[23]

On the other hand, some authors have presented results indicating that Facebook use may actually enhance self-esteem. A study by Gonzales and Hancock included groups of student participants exposed to three different settings: exposure to a mirror, exposure to one's own Facebook profile, and a control setting. The level of self-esteem in all participants was estimated using the Rosenberg Self-Esteem Scale. The results showed the positive effects of Facebook on self-esteem supporting the so-called Hyperpersonal Model in which selective self-presentation positively impacts impressions of the self.[28]

According to data from recent literature, as well as the above-mentioned research, there are indeed several models/theories on the possible effect of computer-mediated communication on self-esteem in the general population. Objective self-awareness theory[29] suggests that any stimulus causing the self to become the object (instead the subject) of the consciousness will lead to a diminished impression of the self. These stimuli include looking at oneself in a mirror, hearing one's own voice, writing one's own curriculum vitae, or any other situation during which the subject's attention focuses on the self.[28] It is probable that a typical Facebook user will every day have multiple visits to his/her own profile page during which he will view his already posted photographs, biographical data, relationship status, and so on. All of these events, especially in light of similar data obtained from other users' profiles, may lead to either a short-term or a long-term reduction in self-esteem.

The ''hyperpersonal model'' of behavior during computer-mediated communication, mentioned in the study by Gonzales and Hancock, is also one of the possible factors that can modulate the self-esteem of a Facebook user. This model stresses the advantages of computer-mediated communication over conventional face-to-face communication in terms of users being able to optimize self-presentation to others more effectively.[28] In fact, it is suggested that when using an online platform, the subject has more time to select, emphasize, and present those aspects of his/her personality, character, and temperament that would be viewed more favorably by the receivers or, in this case, other Facebook users. This is in contrast to conventional face-to-face interaction where the subject does not have enough time and opportunity to present the positive features of himself selectively. Based on this model, we could assume that this selective self-presentation on a SNS and increased relationship formation would impact positively on self-evaluation and therefore self-esteem.

It is probable, however, that the overall impact of SNS on self-esteem is much more complex. Constant self-evaluation on an everyday basis, competition and comparing one's own achievements with those of other users, incorrectly perceiving physical/emotional/social characteristics of others, feeling of jealousy, and narcissistic behavior—these are all factors that may positively or negatively influence self-esteem. Unfortunately, despite several research efforts during the past decade, this issue still remains unresolved, and probably many years will pass before we comprehend the true nature of this relationship.

Online Social Network Addiction

Addiction to online social networking, as well as Internet addiction in general, are recent and insufficiently investigated phenomena, frequently discussed and sometimes disputed in the psychiatric literature.[30–35] The addictive nature of SNS is supported primarily by the mental preoccupation of many chronic SNS users who as a result tend to neglect other aspects of their social functioning such as family and offline friends. In addition, according to our own observations, sudden cessation of online social networking (i.e., lack of Internet connection) may in some chronic users cause signs and symptoms that at least partially resemble the ones seen during drug/alcohol/nicotine abstinence syndrome.

Online social networking as a potential addiction disorder has so far been discussed in many publications.[30,31,33,35–37] SNS addiction represents a relatively new issue in psychiatry research, and as with other potentially SNS-related disorders, many questions remain unanswered.

In 2012, Andreassen et al. developed the Facebook Addiction Scale, a scoring system initially based on a total of 18 items, testing features of addiction such as salience, mood modification, tolerance, withdrawal, conflict, and relapse.[37] The authors applied the scale along with other questionnaires (such as Addictive Tendencies Scale, Online Sociability Scale, etc.) on a sample of 423 students. The test showed a relatively high reliability and proved to be applicable to the student population. The same year, regarding this study, Griffiths[35] expressed concern that the term ''Facebook addiction'' may be obsolete due to a large variety of activities that can be done on Facebook besides conventional social networking (i.e., playing games). Nevertheless, any attempt to design a scoring system that would be able to quantify at least a certain aspect of social networking addiction is, in our opinion, an important addition to the present knowledge in this field.

Wolniczak et al.[38] recently adapted The Internet Addiction Questionnaire in order to test Facebook dependence in the student population. The authors also tested the sleep quality of Facebook users using the Pittsburgh Sleep Quality Index. The results showed that Facebook dependence may be related to poor quality of sleep. To our knowledge, this is the first study to modify existing questionnaires for Internet addiction in order to test Facebook use.

Probably, the most important question is whether SNS addiction is actually a mental disorder, and whether it should be diagnosed and treated as such. The Tenth Revision of the International Classification of Diseases and Health Problems (ICD-10) defined several specific criteria for dependence syndrome such as a strong desire or sense of compulsion, difficulties in controlling consumption behavior, physiological withdrawal state after reduction or cessation, evidence of tolerance, and so on.[39] A diagnosis should be made if three or more of the above-mentioned criteria are present (at a certain time point) during the previous year.

It is clear that many of these diagnostic criteria could be applied to a minor percentage of chronic Facebook users who, as a result of this prolonged computer use, have problems in normal everyday functioning. However, one must be very careful with this approach, since in the future it could be quite difficult to distinguish SNS addiction from Internet addiction, which is a much more general disorder (Internet addiction disorder, problematic Internet use, or compulsive Internet use). Furthermore, it should be noted that neither Internet nor SNS addiction have been included in the latest disease classification manuals such as Diagnostic and Statistical Manual of Mental Disorders (DSM-5). In addition,

SNS and Internet-related mental problems are frequently seen together with other diagnosable mental illnesses, or, in other words, these problems are complicated by comorbidity.[34] Therefore, it remains unclear whether potential SNS addiction is an independent illness, or merely a manifestation of other mental issues such as, for example, personality disorders.

All in all, it remains to be seen whether SNS addiction will ever be recognized as a separate mental disorder. It can be expected that in the future, this issue will be a focal point of many research studies, and that, in the years to come, it will become the subject of a wide debate among psychiatrists, psychologists, and other specialists. The final results and conclusions will have a substantial impact on the future organization of the mental health system, particularly considering that online social networking affects such a large proportion of the world population.

Future Prospects

It can be expected that future research regarding the potential effects of online social networking on mental health is going to be faced with numerous difficulties. First, so far, many authors investigating this issue have used a cross-sectional study approach in their methodology, followed by correlation analysis. The existence of a correlation does not necessarily equal causality. For example, Facebook and self-esteem may be related in terms of Facebook usage, causing lower self-esteem, but this may also mean that people with low self-esteem use Facebook more often. In other words, it is very difficult, and sometimes impossible, to conclude which variable is the cause and which is the effect. In the future, longitudinal designs would be much more helpful in determining the effects of SNS use on mental health. Ultimately, the data obtained from experimental studies would enable us to draw definite conclusions on this relationship.

It should be noted that most of the research done so far on social networking and mental health was done on a healthy population (i.e., high school students, university students, adolescents in general). When it is stated that, for example, ''time spent on social networking is related to depression,'' the authors usually mean that this time correlates with physiological mood oscillations (measured with various psychological scales), rather than depression as a clinical entity. In fact, to our knowledge, no research of this sort has so far been conducted on psychiatric patients. Therefore, a possible connection between social networking and mental health issues can only be discussed in terms of normal physiological (psychophysiological) variations of psychic functions.

We should always have in mind that not all of the social networks are the same. The largest and most popular SNS, Facebook, is based on creating and updating personal profiles, where users can upload photos, videos, comments, statuses, and notes. Another popular SNS, Twitter, is based on a different concept: users post and read short text messages (''tweets'') in which they express their thoughts and opinions. Most of the studies mentioned in this text have been focused on Facebook as the predominant SNS, and even in the studies where authors in the title state the term ''social networking,'' in most cases, Facebook is the primary target of investigation. In fact, after searching the available scientific databases, we were unable to find a single study that was primarily focused on Twitter and its potential impact on mental health. In the future, it can be expected that Twitter will also become the subject of many research efforts.

Many studies simply do not test various potential confounding factors that may influence conventional correlation in terms of enhancing or reducing it. For example, it may well be possible that people with some personality disorders (which are quite frequent and often undiagnosed) spend much more time on online social networks compared to the general population because computer-mediated communication enables them to be socially more successful. These individuals, if included in a research study, will probably influence the results of self-esteem, depression, addiction, and other questionnaires. In other words, any future study on this topic, in order to meet quality standards, will need to have established precise inclusion and exclusion criteria in order to make the study sample as homogenous as possible. These criteria are often difficult to define and even more difficult to implement, so the other possible approach would be to use a large study sample. This would also have to be combined with additional statistical tests such as multivariate regression analysis.

Most of the research on social networking and mental health has so far been performed using conventional psychiatric questionnaires, such as the above-mentioned Rosenberg Self-Esteem Scale, the Beck Depression Inventory, and others. Today, it is not uncommon that for assessment of the same psychiatric sign/symptom, several different scales exist. For example, for quantification of depressive symptoms, the researcher may choose between scales such as the Beck Depression Inventory, the Centre for Epidemiological Studies—Depression Scale (CES-D), the Hamilton Rating Scale for Depression (HAM-D), the Zung Self-Rating Depression Scale, the Montgomery–Åsberg Depression Rating Scale (MADRS), and so on. Although these scales are established tools in psychology and psychiatry research, sometimes when designing a study, it is difficult to determine which scale has the best sensitivity for the given population/study sample. This may be especially the case when being used in the general population or in different age groups such as high school students, university students, and so on. In the future, there may be a need to design and implement novel, advanced scales that would be adjusted to evaluate potential mental problems in light of the rapid development of information technology, or at least to compare the existing ones in terms of establishing a set of recommendations for their application in these new conditions.

In conclusion, it is clear that during the past 10 years, online social networking has caused significant changes in the way people communicate and interact. It is unclear, however, whether some of these changes affect normal aspects of human behavior and cause psychiatric disorders. In the future, additional research will be needed to identify and describe the potential relationship between the use of SNS and various mental health issues.

Acknowledgments

The author is grateful to the Republic of Serbia, Ministry of Science and Education (Grants 175059 and 41027), as

well as the Project 62013 of the DEGU Society, Belgrade, Serbia. The author also apologizes to all researchers in the fields of psychology, psychiatry, and social networking whose articles were not cited (unintentionally or due to the page limitations) in this work.

Author Disclosure Statement

No competing financial interests exist.

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