Social networking, a new online addiction: a review of Facebook and other addiction disorders

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INTRODUCTION: Facebook is the world's most widely accessed social network, where millions of people intercommunicate. Behavioral and psychological changes relate to abusive and uncontrolled use creating severe impacts on users' life.

METHOD: A critical revision was performed through MedLine, Lilacs, SciELO and Cochrane databases using the terms: "Facebook Addiction," "Social Network Sites," "Facebook Abuse." The search covered the past 5 years up to January 2015. Articles that examine dependence on Facebook in the general population were included; we analyzed how this concept evolved over the last five years, and hope to contribute to the better understanding of the issue and its impacts.

RESULTS: Although controversial, published reports correlate Facebook addiction to mechanisms of reward and gratification. Some users developed an abusive relationship stimulated by the false feeling of satisfaction or as a way to feel better or more self-assured (increased level of excitement or escape). Studies from several countries indicate different prevalence, probably due to lack of consensus, and the use of different denominations, giving rise to the adoption of different diagnostic criteria.

CONCLUSION: Social Networks are modern communication tools; however, not only benefits, but also subsequent damage caused by its abusive use must be monitored. Many users with abusive usage and dependence recognize significant losses in their personal, professional, academic, social and family lives. Further investigation is needed to determine if abusive Facebook usage is a new psychiatric classification or merely the substrate of other disorders.

KEYWORDS: Facebook Addiction, Facebook Abuse, Social Media Addiction, Social Media Abuse, Social Networking Sites Addiction.

◼ INTRODUCTION

During a class break, the boy boasted about his record to his friend: "Look at this picture I just posted on Facebook, and it's got more than 150 likes!" The desolate girl replied quietly: "Yeah, that's really nice. My best picture got less than 90 likes." As shown in Figure 1, Facebook is the most widely accessed social network in the world[1] and this constitutes a real case study on gratification and reward mechanisms stimulated by social networks.[2,3]

The adoption of new digital technologies and the virtual universality of internet access, smartphones and social networks are changing peoples' way of life and creating new social dynamics.[3-5] The possibility of instant communication, the reach and speed of messages, videos or images transmitted through social networks creates a powerful weapon with just a click. In fact, apart from being an efficient communication tool and information searcher, it is an important means for social contact.[3-5]

From the moment people wake up, many of them will be checking their social networks as the latest news in Facebook or pictures in Instagram. People no longer need
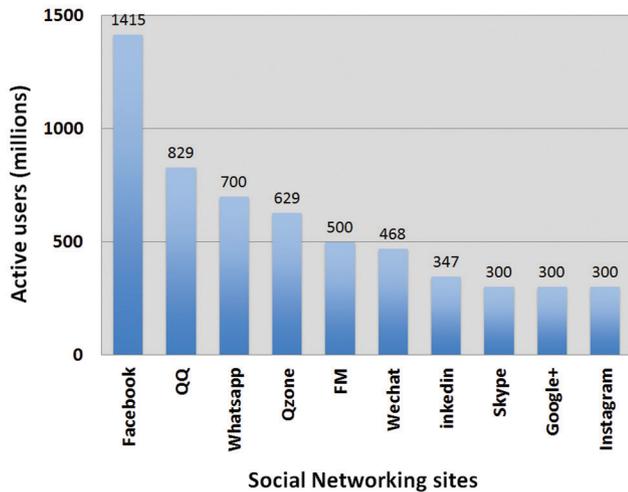
Figure 1 - Number of active users of social media in 2014. QQ: QQ Chat.

to go after the information, the information comes to them through the various social networks. Surely, people who often use these tools have many more contacts and virtual meetings than relationships or personal commitments.[3-5]

Over the last decade, the use of social networking sites has grown exponentially and is promoting constant and uninterrupted changes in society's behavior. New technologies, mainly computers and cellular phones are doubtlessly bringing us into a fantastic and rapid prospect of evolution in every area.[3-5] However, people do not often accompany these transformations at the same speed.

With 1.4 billion active social network users in the world,[6] Facebook is the most popular one in the planet. As a consequence of this popularity, researchers have recently started to examine aspects of its use. Dependency on social networks or Facebook has been defined as the incapability to control the use of the tool in a healthy way causing harm to personal, family or professional life.[7,8] In spite of the fact that many investigators support the hypothesis that the abusive use of social networks can cause dependency, the concept is still controversial.[9] The most recent version of the Diagnostic and Statistical Manual of Mental Disorders[10] did not include it as a dependency disorder.

Social Network Addiction

Facebook and other social networks help to find old friends and to maintain contact with people who are far away. However, with the increase in popularity of these tools, there has also been an increase of reports, both in the press and in scientific literature[11] of individuals who are "dependent" on the virtual reality of social networks, with a resulting damage to their real lives. Some reports[11] indicate that the abusive use increases real life isolation, paradoxically bringing further damage to real life relationships.

It is worth highlighting that a frequent complaint in psychiatric practices is one of patients or even parents worried about their children's increase in social isolation and worsening school performance. Mental Health professionals also point out the consequences of abusive use traduced as an increased level of anxiety[10] among children, as conflicts in relationships, and as an increased incidence of herniated discs and tendinitis in children, these being the result of many hours typing with inadequate posture in front of computers, tablets or smartphones.

The objective of this critical review is to discuss the literature of studies that aim to characterize the dependence on Facebook and social networks, as well as any information (epidemiological aspects, clinical characteristics, treatments, etc.) that aid in the understanding of and in the elaboration of new diagnostic criteria and in the formulation and development of a specific theory about the subject.

■ METHOD

An electronic search was performed ending January 2015 with articles found over the previous 5 years. Articles with the key words "Facebook Addiction," "Social Network Sites," "Facebook Abuse," "Social Media Abuse," "Social Media Addiction" were searched in the databases of Lilacs, Pubmed, SciELO and The Cochrane Library. For the purposes of this revision 25 articles were selected that evaluate the clinical characteristics and the psychiatric comorbidities related to dependence on Facebook. The reference lists of these selected articles were also included in the search. We found 91 articles, but 66 articles were excluded from this review. Only articles in English and focused on Facebook were included. Research that collected data through on-line questionnaires from websites were excluded in this revision due to possible selection bias.

■ RESULTS AND DISCUSSION

In 2010, Caplan[12,13] developed a theory about the problematic use of the internet. On-line communication serves as a refuge to escape from negative feelings, such as solitude or anxiety.

In 2012, Andreassen[14] published a scale of Facebook dependency as an instrument for validating dependency. During the same year, Griffiths[15] published an article about Andreassen's scale and revised it to investigate Social Network Site dependency within the framework of six pillars: (i) pattern use, (ii) motivations, (iii) dependency and typical profiles, (iv) negative consequences, (v) evidence of dependency and (vi) comorbidity. On that occasion, only 5 articles about this dependency were found, limiting the conclusions of the review.

In 2014, Griffiths[16,17] again evaluated Social Network Site dependency; this time 17 studies were found. Although the increased number of articles shows a larger focus on the topic, conclusions were limited on account of the the methodology adopted in the retrieved articles. As a result, the question of dependency on social networks must still be looked upon as a not well-defined concept and will remain open to discussion and further investigation. In this sense, the use of Social Networks could be coupled with cyber-relations,[18] while the dependence on social network games (such as, for instance, the Facebook Farmville application) is classified as "game addiction".[19,20]

Examining motivations for Facebook usage

In general, technology has always served man as a way to optimize time and nurture human relationships. During the 18th - 20th century, the establishment of the worldwide modern networks, namely the rail, telegraph and electricity, made this social role possible. "The cyberspace recovers this 'holy trinity' to value telematic networks like the Internet, as a model of free and equal connection".[21-23]

In this sense, social networks are more than simple collaborative platforms of online messages and status updates on the internet. According to Nadkami and Hofman,[24] social networks are directly related to the most intimate needs appertaining to human beings, such as being part of a group, being recognized, loved and special.

The study of Tamir and Michell[25] indicates that 80% of published messages on social networks are related to sharing immediate experiences. But the main question is why so many people share their daily thoughts, actions and opinions on social networks: "the act of giving information about oneself activates the brain's reward system. This results in a pleasant experience, similar to the one we receive from natural rewards, such as food or sex."[25]

Within a neurobiological context, Tamir and Michell[25] identified the activation of neural and cognitive mechanisms associated with gratification related to talking about oneself, through a study that involved magnetic resonance imaging to track brain activity while individuals talked about themselves.

According to Tamir and Michell,[25] at 9 months babies try to draw other people's attention to the parts of the environment that they deem to be most important; this may be seen as a primitive form of self-exposure; adults, on a more developed context, seek to give forward information to others. This is the basis for the argument that humans have an intrinsic motivation for self-exposure and that this behavioral pattern is reinforced in social networks because of the brain's reward system. "People dedicate close to 40% of their time talking about themselves. This increases to 80% in social networks with the possibility of feedback and immediate rewards",[25] which in a certain way explains the success and the huge adoption of these new technologies.

Another important point is the possibility of social media users to show a pattern of idealizing themselves through their profiles. This hypothesis of "virtual idealized identity" was tested by Amichai-Hamburger & Vinitzky.[26] A study by Shayang et al[27] claims that Facebook profiles appear to present socially desired identities, even if these have not yet been reached.

A respected thinker of the computerized contemporary society, Castells[28] attributes social and cultural changes to the phenomenon of the internet: "The emergence of a new electronic system of communication characterized by its global reach, integrating all means of communication and potential interactivity is changing and will forever change our culture."[28] Cyberculture[28] is the field of communication responsible for this new social order, in which there are significant changes in the organizational patterns of contemporary society.

As far as Internet dependence is concerned, the question is whether people become addicted to the platform or to the content of the Internet.[17] Griffiths et al.[17] argued that those addicted to the Internet become so in different aspects of online use. They differentiate three subtypes of Internet addicts: on-line games, sex, and e-mail or text messages.[17] Social networks are a type of online activity in which texting or e-mailing have been predominant; however, the tool is also extensively used for playing games and for sexual purposes.

Social networks[25] are predominantly used to maintain contact off-line, which proves the importance of the tool in the academic, professional or personal scope. Ironically, a side effect of a technology that was created to bring people together has been the object of research that indicates that more than 50% of social network users consider themselves unhappier than their own friends.[25] "In social networks, lives are edited according to a pattern of a false idealism that isn't able to be attained in practice, generating frustration." One quarter of those interviewed talk about symptoms of deep depression upon "discovering that their friend's lives are better than theirs".[25]

The activation of the reward system through self-exposure[29-31] can generate a framework of dependence leading to excessive use of social media. Similarly, many pharmaceutical addictions, such as drug addiction, can raise endogenous dopamine levels in the central nervous system reward area, in order to provide the desired effects to the addicted user.[29]

Measuring Facebook addiction

According to the scale published in 2012 by Andreassen,[14] there are five factors that indicate a dependence level on Facebook: 1. Mood swings; 2. Relevance; 3. Tolerance; 4. Withdrawal and 5. Conflicts in real life.

Mood swing: the social network is a means through which a person feels better or more self-assured (increased level of excitement or escape). This is the first stage usually hidden with a false sensation of satisfaction experienced upon navigating social networks.[14]

Relevance: the user is unable to stop thinking about social networks (even when outside of the network, imagining circumstances of the past or future that must be published), in such a way that the tool slowly starts to dominate his/her life.[14]

Tolerance: this relates to the time devoted to the tool and the control level it has attained. Generally, it is common to spend more time on the social network, updating pictures or posting comments, as a way to look for the same pleasant sensations experienced before in a shorter period of time. Without noticing, the dependent person loses control of the situation slowly, starting to substitute daily activities for more time navigating.[14]

Withdrawal: abstinence and its effects can be cited here; generally, when social network addicts do not have access to the internet, they become irritated, anxious and frightened, and there are changes in sleeping or eating patterns as well as signs of depression.[14]

Conflicts in real life: when use of social networks is excessive it compromises real life relationships with relatives and friends. This is the most common moment to perceive evidence of the problem, but addicts feel incapable of reducing or simply stopping use. This is when there is a loss of control over one's behavior, possibly compromising education or professional performance.[14]

Propensity and Dependency

Two other studies[16,17] evaluated the propensity for dependency based on five main dimensions of personality factors: extroversion (namely, being an extrovert, a talker), socialization (being nice and social), awareness (organization level), neuroticism (related to moods, generally nervous and bad moods), openness to experimentation (creativity and intellectually oriented).

In a more comprehensive work, Kuss et al.[32] claim that it is possible to identify some indicators of potential problematic consumption from similarities in personality features, including characteristics, such as extroversion, introversion and narcissism. Introverts tend to use social networks to compensate for the lack of contacts in real life, while extroverts use it to extend their existing networks. This increased use is associated with high narcissism, neuroticism and low awareness. Therefore, people with these features can be particularly at risk for developing a dependence.[32]

■ CONCLUSION

Dependence on social networks is already an issue for treatment and research at a worldwide level.[33,34]

Research indicates that the main motives for use and reward from Facebook are related to maintaining relationships, occupying time and entertainment.[31] However, some users have developed an abusive relationship stimulated by a false sensation of satisfaction experienced upon navigating social networks, as a way to feel better or more self-assured (increased level of excitement or escape).[35] Dependence on Facebook is associated to reward and gratification mechanisms[36] in the brain and could be more commonly observed in individuals with more anxiety, depression, narcissism or low self-esteem, motivated to seek an increased elevation in mood.[37]

Despite being a current topic, virtual dependence usually goes unnoticed by relatives. However, there are already clinics and programs which specialize in dependence on social networks.[38] Nonetheless, more investigation is necessary to determine if the abusive use of Facebook can be understood as one of the new psychiatric classifications of the 21st century or only a substratum of other disorders.[39] Despite the controversial nature of this theme, everything indicates that dependence on Facebook is not directly associated to time dedicated on the internet, but to a loss of control of real life, bringing damage to personal, professional, family, emotional or social areas of life.[14]

■ CONFLICT OF INTEREST

Authors declare they have no conflict of interest.

■ AUTHOR PARTICIPATION

Conceição EG, King ALS and Nardi AE developed the project, contributed in work orientation, discussed the data, wrote the first draft of the article, and reviewed its final form; Guimarães FMCL and Machado S discussed the data and reviewed the final form of the article.

REDE SOCIAL OU NOVO VÍCIO ON-LINE: UMA REVISÃO SOBRE O TRANSTORNO DE DEPENDÊNCIA DE FACEBOOK.

INTRODUÇÃO: O Facebook é a rede social mais amplamente acessada do mundo, onde milhões de pessoas se comunicam entre si. As alterações comportamentais e psicológicos relacionadas com seu uso abusivo e excessivo estão criando sérios impactos sobre a vida dos usuários.

MÉTODO: Uma revisão sistemática foi feita através das bases de dados Medline, Lilacs, SciELO e Cochrane usando os termos: "Facebook Addiction," "Social Network Sites," "Facebook Abuse.". A pesquisa abrangeu os últimos 5 anos até janeiro de 2015. Os artigos que examinam a dependência do Facebook na população em geral foram incluídos; analisamos como esse conceito evoluiu ao longo

dos últimos cinco anos, e espera-se contribuir para o melhor entendimento da questão e seus impactos.

RESULTADOS: Apesar de controversos, relatórios publicados correlacionam a dependência de Facebook a mecanismos de recompensa e gratificação. Alguns usuários desenvolveram um relacionamento abusivo estimulados pela falsa sensação de satisfação ou como uma maneira de se sentir melhor ou mais auto-confiante (aumento do nível de excitação ou fuga). Estudos de vários países indicam prevalência diferente, provavelmente devido à falta de consenso e ao uso de diferentes denominações, dando origem à adopção de critérios de diagnóstico diferentes.

CONCLUSÃO: As redes sociais são ferramentas de comunicação modernas; existem inúmeros benefícios, mas também deve ser monitorado os danos subseqüentes causados por seu uso abusivo. Muitos usuários com o uso abusivo ou dependente declaram perdas significativas em suas vidas pessoais, profissionais, acadêmicos, sociais e familiares. É necessária uma investigação mais profunda para determinar se o uso abusivo do Facebook é uma nova classificação psiquiátrica ou meramente o substrato de outros transtornos.

Palavras-chave: dependência de facebook, abuso de facebook, dependência de mídia social; dependência de sites internet.

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