



A critical consideration of social networking sites' addiction potential

Xavier Carbonell & Tayana Panova

To cite this article: Xavier Carbonell & Tayana Panova (2016): A critical consideration of social networking sites' addiction potential, *Addiction Research & Theory*, DOI: [10.1080/16066359.2016.1197915](https://doi.org/10.1080/16066359.2016.1197915)

To link to this article: <http://dx.doi.org/10.1080/16066359.2016.1197915>



Published online: 03 Jul 2016.



Submit your article to this journal [↗](#)



View related articles [↗](#)



View Crossmark data [↗](#)

REVIEW ARTICLE

A critical consideration of social networking sites' addiction potential

Xavier Carbonell^a and Tayana Panova^{a,b}

^aDepartment of Psychology, Ramon Llull University, Barcelona, Spain; ^bUniversity of Illinois at Urbana-Champaign, Champaign, IL, USA

ABSTRACT

The evolution of the Internet and its applications has led to a notable increase in concern about social networking sites (SNSs). SNSs have had global mass appeal and their often frequent use – usually by young people – has triggered worries, discussions and studies on the topic of technological and social networking addictions. In addressing this issue, we have to ask to what extent technological and social networking addictions are of the same nature as substance addictions, and whether the consequences they lead to, if any, are severe enough to merit clinical attention. We can summarize our position on the topic by saying that SNSs are primarily used to increase social capital and that there is not currently enough empirical evidence on SNSs' addiction potential to claim that SNS addiction exists. Although SNSs can provoke certain negative consequences in a subset of their users or provide a platform for the expression of preexisting conditions, this is not sufficient support for their standalone addictive power. It is necessary to distinguish between true addictive disorders, the kind that fall under the category of substance addictions, and the negative side-effects of engaging with certain appealing activities like SNSs so that we do not undermine the severity of psychiatric disorders and the experience of the individuals suffering from them. We propose that psychoeducation, viewing SNS use in context to understand their gratifications and compensatory functions and revisiting the terminology on the subject are sufficient to address the problems that emerge from SNS usage.

ARTICLE HISTORY

Received 17 June 2015
Revised 1 June 2016
Accepted 1 June 2016
Published online 4 July 2016

KEYWORDS

Social networking; addiction; Facebook; technology; behavioral addiction; online

Introduction

In recent years, psychopathology literature has witnessed an increase in possible behavioral addictions, more or less founded: to studying (Atroszko et al. 2015), tanning (Nolan & Feldman 2009), cosmetic surgery (Suissa 2008), talking (McCroskey & Richmond, 1995; Bostrom & Harrington 1999), Argentinean tango (Targhetta et al. 2013), Harry Potter (Rudski et al. 2009) and a long list of other suggestions with varying social impact. Behavioral addictions are defined as 'the failure to resist an impulse, drive or temptation to perform an act that is harmful to the person or to others' (Grant et al. 2010) and have been less studied than substance addictions, and therefore, the criteria that define them are still being researched and debated.

Among behavioral addictions, technological addictions (Griffiths 1995) have been an important focus of study. After the initial concern about Internet addiction (Young 1998), a list of possible addictions to information and communication technologies (ICTs) has emerged as well: mobile phone addiction (Bianchi & Phillips 2005; Billieux et al. 2015), television addiction (Horvath 2010; Sussman & Moran 2013) and gaming addiction (Hellman et al. 2012; Kuss & Griffiths 2012b). This field has also received an increased attention after the DSM-5 considered Internet gaming disorder (IGD) in section III, as a disorder that requires further study (American Psychiatric Association 2013) and some consensus seems to be gathered about the diagnosis criteria (Petry et al., 2014), although it is not exempt from some criticism

(Kardefelt-Winther 2015; Griffiths et al. 2016). One subset of ICTs most often considered in the discussion on technological addictions is that of social networking sites (SNSs): web-based service that allows individuals to (1) construct a public or semipublic profile within a bounded system, (2) articulate a list of other users with whom they share a connection and (3) view and explore their list of connections and those made by others within the system (Boyd & Ellison 2007).

The computer-mediated communication evolution is moving so fast that there has not yet been a definitive consensus about ICT use's psychological risks and consequences. In the past few years, significant theoretical and empirical attention has been focused on the addictive potential of social networking sites (SNSs) (Echeburúa & Corral 2010; Andreassen et al. 2012, 2013; Floros & Siomos 2013; Koc & Gulyagci, 2013; Wolniczak et al., 2013; Hormes et al. 2014; Masur et al. 2014; Wanget al. 2015; Wegmann et al. 2015). Although similarities between excessive use of SNSs and addiction may exist, the pathologizing of the new computer-mediated form of communication needs to be met with a cautious and critical eye in order to avoid misattribution of attention and resources (Petry & O'Brien 2013; Billieux et al. 2015). The DSM-5 (American Psychiatric Association 2013) does not recognize SNS addiction as a possible psychological disorder and states that 'excessive use of the Internet not involving playing of online games (e.g. excessive use of social media, such as Facebook; viewing pornography online) is not considered analogous to Internet gaming disorder, and future research on other excessive uses of the Internet would need to follow

similar guidelines as suggested herein' (p. 795–796). Therefore, in this article, we will critically consider the candidacy of social media use to this category of psychopathology.

Viewing SNS use in context

The evolution of Western society has converted computer-mediated communication into an essential tool for social and daily life and an individual, especially a teen, who is not as virtually connected as her peers may miss out on important moments, exchanges or social opportunities that can affect her social life and status (Bernal & Angulo 2013; Boyd 2014). Young people utilize social media sites in part to construct their social identities and everyday identities (Renau et al. 2013) by controlling their profiles to express their desired self-presentation and interacting via those 'virtual selves' with friends and peers in a forum that is private from supervising adults, free, easy to use, entertaining and available anywhere and anytime (with the aid of smartphones), all qualities that are attractive to young people and therefore reinforcing, which leads to high levels of use.

SNSs provide users with a forum, familiar to and agreed upon by all, where they can communicate and socialize, which they can visit in order to find their friends and friends of friends, where they can make acquaintances, flirt, share information, invite each other to events, etc. SNSs are also growing in popularity because many teens around the world suffer from an inability to be as mobile as they would like to be due to constraints on driving, because of limited opportunities for privacy, and because of social/family expectations about how they should be managing their time (Ito 2005). Therefore, in order to get their desired and needed dose of social interaction, they turn to the convenient, free and often portable social media platforms (Boyd 2014). That being said the (over) use of SNSs by many adolescents, when viewed in the context of their developmental stage and sociocultural landscape, may be explained by SNSs' abilities to allow the management and enhancement of social capital (Ellison et al. 2007), self-esteem and self-presentation (Gonzales & Hancock 2011) and the handling of certain issues characteristic of adolescence such as gender and identity expression (Oberst et al. 2016) and 'need to belong' (Nadkarni & Hofmann 2012) in a technologically dominated society.

The high use of SNSs can also be indicative of an individual's priority system. When SNS addiction is discussed, one common criterion is that users log on to SNSs frequently during class and therefore damage their academic success (Kirschner & Karpinski 2010; Kuss & Griffiths 2011), an argument that attempts to illustrate the harmful effects of social networking. But this problematic distribution of time and attention is not necessarily a sign of the inherently addictive nature of social networks. Relevant to consider here is the context and user's motivations (Boyd 2014; Kardefelt-Winther 2014a). Although problems fulfilling role obligations is a criterion that merits its position in the diagnosis of addiction (in conjunction with other criteria), it is not a phenomenon that occurs only within the addiction realm. Other life events are often responsible for failure to fulfill responsibilities, particularly in the case of adolescence (when the

highest SNS use is known to occur), which is a tumultuous transitory period when most individuals are in a stage of prioritizing social capital maintenance and enhancement (Erikson 1963) over other roles such as those of an academic nature. This is one of the defining features of adolescence and has existed long before the rise of SNSs. Viewed out of context, such changes in behavior that can be attributed to other origins along with the sensationalist media that often portrays technology use as an epidemic among young people often creates a social concern unfounded in scientific evidence (Surrat 1999).

SNS addiction?

In order to consider SNSs' candidacy for addictive potential, we briefly review the screening, qualitative studies, case report and review studies done so far on the subject, and view SNS addiction in light of criteria from the substance addiction field. It should be pointed out that the studies on SNS addiction have focused primarily on Facebook; however, its popularity could be a passing fad that will soon give way to some other type of SNS (such as the increasing use of *Instagram* and the decreasing use of *MySpace*). Also we have to consider the novelty of research in this area and the many methodological limitations in the field.

Screening and correlational studies

In the screening and correlational studies on this topic, the first step is to consider Facebook an addictive behavior, then screening tools identify the 'addicts' using sophisticated statistical tools, after which the researchers estimate the 'disorder's' prevalence.

The screening and correlational studies on SNS addiction (Andreassen et al. 2012, 2013; Floros & Siomos 2013; Koc & Gulyagci 2013; Hormes et al. 2014; Masur et al. 2014; Moreau et al. 2015; Wang et al. 2015; Wegmann et al. 2015; Wolniczak et al. 2013) have been published in recognized peer-reviewed journals such as *Addiction* and *Computers in Human Behavior*. They use a variety of scales adapted from Internet Addiction scales, DSM-IV-TR alcohol dependence criteria, pathological gambling criteria or other behavioral addiction criteria. Then, the 'addictive' use of Facebook is described according to a variety of symptoms and consequences pulled from the fields of pathological gambling and behavioral addiction. The study samples are mainly university students from a variety of countries (i.e., China, Germany, Greece, Norway, Peru, Turkey and USA). Most of the scales were built specifically for Facebook, not considering other SNSs. It is also important to note that many of the scales treat SNSs as a general concept, however every SNS has its singularities and specific features that have to be considered (i.e., the option of gambling on Facebook) and not everybody is doing the same activities when they engage with an SNS (e.g., on Facebook a person can be primarily messaging friends, playing games like *Farmville*, posting photos, reading status updates, etc.) (Griffiths 2012). It is not without importance what in particular people do when they are logged on to an SNS, yet this distinction between the different manners of use is rare in the existing SNS addiction diagnosis methods.

Once the “Facebook addiction” is established in these studies, it is correlated with a variety of personality measures (e.g., wellbeing, depression and social anxiety). See Kuss and Griffiths (2011) and Ryan et al. (2014) for the literature reviews. More or less clearly, all of the screening and correlational studies support the existence of a Facebook addiction that fit the component model of addictive behaviors by Griffiths (Griffiths 1995, 2005; Wegmann et al. 2015): mood modification (i.e., the engagement leads to positive emotional states), salience (i.e., behavioral, cognitive and emotional pre-occupation with usage), tolerance (i.e., increasing use over time), withdrawal symptoms (i.e., experiencing unpleasant physical and emotional symptoms when use is restricted or stopped), conflict (i.e., interpersonal and intrapsychic problems ensue because of usage), and relapse (i.e., addicts quickly revert back in their excessive usage after an abstinence period). However, the descriptions of these criteria can cover a broad-spectrum of severity, much of which does not fit within established addiction parameters.

While it is not the objective of this paper to review critically the sophisticated statistical techniques used in the aforementioned studies, let us comment on three global concerns. There is a lack of longitudinal studies to check an SNS addiction disorder’s stability, the screening instruments are not valid for diagnosis, and there is a large probability of false positives. There are many debates about the effectiveness of screening instruments for assessing problematic technology use (King et al. 2013), and indeed, this concern could be valid with problematic Facebook use, the measurement instruments for which have been adapted from other behavioral/technological addictions. A similar process also occurred when researchers began to create measures for Internet addiction (Ryan et al. 2014). There may be a lack of consistency in methodology, definitions, measurement, cut-off scores and diagnostic criteria across studies (Haagsma et al. 2013). These concerns and limitations underscore a lack of construct validity surrounding Facebook addiction and, moreover, they highlight one of the inconsistencies underlying behavioral addictions research in general (Ryan et al. 2014).

It is not possible to establish the number of false positives in these studies, but the absence of a demand for treatment suggests that it could be high. In the words of Maraz et al. (2015), ‘if you score positive on a test of addiction, you still have a good chance not to be addicted’ (p. 151). The tests used to categorize Facebook addiction and to establish epidemiological data would be better considered as screening tests because the methods used to identify the gold standard and cutoff point were purely statistical and they lack an external criteria to assess the test against (i.e., clinical samples). Another reason to explain the high number of false positives is that many university students could consider themselves, under media and societal influence, addicted to mobile phones or to the Internet (and therefore report themselves being so) even if their scores on problematic uses tests were low (Surrat 1999).

Qualitative studies

Two qualitative studies found on the subject explore the ‘Facebook addiction’ among university students (Zaremohzzabieh

et al. 2014; Fox & Moreland 2015). For Fox and Moreland, many Facebook users report addictive tendencies regarding SNSs, but they refer to this behavior as ‘distraction addiction,’ a term developed by Pang (2013) in his book on the subject, with this being the only mention of addiction in their article. In their analysis, they identified five main themes related to negative Facebook experiences – managing inappropriate or annoying content, being tethered, lack of privacy and control, social comparison and jealousy and relationship tension and conflict – but they do not adhere to the addiction framework in discussing them. Zaremohzzabieh et al. (2014) used face-to-face semi-structured interviews with nine university students who reported using Facebook for 38 h or more weekly for nonoccupational and not necessitated purposes. Their findings consider Facebook addiction in three axes, compulsion to check Facebook, high-frequency use, and using Facebook to avoid offline responsibility, which they likened to the addiction criteria of salience, tolerance and conflict. However, they appear to use the terms addictive use, problematic use, overuse, misuse, damaging use and compulsive use interchangeably and provide no diagnostic evidence of their participants’ ‘addiction’ levels except for the number of hours they reported spending online.

Case report studies

We have located only one case report on Facebook addiction – a Turkish woman that had been spending approximately 5 h/day checking her Facebook webpage (Karaikos et al. 2010). The woman had subscribed to Facebook 8 months before her examination and already had over 400 web friends. During the previous 7 months, she had ceased several of her activities, remained home most of the day in order to check her Facebook and lost her job as a waitress because she repeatedly left her post in order to go to the nearest Internet café. After consultation she refused any further psychotherapeutic or pharmacotherapeutic help. The authors don’t provide information about other mental or personality disorders.

One might conclude that, although it is only one, this case study is indicative of Facebook’s addiction potential. However, considering the lack of contextual information and clinical testing we argue that the evidence is insufficient to make this conclusion. In that same vein, it is important to ask why there are so few case report studies on SNS addiction and studies with large clinical samples? Although we may argue that this is because SNS addiction is not a legitimate disorder, some alternate explanations for this may be because available treatment programs for SNS addiction are not appropriate and/or suitable, attending treatment programs may be stigmatizing, ‘Facebook addicts’ may seek treatment for their primary disorder only, and Facebook use is less likely to be seen as requiring intervention (Griffiths 2015).

Literature reviews

There is one literature review (Kuss & Griffiths 2011) and one systematic review (Ryan et al. 2014) on Facebook addiction. Kuss and Griffiths reviewed three empirical studies (one of them being the case report of Karaikos et al. (2010)

conducted and published in peer-reviewed journals that have specifically assessed the addictive potential of SNSs. They state that ‘negative correlates of SNS usage include the decrease of participation in a real social community and academic achievement, as well as relationship problems, each of which may be indicative of potential addiction’ (p. 3528). However, they conclude that the results from the articles in their critical assessment were insufficient to support the argument for psychopathology. Ryan et al. (2014) reviewed nine studies measuring Facebook addiction and concluded that Facebook addiction is associated with being male, being a heavy Facebook user, being a higher year level at university and linked to certain psychological variables such as relationship dissatisfaction, depression, anxiety, subjective happiness, and subjective vitality. However, they stated that the varying approaches to the disorder’s measurement limits the ability to provide conclusive arguments.

Causation

Proof of causation in the relationship between SNS use and mental health is also lacking in the literature. There have been significant correlations found between high social media use with social anxiety (Lee-Won et al. 2015) and depression (Lin et al. 2016). However, this relationship may exist not because SNSs lead to the development of these psychological disorders, but because people already suffering from or predisposed to these disorders find solace in SNSs, experience alleviation of symptoms while using them, compensate for their shortcomings (such as limited social skills or low self-esteem (Steinfeld et al. 2008) via the SNS features, and/or access their support systems more efficiently through them in times of need (Kardefelt-Winther 2014a). This lack of clarity on the matter of causation is another reason why more clinical and experimental studies are needed on this topic before its risks are fully understood and become cause for alarm. More research would also clarify how SNSs can be used as coping mechanisms during psychological distress and what compensatory functions they serve in the user’s psychosocial-cultural context.

Clinical criteria for addiction

To perform a closer inspection at whether SNS use has the potential to be addictive, we need to begin by critically addressing what symptoms are fundamental and common to all addictions. It is not mandatory to meet the full substance addiction criteria (e.g., not all substances generate withdrawal) and, potentially, new criteria could emerge only for Facebook addiction (or other technological addictions); however, the addictive disorder should meet the essential conditions for a diagnosis. At the current moment, this seems not to be the case for SNS addiction. Billieux et al. (2015) consider that most studies on new behavioral addictions do not adequately address two mandatory factors: functional impairment and stability of the dysfunctional behavior. Disease awareness, relapse and chronification, false positives, comorbidity,

primary disorder, risky use and biological criteria are other issues that may warrant further consideration.

1. *Severe psychological consequences.* The time invested in the behavior is not as important as the development of serious familial, social, academic, physical, psychological or other such consequences which impair normal functioning and wellbeing (Fuster et al. 2014). The negative physical and/or psychological consequences in the intrapersonal or interpersonal areas must be severe. This does not seem to be the case for SNS use. The change in communication patterns, social life dynamics and the decrease in academic achievement are not sufficient to justify a new clinical disorder. When Petry and O’Brien (2013) reviewed the DSM process, they argued that introducing conditions into the DSM-5 that do not cause significant distress and impairment lowers the credibility of mental disorders (e.g., chocolate addiction). Negative consequences can be associated with an activity without reaching the severity levels needed for it to be considered a disorder. The existing evidence showing that SNS use can be associated with interpersonal or psychosocial difficulties does not create a direct link to addiction. A similar argument applies to ‘tango’ addiction (Billieux et al. 2015) and others in the same category. In summary, the screening test literature supports the evidence of social and psychological impairment due to SNS ‘addiction’ but what needs to be confirmed is the severity of that impairment and whether it is in line with the severity historically exhibited in addictive disorders. Additionally, many correlational studies associate shyness (Orr et al. 2009), jealousy (Tokunaga 2011), low psychological well-being (Valkenburg et al. 2006), narcissism (Mehdizadeh 2010), neuroticism (Correa et al. 2010) and negative outcomes like academic performance (Kirschner & Karpinski 2010) with SNS use. However, based on the scarce empirical evidence and the nondirectional nature of correlational studies, we cannot discern if SNSs provoke/exacerbate these issues or if people suffering from them turn to SNSs as a medium to manage and overcome them.
2. *Psychological dependence.* Psychological dependence is composed of desire, craving, polarization or attentional focus, and an inability for self-control (Sánchez-Carbonell et al. 2008). In the case of SNS use, the psychological dependence exhibited is still far beneath the threshold of severity that would merit clinical attention, therefore to put it in the same category as substance addiction is misleading. Again, the screening test literature supports the evidence of psychological dependence, but the level of its severity is not often reported or standardized.
3. *Severe physical consequences.* There was only one instance of a physical consequence due to SNS use found in the literature, diagnosed as WhattsAppitis. It was the case of a 34-year-old emergency medicine physician who presented with bilateral wrist pain with sudden onset upon waking up one morning. The patient was on duty on Dec 24 (Christmas Eve), and the following day, she

responded to messages that had been sent to her on her smartphone via WhatsApp (an instant messaging service) (Fernandez-Guerrero 2014). However, this anecdotal case does not provide sufficient evidence to fulfill the ‘severe physical consequences’ criterion.

4. *Risky use.* To use SNSs is not physically hazardous. The only exception would be their use while driving or while engaging in dangerous activities, but this would also be the case for eating, getting dressed, or engaging with other distractors in similar contexts.
5. *Stability of the dysfunctional behavior.* There are no longitudinal studies to confirm stability and durability of the disorder (Ryan et al. 2014). If we accept the existence of SNS addiction, then this could suggest spontaneous remission (Stall & Biernacki 1986; Walters 2000) that has been shown to exist in behavioral addictions (Thege et al. 2015). In SNS, addiction remission may occur not because the disorder occurs and then spontaneously disappears, but because there is no real disorder in the first place. However, there is insufficient research on the topic to make conclusions in this regard.
6. *Disease awareness.* It has not been reported that any of the university students identified as addicted in the aforementioned studies asked for treatment, and none of the researchers felt the ethical obligation to provide a psychological intervention to the ‘addicts’ identified in the research (Andreassen et al. 2013; Koc & Gulyagci 2013; Hormes et al. 2014; Zaremohzzabieh et al. 2014). Disease awareness and denial are key factors in alcohol treatment (Dare & Derigne 2010; Verdejo-García et al. 2013) but nobody seems to need SNS treatment or to provide it.
7. *Relapse.* This condition is very distressing and harmful in substance addicts (Marlatt & Gordon 1985), but there is no information about relapse with the presumed SNS addiction. However, this may be because there are no clinical samples and longitudinal studies.
8. *Comorbidity and primary disorders.* Comorbidity has a high prevalence in drug addicted patients (Rounsaville 1982; Rodríguez-Llera et al. 2006). However, it is necessary to be able to engage in an addiction-type behavior without another primary mental disorder present in order for the problematic behavior to be considered addictive on its own. If not, as in the case of SNSs, the behavior should be better considered as a symptom of a primary disorder. For example, DSM-5 establishes that if gambling behavior can be better explained by a manic episode than as an addictive disorder, than it should not be considered an addiction (American Psychiatric Association 2013).
9. *Biological criteria.* Tolerance and withdrawal symptoms are reported in screening studies, usually as a part of the scale. For example, typical items included ‘How often during the last year have you felt bad if you, for different reasons, could not log on to Facebook for some time?’ (Withdrawal) or ‘How often during the last year have you felt that you had to use Facebook more and more in order to get the same pleasure from it?’ (Tolerance) (Andreassen et al. 2012). Unfortunately, these items provide

only indirect and weak evidence of withdrawal and tolerance. Again we have to consider the symptom severity and that, as Billieux et al. (2015) commented in the case of mobile phone addiction, inferring tolerance based on the increased use of Facebook is highly speculative. There is no overdose due to Facebook or other SNS use reported in the literature.

In our opinion, taken as a whole, the scant empirical evidence from the screening and correlational studies with convenience samples (of mainly university students) faced with the clinical criteria and their severity, do not support ‘the emergence of a new clinical disorder’ in regard to SNSs. The addiction approach to SNSs lacks a theoretical basis and may be oversimplifying the issue. We need more empirical research to show with confidence whether SNS use consequences are severe enough to be labeled as an addiction disorder. In other words, while we cannot confirm conclusively that SNSs are not addictive at the current time, we can say that the empirical evidence provided so far is insufficient to support that their effects are harmful enough to merit the ‘addiction’ classification.

What is addictive?

Another important question that we need to answer is as follows: what conditions would an excessive behavior have to meet in order to be considered an addiction? For example, among substances, only those that alter the functioning of the central nervous system (CNS) are addictive, among beverages, only alcohol has the potential to be addictive, and among games, only those that involve betting money or other goods are included in the non-substance related disorders in DSM-5 (gambling). In the case of Internet gaming disorder, it has been argued that the characteristic which makes it addictive and differentiates it from other Internet and technological activities as well as real-life games is the ability to create a realistic alternate identity with its own presence in a social environment (via avatars) and that the individual can then embody the false identity and feel more satisfaction from it than from their real one (Fuster et al. 2012). That being said, we need to identify the corresponding characteristic, or the ‘addiction factor,’ that may be able to make SNSs addictive, if one exists at all.

Intuitively, this might be the amount of time spent on the SNS, since amount of engagement is often used to measure addiction severity. However, although time is an important criterion, it is not a reliable indicator of addiction in and of itself (Charlton & Danforth 2007; Wood et al. 2007). We need to consider that many people use social networks during their working hours (e.g., journalists, advertisers, etc.) and/or during free time and that ‘excessive’ use of social media does not have to go hand-in-hand with severe negative consequences. Similarly, according to Griffiths (2010), it is possible to play in excess, but not all excessive players are addicts. People have different tolerance levels, habits, customs and limitations – therefore what is important in determining the existence of addiction is the subjective experience of the

behavior and its consequences on the self and others, not simply the amount of use.

Another issue is what people do on the SNSs. As we stated earlier, in an SNS like Facebook that has numerous applications and functions, it is important what specifically the user is doing in order to understand the motivations and consequences of that behavior. A person can be messaging friends, organizing events, looking through photos, gaming or gambling (Griffiths 2012) and using different tools (e.g., status updates, comments, wall posts, private messages, chat or groups) with different associated motivations, effects and psychological impacts, thereby highlighting the importance of distinguishing between these different tools/activities in order to understand the gratifications and compensatory functions behind their use (Smock et al. 2011).

Passion and high engagement

Another way of approaching the excessive use of SNSs is to consider it the subject of a passion. Vallerand (2008) proposes the dualistic model of passion in which passion is defined as a strong inclination toward an activity that people like, find important, and in which they invest time and energy. The model describes two types of passion – harmonious passion and obsessive passion, differentiated by the way the object of passion is internalized into one's identity, with the latter causing more negative effects. Therefore, SNSs can be considered an object of maladaptive passion for some users, especially in adolescence when the need for frequent communication with peers is greater and considered highly important. It is also possible to extrapolate the proposed core symptoms and peripheral symptoms of addiction applied to gamers (Charlton & Danforth 2007; Pontes et al. 2014) that distinguishes between high engagement and addiction. Hence, the high engagement group would score high on salience, mood modification and tolerance, while scoring lower on the core components of addiction (conflict, withdrawal and relapse).

Recent literature has proposed addressing the Internet, gaming and social network engagement through the lens of how it functions as a compensatory behavior, filling unique needs and deficiencies for the individual user, instead of as a generalizable psychopathology based on compulsions and loss of control (Kardefelt-Winther 2014a). This new wave of research emphasizes that excessive use may be more usefully framed and investigated as a coping strategy rather than a compulsive behavior (Kardefelt-Winther 2014b) and that the unique gratifications sought from SNSs by the user must be examined in order to understand its effects on the user's well-being (Ryan et al. 2014).

Thus, to engage for long periods of time in chatting, photo viewing and exploration of friends' activities can be (a) excessive behaviors that can lead to mild negative consequences (such as losing sleep and study time), (b) transient developmental states in which communication with and information about peers is seen as essential and prioritized over other activities and/or (c) simple adaptations necessary for a new communication instrument and the communication landscape that it creates. Although, when excessive, the consequences of SNS use may be deemed negative and/or

harmful to some extent, they are not in the same league as the consequences caused by substance addictions, which include severe psychological and physical deterioration.

There is a tendency to draw associations between ICTs and addicting substances, perhaps because of their reinforcing qualities and the compulsion that develops to engage with them. Indeed, getting a Facebook notification can give a user a surge of pleasure and excitement. But instead of pathologizing this sensation by comparing it to consuming a dose of a drug, if we look at the picture from a wider perspective, we can see that this reinforcing feeling is more comparable to the one felt after getting a hug from a friend or a wink from a romantic interest. It is the pleasure associated with a positive social interaction, the difference between these reinforcements in SNSs versus in real life being that those online are more simple, quick and one dimensional (1D) due to their virtual nature. Clearly, there are many similarities between substance use and some manifestations of ICT use, which is why they both elicit the frequent use of the term 'addiction,' but there are also notable differences that should be recognized and clearly communicated. An important part of accurate communication about this topic is precise terminology; therefore, it may benefit the literature in this field to use a term other than 'addiction' for high engagement with certain behaviors that do not fulfill all the criteria of classical addiction, but exhibit similar features. With this in mind, alternative terms for 'addiction' such as 'problematic use' have been proposed (Davis 2001; Aboujaoude et al. 2006; Caplan 2010; Kardefelt-Winther 2014b). This term may be useful when some evidence exists for negative consequences of SNS use but not enough to label that use addictive.

Is there a specific SNS problematic use?

One interesting point to discuss is whether problematic SNS use is its own specific concern or part of a generalized disorder. When Young (1998) introduced the concept of Internet addiction (IA), she used pathological gambling as a model to define IA as an impulse control disorder, with chat rooms and multiuser dungeons (a kind of basic MMORPG) being the applications most used by the dependents. Before the SNS era, both of these applications were two-way communication channels that share some properties with SNSs. Young defends that there is a generalized Internet disorder (GIA) and people could be addicted to different online applications (i.e., chat, pornography, gambling, gaming auction houses, shopping) (Young 2013; Brand et al. 2014). From this point of view, problematic SNS use could be a specific type of pathological Internet use, or specific Internet addiction (SIA) that fits under the label of generalized Internet addiction (GIA) (Davis 2001; Brand et al. 2014). A diagnosis of IA in a person who principally uses SNSs would depend on whether this person fulfills the given set of criteria for IA and would not be a diagnosis of just an SNS addiction. A person may focus on multiple online activities with the total amount of time spent becoming a problem, SNS use being one of them.

Empirical evidence from neuroimaging research partially supports the model of excess Internet use (Billieux et al. 2012; Kuss & Griffiths 2012a; Brand et al. 2014) and gaming

addiction (Kuss & Griffiths 2012a). Kuss and Griffiths suggested that Internet and gaming addiction increase the activity in brain regions commonly associated with substance-related addictions and that there appears to be a neuroadaptation as a consequence of excessive engagement with them, while Turel et al. (2014) propose that while substance addictions often involve the impairment of both the impulse and inhibition brain systems, SNS addictions involve only change to the amygdala-striatal (or impulsive) system.

Kiraly et al. (2014) supports that there is a clear need to distinguish between addictions to the Internet and addictions on the Internet. An addiction to the Internet is primary in the sense that it is only possible on the Internet (e.g., MMORPG). However, when a pathological gambler uses the Internet to play poker it is better considered an addiction on the Internet, secondary to the first problem. Gambling addicts who choose to engage in online gambling are not Internet addicts – the Internet is just the place where they conduct their chosen behavior. In part, this idea is underlying the DSM-5 when it recognizes the Internet gaming disorder but not other Internet problematic uses. This controversy is not yet closed; the proposed drafts of DSM-5 (American Psychiatric Association 2013) included the Internet use disorder (IUD) and then changed it to Internet gaming disorder for reasons that are unclear (Griffiths et al. 2016).

Social adaptation and SNS use in context

When discussing the possibility of addiction to computer-mediated communication, we have to keep in mind that technology is evolving constantly, thereby leaving little time for the integration of any one particular communication device into daily life. This can lead to the misinterpretation of certain adaptation phases (such as overuse due to the novelty effect (Clark & Sugrue 1988) because of the limited perspective we currently have on the long-term effect of devices and SNSs on the individual. At the current stage of communication technology, there are not enough years between progress leaps for the natural adaptation process to run its full course before the next ICT comes along. Five hundred years available for the adaptation to the printing press have been reduced to 50 for the adaptation to the personal computer and 5/10 for the adaptation to SNSs such as Facebook or Instagram. Therefore, SNS use may be prematurely pathologized because its effects and the role it plays in people's lives and development is not yet fully understood. Consider here that in the fifteenth century the Gutenberg printing press was criticized for its encouragement of decreased face-to-face communication, taking the teacher out of the education equation, allowing less control over what people know which could lead to dangerous thoughts, etc. The limited understanding of any new ICT's effects and implications is often taken advantage of by the media who capitalize on the inevitable suspicion that accompanies new technological developments and publish sensationalist news stories about addictions and psychopathology (Surrat 1999). Opinion articles alert the public to beware of new 'tech disorders' and the resultant uncertainty is sufficient for the social construction of a pathology, so that

some people come to demand help for themselves or their loved ones (often young people).

On this topic, we can learn from the recent history of television 'addiction.' At the end of the eighties, 65–70% of adults believed that TV was addictive although few of them considered themselves addicted (McIlwraith et al. 1991). Boyd (2014) highlighted that teens often use the word addiction in passing reference to their online activities and media coverage that may mistakenly portray American youth as dependent on their SNSs. Media attention on the topic of SNSs also exaggerates this issue by underscoring extreme cases of individuals who have neglected their lives in order to dedicate more time to Facebook or the like. In SNS research, a general concern is that screening questionnaires overestimate the prevalence of SNS addiction because students are under media influence when answering inquiries about their addiction levels and because the use of the term 'addiction' has become very liberal. Many people do not associate 'addiction' with the same level of severity as the DSM, thereby using it to describe behaviors that can more fittingly be labeled as passionate or problematic.

Billieux et al. (2015) suggest that the creation of a new behavioral addiction follows three steps: (1) based on anecdotal observations, the targeted behavior is a priori considered as an addictive behavior; (2) screening tools are developed according to the substance abuse criteria; and (3) studies are conducted to determine the risk factors associated with the new addictive disorder. However, this method is fairly subjective since it is mediated by the personal biases and opinions inherent to each observer in step 1. Therefore, a significant amount of research needs to be compiled for each new candidate to the addiction field so that its merit of the label 'addictive' can be confirmed by various methods and a representative sample of researchers, and so that its criteria can be standardized. Also, instead of treating SNS use as a disorder because of the frequent use of the word 'epidemic' in sensationalist media, it is necessary to view it within its social and cultural context (Boyd 2014) as is done with every other manner of communication.

Moving away from the addiction framework

It is important to understand that new technology is drastically changing communication from that we experienced only a decade ago, and that this change will likely last and evolve, therefore we need to adapt to it. Relationship maintenance has been transferred from purely face-to-face interactions to partially virtual interactions, but this does not necessarily mean an increase in relationship problems or a deterioration in the quality of those relationships.

To consider that addiction to heroin, cocaine or alcohol is a disorder of the same nature as problematic SNS use (or the 'tango addiction' described by Targhetta et al. 2013) undermines the severity of addiction problems. The correlational studies are not a hard criteria for diagnosis and we need more empirical evidence, stability over time and a series of reliable clinical cases before considering high SNS use as a disorder of the same nature as addiction. Many behaviors can have negative consequences without having to fall under a category of severe psychopathology. A person suffering

shyness may need psychological help but his problem is not of the same nature as a DSM axis I disorder, even with the failure to fulfill some social obligations. Many harmful behaviors also share similarities with addiction but are not treated as such. For example, nail biting is a self-harming behavior that fulfills some addiction criteria such as relapse and craving, but it is not considered an addiction.

In other words, we are proposing to continue the research on SNS uses, motivations, gratifications, excessive engagement, problematic correlates, etc. without adhering to the addiction framework. As researchers and clinicians, we must expect reliable proof of pathology before demonizing new behaviors and communication methods. Based on the state of the literature on communication technology and SNSs at the current moment, the most judicious option is to consider excessive or maladaptive SNS use a problematic behavior instead of an addiction.

Etiquette and psychoeducation for SNSs

According to Fox and Moreland (2015), ‘norms and expectations for behavior on Facebook vary considerably [and] such variation may be a source of conflict among friends.’ In order to minimize behaviors that seem inappropriate and conflicts due to differing expectations of how SNSs should be used, we suggest that there should be an effort to develop socially enforced rules for the use of new technologies like other communication channels have had in the past. The way there was an understood rule about not calling house phones after a certain hour or not reading a book on a romantic date, it would serve society well to expect certain rules of etiquette for SNS and ICT use as well. We should create some kind of consensus on when it is appropriate to answer the phone, text or Facebook message, when it is reasonable to interrupt a conversation, how long is acceptable to wait between responses, what situations the phone should be put away for the duration of, etc. These rules could be created by taking ideas from representative focus groups and surveys and could be customized to age groups and community cultures, values, etc. The rules can then be communicated in tech-education classes that are becoming more and more popular in schools and businesses, or through ‘respectful use’ social marketing campaigns that will gradually shift the culture in favor of expecting these guidelines. By creating standardized etiquette for use, there would be less discord and tension between people who have a different and subjectively defined belief about what is an acceptable manner of use (such as parents and their children), and therefore less adverse reactions toward the role they play in others’ lives.

To reach this goal, we also need psychoeducation to teach people how to adapt to the new communication environment in a healthy and effective manner. Classes, seminars and public campaigns could be implemented in academic and work-related institution to teach people how they can optimally manage the new communication channels and the risks they may carry. These efforts could focus on explaining the ways in which devices and communication tools affect individuals’ psychological well-being and social/professional lives and

how to handle the potential risks of their devices and SNS use.

Conclusion

The communication and technology landscape is constantly evolving, and currently, it is doing so in the direction of increased mediated interaction. Although nobody can be sure of what the future holds, if we accept the reasonable assumption that SNSs are a permanent part of the culture now, not a transient phase that will pass, then we can begin more clearly defining and managing the role of these communication methods in the dynamic of society in order to achieve its optimal functioning. We can summarize our position on the topic of SNS use and addiction by saying that SNSs provide a new, convenient and stimulating tool to facilitate the fundamental human need for communication and increasing social capital, and although an excessive use of them can provoke certain negative consequences, this is true for most behaviors and devices. It is also important to note that many pre-existing or comorbid maladies such as personality disorders can find a new outlet on technological platforms, which does not imply that those platforms themselves are inherently problematic.

It is necessary to distinguish serious psychopathology conditions from passion, high engagement or adaptive coping strategies so that we do not undermine the severity of mental disorders. This distinction can begin with a revision of terminology. For example, ‘problematic SNS use’ could better describe the manner of SNS use that current research finds to be correlated with negative effects, instead of ‘addictive SNS use.’ On the topic of managing the negative consequences of SNSs, an effort to establish rules of etiquette for ICTs and psychoeducation about their potential negative effects should be sufficient to confront the problems that emerge from their usage. However, more empirical research on SNS clinical consequences is needed to understand the extent of possible disorders associated with SNS use. Future research in this field should move away from treating SNS use as a general behavior that can be understood simply via quantitative data and should explore what exactly people are doing on these online platforms, what compensatory role these behaviors fulfill in their lives, and what manner of SNS use matches what personality-psychopathology-sociocultural profile. Research should also focus more on the motivations for SNS use and the gratifications received from them using more qualitative, case, longitudinal and experiment-based study.

Disclosure statement

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

References

- Aboujaoude E, Koran LM, Gamel N, Large MD, Serpe RT. 2006. Potential markers for problematic Internet use: a telephone survey of 2,513 adults. *CNS Spectrums*. 11:750–755.

- American Psychiatric Association. 2013. Diagnostic and statistical manual of mental disorders. 5th ed. Washington: Author.
- Andreassen CS, Griffiths MD, Gjertsen SR, Krossbakken E, Kvam S, Pallesen S. 2013. The relationships between behavioral addictions and the five-factor model of personality. *J Behav Addict*. 2:90–99.
- Andreassen CS, Torsheim T, Brunborg GS, Pallesen S. 2012. Development of a facebook addiction scale. *Psychol Rep*. 110:501–517.
- Atroszko PA, Andreassen CS, Griffiths MD, Pallesen S. 2015. Study addiction – a new area of psychological study: conceptualization, assessment, and preliminary empirical findings. *J Behav Addict*. 4:75–84.
- Bernal C, Angulo F. 2013. Interacciones de los jóvenes andaluces en las redes sociales. *Comunicar*. 20:25–30.
- Bianchi A, Phillips JG. 2005. Psychological predictors of problem mobile phone use. *Cyberpsychol Behav*. 8:39–51.
- Billieux J, Maurage P, Lopez-Fernandez O, Kuss DJ, Griffiths MD. 2015. Can disordered mobile phone use be considered a behavioral addiction? An update on current evidence and a comprehensive model for future research. *Curr Addict Rep*. 2:156–162.
- Billieux J, Schimmenti A, Khazaal Y, Maurage P, Heeren A. 2015. Are we overpathologizing everyday life? A tenable blueprint for behavioral addiction research. *J Behav Addict*. 4:119–123.
- Billieux J, Van der Linden M, Khazaal Y, Zullino D, Clark L. 2012. Trait gambling cognitions predict near-miss experiences and persistence in laboratory slot machine gambling. *Br J Psychol*. 103:412–427.
- Bostrom RN, Harrington NG. 1999. An exploratory investigation of characteristics of compulsive talkers. *Commun Educ*. 48:73–80.
- Boyd DM. 2014. *It's complicated: the social lives of networked teens*. New Haven: Yale University Press.
- Boyd DM, Ellison NB. 2007. Social network sites: definition, history, and scholarship. *J Comput-Mediat Commun*. 13:210–230.
- Brand M, Laier C, Young KS. 2014. Internet addiction: coping styles, expectancies, and treatment implications. *Front Psychol*. 5:1–14.
- Brand M, Young K S, Laier C. 2014. Prefrontal control and internet addiction: a theoretical model and review of neuropsychological and neuroimaging findings. *Front Human Neurosci*. 8:1–13.
- Caplan SE. 2010. Theory and measurement of generalized problematic internet use: a two-step approach. *Comput Human Behav*. 26:1089–1097.
- Charlton JP, Danforth IDW. 2007. Distinguishing addiction and high engagement in the context of online game playing. *Comput Human Behav*. 23:1531–1548.
- Clark RE, Sugrue BM. 1988. Research on instructional media, 1878–1988. In: Ely D, Broadbent B, Wood RK, editors. *Educational media and technology yearbook*, Vol. 14. Englewood CO: Libraries Unlimited. p. 19–36.
- Correa T, Hinsley AW, de Zúñiga HG. 2010. Who interacts on the web?: the intersection of users' personality and social media use. *Comput Human Behav*. 26:247–253.
- Dare PAS, Derigne L. 2010. Denial in alcohol and other drug use disorders: a critique of theory. *Addict Res Theory*. 18:181–193.
- Davis RA. 2001. A cognitive-behavioral model of pathological Internet use. *Comput Human Behav*. 17:187–195.
- Echeburúa E, Corral P. 2010. Adicción a las nuevas tecnologías y a las redes sociales en jóvenes: un nuevo reto. *Adicciones*. 22:91–96.
- Ellison NB, Steinfield C, Lampe C. 2007. The benefits of Facebook 'Friends': social capital and college students' use of online social network sites. *J Comput-Mediat Commun*. 12:1143–1168.
- Erikson EH. 1963. *Childhood and society*. New York: Norton & Co.
- Fernandez-Guerrero IM. 2014. 'WhatsAppitis.' *The Lancet*. 383:1040.
- Floros G, Siomos K. 2013. The relationship between optimal parenting, Internet addiction and motives for social networking in adolescence. *Psychiatry Res*. 209:1–6.
- Fox J, Moreland JJ. 2015. The dark side of social networking sites: an exploration of the relational and psychological stressors associated with Facebook use and affordances. *Comput Human Behav*. 45:168–176.
- Fuster H, Chamarro A, Carbonell X, Vallerand RJ. 2014. Relationship between passion and motivation for gaming in players of massively multiplayer online role-playing games. *Cyberpsychol Behav Soc*. 17:292–297.
- Fuster H, Oberst U, Griffiths MD, Carbonell X, Chamarro A, Talarn A. 2012. Psychological motivation in online role-playing games: a study of Spanish world of warcraft players. *Anales Psicología*. 28:274–280.
- Gonzales AL, Hancock JT. 2011. Mirror, mirror on my Facebook wall: effects of exposure to Facebook on self-esteem. *Cyberpsychol Behav Soc Netw*. 14:79–83.
- Grant JE, Potenza MN, Weinstein A, Gorelick DA. 2010. Introduction to behavioral addictions. *Am J Drug Alcohol Abuse*. 36:233–241.
- Griffiths MD. 1995. Technological addictions. *Clin Psychol Forum*. 76:14–19.
- Griffiths MD. 2005. A 'components' model of addiction within a biopsychosocial framework. *J Subst Use*. 10:191–197.
- Griffiths MD. 2010. The role of context in online gaming excess and addiction: some case study evidence. *Int J Ment Health Addict*. 8:119–125.
- Griffiths MD. 2012. Facebook addiction: concerns, criticism, and recommendations. A response to Andreassen and colleagues. *Psychol Rep*. 110:518–520.
- Griffiths MD. 2015. Problematic technology use during adolescence: why don't teenagers seek treatment? *Educ Health*. 33:6–9.
- Griffiths MD, van Rooij AJ, Kardefelt-Winther D, Starcevic V, Király O, Pallesen S, Müller K, Dreier M, Carras M, Prause N, et al. (2016). Working towards an international consensus on criteria for assessing internet gaming disorder: a critical commentary on Petry et al. (2014). *Addiction*. 111:167–175.
- Haagsma MC, Caplan SE, Peters O, Pieterse ME. 2013. A cognitive-behavioral model of problematic online gaming in adolescents aged 12–22 years. *Comput Human Behav*. 29:202–209.
- Hellman M, Schoenmakers TM, Nordstrom BR, van Holst RJ. 2012. Is there such a thing as online video game addiction? A cross-disciplinary review. *Addict Res Theory*. 21:1–11.
- Hormes JM, Kearns B, Timko CA. 2014. Craving Facebook? Behavioral addiction to online social networking and its association with emotion regulation deficits. *Addiction*. 109:2079–2088.
- Horvath CW. 2010. Measuring television addiction. *J Broadcast Electron Media*. 48:378–498.
- Ito M. 2005. Mobile phones, Japanese youth, and the re-placement of social contact. In: Link R, Pedersen P, editors. *Mobile communications: re-negotiation of the social sphere*. London: Springer London. p. 131–148.
- Karaiskos D, Tzavellas E, Balta G, Paparrigopoulos T. 2010. P02-232 – Social network addiction: a new clinical disorder? *Eur Psychiatry*. 25:855. doi: 10.1016/S0924-9338(10)70846-4.
- Kardefelt-Winther D. 2014a. A conceptual and methodological critique of internet addiction research: towards a model of compensatory internet use. *Comput Human Behav*. 31:351–354.
- Kardefelt-Winther D. (2014b). Problematising excessive online gaming and its psychological predictors. *Comput Human Behav*. 31:118–122.
- Kardefelt-Winther D. (2015). A critical account of DSM-5 criteria for internet gaming disorder. *Addict Res Theory*. 23:93–98.
- King DL, Haagsma MC, Delfabbro PH, Gradisar M, Griffiths MD. 2013. Toward a consensus definition of pathological video-gaming: a systematic review of psychometric assessment tools. *Clin Psychol Rev*. 33:331–342.
- Király O, Griffiths MD, Urbán R, Farkas J, Kökönyei G., Elekes Z., Tamás D, Demetrovics Z. 2014. Problematic Internet use and problematic online gaming are not the same: findings from a large nationally representative adolescent sample. *Cyberpsychol Behav Soc N*. 17:749–754.
- Kirschner PA, Karpinski AC. 2010. Facebook® and academic performance. *Comput Human Behav*. 26:1237–1245.
- Koc M, Gulyagci S. 2013. Facebook addiction among Turkish college students: the role of psychological health, demographic, and usage characteristics. *Cyberpsychol Behav Soc Netw*. 16:279–284.
- Thege BT, Woodin EM, Hodgins DC, Williams RJ. 2015. Natural course of behavioral addictions: a 5-year longitudinal study. *BMC Psychiatry*. 15:4.
- Kuss DJ, Griffiths MD. 2011. Online social networking and addiction – a review of the psychological literature. *Int J Environ Res Publ Health*. 8:3528–3552.

- Kuss DJ, Griffiths MD. 2012a. Internet and gaming addiction: a systematic literature review of neuroimaging studies. *Brain Sci.* 2:347–74.
- Kuss DJ, Griffiths MD. 2012b. Internet gaming addiction: a systematic review of empirical research. *Int J Ment Health Addict.* 10:278–296.
- Lee-Won RJ, Herzog L, Park SG. 2015. Hooked on Facebook: the role of social anxiety and need for social assurance in problematic use of Facebook. *Cyberpsychol Behav Soc N.* 18:567–574.
- Lin L, yi, Sidani JE, Shensa A, Radovic A, Miller E, Colditz JB, Hoffamn BL, Giles LM, Primack, BA. 2016. Association between social media use and depression among U.S. young adults. *Depress Anxiety.* 33:323–331.
- Maraz A, Király O, Demetrovics Z. 2015. The diagnostic pitfalls of surveys: if you score positive on a test of addiction, you still have a good chance not to be addicted. *J Behav Addict.* 4:151–154.
- Marlatt GA, Gordon JR. 1985. *Relapse prevention.* Nueva York: Guilford.
- Masur PK, Reinecke L, Ziegele M, Quiring O. 2014. The interplay of intrinsic need satisfaction and Facebook specific motives in explaining addictive behavior on Facebook. *Comput Human Behav.* 39:376–386.
- McCroskey JC, Richmond VP. 1995. Correlates of compulsive communication: quantitative and qualitative characteristics. *Commun Quart.* 43:1–8.
- McIlwraith R, Jacobvitz RS, Kubey R, Alexander A. 1991. Television addiction: theories and data behind the ubiquitous metaphor. *Am Behav Sci.* 35:104–121.
- Mehdizadeh S. 2010. Self-presentation 2.0: Narcissism and self-esteem on Facebook. *Cyberpsychol Behav Soc N.* 13:357–364.
- Moreau A, Laconi S, Delfour M, Chabrol H. 2015. Psychopathological profiles of adolescent and young adult problematic Facebook users. *Comput Human Behav.* 44:64–69.
- Nadkarni A, Hofmann SG. 2012. Why do people use Facebook? *Pers Individ Dif.* 52:243–249.
- Nolan BV, Feldman SR. 2009. Ultraviolet tanning addiction. *Dermatol Clin.* 27:109–112.
- Oberst U, Renau V, Chamarro A, Carbonell X. 2016. Gender stereotypes in Facebook profiles: are women more female online? *Comput Human Behav.* 60:559–564.
- Orr ES, Sisic M, Ross C, Simmering MG, Arseneault JM, Orr RR. 2009. The influence of shyness on the use of Facebook in an undergraduate sample. *Cyberpsychol Behav.* 12:337–340.
- Pang ASK. 2013. *The distraction addiction.* New York: Little Brown and Company.
- Petry NM, O'Brien CP. 2013. Internet gaming disorder and the DSM-5. *Addiction.* 108:1186–1187.
- Petry NM, Rehbein F, Gentile DA, Lemmens JS, Rumpf HJ, Mößle T, Bischof G, Tao R, Fung DS, Borges G, et al. 2014. An international consensus for assessing Internet gaming disorder using the new DSM-5 approach. *Addiction.* 109:1399–1406.
- Pontes HM, Király O, Demetrovics Z, Griffiths MD. 2014. The conceptualisation and measurement of DSM-5 Internet gaming disorder: the development of the IGD-20 test. *PLoS One.* 9:e110137.
- Renau V, Oberst U, Carbonell X. 2013. Construcción de la identidad a través de las redes sociales online. *Anuario Psicología.* 43:159–170.
- Rodríguez-Llera MC, Domingo-Salvany A, Brugal MT, Silva TC, Sánchez-Niubó A, Torrens M. 2006. Psychiatric comorbidity in young heroin users. *Drug Alcohol Depend.* 84:48–55.
- Rounsaville BJ. 1982. Heterogeneity of psychiatric diagnosis in treated opiate addicts. *Arch Gen Psychiatry.* 39:161.
- Rudski JM, Segal C, Kallen E. 2009. Harry Potter and the end of the road: parallels with addiction. *Addict Res Theory.* 17:260–277.
- Ryan T, Chester A, Reece J, Xenos S. 2014. The uses and abuses of Facebook: a review of Facebook addiction. *J Behav Addict.* 3:133–148.
- Sánchez-Carbonell X, Beranuy M, Castellana M, Chamarro A, Oberst U. 2008. La adicción a Internet y al móvil: Moda o trastorno? *Adicciones.* 20:149–160.
- Smock AD, Ellison NB, Lampe C, Wohn DY. 2011. Facebook as a toolkit: a uses and gratification approach to unbundling feature use. *Comput Human Behav.* 27:2322–2329.
- Stall R, Biernacki P. 1986. Spontaneous remission from the problematic use of substances: An inductive model derived from a comparative analysis of the alcohol, opiate, tobacco, and food/obesity literatures. *Int J Addict.* 21:1–23. doi:10.3109/10826088609063434.
- Steinfeld C, Ellison NB, Lampe C. 2008. Social capital, self-esteem, and use of online social network sites: a longitudinal analysis. *J Appl Dev Psychol.* 29:434–445.
- Suissa AJ. 2008. Addiction to cosmetic surgery: representations and medicalization of the body. *Int J Ment Health Addict.* 6:619–630.
- Surrat CG. 1999. *Netaholics?: The creation of a pathology.* New York: Nova Science.
- Sussman S, Moran MB. 2013. Hidden addiction: television. *J Behav Addict.* 2:125–132.
- Targhetta R, Nalpas B, Perney P. 2013. Argentine tango: another behavioral addiction? *J Behav Addict.* 2:179–186.
- Tokunaga RS. 2011. Social networking site or social surveillance site? Understanding the use of interpersonal electronic surveillance in romantic relationships. *Comput Human Behav.* 27:705–713.
- Turel O, He Q, Xue G, Xiao L, Bechara A. 2014. Examination of neural systems sub-serving Facebook 'Addiction.' *Psychol Rep.* 115:675–695.
- Valkenburg PM, Peter J, Schouten AP. 2006. Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *CyberPsychol Behav.* 9:584–590.
- Vallerand RJ. 2008. On the psychology of passion: in search of what makes people's lives most worth living. *Can Psychol.* 49:1–13.
- Verdejo-García A, Fernández-Serrano MJ, Tirapu-Ustarroz J. 2013. Denial and lack of awareness in substance dependence: Insights from the neuropsychology of addiction. In: Miller PM, Ball SA, Bates ME, Blume AW, Kampman KM, Kavanagh DJ, Bates ME, Larimer M, Petry NM, De Witte P, editors. *Comprehensive addictive behaviors and disorders.* San Diego, CA: Elsevier Academic Press. p. 77–86.
- Walters GD. 2000. Spontaneous remission from alcohol, tobacco, and other drug abuse: seeking quantitative answers to qualitative questions. *Am J Drug Alcohol Abuse.* 26:443–60.
- Wang CW, Ho RTH, Chan CLW, Tse S. 2015. Exploring personality characteristics of Chinese adolescents with internet-related addictive behaviors: trait differences for gaming addiction and social networking addiction. *Addict Behav.* 42:32–35.
- Wegmann E, Stodt B, Brand M. 2015. Addictive use of social networking sites can be explained by the interaction of Internet use expectancies, Internet literacy, and psychopathological symptoms. *J Behav Addict.* 4:155–162.
- Wolniczak I, Cáceres-DelAguila JA, Palma-Ardiles G, Arroyo KJ, Solís-Visscher R, Paredes-Yauri S, Bernabe-Ortiz A. 2013. Association between Facebook dependence and poor sleep quality: a study in a sample of undergraduate students in Peru. *PLoS One.* 8:e59087.
- Wood RTA, Griffiths MD, Parke A. 2007. Experiences of time loss among videogame players: an empirical study. *Cyberpsychol Behav.* 10:38–44.
- Young KS. 1998. Internet addiction: the emergence of a new clinical disorder. *Cyberpsychol Behav.* 1:237–244.
- Young KS. 2013. Treatment outcomes using CBT-IA with Internet-addicted patients. *J Behav Addict.* 2:209–215.
- Zaremozhzabieh Z, Samah BA, Omar SZ, Bolong J, Akhtar N, Kamarudin NA. 2014. Addictive Facebook use among university students. *Asian Soc Sci.* 10:107–116.