

Smartphone use can be addictive? A case report

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Background and aims: The use of mobile phones has become an integral part of everyday life. Young people in particular can be observed using their smartphones constantly, and they not only make or receive calls but also use different applications or just tap touch screens for several minutes at a time. The opportunities provided by smartphones are attractive, and the cumulative time of using smartphones per day is very high for many people, so the question arises whether we can really speak of a mobile phone addiction? In this study, our aim is to describe and analyze a possible case of smartphone addiction. *Methods:* We present the case of Anette, an 18-year-old girl, who is characterized by excessive smartphone use. We compare Anette's symptoms to Griffiths's conception of technological addictions, Goodman's criteria of behavioral addictions, and the DSM-5 criteria of gambling disorder. *Results:* Anette fulfills almost all the criteria of Griffiths, Goodman, and the DSM-5, and she spends about 8 hr in a day using her smartphone. *Discussion:* Anette's excessive mobile phone usage includes different types of addictive behaviors: making selfies and editing them for hours, watching movies, surfing on the Internet, and, above all, visiting social sites. The cumulative time of these activities results in a very high level of smartphone use. The device in her case is a tool that provides these activities for her whole day. Most of Anette's activities with a mobile phone are connected to community sites, so her main problem may be a community site addiction.

Keywords: behavioral addiction, smartphone addiction, social network sites

INTRODUCTION

The media constantly emphasize the idea that life would be unimaginable without mobile phones. As mobile phones are constantly becoming "smarter" and more modern, mobile phone advertisements suggest that our social or intergroup status is determined by the brand of our phones. Current manufacturers' main marketing strategy is that they supply phones with functions and accessories such that they are in easy reach in every situation and are able to solve every kind of problems (with nationwide network/Internet coverage, GPS, huge/expandable memory, external batteries, waterproof bags, camera accessories, music player accessories, solar charger, and flashlight). With the use of the Internet, the number of applications available to download on your phone is limitless, it can be newspaper or book reading, installing games, or even locating friends.

The most important reason for using a mobile phone is to keep in touch with people, followed by its function as a status symbol and as a useful tool for safety reasons (to be reachable in the case of emergency) (Balakrishnan & Raj, 2012). Leung and Wei (1999) identified seven factors, which make possessing and using mobile phones appealing to individuals: fashion/status, affection/sociability, relaxation, mobility, immediate access, mediation, and

reassurance. In their research with U.S. college students, Aoki and Downes (2003) identified the leading reasons for purchasing a mobile phone: a sense of security (e.g., when night driving), continuous storage of information (phone numbers, SMSs, and files), social interactions with friends and family, and maintaining a private life.

Leung and Wei's (1999) research found that mobile phone users are younger, richer, and better educated than non-users, suggesting that mobile phones may indeed function as status symbols; therefore, the lack of an appropriate device may lead to social exclusion (Charlton, Panting, & Hannan, 2002; Ling, 2000; Pavis, Hubbard, & Platt, 2001). However, it is worth noting that this research has become less relevant over the years, due to the accelerated social changes, and the availability and necessity of phones, nearly everyone owns a mobile phone. Nowadays, it is rather the possession of a newer or older model, which may show similar social differences.

Smetanuk (2014) examined predictions regarding problematic cell phone use. Depression, extraversion, and age

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predicted a high score on the Adapted Cell Phone Addiction Test. Similarly, in another study, results show that extroverts use their mobiles far more, but not necessarily in situations when they are in public view (Turner, Love, & Howell, 2008). Neurotic individuals need to be in a large open space while talking on the phone, but no direct relationship was found between the regularity of use and neuroticism. Nevertheless, neurotics become distracted much more easily and tend to react more roughly in such situations than extroverts.

Haug et al. (2015) identified indicators of smartphone addiction using a short version of the Smartphone Addiction Scale for Adolescents in Switzerland. Smartphone addiction occurred in 256 of the 1,519 students, mainly in younger adolescents (15–16 years) compared with young adults (19 years and older), and in persons reporting lower physical activity.

Demirci, Akgönül, and Akpınar (2015) found that the Smartphone Addiction Scale scores of females were higher than those of males; furthermore, positive correlations were found between the Smartphone Addiction Scale scores and levels of anxiety and depression.

According to Cassidy (2006), smartphone usage among the young is considered a positive, rather than a negative, addiction. This is because the social advantages derived from usage (e.g., to be reachable and as a sign of higher social status, especially when owning a new model) usually compensate for the disadvantages (e.g., financial problems and problems with teachers and parents). To measure the prevalence of possible problem users, Bianchi and Phillips (2005) made a Mobile Phone Problem Use Scale (MPPUS). MPPUS is a unifactorial tool, which contains 27 items. Another tool is the Problematic Mobile Phone Use Questionnaire in which the 30 items are loaded into four factors (dangerous use, prohibited use, dependence symptoms, and financial problems) (Billieux, Van der Linden, & Rochat, 2008).

Our aim in this study is to describe and discuss a possible case of smartphone addiction. We try to fit the case to the criteria of behavioral addiction using Griffiths's (2000) and Goodman's (1990) conceptions and the DSM-5 criteria of gambling disorder (American Psychiatric Association, 2013).

CASE REPORT

Anette is an 18-year-old girl who lives with her mother. Her parents are divorced; her mother has experienced depressive symptoms; her father suffered from alcohol and gambling addiction, and he harassed them regularly. He had a strong aptitude for suicide and made two suicide attempts. Anette did not have a good relationship with her father, saying "we were like strangers living under the same roof." Her father accepted their shallow relationship, and it hurt her that her father did not want to bring about any change in their relationship.

Anette was sent to us by her mother, who had taken part in a presentation about excessive mobile phone usage. She was cooperative all the time; she did not consider her excessive phone usage. She told us that she could give up her cell phone usage if she really wanted to, but in that case she would be abandoned by her friends and therefore she did

not want to do so. During the conversations, she filled out the Beck Depressive Questionnaire, which indicated a mild depression. Currently, she is in her second year at a business trade school and is studying to become a salesclerk. She does not care about her schooling. Six years earlier, when she was 12, she received her first smartphone. At first, she rarely used it; however, as smartphone functions became more comprehensive, she spent more and more time with it. Currently, she uses her cell phone 6–7 hr per day. This usage is not continuous; however, she feels a gradually growing pressure to use her mobile phone approximately every 15 min. She manages everything with her smartphone and uses plenty of applications, for example, photo editor, music recognition, or public sites. Interestingly, she rarely makes phone calls, and the monthly fee that can be used for phone calls is not used up entirely for every month. Anette knows that she ought to use her smartphone less often; however, she rarely manages to do this. She is in the inchoative stage of problem admission. On a cognitive level, she has understood that she needs to use her cell phone less often; however, this idea has not yet turned into action. She feels that she always has to be available for her acquaintances, which is why she checks her cell phone continuously. If she finds herself without her cell phone, she borrows or steals one from one of her friends in her social group and uses it.

Currently, her relationships with her peers have become shallow; in her social life, she wants to have everybody's attention and make friends. However, these friendships usually last for 2–3 weeks. She meets lots of boys, but her relationships with them are not long-lasting. She often chooses her smartphone over her peers, and when going out with them she often uses her smartphone there too. Her friends tolerate this behavior, and although she does not take part in most of the social interactions, she is not excluded. It has occurred that when she was on a holiday with her peers, she stayed in the apartment 50% of time and used her mobile phone while her peers were at the beach. On the other hand, in most of the cases, she stays in touch with her friends via phone and public sites. She added "If my smartphone is not turned on, I will feel that I will miss something, but if my smartphone is on, I also check it continuously." After using the smartphone, she feels a short period of relaxation followed by a gradually growing distress, which can be reduced only by another session with the phone. The use of a cell phone is a negative reinforcement for her, and she said "it is not a satisfactory feeling, but it does not hurt, and I am not so often anxious."

During the therapy, which lasted approximately 2 years, the psychoanalytic approach and methods were used. Anette had difficulties dealing with her negative emotions; instead of facing them she denied, repressed, and projected them. This is why the focus of the therapy was to work with the defense mechanisms, to identify her emotions, and to provoke in her a need for relationships. Anette quit the therapy several times; however, she always decided to continue it after a short break. Leaving the therapy was a way for her to escape her negative emotions and to avoid reliving her original trauma. She left the therapy several months ago, saying "I want to discuss something with myself."

DISCUSSION

An essential question is whether we can talk about mobile phone addiction in Anette's case or whether another diagnosis is more appropriate when describing her behavior. Anette fits to the addiction criteria conceptualized by Goodman (1990) in a format similar to that of DSM-III-R (American Psychiatric Association, 1987), as shown in Table 1. These criteria are general terms and not restricted by reference to a particular behavior; they are capable of determining whether a given behavioral syndrome (excessive smartphone use in this case) is an addictive disorder.

Griffiths (2000) described mobile phone addiction as a "technological addiction" that involves human-machine interaction. Within this model, problematic mobile phone use can be described by components, such as preoccupation, mood modification, salience, tolerance, withdrawal, and relapse. Anette fulfills all the components of this model

too. Mood modification presents because Anette's anxiety decreases during smartphone usage. Salience occurs because she always charges her phone before leaving home and her cognition revolves around smartphones all time. If she does not use her phone, she feels a craving. With her frequent usage, she often disrupts social norms. During her addictive career, she experienced tolerance; from a daily 1-hr phone use, she reached a daily level of 7- to 8-hr phone use. She feels a gradually growing pressure ("anxiety or some urge") to use her mobile phone about every 15 min, which constitutes withdrawal symptoms. She has not experienced relapse yet because she has not tried to stop or reduce her cell phone usage.

Finally, we will try to fit Anette's symptoms to the gambling disorder criteria in the DSM-5 (American Psychiatric Association, 2013, p. 585). One of the criteria cannot be adapted to smartphone usage: "After losing money gambling, often returns another day to get even (chasing

Table 1. Smartphone addiction as a behavioral addiction according to Goodman's criteria (1990, p. 1404)

A	Recurrent failure to resist impulses to engage in a specified behavior.	Anette knows that in certain places (at the beach, while dancing or during a family lunch) she should not use the phone for a longer period, but she cannot resist the urge.
B	Increasing sense of tension immediately prior to initiating the behavior.	She is characterized by an increasing stress level when she does not have her mobile phone around, or is not allowed to use it. When her group is not looking, she often checks her phone.
C	Pleasure or relief at the time of engaging in the behavior.	When using her phone, her withdrawal symptoms dissolve, but she does not experience a pleasant state (negative reinforcement).
D	A feeling of lack of control while engaging in the behavior.	Anette nearly always uses her phone for a longer period than she originally planned; due to the continuous use of Internet related services her phone bill is usually high.
E	<i>At least five of the following:</i>	
	E1. Frequent preoccupation with the behavior or with activity that is preparatory to the behavior.	She always charges her phone before leaving and has a spare battery for longer trips. If she leaves her phone at home, she returns for it.
	E2. Frequent engaging in the behavior to a greater extent or over a longer period than intended.	Photo editing, visiting social networking sites, or watching movies always takes longer period than she planned.
	E3. Repeated efforts to reduce control or stop the behavior.	Anette has not tried to reduce the time she spends on using her phone yet, but she thinks it would be necessary. On a cognitive level, she tries to stop using her smartphone several times a day.
	E4. A great deal of time spent in activities necessary for the behavior, engaging in the behavior or recovering from its effects.	Anette spends a lot of time finding and upgrading the necessary applications via the Internet. She checks her messages and photos unnecessarily often on social networking sites. Her thoughts in general are associated with phone use.
	E5. Frequent engaging in the behavior when expected to fulfill occupational, academic, domestic, or social obligations.	Because of her frequent phone use, she neglects her studies and does not do housework.
	E6. Important social, occupational or recreational activities given up or reduced because of the behavior.	She often stops studying because of smartphone use; she spends less time on recreational activities and with friends.
	E7. Continuation of the behavior despite knowledge of having a persistent or recurrent social, financial, psychological, or physical problem that is caused or exacerbated by the behavior.	Anette is aware of the negative consequences of her problem (such as shallower relationships, a high phone bill, interpersonal conflicts or apathy); however, she is unable to reduce her phone use.
	E8. Tolerance: need to increase the intensity or frequency of the behavior to achieve the desired effect, or diminished effect with continued behavior of the same intensity.	Anette has been using mobile phones for 6 years. From a daily 1-hr phone use she reached a daily level of 7- to 8-hr phone use over 6 years. She feels that with the expansion of applications and phone functions she has to spend more time with the device.
	E9. Restlessness or irritability if unable to engage in the behavior.	If Anette cannot use her phone she gets aggressive, nervous, and becomes unable to pay attention to others.
F	Some symptoms of the disturbance must have persisted for at least 1 month, or have occurred repeatedly over a longer period.	Symptoms have continuously persisted for 2 years.

one's losses)," because chasing losses is a behavior, which is a special characteristic of gamblers.

The DSM-5 criteria of a gambling disorder are persistent and recurrent problematic behavior leading to clinically significant impairment or distress, as indicated by the individual exhibiting four (or more) of the following in a 12-month period:

1. *Needs to use a mobile phone for increasing amounts of time in order to achieve the desired excitement.* – From a daily 1-hr phone use, Anette reached a daily level of 7- to 8-hr phone use over 6 years.
2. *Is restless or irritable when attempting to cut down or stop smartphone usage.* – Her stress and aggression level increases when attempting to cut down or stop smartphone usage.
3. *Has made repeated unsuccessful efforts to control, cut back, or stop smartphone usage.* – Anette has not tried to reduce the time she spends on using her phone yet, but she thinks it would be necessary.
4. *Is often preoccupied with smartphone use.* – Anette always checks the Internet for new applications, prepares batteries to last all day, and searches for information regarding new smartphone models.
5. *Often uses a smartphone when feeling distressed.* – When Anette feels an increasing level of stress or depression, she often uses her phone to reduce this.
6. *Lies to conceal the extent of involvement with smartphone use.* – Anette often lies to her mother about her smartphone use frequency.
7. *Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of mobile phone usage.* – Due to mobile usage, her relationships with her peers have become shallower and many times she avoids meetings to deal with her phone.
8. *Relies on others to provide money to relieve desperate financial situations caused by mobile phone usage.* – This criterion do not fit Anette because she does not use her phone for calls, but for other free functions and applications.

Anette fulfills almost all the criteria of the DSM-5 gambling disorder.

As we have seen previously, Anette's symptoms fit to Goodman's (1990) and Griffiths's (2000) criteria of behavioral addictions and also fit to the criteria of addiction as described in the DSM-5, which indicate that she may suffer from smartphone addiction. But before stating this, we must examine whether we could call Anette a mobile phone addict or whether she is addicted to an application or some function, which is provided by the cell phone (e.g., addicted to social networks or games). According to Anette, the average daily use is the following: at least 3–4 hr for social networking, 1.5 hr for surfing on the Internet, 1 hr for watching movies or series (in the evenings), 1 hr for games, 0.5 hr for listening to music, and 1 hr for taking and editing photos. The cumulative time of these activities results in a very high level of smartphone use. The most frequently used function (3–4 hr of social networking) can be called average among 18-year-olds; however, the 1-hr-long photo editing is also associated with social networking too, because she

uploads the pictures there. Internet surfing may also be connected to social networking sites, because, according to Anette, the content and information she has gathered are often shared with friends. The other activities are not classified as social networking, but her mobile phone activity is organized mostly around community sites. We think that the social network addiction is a better concept to describe Anette's case than the cell phone addiction. The cell phone provides Anette unlimited availability in the case of various behaviors. We can regard the mobile phone as a tool, which can be a source of addictions because of its mobility. Due to the mobile phone, she is able to do these activities anywhere, for example, at a bus station, during lessons, or while having her meals. Availability is a cardinal key in the inchoative stage of addictions, as it increases the probability of the development of addictive behavior.

Furthermore, there are believed to be some psychological problems besides her excessive mobile phone usage. The mild depression indicated by the Beck Questionnaire (Beck, Steer, & Carbin, 1988) is debilitating, so for Anette it becomes very important to take part in social life, which she accomplishes via her mobile phone, and her relationships are shallow. Her mother can be characterized by depressive symptoms, and her father has made suicide attempts. The cell phone makes her feel relaxed; she feels that with the phone she is available and this way the level of her anxiety decreases. Her negative emotions (anger and shame) are mainly related to her father. Breaking up with her boyfriends so frequently is the repetition of her relationship with her father. She makes herself relive the original trauma and after the break-up she expects the boy to look for her, just as she expects her father to do the same. She also has an ambivalent relationship with her mother; she feels that her mother never understands her feelings. She uses her mobile phone as a compensation for the lack of satisfying relationships in her life.

Anette wants to be always available for her friends. This social aspect is not a characteristic of addictions, but it is important that this availability occurs using social sites and not phone calls.

Anette thinks that she would be abandoned by her friends if she could give up her cell phone usage and therefore insists on constantly checking and using her smartphone. This cognitive distortion may be one of the roots of her excessive smartphone usage and frequent community site visits (she said "without my phone I will be abandoned by my friends"). On the other hand, this means that her feelings depend on the availability of the social sites, which are provided by the smartphone. Presumably, the frequent use of a mobile phone is a coping mechanism for her, helping her to struggle with the anxiety deriving from maladaptive thoughts. There is an inconsistency in Anette's case; however, as we mentioned above, she often chooses her smartphone over her friends but wants to be available for these same friends. The fear of intimacy and the repression of emotions dominate in her relationships. She explains her cell phone addiction with the need to relate to people, but at the same time she also uses her mobile phone excessively when she is in a group. In conclusion, she has a need for relationships, but her need for love is repressed and she compensates for it with addiction.

Preferring the Internet or smartphones over friends is a characteristic of technological addictions (see Demetrovics, Szeredi, & Nyikos, 2004). In general, we think – based on Anette’s case – that there are other possible addictive behaviors (e.g., social site addiction, video game addiction, and Internet addiction) behind most of the cases of excessive mobile phone use, and smartphones are just tools that provide a high availability and accessibility of the object of the addiction (social sites, video games, or the Internet). Our case report also supports Griffiths’s (2012) and Billieux’s (2012) suggestions that there may be more particular activities behind a possible smartphone addiction which may be considered by researchers and clinical psychologists. During the therapy for cell phone addiction, we are facing similar problems as in other addictions, such as the denial of the addiction. The most common defense mechanisms are projection and repression, which are used to avoid facing the negative emotions involved. Leaving the therapy is also very common in the case of patients who suffer from addictions.

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