

A Study on Android Mobile Addiction: Is It Really Exists or Not

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ABSTRACT

Aims: The aim of this paper was to review the relevant literature on the topic of Mobile addiction and determine whether this disorder exists or not. **Methods:** To review quantitative and qualitative studies on android mobile addiction and analyzed their methods and conclusions to make a determination on the suitability of the diagnosis “addiction” to excessive and problematic mobile use. **Results:** The behaviors observed in the research could be better labeled as problematic or maladaptive android mobile use and their consequences do not meet the severity levels of those caused by addiction. Although the majority of research in the field declares that android mobile addiction are addictive or takes the existence of mobile addiction as granted, we did not find sufficient support from the addiction perspective to confirm the existence of android mobile addiction at this time. **Discussion and conclusions:** We recommend that problematic technology use is to be studied in its sociocultural context with an increased focus on its compensatory functions, motivations, and gratifications. Addiction is a disorder with severe effects on physical and psychological health. A behavior may have a similar presentation as addiction in terms of excessive use, impulse control problems, and negative consequences, but that does not mean that it should be considered an addiction. We propose moving away from the addiction framework when studying technological behaviors and using other terms such as “problematic use” to describe them.

Keywords: Android mobile, addiction, technology, Mobile phones, Internet, problematic use

Mobile phone usage is so strongly integrated into young people’s behavior that symptoms of behavioral addiction, such as cell phone usage interrupting their day to-day activities. There are several reviews addressing the definition, Mobile phone addiction symptoms, Assessment of Mobile phone addiction, Negative effect of Mobile phone addiction and some reviews addressing the role of Mobile phone addiction on mental and physical health. The recent development of the multifunctional mobile and its subsequent global popularity has changed the communication and information landscape; remolded the interests, values, and desires of many users; and triggered concerns around the world about overuse and addiction. Mobile phones are personal devices that indicate social identity and status, but the main differentiating feature between them is that a mobile has permanent access to the Internet and consequently all of the Internet’s appealing and problematic content. Mobile provides

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numerous gratifications, such as sociability, entertainment, information finding, time management, coping strategies, and social identity maintenance. The Mobile has become an essential part of daily life and research has shown that certain people become so attached to their device that they experience separation anxiety when it is not with them. However, at this time, no mention has been made of Mobile addiction in either the DSM-5 or in the ICD-11's draft.

The recent development of the multifunctional android mobile and its subsequent global popularity has changed the communication and information landscape; remolded the interests, values, and desires of many users; and triggered concerns around the world about overuse and addiction. Mobile phones are both mobile, personal devices that indicate social identity and status, but the main differentiating feature between them is that an android mobile has permanent access to the Internet and consequently all of the Internet's appealing and problematic content. Android mobiles provide numerous gratifications, such as sociability, entertainment, information finding, time management, coping strategies, and social identity maintenance (Bian & Leung 2015, Kuss & Kanjo 2018; Skierkowski & Wood 2012). The android mobile has become an essential part of daily life and research has shown that certain people become so attached to their device that they experience separation anxiety when it is not with them (Cheever, Rosen, Carrier & Chavex 2014). The device can even be comforting in times of stress, offering a "security blanket" effect whereby the initial negative response to a stressor is lowered in a similar way that occurs with children and a comfort object like a blanket (Panova & Leras . 2016).

The android mobile popularity and users' deep connection with it has therefore awoken concerns about its addiction potential. The American Psychiatric Association 2013 first categorized a behavior – gambling – as a non-substance-related addictive disorder and recommends further research on Internet gaming disorder. However, at this time, no mention has been made of smartphone addiction in either the DSM-5 or in the ICD-11's draft. Nevertheless, research on smartphone and mobile phone addiction has notably increased in recent years and there seems to be a rising tendency to label popular technological behaviors as addictive.

Even though the disorder is not recognized in psychiatry manuals, screening studies estimate that android mobile addiction ranges from anywhere between just above 0% and 35%, with one study reporting that 48% of undergraduate university students were android mobile addicted (Aljomaa 2016). And the most frequent range being between 10% and 20% (Billieux, Maurage 2015 & Carbonell 2018). However, most of these studies use self-report measures, thereby relying on the accuracy of users' perceptions about their own use, and each study uses different methods and questionnaires to determine the existence of addiction. Before pathologizing technology-related behaviors, it is important to analyze them in context. For example, there has been a considerable amount of research conducted on mobile addiction in countries, such as South Korea, China, and Taiwan (Carbon, Guardiola 2016). It has been suggested that this may be because the cultural norms in some Asian societies make it difficult for people to find the time and opportunity to freely socialize with one another and be themselves, which in turn contributes to the high use of personal mobile devices. Other culturally oriented studies have highlighted how the values of certain cultures are reflected and expressed in mobile phone behavior. These studies suggest that the sociocultural context has an important influence on why and how certain mobile behaviors occur and therefore should be considered when studying problematic use. Professional, social, and academic contexts should also be considered when studying problematic mobile behavior, because much of mobile use is dependent on professional, social, or academic demands.

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Most of the android mobile addiction studies at the moment focus on discovering what percentage of the sample are mobile -addicted and then looking for correlations between the addiction scores with various other behaviors and characteristics. However, at this time, there is not a strict set of standardized criteria applied to the diagnosis of android mobile addicts. Moreover, a critical analysis of whether smartphone use can even be considered addictive has not been conducted. With all the above in mind, this paper is going to consider whether android mobile can be considered addictive by analyzing the literature on the subject through the lens of addiction criteria and determining whether the concern about android mobile addiction” is merited.

Android mobile Addiction Analyzed through Addiction Criteria

In order for substance and behavioral addictions to be comparable, they must share the core symptoms of the disorder and have many similarities in phenomenology and adverse consequences. According to Goodman 1990, addiction defines a condition whereby a problematic behavior is characterized by (a) recurrent failure to control the behavior and (b) continuation of the behavior despite significant negative consequences. The well-accepted symptoms of addiction proposed by Griffiths are mood modification, tolerance, salience, withdrawal symptoms, conflict, and relapse. However, the descriptions of these criteria can cover a broad-spectrum of severity, which can be more or less significant. Recently, Saunders et al. 2017 stated that in the ICD-11 draft, the primary features of substance dependence are (a) a strong internal drive to use the substance, coupled with an impaired ability to control that use; (b) increasing priority given to using the substance than doing other activities; and (c) persistence of use despite harm and adverse consequences. On the topic of behavioral addiction specifically, Kardefelt-Winther et al. 2017, proposed a definition of two components: (a) significant functional impairment or distress as a direct consequence of the behavior and (b) persistence over time. We can therefore summarize the theoretical definition of addiction from its various sources by two key points: the (severe) harm, impairment, or negative consequences and the psychological (craving, salience, and loss of control) and physical dependence (tolerance and withdrawal) that leads one to carry on the behavior. At this point, we will review the critical criteria for addiction and determine how well mobile addiction satisfies them.

Significant functional impairment

One of the essential features of a behavioral addiction should be the functional impairment in clinical settings (Kardefelt-Winther 2017). If the harm is not significantly severe, the disorder would be better classified as problematic or maladaptive use or else considered as a side effect/manifestation of another primary disorder. The screening studies have indicated negative consequences associated with high mobile use, such as interpersonal and academic problems. However, although face-to-face relationships may suffer with the prioritization of mobile use over in vivo interaction and academic achievement may be negatively impacted by high use, these problems can also be associated with a variety of other reasons and stressors that are not considered to fall in the category of addiction.

A subsection of functional impairment related to addiction is also financial problems. With drug addictions, gambling addiction and others, one of the primary problems is the significant loss of money associated with maintaining the addiction. When Billieux, Van der Linden, and Rochat 2008, built the Problematic Mobile Phone Use Questionnaire (PMPU-Q), one of the dimensions they looked at was the financial problems associated with mobile phone use. However, this dimension has been excluded in the Problematic Mobile Phone Use Questionnaire – Revised (Kuss , Harkin & Billieus 2018) because the new use policies and

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rates of telecommunications companies make it insignificant, once again highlighting the importance of a technology-related behavior's sociocultural context.

It is also important to consider that although many studies have addressed the issue of mobile addiction, it has not been reported in any of those reviewed that the researchers or the ethics committees in the universities felt the ethical obligation to provide a psychological treatment to the "phone addicts" identified in the research. This is itself an important indicator of the level of functional impairment exhibited by "addictive" mobile use. It is necessary to distinguish serious psychopathology, such as addiction from passion, high engagement, lack of adaptive, self-control, or coping strategies, so that we do not undermine the severity of mental disorders.

Severe physical consequences

One main characteristic of an addiction is the impairment of physical health. Smokers have little psychological impairment, but they suffer from demonstrable physical harm. This does not seem to be the case for mobile use. There are no more physical consequences than mild tendinitis (Fernandez- Guerrero 2014) and anecdotal reports of suffering from lightheadedness or blurred vision, pain in the wrists, or at the back of the neck and urban incidents from people talking/texting while walking.

Salience

In the Smartphone Addiction Scale (Kwon 2013), the item "*Having my mobile in my mind even when I am not using it*" relates to the concept of salience. In Griffiths' 2005, component model of addiction, salience is when the activity in question becomes the most important activity to the user and dominates their thinking. Although many mobile users may agree that they think about the smartphone frequently, even when they are not using it, so much of a user's social, professional, and personal life is mediated through the mobile that we would argue it is reasonable for the device to be at the forefront of one's thoughts and that this does not constitute an indicator of addiction.

Withdrawal

It is not mandatory that a substance produces withdrawal to be considered a substance-use disorder (i.e., hallucinogens) and, besides that, withdrawal is not one of the criteria for gambling disorder APA 2013. In the case of Internet gaming disorder, Kaptsis, King, Delfabbro, and Gradisar 2016 also concluded after a systematic review that available evidence on the existence of true addictive withdrawal in Internet gaming is very underdeveloped. But scholars in mobile addiction found that some items could be grouped in a withdrawal factor when questionnaires were administered to their samples. Examples of items loading the withdrawal factor are: "*I feel restless and irritable when the mobile is unavailable*" Lin 2014, "*It would be painful if I am not allowed to use mobile*" and "*Bringing my mobile to the toilet even when I am in a hurry to get there*" Know 2013. However, this reported discomfort of being far from the mobile must be viewed in context.

For most users, after a period of time and adaptation, the multifaceted functionality of the mobile becomes an essential part of everyday life, therefore not having it on hand leads to the need for restructuring and adapting one's regular activities, something which is always initially uncomfortable and/or stressful. In addition, being far from the device can be a stressful state for many because of the awareness that their contacts, both personal and professional, will feel displeasure and/or offense at being ignored. Therefore, the reaction of stress at having this important tool missing is not abnormal. It is also important to note that

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mobile are often expensive and contain sensitive personal information; therefore, a primary stressor during their absence may be a fear that the device can fall into the wrong hands, get damaged, or get stolen, which are normal reactions when viewed in context.

Relapse

This condition is very distressing and harmful in substance addicts (Marlatt & Gordon 1985), but there is no information about relapse with the presumed mobile addiction. However, this may be because there are no clinical samples and longitudinal studies.

“Better explained by”

Finally, one important criterion is that the disorder is not better explained by another condition. For example, the criteria B for gambling disorder is “The gambling behavior is not better explained by a manic episode”(APA 2013) . As have commented in their case study, “Thalia” could fit the criteria for mobile phone addiction but her condition could be better understood through a psychological process-based clinical formulation where the irrational beliefs about the self, the dependent relationship-maintenance style, the insecure attachment style, the low impulse control in emotional contexts, the repetitive negative thoughts, and the reassurance behaviors could better explain her mobile phone overuse. According to Billieux et al. (2014) this overuse should not be directly targeted by a psychological intervention but will improve as the emotional distress improves. The negative effects associated with mobile use may therefore be better explained by other conditions in many other instances.

Issues with the Screening Studies

At present, we want to point out that the symptoms of mobile addiction have been identified in screening and correlational studies with healthy people (many of the university students) instead of clinical samples (not identified). It is worth stating that Billieux, Schimmenti, et al. 2015 Carbonell and Panova 2017 and Kardefelt-Winther et al. 2017, have already criticized in detail how these studies give undue support to behavioral addictions and the same analysis could be applied to the mobile. In the studies, the “addictive” use of the phone is first described according to a variety of psychological symptoms like excessive use, high economic cost, academic, work and family relationship impairment, tolerance, salience, withdrawal, and so on using a variety of diverse scales and questionnaires.)

Regarding these studies, let us address some primary concerns: (a) there is a lack of longitudinal studies to confirm the disorder’s stability; (b) the screening instruments used are not valid for diagnosis; (c) there is a large probability of false positives; (d) there are many arbitrarily designed items like “*eleven or more calls or SMS messages per day (high use)*” (e) exploratory studies rely on self-report data, which are collected using convenience samples; and (f) there is a lack of consistency in methodology, definitions, measurement, cut-off scores, and diagnostic criteria across studies. These concerns highlight the general lack of construct validity surrounding mobile addiction research and the consequent lack of strength of its conclusions.

Smartphone as an Object

The mobile is a physical object used to access the Internet and its content. In comparison with substance addiction, this object would be like the glass in alcohol addiction or the needle in heroin addiction. “Needle addiction” and “bottle addiction” are visual words and are accepted in colloquial language, but the addiction is to the substance not to the vessel or to the route of administration. There is a tendency in research on this subject to address mobile as a single addictive entity, measuring the level of “mobile use” or “mobile

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addiction,” although the mobile itself is causing the problems in the way that a drug does. The physical, mobile aspect of the mobile facilitates problematic Internet behaviors (i.e., obsessive social media use, porn, and gambling addiction) by making them accessible anytime and anywhere and therefore increasing how often they are used, but the problem is not the mobile device itself. The problems arising from mobile use are dependent on what activities the user engages with while on the mobile, the motivations for engaging with these activities, and the gratifications received from them which then reinforce continued use.

Confusing Smartphone Addiction with Other Addictions

In the discussion on technological addictions, it is important to distinguish between addictions *to* the Internet and addictions *on* the Internet (Király 2014). When a pathological gambler uses the Internet to play poker, it is more accurately an addiction *on* the Internet, secondary to his first problem (gambling). Related to the above is the issue of the relationship between mobile addiction” and “Internet addiction.” The mobile is used to access the Internet; therefore, if there is an addictive problem, it is with the Internet and not with the mobile. We argue that common behaviors conducted on the mobile, such as specific Internet uses, social networking, and gaming, should be cautiously explored in the context of their own motivations, gratifications, and sociocultural context and not as components of a mobile addiction.

Terminology

As we previously stated in the study of Carbonell and Panova 2017, the problems associated with the conceptualization and acceptance of technological and behavioral addictions may be, to a great degree, an issue related to the terminology. We would argue that it is unlikely that the majority of scientists in this field believe mobile “addiction” is comparable to heroin or tobacco addiction in terms of the severity and/or associated health problems; however, there is no other accepted term for a behavior that manifests similar problems with a lack of self-control, attachment, high use, and problematic consequences. Therefore, for lack of a better word, “addiction” has become an accepted umbrella term. However, this is a problem because extending the term “addiction” to conditions better described as problematic or maladaptive use can undermine the integrity of this term and the severity of disorders that truly merit it. It can also misguide the research and treatment efforts for the current problem, because they are being designed within an addiction framework when in actuality a different approach may be more suitable and effective. Therefore, the authors propose seeking a different term to associate with this problem in the academic literature, such as problematic use.

CONCLUSIONS

The aim of this study was to critically consider whether mobile addiction exists. After reviewing the literature on mobile addiction, we have concluded that the weakness of screening and correlational studies, the scarcity of the case and longitudinal studies, the vague definitions of the criteria for mobile addiction, and the lack of severe psychological or physical consequences associated with it do not support the existence of mobile addiction at this time and we therefore suggest moving away from an addiction framework when addressing and studying this issue.

Although certain parallels exist between classically defined addiction and high use of the mobile, the levels of severity for mobile use are much lower, an important fact since severity of impairment is one of the primary criteria for distinguishing between addiction and problematic behavior. A person who bites their nails compulsively also exhibits self-harm,

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loss of control, physical consequences, relapse, and craving, but we do not label it a nail-biting addiction.

It is important to note that research shows that mobile use is associated with various problems. In correlational studies, overuse of the mobile is associated with various mental health concerns, such as anxiety, depression, stress, and low self-esteem. However, the existence of negative consequences is not the same as the existence of addiction. We would like to shift the perspective on this issue away from an addiction framework and view mobile use in a context that considers the compensatory functions of the device and how it interacts with the user's needs, desires, and primary disorders.

One reason that mobile use may be pathologized is because the role the device plays in people's lives is not yet fully understood. Surrat 1999 has explained how the limited understanding of any new information and communication technologies is often taken advantage of by the media who capitalize on the suspicion that accompanies new technological developments and publish sensationalist news stories about addictions and psychopathology, which contribute to the social construction of a pathology. More recently, Frances and Widiger 2012 have detailed a background of over diagnosis in mental health. In our opinion, to consider intensive mobile use a disorder in the same category as cocaine or alcohol addiction undermines the severity of addiction.

In summary, the phone's defining features – portable, quick, convenient, and private – may facilitate the access to certain problematic behaviors and the corresponding rewards received from them that make the behaviors more frequent, but addiction is more than a matter of impulse-control and excessive behavior. Therefore, although the media may turn to terminology such as “addiction” because it seems like the closest metaphor for the technology-related behavioral problems, we are observing in society today, we believe it is the responsibility of academics to use more accurate language and diagnostic terms and at the current moment the research does not support the claim that addiction is a correct term for the problems associated with phone's use. The use of phone's and other devices are associated with various negative consequences and research on them should continue; however, in order to address and treat their associated problems accurately and effectively, they should not be misdiagnosed as consequences of addiction.

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