



International Journal of Home Science

ISSN: 2395-7476
IJHS 2016; 2(1): 69-74
© 2016 IJHS
www.homesciencejournal.com
Received: 12-11-2015
Accepted: 13-12-2015

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Impact of mobile phone addiction on adolescent's life: A literature review

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Abstract

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. Main aim of this paper is the reviews investigate some aspects of the emerging literature on the impact of mobile phone on adolescent's life. There are several reviews addressing the definition, Mobile phone addiction symptoms, Assessment of Mobile phone addiction, Negative effect of Mobile phone addiction on adolescents and some reviews addressing the role of Mobile phone addiction on adolescent's mental and physical health.

Keywords: Adolescent's, Mobile phone, Addiction, Literature review, Assessment

1. Introduction

Worldwide technology and its changes play a major role in each individual's life. The current trend of the society is to adopt every change in the field of communication technology. The mobile phones are boon of this century. Mobile phone is considered as an important communication tool and became the integral part of the society, it is not only a communication device but it also a necessary social accessory. People are increasingly using mobile phones rather than the fixed telephones

The cell phone today is a lifeline for many. It is estimated that around 4.5 billion people use the cell phone worldwide. And it comes as no surprise that a huge chunk of this quantity consists of the youth. The cell phone is more of a necessity for them than a luxury. Umpteen number of surveys conducted on the youth worldwide have figured out that they consider cell phones an integral part of survival and some have even gone to the extent of saying that they would rather go without food for a day than without their cell phones. With constant texting, calling, listening to music, playing phone games or simply fiddling with the phone being such an integral part of their lifestyles, it is little wonder that not having it around strikes them with paranoia. According to Telecom Regulatory Authority of India, there are about 929.37 million mobile phone subscribers in India making it the world's second-largest cell phone using developing country in the month of May, 2012 (TRAI, 2012) [53]. Motorola, Nokia, Samsung, Sony Ericsson etc. are the popular mobile phone brands in Indian market luring their customers by introducing latest mobile phones at regular intervals (Singla, 2010) [46].

There has been quite an enormous amount of popularity of cellular phones in younger generation within a short span of time (Hakoama & Hakoyama, 2011) [17]. Youth is more inclined towards using mobile phones for activities other than communication than older generation (Mackay & Weidlich, 2007) [30] because in adolescence stage, people are more susceptible to changing fashion trends and style, building them more Tech savvy which creates certain behavioral disorders. On the contrary, administrators and teachers frequently consider the use of cell phones by students at schools, restraining them from their education and this arises as hurdles in their education (Johnson & Kritsonis, 2007) [23]. Moreover, mobile phones have aided in smoothening the progress of social release of youngsters from parental authority (Ling, 2004). But, their parents often have more sense of security when their children travel independently outside their home along with their phones (Baron, 2010) [7].

2. Definition of Mobile Addiction

As mobile phone use has dramatically increased in recent years, so too have the reports of mobile phone addiction. However, while there are many studies supporting the idea of media

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addictions to television and the Internet, research on mobile phone addiction hardly seems to exist. The criteria used to determine media addiction include a “craving or compulsion, loss of control, and persistence in the behavior despite accruing adverse consequences” (Shaffer, Hall & Bilt, 1999)^[44]. A few of these adverse effects include isolating their users from others (e.g., Kraut, *et al.* 1998; Bull, 2005)^[24, 11], deleteriously affecting their users’ finances, turning their users into criminals (e.g., Ross, 2001; “Mobile phones becoming,” 2003)^[40, 33], and negatively impacting academic performance (Kubey, *et al.* 2001)^[25]. Some psychiatrists believe that mobile phone addiction is no different from any other type of addiction (e.g., drug, the Internet) and that mobile phone addiction has become one of the most prevalent non-drug addictions (“Mobile phones becoming,” 2003)^[33]. Several scholars (e.g., Park, 2005)^[36] have reported that some users are more dependent on their mobile phones than they themselves are aware.

Terms such as “Smartphone addiction” [Casey 2012; Lee, *et al.* 2013]^[13, 26] “mobile phone addiction” [Park 2005; Ahmed, *et al.* 2011; Szpakow, *et al.* 2011]^[36, 3, 51] “problematic mobile phone use” [Billieux, *et al.* 2008; Takao, *et al.* 2009]^[10, 52], “mobile phone dependence” [Satoko, *et al.* 2009; Choliz 2012]^[43, 14], “compulsive mobile phone use” [Matthews, *et al.* 2009] and “mobile phone overuse” [Perry and Lee 2007]^[37], have all been used to describe more or less the same phenomenon, that is, individuals engrossed in their Smartphone use to the extent that they neglect other areas of life. The most commonly used terms to describe this kind of addiction are “mobile phone addiction” and, recently, “Smartphone addiction”.

3. Mobile Phone Addiction Symptoms among Adolescents

In one of the earliest relevant studies, Bianchi and Phillips (2005)^[8] argued that the problem of mobile phone use may be a symptom of an impulse control deficit or depression. Addressing the underlying problem as well as inappropriate mobile phone use, they used some dependent variables to predict mobile phone addiction, such as reported time per week spent simply using the device problem use, reported percentage of use socially based, and reported percentage of business-based use. Other variables were also considered including reported percentage of use in other features. The results indicated that the technological addictions offer an appropriate starting point for a consideration of problem mobile phone use. The results also revealed that young people, in particular, appear to be susceptible to high use and problem use. They were the heaviest users of the SMS function and other features of mobile phones. Ross (2011)^[40] found that three characteristics of mobile phone addiction, the first is that people who are addicted to mobile phone always keep their mobile phones on. The second is that they tend to use their mobile phones even when they have a land-line phone at home. Finally, they normally are confronted with financial and social difficulties due to their excessive mobile phone use. James and Drennan (2005)^[21] carried out research on Australian university students’ mobile phone use and discovered a large use rate of 1.5-5 hours a day. Their findings showed a range of characteristics associated with addictive use. These were: impulsiveness, mounting tension prior to using the device, failure of control strategies and withdrawal symptoms. The results also identified some factors that correlated with consumer engagement in addictive or compulsive behavior. Situational factors affecting excessive use included special events, alcohol abuse and depressive circumstances. A wide range of other negative consequences

from mobile phone addiction among consumers included financial issues, damaged relationships, emotional stress and falling literacy. Park (2005)^[36] asked respondents to report their minutes of mobile phone use and divided them into light user who reported less than nine minutes of use and heavy user who reported more than nine minutes of use. Respondents who reported less than nine minutes of use were considered “light” users, while respondents who reported more than nine minutes of use were considered “heavy” users. Mobile phone addiction was measured based on seven criteria of dependency. These were: tolerance, withdrawal, unintended use, cutting down, time spent, displacement of other activities and continued use. The results showed that mobile phone users grew tolerant of mobile phones despite the fact that they might cause such problems as high phone bills and public annoyance. Also, when the mobile phone was unavailable for a time, users became highly anxious and irritated. This behavior continued although these were troubling signs of addiction.

4. Assessment of Mobile Phone Addiction

Only a few validated scales are currently available for researchers and clinicians. As a consequence, many published studies have investigated problematic use of the mobile phone by using their own pooled items (e.g., Billieux *et al.* 2007; Ha JH, *et al.* 2008; Sanchez and Otero 2009)^[9, 16, 42], which, among other issues, raises problems in replicating results. There is thus a real need to translate and diffuse the available validated instruments. One of the most used among them is Mobile Phone Problem Use Scale (MPPUS) (Bianchi and Phillips, 2005)^[8]. The MPPUS is a unifactorial 27-item questionnaire inspired by the addiction literature, which covers issues such as tolerance, withdrawals, escape from other problems, craving and negative consequences upon daily life (at social, familial, professional and financial levels). The items are scored with a 10-point Likert scale, allowing dimensional rather than categorical (i.e., “yes” or “no”) responses. The MPPUS was administered in several studies and can be considered a useful tool to assess a global score of mobile phone addiction. Other comparable unidimensional tools have been developed by Toda, *et al.* (2004)^[54] Mobile Phone Dependence Questionnaire (MPDQ), and Walsh, *et al.* (2010)^[57] Mobile Phone Involvement Questionnaire including scales based on diagnostic criteria (inspired by the substance abuse nosography). Mobile phone use was nevertheless shown to imply various types of dysfunctional behaviors and adverse consequences, raising the need to develop multidimensional measures. Currently, the only validated multidimensional scale is the Problematic Mobile Phone Use Questionnaire (PMPUQ) (Billieux, *et al.* 2008)^[10]. The PMPUQ is a 30-item questionnaire that measures four distinct facets of problematic mobile phone use. Each item is assessed on a 4-point Likert scale, allowing dimensional answers. The constructs measured by the PMPUQ are the following: (1) dangerous use, defined as the tendency to use the mobile phone while driving; (2) prohibited use, defined as the tendency to use the mobile phone in banned places; (3) dependence symptoms, based on features of addictive behaviors (e.g., loss of control, occurrence of negative effect in situations or contexts in which the use of the mobile phone is not possible or allowed); and (4) financial problems, which reflect the extent to which mobile phone use resulted in tangible financial problems (this latter subscale can be considered a measure of negative outcome in daily life). Finally, attempts have been made to develop scales that specifically focus on the assessment of problematic use of SMS by Rutland, *et al.* (2007)^[41] SMS Problem Use

Diagnostic Questionnaire (SMS-PUDQ) and Igarashi, *et al.* (2008) [20] Text Message Dependence Scale (TMDS).

5. Negative Impact of Mobile Phone on Adolescents

The Orissa government (September 16 2008) announced that it has banned the use of mobile phones in college campuses. "The mobile phones are found to be a disturbing element in college campus. Therefore, we have banned it in the campus," said higher education minister Samir Dey, adding that the order would be implemented in both government and non-government colleges across the state. In the first instance of its kind in the country, Gujarat Government has banned use of mobile phones in schools and colleges, saying it was affecting educational activities in the institutes. A resolution to this effect was passed by the state education department on Saturday 2008. Teenagers who excessively use their cell phone are more prone to disrupted sleep, restlessness, stress and fatigue. 58% of Asians, which includes Indians, have comprised to use mobile phones when travelling by air. According to the survey they have also found that Indians are the "most social" with 69% most likely to use their phones in cinema halls/ movie theatres, 21% use it in a place of worship, and 79% while attending a wedding ceremony. 25% of users across the markets surveyed have said they used mobile phones in the meetings, 80% of Asians use a mobile phone while eating. With so many utility applications being made available on mobile phones, be it to surf the internet or to pay bills, this dependency on mobile phones is escalating at a greater pace.

Subba, *et al.* (2013) [50] explored the ringxiety (Phantom ringing) and other perceived effects, as well as the pattern of the mobile phone usage among college students in South India, Mangalore, and they found that mostly, the person whom they talked to on their phones were parents for 220 (51%) of the students. 150 (48%) talked for less than half hour in a day and 137 (41%) were high volume message users. "Ringxiety" were more likely to use their phones at restricted place like class rooms (99%) and libraries (60.3%). Cagan, *et al.* (2014) [12] stated that daily cellular phone use has increased the level of addiction. It has been established that there is a negative correlation between addiction to cellular phone and academic success and also a positive correlation between addiction to cellular phone and the level of depression. Sheopuri and Sheopuri (2014) [45] observed that extent of addictive behaviour towards the usage of mobile phones and the relation between the users of the mobiles and the psychological behaviour among adolescents in Bhopal, India. They showed that cell phone usage is so strongly integrated in to young people's behaviour that symptoms of behavioural addiction, such as cell phone usage interrupting their day to day activities.

6. Effect of Mobile Phone on Adolescents Mental and Physical Health

Over usage of the mobile phone leads to physiological health hazards like headaches, earache, warmth sensation, fatigue and musculoskeletal symptoms. Usage of mobile phones during driving is one of the leading cause of accident, and some controversy still exist in the over usage of the mobile phone whether it produces tumor or not. Mobile-addicts can be seriously affected at the psychological level. They don't show any physical and psychological symptoms, their disorder goes unnoticed by others.

Ozturan, *et al.* (2002) [35] concluded that Ear is the first organ dealing with the cell phones, there is a elevated energy

deposition in the ear as compared to other organs and its effect on hearing are debated. Loughran, *et al.* (2005) [29] found that exposure to electromagnetic fields emitted by digital mobile phones handsets prior to sleep decreased the rapid eye movement (REM), sleep latency and increased the electroencephalogram spectral power in the 11.5 to 12.25 Hz frequency range during the initial part of sleep following exposure. Agrawal, *et al.* (2008) [2] reported that the cell phones harmful radiations were able to degrade the quality of sperm with regard to quantity, viability, motility, morphology and few mutations in DNA causing severe changes in sperms. Soderqvist, *et al.* (2008) [48] explored the assess use of wireless phones and health symptoms in 2000 Swedish adolescents and they showed that frequent mobile phone users reported health complaints, such as tiredness, stress, headache, anxiety, concentration difficulties and sleep disturbances. Regular users of wireless phones had health symptoms more often and reported poorer perceived health than less frequent users. Srivastava and Tiwari (2013) [49] investigated that the effects of excess use of cell phone on adolescent's mental health and quality of life. They randomly selected 100 male students from Uttar Pradesh, India. They found that limited users of cell phone have better mental health and quality of life than unlimited users of cell phone. Acharya, *et al.* (2013) [11] examined that the health effects of cell phones usage amongst students pursuing professional courses in colleges. College students of both sexes in the age group 17-23 years from urban and rural backgrounds were selected at random (those using cell phones). Result showed that headache was to be the commonest symptoms followed by irritability/anger. Other common mental symptoms included lack of concentration and poor academic performance, insomnia, anxiety etc. Among physical symptoms- body aches, eye strain, digital thumb were found to be frequently in both sexes.

7. Gender differences and Mobile Phone Addiction

Adolescents consider the mobile phone as important in their lives: girls more than boys (Oksman, 2006) [34]. According to previous studies, boys and girls respond differently to SMS, the latter using it more than the former (Rautiainen 2002; APS 2004; [58] MACRO 2004; Haste 2005) [38, 31, 18]. Only one study contradicts these findings (Sze & Hock 2004).

Researches explain how the mobile phone levels the gender differences between boys and girls precisely by giving rise to 'gendered' sub-cultures; so that while girls use it primarily as a tool for communication and maintenance of peer-groups and contacts, and social aspects (such as design, ringtone, and colour), boys use it more for its own sake, exploring its features, and as a toy; this difference in use balancing out the amount of use among both groups (Lobet-Maris 2002; Rautiainen 2001; [61, 60] Skog 2002) [47].

Devis, *et al.* (2009) [15] concluded that boys spend more time on using mobile phones than girls and also adolescents consume more time on using mobile phones on weekend than on casual weekend day. Turner *et al.* (2008) [55] suggest that "user personality and individual attributes such as age and gender were found to be differentially associated with some aspects of phone-related behaviors" Billieux *et al.* (2008) [10] tested gender differences in both teams of impulsion and problematic mobile phone use among the young. The results showed that men use their mobile phones more frequently in dangerous situations whereas women are more dependent on them. The results on impulsion showed that men exhibit significantly higher levels of sensation seeking and lower levels of perseverance, while women reveal significantly

higher levels of urgency. Assessing the pathological Internet and cell phone use among 337 Spanish college students, Jenaro *et al.* (2007) [22] found that high cell-phone use is associated to being female, and having high anxiety and insomnia. Walsh *et al.* (2011) [56] found that gender was associated with mobile phone involvement but not frequency of use. Howell *et al.* (2008) [19] investigated gender differences related to their mobile phones and users' perception and attitude towards their use in public and private places. They concluded that while females perceived the service very positively, there was a persistent trend for males to dislike the service, regardless of location.

8. Conclusion

Some studies highlighted the negative effects of mobile phone addiction among adolescents (Subba, *et al.* 2013, Cagan, *et al.* 2014, Sheopuri and Sheopuri 2014) [50, 12, 45]. Some researcher identified the nature of this type of addiction by indicating its symptoms, classifying its levels (Bianchi and Phillips 2005, [8] Ross 2011, James and Drennan 2005, Park 2005) [40, 21, 36] and developing tools to measure it (Billieux, *et al.* 2007, Ha JH, *et al.* 2008, Sanchez and Otero 2009, Bianchi and Phillips 2005, Toda, *et al.* 2004, Walsh, *et al.* 2010, [57] Billieux, *et al.* 2008, Rutland, *et al.* 2007, Igarashi, *et al.* 2008) [9, 16, 12, 8, 54, 10, 41, 20] many researchers have addressed gender differences in Mobile phone addiction (Devis, *et al.* 2009, Turner, *et al.* 2008, Billieux, *et al.* 2008, Jenaro, *et al.* 2007, Walsh, *et al.* 2011, Howell, *et al.* 2008) [15, 55, 10, 22, 56, 19]. A few studies have examined the relationship between Mobile phone addiction and adolescent's mental and physical health problems (Ozturan, *et al.* 2002, Loughran, *et al.* 2005, Agrawal, *et al.* 2008, Soderqvist, *et al.* 2008, Srivastava and Tiwari 2013, Acharya, *et al.* 2013) [35, 29, 2, 48, 49, 1]. On the basis of this review paper we have understand that adolescent's is more inclined towards using mobile phones for activities other than communication than older generation because in adolescence stage, people are more susceptible to changing fashion trends and style, building them more Tech savvy which creates certain behavioral disorders. The fame of the mobile phones is followed by an alarm towards the detrimental effects of cell phone radiation, Fatigue, headache, decreased concentration and local irritation and burning are the major effects of excessive usage of mobile phones.

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