

# Smart phone addiction and its impact among adolescents in India

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## Abstract

Mobile communication and computing is presently riding a wave of popularity. There are many types of mobile networking system available in the market such as 3G, 4G, Bluetooth, Wi-Fi, Wi-Max technologies, the high levels of penetration of mobile access devices such as laptops, cell phones etc. Mobile communication is witnessing an unprecedented growth worldwide. There is a considerable debate on addiction and abuse to Smartphone among adolescents and its consequent impact on their health; not only in a global context. The smartphone addiction magnitude in India ranged from 39% to 44%. Smartphone addiction among Indian teens can not only damage interpersonal skills, but also it can lead to significant negative health risks and harmful psychological effects on Indian adolescents. This paper explores the various prospects for Mobile Commerce, its impact on teenagers also recommend solutions, in order to reduce the negative impacts of Smartphone and realizes more benefits of this exiting technology in India.

Keywords: Smartphone, Mobile Applications, Social Impact, Addiction, Health, Mobile-communication, mobile phone addiction.

## INTRODUCTION

The rapid growth and sophistication in mobile technology enlivens the spirits of e-commerce experts, who believe the next generation electronic commerce or called Mobile Commerce will have a faster growth, greater reach and with spectrum of applications. In the last 20 years, worldwide mobile phone subscriptions have grown from 12.4 million to over 5.6 billion, penetrating about 70% of the global population. Its usage has also become an important public health problem as there have been reports of plenty of health hazards, both mental and physical, in people of all age groups. While some of these oft-seen effects are critical like cancers, others that cause definite morbidity are both physical and mental. On 31 May 2011 the World Health Organization confirmed that cell phone use indeed represents a health menace, and classified mobile phone radiation as a carcinogenic hazard, possibly carcinogenic to humans. In spite of some knowledge on unfavorable health effects, the usage of cell phones has increased dramatically especially since the time they have become more affordable and available all over the world. Almost 87-90% of the population in an advanced country like the USA, use cell phones, and a sizeable number of these is school and college going students. In India too, we note that the scenario is similar with people from both rural and urban areas,

educated or illiterate, and belonging to almost all ages; now dependent on a cellular phone. The alarming fact is that many of these devices reach the market without any safety testing on their electromagnetic radiation.

Constant usage and sort of addiction to cell phones has affected the people physically and psychologically by making them have aches and pains and in some a disability too; lose their required number of hours of sleep; get angry and scrap over trivial matters, and so on and so forth. Adolescents are defined as young people between the ages of 10 and 19 years as per WHO (2014) criteria. Today, 20% of people persons in the world are adolescents, constituting 1.2 billion people worldwide. Nearly, 243 million adolescents live in India as per the UNICEF Report (2011).

Addiction is considered by WHO (WHO Expert Committee - 1964) as dependence, as the continuous use of something for the sake of relief, comfort, or stimulation, which often causes cravings when it is absent. The two major categories of addiction involve either substance addiction, e.g. “drugs or alcohol addiction” or “behavioral addiction such as mobile phone addiction.”

Mobile phone addiction/abuse/misuse is one of the forms of compulsive use of “a mobile phone” by adolescents across the world. A new kind of health disorder in this category among adolescents, “smartphone's addiction/abuse/misuse” is now challenging health policy makers globally to think on this rapidly emerging issue. Indian adolescents are also affected by this high smartphone engagement, and the current paper will use meta-analysis to discuss their addictive behaviors.

A Smartphone, or smartphone, is a term for distinguishing mobile phones with advanced features from basic feature phones. The term “Smartphone” first appeared in 1997, when Ericsson described its GS 88 “Penelope” concept as a smartphone. This term was basically introduced in the market for a new class of mobile phones that provides integrated services from communication, computing and mobile sectors such as voice communication, messaging, personal information management applications and wireless communication capability. Now a day's honor, appo, vivo and other companies are providing good facilities to the customers.

Modern Smartphone's currently include all the features of a laptop, including web browsing, Wi-Fi, and 3<sup>rd</sup>-party apps etc., The most popular Smartphone's today which are emerging are Google's Android, Apple's IOS mobile operating systems and Nokia-X series. Significant increase in Smartphone use and their capabilities allow adolescents to access the Internet, communicate, and entertain themselves anywhere and anytime. Therefore, most teenagers in 10-19 years of age can use the Smartphone as a constant companion.

Worldwide scenario of adolescents' vulnerability to Smartphone's

The age group of 25-34 is found to have the highest Smartphone usage rate of 62%. 50% of Android Smartphone's and 43% of Apple iPhone users are younger than 34 years. 53% of Smartphone users are male and 47% are female. Indian teens are currently driving Smartphone's market in India The age group of 16-18

years using Smartphone's have shown a rapid rise from 5% in 2012-25% in early 2014. Recently in 2013, there were around “51 million” Smartphone users in Urban India and rate of rise from year 2012 was 90%.

### Aims and Objectives

The aim of this study was to assess some of the self-perceived effects of increasing cell phone usage on the well-being of college going students. Certain symptoms related to the major systems of our body like the nervous system (neurological symptoms such as depression, sadness, irritability and headaches, anxiety, loss of memory and lack of sleep) were queried for.

### Objectives

- Analyze the status of Mobile technology.
- Analyze the social and health issues.
- Study the Indian Scenario
- Identify the Prospects for Future in Consumer Commerce.

### Methodology for the Study

Type of Study: The Study is descriptive in nature- an attempt to understand the evolution of Mobile Commerce. The data for the study is collected from the secondary sources such as websites, journals and magazines.

### Scope and Limitations of the Study

The Scope of the study is confined to analyzing the Indian Consumer Commerce environment.

### Global Smartphone's addiction scenario

Smartphone abuse is increasing in the 21<sup>st</sup> century as more and more adolescents enjoy exploring their Smartphone's in their free hours. Smartphone overuse can be a sign of Smartphone addiction as per many studies of Kim and Flanagan. New research in US suggests that excessive use of Smartphone's, increases the risk for severe psychopathologies in adolescents and there is growing evidence of problematic use of Smartphone's that impacts both social and health aspects of users' lives. The study of 200 adolescents in Korea also showed that abnormal users of Smartphone's had significantly more problematic behaviors, somatic symptoms, attention deficits, and aggression and this study also found that youth were more addicted to Smartphone they had more severe psychopathologies.

## Smartphone's addiction impacting health of adolescents

There are two questions that arise from the new way of using Smartphone's:

- The first is the issue of stress from constant connection to other people and decreased privacy
- The second issue is whether his new way of being online is going to make people more present in the virtual world at the expense at the real world?

Assessment of overuse or problematic use can actually depend on one- time, self-reported behavioral information about Smartphone.

## Developed countries scenario

There are many reports of people exhibiting problematic patterns of Smartphone abuse with potentially negative consequences on their familial, vocational and social lives after getting addicted to Smartphone's in developed countries such as US and UK. A University of Southern California study found that the unprotected adolescent sexual activity was more common amongst owners of Smartphone's due to easy access to porn websites. A study conducted by the Rensselaer Polytechnic Institute's Lighting Research Center also concluded that smartphones, can seriously affect sleep cycles.

## Smartphone's addiction emerging in Indian adolescents

A majority of adolescents from lower socioeconomic background in whole world; are not untouched by the effects by the widely available and cheaper Smartphone. Adolescents under 15 are also affected, in India and around the world. Moreover, little research has been conducted about smartphone use and its consequences. Considering the high rate of smartphone use among Indian adolescents, this area needs to be further explored, with a focus on what roles technology plays in fostering fantasies, acting out behaviors. Authors therefore aimed to explore problems emerging with this technology among Indian adolescents, so that best prevention and treatment strategies can be worked out-this is the prime reason why the authors have chosen and analyzed this area by meta-analysis and systematic-review of studies in this article.

Table 1

Demographic profile of global distribution of Smartphone's usage

Demographic variables	Usage in %
Age group wise usage	
11-24	72
25-34	62
35-44	56
45-54	39
55-64	30
65+	38
Sex wise usage (average)	
Male	53
Female	47
Smartphone's global usage statistics	
Percentage of people using Smartphone's on the average day	89
Percentage of Smartphone's users using for-"text messages"	92
Percentage of Smartphone's users using it for "Internet browsing"	84

## Discussion

Solutions to mitigate impact of cell phones and mobile devices on human health and life the cell phones and handheld mobile devices have diverse capabilities. The more diverse the functions of the cell phone the stronger are attachment of the user to the device. The extensive cell phone usage leads to various health dysfunctions, including pain in the neck, fingers, fatigue and emotional misbalance. To contrast the massive "cellphonization" some celebrities promote "free cell phone" life. They show that the world is full of attractions, and they can enjoy the life without checking messages every 10 minutes. However, proponents of the "cellphonization" say that cell phone is useful in their daily life and help to keep up with a vigorous rhythm of the modern life. People admit that overuse of cell phone may not be healthy for them; however, such technological benefits like immediate access to the Internet, free and fast communication, information storage disregard risks of health dysfunctions. To mitigate the dependency from the cell phones and HHDs, without device denial, some diverse and alternative solutions can be considered. The solutions are not so dramatic to deny any form of cell phones, however at the same time such measures allow the users mitigate dependency

and relocate attraction to other activities: Solutions - Cut off the Internet once the usage reaches the maximum data allotment. The ideal solution is to limit access to the Internet for teenagers. Parents can adjust settings and apply limitation when the data reached the maximum.

#### Impact of mobile phone on human health

Presently, mobile phones are being used everywhere because these devices do not use the physical cable/wire that is demanded for the communications purposes. Their demand for the electromagnetic radiation for receiving and transferring the data in the air; either it is a network or a sound data. These mobile phone devices give off harmful radiations which effects to the human health because such type of radiations are available everywhere and their existence cannot be felt.

These radiations also penetrate in the body and they affect the cell structure and the DNA. The different types of radiations are being used for connecting the mobile phone devices with each other and each type of radiation having own frequency and wavelength, the frequency mostly ranges from 3 kHz to 300 GHz. There are several cases of mobile phone devices such as cell phones, wireless router, tablet PC, cell telephone tower, wireless hand free, Bluetooth device, audio player, laptop connected to the wireless router (Wi-Fi). These devices give off harmful radiations which can contribute too many harmful diseases such as Brain Tumor, Male Infertility, and Ear Hearing Impairment, effect on the fetus, Alzheimer's disease, Parkinson's disease, asthma, Heart trouble, insomnia, high blood pressure, leukemia, birth defects, Immune system, and rheumatoid arthritis. Radiations are also causes of some symptoms which are: headache, sleep disruption, tiredness, and so on DNA damage can also happen because the wireless radiation which given off by the mobile phone devices during the sending and receiving process of the data which is broken down by this survey-based research. The study is directed with the assistance of doctors with the help of survey questionnaire; this survey contains some of the diseases which are induced by these radiations like male infertility, brain tumor and the ear hearing impairment.

Male infertility: The reproduction is a lifelike experience for couples. Nevertheless, it is very hard to contrive for the child. Basically, the infertility is a wider problem in the universe due to different causes. The male infertility problem creates the sperm production (sperm production in low number) or the transfer process of sperm. The infertility problems are sperm motility, sperm count, sperm morphology, functions of sperm, impaired Leydig cell, Sertoli cell, abnormality of sperms, to stop delivery of sperm, a chronic health problem. The causal agent of male infertility is because of testicular impairment resulting in the testicles not producing the sperm cells, the infertility of man includes the imbalance of hormone, behavioural problem and psychological troubles. The negative impacts on male fertility are smoking, use of drugs, alcohol abuse, tight underwear, radiation exposure, pesticides, paint, lead, and radioactive.

Brain tumor: It is a mass of tissue which is abnormal and in this condition the body cells die and replaced by the cells and other tumors. The abnormal cells grow and they produce a flock which is named as the main neoplasm. These come out of the several cells, which constitute the brain, CNS (Central Nervous System). There are several cases of brain tumors such as astrocytic and the gliomas tumors. There are two types of Brain Tumor: Malignant Tumor (Cancerous Tumor): The malignant tumor is a cancerous tumor that is either primary or secondary. The malignant tumor can be elementary or secondary brain tumors. It starts in the mind. The primary malignant brain tumor is fast growing tumor than the secondary malignant brain tumor where immediate treatment is important for primary malignant tumors because it can open rapidly and damages the spinal cord and other regions of the head.

Benign tumor (Non-cancerous tumor): The Benign tumor is noncancerous tumor means that stay in one spot and do not attack the other region of the head or body. It is a very slow growing brain tumor. It can be removed by the treatment and not come back. The brain tumor can occur at any age and the cause of brain tumors has been still not solved. In that respect are various symptoms of brain neoplasms that are: numbered, headache, seizures, mood changes, memory trouble, trouble walking, hearing, visual sensation, vomiting and nausea.

#### Impacts of Smartphones on Society

Smartphones are popular among people for the applications they offer to the users. Smartphones make communications with people quite easier. People enjoy a lot of benefits in various forms of their daily work. Some advantages smartphones provide – better means of communication, learning options to users, great exposure to the latest things, ways to personality development, simple ways to access applications, ideas to succeed in business, platforms to grow their applications and more.

Impact on Business  
Smartphones create new dimensions for business. It is not only the smartphone vendors enjoying business but also created a new domain for mobile application development companies, Internet service providers, and other related sectors.

#### Impact on Education

Smartphones provide a unique way to improve the quality of education. The use of Internet has become a part of life for every student. Internet together with Smartphones – provide an alternative channel to deliver education services and distance education.

#### Health Impact

According to surveys, more than 10 million users in the USA use Smartphone to search for health information and facilities. 27% of the users use smartphones for online activities. Today there are several apps to manage prescriptions, promote alternative treatment options, provide price comparison, and validate prescriptions.

Today several apps are available to track exercise, diet and blood pressure – enabling smartphones to play a key role in the health sector.

### Psychological Impact

Smartphones are said to reduce stress in busy work life. I today's busy schedules mobile phones provide a means to interact with friends and families as an when they get time. The smart use of Smartphone increases your brain's functioning helping to stay active. Instead of using Smartphone only for entertainment it could be used to access useful information, for example, access the news headlines, latest technology updates, and more.

### Social Impact

Social life has been drastically changed with the introduction of smartphones and this domain has encountered most of the impact from the use of smartphones. Smartphones play an important role in the integration process of people with special needs, elderly age and with some sort of disabilities.

### Conclusion

Increase in the use of smartphones in societies, has raised concern about social and psychological effects of excessive use of smartphone's especially among Indian adolescents. Smartphone's have made mobile connectivity so accessible that today's Indian generations are abusing their Smartphone. Smartphone abuse to addiction has become more serious since adolescents can download and run numerous applications with smartphone even without Internet connection. Smartphone addiction are being still not sufficiently addressed within studies in literature, so what is suggested is more in-depth qualitative and quantitative studies in the future with larger sample sizes, and the development of policies to raise awareness about this issue by Indian governments for better future of Indian adolescents as a priority action. The prevalence of mobile phone usage was high. Most of the study participants used calling facility more than the SMS facility. Health problems that were found to be positively associated with mobile phone usage were headache, earache, neck pain, tinnitus, painful fingers, morning tiredness, fatigue, eye symptoms, sleep disturbance and restlessness. Hypertension was found to be negatively associated with mobile phone usage. In future, higher studies are required to confirm the relationship between mobile phone usage and health problems.

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