

A Comprehensive Study on Excessive Mobile Phone Use and Preventive Measures

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Abstract—The modern world almost wholly depends on advanced technology. Consequently, our life is fully influenced by modern technology-based devices like mobile phones, laptops, tablets, computers and so on. However, we cannot think a single day without the magical device mobile phone. Due to easy usage, people from all classes widely use it for many purposes. Nowadays, it works like all in one. On the one hand, it offers instant calls, messages, net browsing, email checking, watching videos, connecting social media, online gaming, a source of entertainment and many more. We are blessed with this device without any doubt as it puts our modern life forward many steps ahead. On the other hand, people of all age groups are spending most of their time using the mobile phone. Owing to its excessive usage, one may face lots of problems such as depression, chronic pain, distraction, sleepless night and many more which are threatening for people. In this paper, we try to find out how much time people spend on various mobile phone activities such as communication, gaming, social media, and net browsing daily. According to experts we talked and our analysis, excessive mobile phone use can have various detrimental impacts on humans such as short tempered, reduction in patience and appetite, addiction, accidents, sometimes spreading of rumours and high anxiety along with other health issues. Moreover, we suggested some ways to reduce excessive mobile use so that people can avoid negative effects of mobile phone use.

Index Terms—Mobile Phone, Communication, Learning Aid, Online Banking, Mobile Internet, Distraction, Depression, & Addiction

I. INTRODUCTION

Mobile phone is a most widely used device due to its multiple features to keep engage a small boy to adult person. It allows users to keep communicating, entertainment, gaming, information sharing, net browsing, stored study materials, stored valuable files, images, videos, etc. We can do our necessary communication or any work by using its emergency. Existing lots of features, people use mobile phones for a

long time. For being used a long time it has already created lots of adverse effects, and it is an increasing concern about the negative and harmful effects of mobile phones. These may have lots of detrimental impact on one's health. It is a problem globally. Estimated by scientists, if serious steps are not taken to overcome this great exposure of mobile phones to the young generation or whole country people, this would be an enormous risk to not only the population but the entire nation of the world. For its rapid increase of uses, the technology affects an alarming condition for the proper functioning of the biological systems of the human body and lead to some severe illnesses such as: Heart disease, headache, impaired concentration and memory, and also fatigue, diseases of brain cancer, brain tumour, Alzheimer's disease, Parkinson's disease and so on [1]. Even the short term effects (hormone disruption, sleep disruption, impairment of cognitive function, behaviour, attention) and long term effects (DNA damage, Male infertility) [4]. So, it would be the most crucial target of the whole world to decrease the amount of mobile phone usage for reducing the number of diseases among the current and future generations.

II. LITERATURE REVIEW

No doubt the mobile phone is a great invention of modern science. It creates a wonderful era. The use of the mobile phone is rapidly increasing for its multiple features and its ease uses process. It helps us like a magical mirror. But for its attractive features and ease using the system, people use it for a long time which is not necessary for them. Mobile phone works with the base of the electromagnetic way. It produces lots of radiation. Scientists found that if we use it for a long time, we may suffer lots of short- term and long-term diseases and many physical problems [5].

Within human population studies, epidemiological studies provide the most direct information on the long-term effects on the health of any potentially harmful agent [2]. To assess the adverse effects on health that may result from the use of mobile phones, research with a specific focus on cancer has been carried out. This type of research, however, faces several problems. One is that

long-time users first used analogue phones, and then digital phones. No risk has been found for digital phone use only, but then the follow-up time is shorter. Other methodological problems, such as recall bias, have been identified: people, especially patients, might have selective memory on the side of the head where the telephone was used. In modern times like this moment, the smartphone uses time is very long. Its excessive uses may harm very severely on human health.

Many researchers worked with that problem, they found out the vital point about that excessive use of mobile phone caused many biological issues of the human body and lead to some severe illnesses such as Heart disease, headache, impaired concentration and memory, diseases of brain cancer, brain tumour, and long term effects (DNA damage, Male infertility). (From Biological Effects of Mobile Phone Use [20014]- by John William).

However, in our research work, firstly, we focused on conducting a survey on five application areas such as communication, gaming, entertainment, net browsing, and social media, of mobile phone where people, perhaps, spend much time than other applications of it to know how much time people spend per day with mobile phone for enlisted application areas. Secondly, we talked to experts to find out the harmful effects of excessive mobile use and finally, we have suggested some possible ways to reduce excessive mobile use.

III. MOBILE PHONE

Simply mobile phone is a communication device that has brought the whole world into man's grip. In 1973, Dr. Martin Cupper invented this wonderful device who worked in the Motorola Company in the USA. Right now we are able to make a phone call with lots of features like playing games, taking pictures, web browsing, enjoying live streaming videos by using this wonderful device easily.

IV. DATA COLLECTION AND ANALYSIS

4.1. Data collection

It is worthy to mention that at certain level of mobile using may not be harmful for health but above it may cause various life threatening issues. However, taking feedback from mobile users is obvious to determine the detrimental effect of excessive mobile usage. Hence, we have selected five mobile usage areas such as Communication, Gaming, Entertainment, Net Browsing, Social Media for which user trend to spend more time than others and to collect feedback we chose people from all age groups include 3 to 70+ years old people who are active users of mobile phone and divide them into five age groups. Interviewees have been chosen from all class of people, for instance, students, employees, teachers, housewives, service holder, young child above 3-years and so on. To get the feedback we personally talk to around thousand users.

User Survey Form

Age:

Use	Spend Hours
Communication	
Gaming	
Entertainment	
Net browsing	
Social Media	

Fig.1. User Survey Form

4.2. Analysing data

After collecting data, we have sorted out those survey data by following the age groups which are given below. The people are divided into 5 parts-

- Group-1: 3-7years
- Group-2: 8-15 years
- Group-3: 16-30 years
- Group-4: 31-50 years
- Group-5: 51-70 +years

Then group wise graph has been generated to get better understanding of the stored data and make sense which application areas of mobile phone take most of the time of people that in long run cause adverse effect in their life.

4.3. Data Analysis Graph

We will discuss in this part how spent time varied with age group for different application areas of mobile phone. For all graph, x-axis represents the application area while y-axis shows spent hours for particular application area in everyday life.

4.3.1 Group-1: (3-7) Year

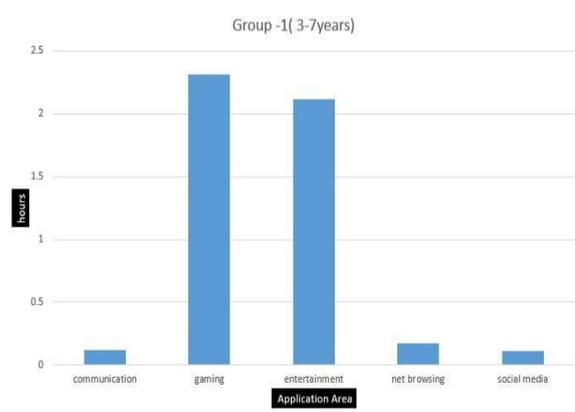


Fig.2. (Group-1)

Group-1 which is comprised of 3 to 7 age people spend more than two hours for gaming followed by entertainment account for about 2 hours. They enjoy the least amount of time with social media while communication and net browsing take below 30 minutes.

4.3.2. Group-2: (8-15) Year

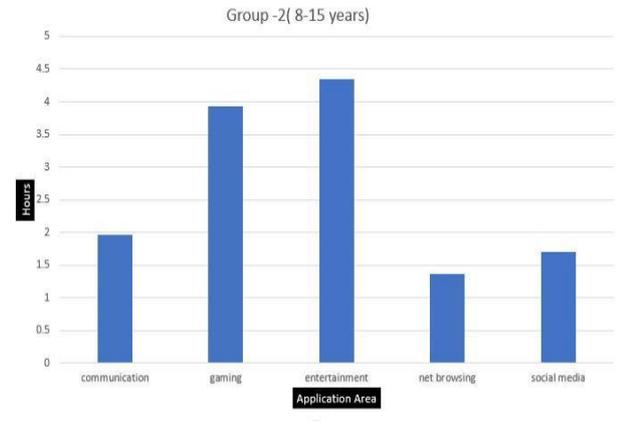


Fig.3. (Group-2)

Group of teenage people perhaps spend more time with mobile phone. The number of hours they use mobile phone for entertainment is considerably high (greater than four hours). Gaming is the second choice for them with more or less 4 hours. In terms of net browsing, they have the least interest in it while they almost same time they spend for communication and social media.

4.3.3. Group-3: (16-30) Year

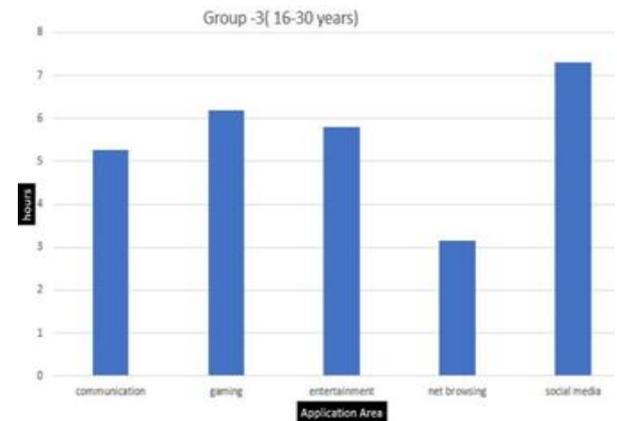


Fig.4. (Group-3)

People of this group are using social media for above 7 hours. They are also spent about 6 hours in gaming. In this group, people are using smartphone for long time all area of applications such as communications, entertainment and net browsing. They spent lots of time in gaming about (greater than 6 hours) average a day and entertainment, communication and net browsing respectively greater than 5 hours and less than 3 hours.

4.3.4. Group-4: (31-50) Year

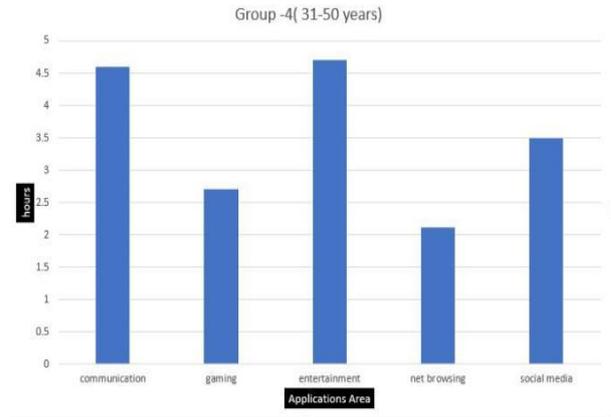


Fig.5. (Group-4)

In Group-4 People used their phone in communication for long time. They are using their smartphone for communication purpose about 4.5 hours. They are also using for entertainment about 3.5 hours. Thirdly social media is more priority for them. They spent about 3.5 hours. Gaming and net browsing are also used by them for approximately about (2-3) hours.

4.3.5. Group-5: (51-70) Year

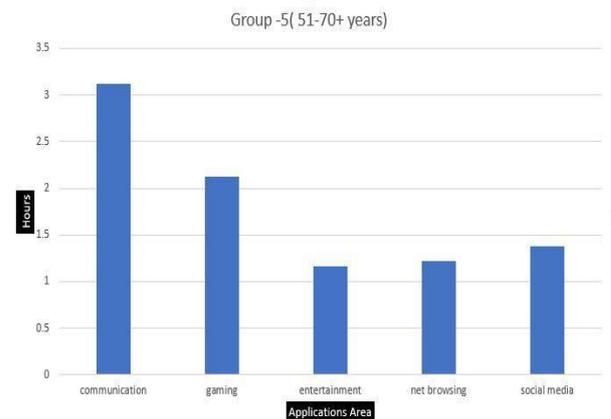


Fig.6. (Group-5)

In this group, People mainly used their phone for long time communication. In group 5 people spent about 3 hours in communication. They also like gaming, social media, entertainment and net browsing are used by them. In this group less number of the people are used their smartphones for entertainment.

V. ADVERSE EFFECTS

5.1. Consult with Doctors, Psychologists, IT Experts

Depending on gathered feedback we have talked to Doctors, Psychologists and IT experts to find out the detrimental effects of excessive mobile phone use for human being. Possible adverse effects are shocking as many of us not aware about it and we are confronting

them in our daily life. However, as of our findings, 16-30 years old people use mobile phone much more than other age groups for five applications areas. Additionally, people spend more time for gaming, entertainment, and communication which has tremendous health conscious effect on human being.

5.1.1. Doctors Opinion

Short term effects:

- Reduction in patience
- Short temperedness
- Appetite problem
- Headache
- Increases stress levels
- Negatively affects emotions
- Fatigue
- Increases risk of chronic pain and eye vision
- Sleeplessness
- Skin disease

Long terms effects:

Tumour and cancer risk:

After analysing our collected data, we find that a large amount of the children and teenage used mobile phones for a long time per day. For excessive use of mobile phones, as suggested by doctors, they may affect tumour or brain cancer because their body structured to be continued for maturity. That's why children have a great risk for brain tumours and cancer. There has also a risk for all classes of people who are using their smartphones for a long time. Also, another findings suggest radio wave emission from mobile phone may cause brain tumours and cancer for all age groups [9,11,12,13].

Increases Anxiety:

Regular method of communication as exchange of text can cause anxiety limit high in teenagers. Quick reply from other side can cause happiness but it can turn into disappointment due to late response or sometimes no response.

Brain Activity:

With the help of the electromagnetic system, mobile phones are working. The electromagnetic system is so harmful to humans. For excessive use of the mobile phone, one may get disturbed one's brain activity. One may get lots of problems like behavioural tendencies and have trouble learning new things or focusing properly [6].

Ear problems:

Consistently using mobile at a loud volume, it can damage our eardrum. If we continue it for a long time it will be damage permanently our eardrum.

Weakens immune system:

We know that a smartphone has the oily, greasy residue on the screen. This type of screen contains lots of

germs and it makes our immune systems weaken. It makes us more prone to diseases.

Eye problems:

Within five minutes of waking up, 90% of people check their phones. It is responsible for exposing our eyes to that kind of light in the day itself is harmful. If we continue it for a long time our eyes will be affected permanently.

Infertility:

The mobile phone is produced an extra amount of radiations. It's totally harmful to humans. If we carry for a long time our mobile phone in our front pocket, its radiations may hamper male sperms. For a long time, it may cause infertility.

Teen tendonitis:

Owing to long time mobile use for texting teenagers eventually become addicted to it which causes Teen Tendonitis. Back, neck, and hands pains are usual for them due to less posture [10].

5.1.2. Psychologists Opinion

Addiction:

As mobile becomes the big part of majority young people and they are having time with it which causes social isolation and they gradually addict for mobile phone. More importantly, at a certain level they can not spend a single moment without mobile.

Concentration:

According to experts:

- If we are the heavy users of the internet and mobile phone, we will prone to lack of concentration and we will forget things easily.
- It will affect our awareness and eventually lead to a passive mind

This also will be the reason to weak focus and attention in our important tasks.

Stress:

Nowadays students are trying to get expensive mobile phones to maintain their image. If their parents do not agree with them, they feel stress about that. Students (like school, college) are using smartphones that have all multiple features. They are using social media, watching videos, listening to music and make communications with others. It helps them to get more stressed.

Academic Malpractice:

Nowadays it is seen that lots of students are contained their mobile phones in the exam hall. They are able to store lots of files, can save images/photographs of the textbook in their mobile phones. Most of the time, they are trying to cheating in the exam hall. It's not only the

academic malpractice, but it also decays the personality of the students.

Low grades:

Mobile phones contain lots of multiple features. It attracts students like drugs. They use social media, chatting with lots of friends and spend a huge amount of time using unnecessary uses of mobile phones. At the result, they got low grades in their examination.

Lack of vision:

For a long time, the use of mobile phone students does not get proper time for sleeping and they do not get the proper time to do the necessary works. That's why they get more stress, anxiety, and depressions. That way they cannot make proper decisions or can't set fixed goals because of their unstable mind.

Accidents:

Finding has found around 3-4 times greater chance to face an accident while driving due to distraction [14].

5.1.3. IT Expert Opinion

Spread of rumors:

Mobile users spend much of time on social media which is mostly responsible for spreading rumors among massive number of people on internet world. In consequences, many social violence can be occurred which may have great negative impact in our society.

Cyber bullying:

Cyber bullying means that cyber harassment to someone using electronic systems on online. A recent study shows that especially teenage are doing that.

Impacts of cyber bullying-

- Rising student suicides
- Increase of aggression in students
- Loss of self-confidence
- Depression
- Increase in student drug intake

Inappropriate Media:

The mobile phone makes the world so close. We can make a call anytime anywhere via using networks. We can see any type of videos anywhere. We can exchange images anytime easily. For kids it's is more concern that they can easily find pornography which will be more risky for an early age people [7].

VI. PROBABLE WAYS TO REDUCE MOBILE PHONE USE

According to Doctors, psychologists, IT expert opinions, we are suggesting following ways along with other findings to reduce the excessive mobile phone use:

- Social awareness should be risen to make aware of excessive mobile use. In that case teachers can

aware students while parents focus on their children to let them know the detrimental effects of long-term mobile use. Additionally, social organizations can also do more in this regard, they may have campaign on how to reduce mobile use.

- To avoid accidents during driving, mobile phone should be turned off and imposed strict law who violates it.
- People should not usage their phone during mealtimes and in restroom, in social events, and in bedroom
- Avoid unnecessary use, audio and video calling, and group chat and abstain from calling and messing while driving [3].
- Without emergency need people should not use mobile for communication purpose and daily conversation should not exceed 20 minutes.
- As alternative of mobile we can use email or other online services which can be accessed through computer.
- Uninstall or remove from home screen all unnecessary apps which are no longer required so that we can avoid unexpected tapping and notifications [15].
- For a long time of communication, we need to use a hands-free set. It will reduce the radiation while we call via using earpiece and microphone. It can reduce the radiation while we making calls.
- We should use speakerphone when we talk (Through it's antisocial, but if nobody's around) and we should hold our phone a small distance. (The iPhone 4's manual suggests we should keep it 15mm away from our when transmitted data from our phone to another phone or any other sources.)
- When we stay in lifts, basements, and tunnels, we should avoid the use of the mobile phone. Because for fewer bars our handset gets a lower signal, which produces high radiations that moment.
- We need to Customize Notifications on our smartphones. If we receive lesser notifications, we will less check our smartphones. Because unnecessary notifications can make our time wastage.
- Since parents or adults, it is most important for us and other people in the house to restrict excessive use of phones when we are in front of our children. Because now –a –days children are more attractive to the phone to see their parents or other family members.

VII. FUTURE WORK

We will focus on digging out a healthy lifestyle without mobile phone and in what possible ways we can replace mobile phone by other object or things.

VIII. CONCLUSIONS

Mobile phone plays without any doubt an important role in the development of human civilization, but its excessive use brings severe detrimental effects on human being as mention above. As we can not directly ignore it, we can reduce the use of mobile by maintaining the suggested ways in above discussion. Hence, mitigating harmful impact of excessive mobile phone use. However, it's worthy to remember that the mobile phone is a friend, not a master, and it should never be used too much.

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