A Comprehensive Study of Excessive Mobile Phone Use and Preventive Measures

Thesis Report Submitted By

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Declaration

We are Md. Sohag Hossain Majumdar, Abul Hasan Mia, Akram Ullah, and Farzana Jannat students of Department of Computer Science and Engineering, Sonargaon University (SU), declaring that this thesis paper on the stated topic has only been prepared for the fulfillment of CSE-400 Project/Thesis, as the partial fulfillment of "Bachelor of Computer Science and Engineering" degree. It has not been prepared for any other purposes, rewards, or presentation.

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Approval

The thesis report on **"A comprehensive study of excessive uses of mobile phone and preventive measures"** has been carried out by Md. Sohag Hossain Majumdar (CSE1502005023), Abul Hasan Mia (CSE1502005027), Akram Ullah (CSE1502005040) and Farzana Jannath (CSE1502005045), has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of bachelor of Computer Science and Engineering and approved as to its style and content.

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Acceptance

This is to certify that the thesis report on **"A comprehensive study of excessive uses of mobile phone and preventive measures"** has been carried out by Md. Sohag Hossain Majumdar (CSE1502005023), Abul Hasan Mia (CSE1502005027), Akram Ullah (CSE1502005040) and Farzana Jannath (CSE1502005045), students of Department of Computer Science and Engineering, Sonargaon University (SU) as partial fulfillment of the requirement of CSE-400 Project/ Thesis. The report has been prepared under my guidance and is a record of the bona fide work carried out successfully. To the best of my knowledge and as per their declaration, no parts of this report have been submitted anywhere for any degree, diploma or certificate. Now they are permitted to submit the report. I wish them all success in their future endeavors.

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Acknowledgment

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 call, message, net browsing, email checking, watching videos, connecting social media, online gaming, 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. As for spending much time on these activities causes harmful for humans, we also discuss the effect of excessive use of mobile phones deeply with consulting doctors and IT experts and suggest some probable solutions.

Content

Chapter 1: Introduction

1.1 Introduction

Recently, the most wanted device is a mobile phone. It has lots of features. For its multiple features, the mobile phone is a widely used device. It has lots of positives sides. 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 tumor, Alzheimer's disease, Parkinson's disease and so on. Even the short term effects (hormone disruption, sleep disruption, impairment of cognitive function, behavior, attention) and long term effects (DNA damage, Male infertility).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.

1.2 Aim of work

In this modern time technology is more advanced. The smartphone is available right now with its lots of features. People who use it excessively may have faced lots of problems. Our aim of this research work is finding the excessive use of mobile phones and its harmful effects and provide some possible solutions.

1.1 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 and long term diseases and many physical problems. Adriana Bianchi published an article and Dr. James G. Phillips, Ph.D., (2005), that explained lots of short terms and long term physical problems that occurred for a long time use of mobile phones.

Within human population studies, epidemiological studies provide the most direct information on the long-term effects on the health of any potential harmful agent. 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 analog 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 (15). 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 tumor, and long term effects (DNA damage, Male infertility). (From Biological Effects of Mobile Phone Use [20014]- by John William).

 But, in our research works, we will focus on excessive uses of mobile phone effects, and we provide a better solution to how people get to avoid these problems.

Chapter 2: 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.

2.1 Positive Sides of Mobile Phone

> **Communication:**

In modern times, the mobile phone is like a magical device. It makes our daily communication so easy. We are always connected to our family, friends, and relatives with the help of mobile. Cell phone technology gives connectivity to everybody in the world anytime anywhere. If we are millions of distances far from the whole world, it is possible to communicate instantly.

> **Small and Convenient:**

Nowadays mobile is more popular for its small and convenient size. We can carry it easily when we go outside of our home. It fits easily into our pocket or bag. It doesn't weigh much. Right now, we can buy this small and convenient device.

> **Texting:**

Via using our smartphone, we can send a text message (also known as texting) to communicate with a short written message. In smartphone SMS and MMS technology is available right now. It is a smart way to send a valuable message in a short time.

> **Mobile internet:**

The mobile internet system makes it the most wanted device. We can easily access the web world using our smartphones via mobile internet. From any mobile networks we able to use the internet we can share our resources with others.

> **Emergency:**

It is very clear to all that mobile phones came to this world for emergency purposes. If any students have a mobile phone, it is easy to contact him/her when other students need. In school or the street, they can easily contact their parents for any kind of problem immediately. Others like students with a phone can contact police at any harmful situation, or contact a fire brigade if they find fire somewhere, or even they can call any department when they need to. So, the mobile phone is one of the best solutions for any emergency situation.

> **Fashion and Self-Expression:**

Right now, we see lots of stylish phones are available in the market, choosing which model of phone to carry, like iPhone, Samsung, blackberry. One plus, Hawaii, etc. are internationally most famous. People think that stylish or more costly phones make them more fashionable.

> **Entertainment:**

As we have our mobile phone, there is no reason to get bored. There are multiple features for enjoying videos, listening to music, playing games, reading the most valuable information on our mobile phone. We can easily connect in social media via using this magical device.

Notes and Reminders:

We can use our phone like a notes taker. Our daily essential works list such as a shopping list, an important password, or a complicated set of instructions that would be difficult to memorize, we can use mobile phones for taking notes and reminders. Important information on Capturing image or recording voice is easy for later use.

> **Video call:**

It is the most wonderful feature that we are able to make video calls anytime. We communicate with others like real tome video sharing way.

> **Calendars:**

The calendar facility is an excellent feature of mobile phones. People can use it easily. In previous people use manual calendars which may need to more careful about checking dates. But now we can easily find out the exact date by using a mobile phone.

If we set alarm for a particular time on a date, our phone will alert us.

> **Maps, Navigation, and Travel:**

In the smartphone, we can use Maps, navigation and travel guidelines. It is more popular right now google maps. Everyone uses it to easily find their unknown places. If traveling by plane or train, we can use our phone to explore timetables, purchase and display our ticket.

> **Online Banking:**

Mobile banking or online banking is more popular nowadays. We can check our account balances, transfer money, and pay bills, etc. by using mobile banking. It is easier to carry than a computer. Now available lots of apps that tell us about our credit rating, how stocks and shares are doing, and other economic information.

> **Address Book and Contacts:**

Now we can easily save all the necessary contact details for family, friends, and coworkers in one easy to access place. It has no risk to forget or lose any person's phone number, email address, or property address. Our saved address books can synchronize and stored online so that if our phone breaks, or is lost, we can still access them from other devices.

➢ Remote Working:

We know the mobile phone is a device which is very easy to move with us. For its small size and low weight and its available network, we can communicate with others from anywhere. If we are traveling or at home we can connect with our colleagues, clients, friends, and needed persons any time with using this magical device.

➢ Emergency:

If we fall an accident or any type of trouble we can communicate with others via using our phone for emergency help. The mobile phone can make someone a valuable life in an emergency case.

➢ Watch:

Watch is an essential part of time management in the office or anywhere. Watch it help us to find out the exact time. The smartphone has a watched and it helps us determine the exact time.

➢ Calculator:

In our office or any type of big calculations, we need to use calculators. The mobile phone provides a calculator for calculations. It is an easy way to use it. The smart mobile phone provides a scientific calculator which is very helpful for students for their study.

➢ Flashlight/Torch:

In night or dark places we need torch or flashlight. Mobile phone now provides torchlight which is very helpful all kind of users. Especially, when we go outside of the city like our village we badly need a torch at night. In the night or dark places, we read our important papers or document using a mobile torch.

➢ News:

Watching live news is more convenient in our mobile phone. We can easily see whole world news using the internet on our mobile phone. So it's the best feature for seeing news.

➢ Sports:

Various types of worldwide Sports tournaments or events are helpful for entertainment. Live streaming is so much helpful in our mobile phone for enjoying these types of events.

➢ Live Events:

Lots of live events are live telecast for enjoying people online. We can easily enjoy it by using our smart mobile phone. With the help of mobile internet or wifi service, we can easily watch all live sharing videos.

➢ Crime Evidence:

The modern smart mobile phone has lots of features which is very much helpful for gathering any type of evidence. If someone secretly records the real videos or voice for any crime or illegal works, it will helpful for catching the criminal or that guilty person.

➢ Learning and Research:

Our mobile phone is like having the world's biggest reference library on hand everywhere we go. We can search for just about anything in any situation as long as we have a connection. We collect any type of information from any website via using our phones which need to connect the internet. If we traveling or go somewhere we can store lots of files for learning better on a bus or any vehicle.

➢ Mobile Hotspot:

We can share the internet from others via using our phone's mobile hotspot and tethering functionality. This takes the cellular (3G/4G) connection on our cell phone and opens it up as a Wi-Fi access point for our other devices, like tablets and laptops. In vehicles or any office, it is more than a free wifi zone.

➢ Business:

Right now all of the people use the internet. Via using their phone they use social media and necessary websites etc. if someone deals with his goods in social media or using any websites, he/she can manage a business in this sector. E-commerce business is more popular nowadays. People are likely to buy their necessary items from here.

➢ Monitoring:

For the GPS system in our mobile phone, we can easily track the user where he/ she is. It a great invention. So in our office or any person, we can track him/her.

➢ Personal assistant:

The smart works like a magical device. It helps to control our TV, we can make video. If we set reminder for doing our meeting or any important task, it will very helpful for us.

➢ Creation of employment:

Lots of work place are created by phone Company. Many people are involved with those company and their livelihood.

➢ Luxury:

Nowadays most of the people use two smart phones. It makes them more special they think. People use costly phone for lead a luxurious life.

➢ Versatile process:

A modern mobile is a versatile tool like that. At a time we can do lots of works via using it such that making calls, messaging, taking pictures, checking emails, etc. If we want to track our steps each day, our phone can do that. If we need a timer for baking a cake, our phone can do that. It keeps track of time, connects us to social network and it's still a phone too.

➤ Learning tool:

A smartphone can help all classes of people to learn lessons easily. Students can learn easily any information from the internet via using their mobile phones. Lots of educational tutorials are available right now on the internet. Everyone can use it.

➤ Responsibility:

We may do our responsibility properly by using our mobile phones. We can make call our relatives without going physically travel.

➤ Information:

The smartphone has huge storage. We can store lots of information here. Using a smartphone, we are able to know all of the necessary information and searched it when we need it.

➤ Safety:

Smartphones can be tracked easily. Nowadays lots of Apps make it possible for parents to know exactly where their children happen to be and where. If we lose our phone we can find out it using tracking technology. We are able to identify the possible criminal by using the tracking system in our mobile phones. It a great feature on our mobile phones.

2.2 Negatives Sides of Mobile Phone

➤ **Distraction:**

For its easy system, the Mobile phone makes us for an emergency call for any time anywhere. When we are doing an emergency task like that driving or most important task in our office and that call makes a distraction. The distraction could have happened many accidents or other hampered.

➤ **Addicted:**

Nowadays, many people are getting so much addicted for talking, messaging, games, video, and recording that they forget the real purpose of their mobile phone use and they waste their valuable time in unnecessary interaction over their cell phones.

➤ **Sleepless nights:**

Most of the students playing games on a mobile phone. They don't care about their study time. They are totally concern about their games. They are chosen their bedtime for that. They do it continuously for 2 am or 3 am in the early morning. So the next day they get tired, and that's why they don't make a concentrate on their subjects.

➤ **Game:**

In modern times most of the users using mobile phones for playing their games. They easily download their favorite games without cost. That's why they are so much interested in that and they waste their time.

➤ **Accidents:**

In highway road, nowadays seen that some of the major accidents occurred for talking over the phone while driving the car. It is a common scene nowadays. So, for this reason, road accidents rapidly increased.

➤ **Privacy Break:**

If we store all of our information, we gather in one handy device and it can be extremely convenient. It is very difficult for all the time to maintain a security system. If once we lost our phone our important and secret file or information will be hampered.

➤ **Distance from Relatives:**

The mobile phone makes the distance from relatives. Because in previous all the relatives of the family were getting together on every occasion, but right they contact via phone with relatives. It makes a big distance from relatives.

➤ **Waste of Time:**

In modern time phone call rates or mobile internet is so cheap. That's why they use it for a long time. They talk with each other unnecessarily. Actually, it kills their valuable time.

> **Skin Diseases:**

Now –a –days skin diseases are increased at an alarming rate, especially hand skin, cancer, and eye problems, etc. And a lot of other diseases can affect the body by its high usage.

> **Study hamper:**

Nowadays it is seen everywhere all classes of the student like school, college, university students using the mobile phone and they are doing facebooking, watching videos on youtube, etc. They pass lots of time with their smartphones. Actually, it makes damage or hampers their study.

> **Health Problems:**

Some studies suggest that the electromagnetic radiation produced by mobile phones causes harm to human health. Brain cancer has been cited as a possible effect of long-term regular phone usage. However, it should be noted that there is no solid agreement on the level of harm that may cause by mobile phones.

> **Ear problems:**

Nowadays using phones at a loud volume consistently can damage our eardrum.

> **Increases stress level:**

If we use our mobile phone for a long time, it will be very stressed about its bad effect. Mobile phones can cause the main thing for our stress because when we use it for a long time it produces one kind of hormone which disturbed our sleeping and increases our stress level.

> **Chronic pain:**

For a long time its unnecessary uses, we need to hold our phone for a long period. If we do it continuously for holding one position it will be extreme pain and inflammation in our hands. After a long time, chronic pain will have occurred in our body. It will be a long time to suffer for us.

> **Hinders sleep:**

The modern smartphone provides lots of multiple features like enjoying unlimited videos, playing games, messaging lots of friends at a time that makes people crazy. That's users go to bed at midnight or later.

> **Germs:**

We use our smartphone anywhere anytime that's why it contains lots of germs. When we go to for taking our meal we touch our phone, that moment lots of germs are present and attract us. So we get sick.

> **Hampering in thinking:**

In modern times it is seen that lots of people are busy all the time their mobile phones. They do not get proper time to think freely about their life or about themselves. Because all the time they are in social media or like

others. It totally hampers their natural thinking process. After that, they can not take proper decisions about their lives. It's a great problem for long-time users.

> ### Dedication to work:

For mobile phones, multiple attractive features make it the most wanted device in the modern age. It provides lots of social media like Facebook, Instagram, WhatsApp, twitter, etc. If we connect those social media it takes lots of time form us. It kills our valuable time. Finally, it damages our dedication or attention to our work.

> ### Depression:

It is seen everywhere that lots of young people are depressed their own lifestyle. For a long time the use of mobile phones and its bad effects like that lack of sleep, rise up stress levels make people more depressed. So it's a big problem for long-time users.

> ### Loss of hearing:

It's easy for all classes of people to listen to music via using earphones on mobile. Lots of people using mobile phones for long time communications. Young people use high volume for enjoying music. It gradually makes them a loss of hearing problems.

> ### Skin allergies and infections:

The smartphone is available for all classes of the people right now. People use it for any time anywhere, for that reason, the mobile phone contains lots of skin damages germs virus. At last, it makes our skin allergies and creates infections in our body which is so risky for us. This type of infection may cause skin cancer.

Chapter 3: Data Collection and Analysis

3.1: Data collection

Firstly, we designed a form which is given below (Figure 3). Afterwards, we went man to man, house to house to collect the required information. Our initial target was to interview 1000 persons for our survey.

User Survey Form

Age: [   ]

Use	Spend Hours
Communication	
Gaming	
Entertainment	
Net browsing	
Social Media	

Figure -3: User Survey Form

3.2 Analyzing 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.

3.3 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.
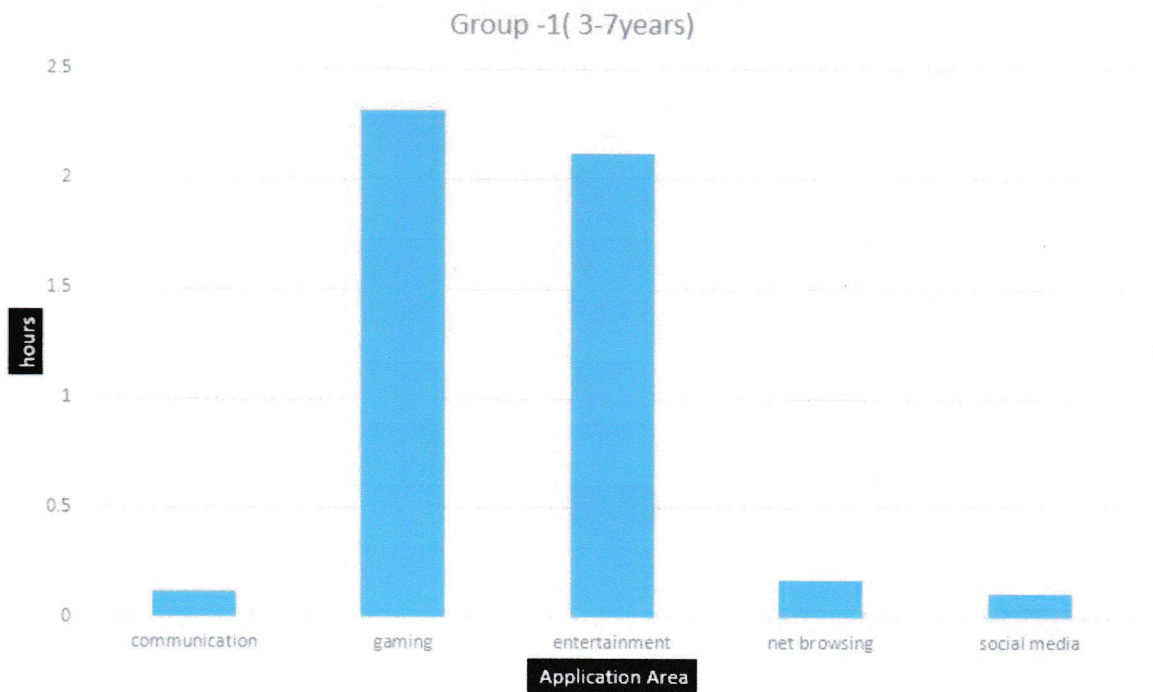
3.3.1 Group-1: (3-7) Year

Figure: 3.1(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.

3.3.2 Group-2: (8-15) Year
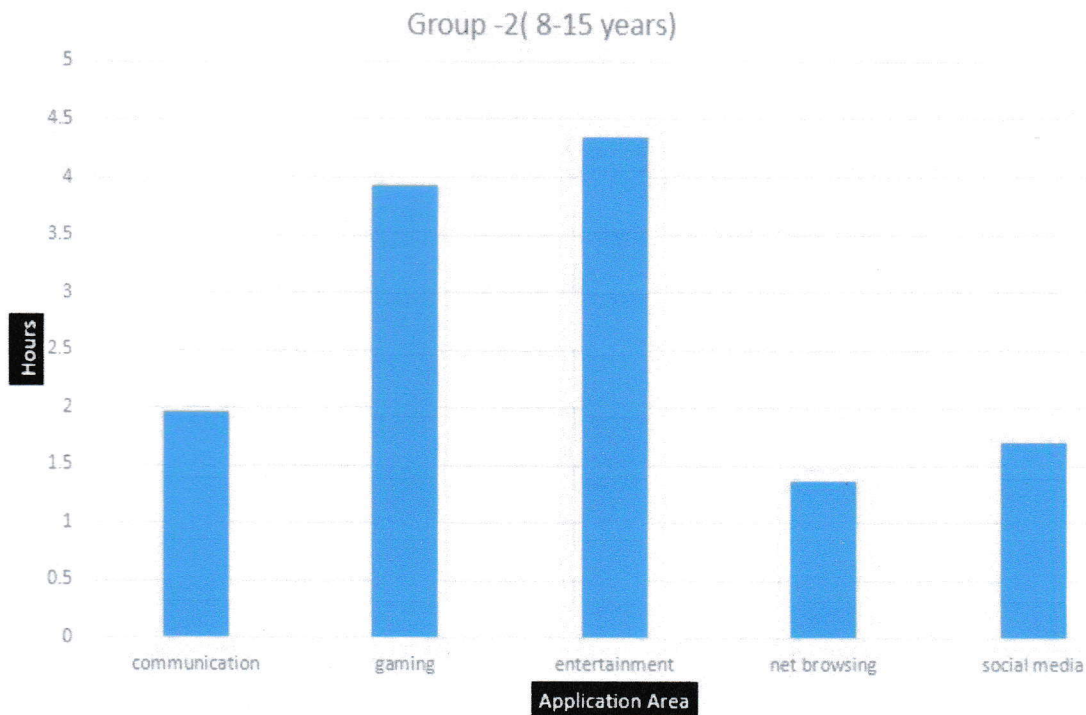
Group -2(8-15 years)

Figure: 3.2(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.
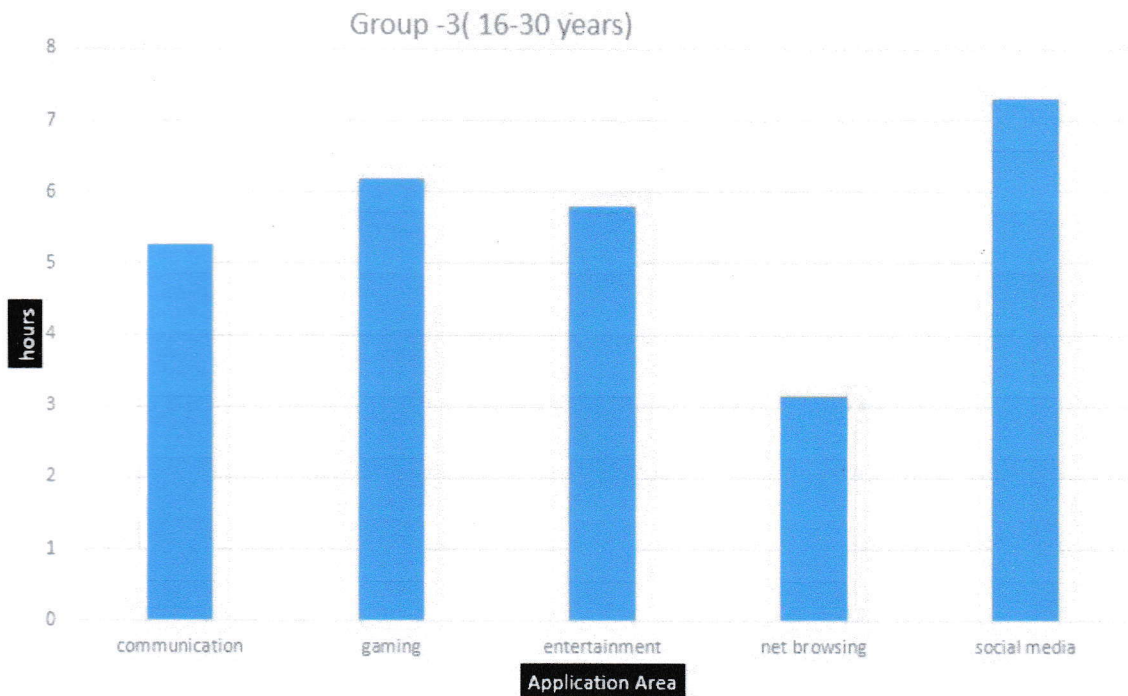
3.3.3 Group-3: (16-30) Year

Figure: 3.3(Group-3)

People of this group use social media for above 7 hours. They are also spent about 6 hours in gaming. In this group, people use 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.

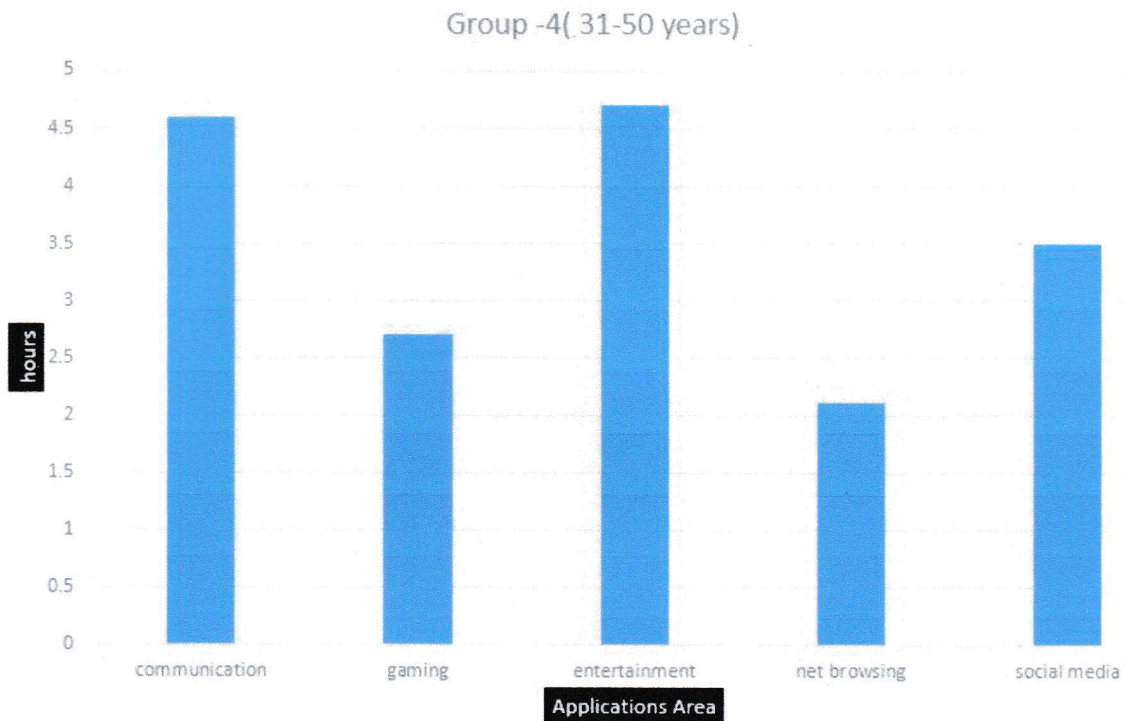### 3.3.4 Group-4: (31-50) Year

Figure: 3.4(Group-4)

In Group-4 People used their phone in communication for long time. They are use their smartphone for communication purpose about 4.5 hours. They also use 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.

3.3.5 Group-5: (51-70+) Year
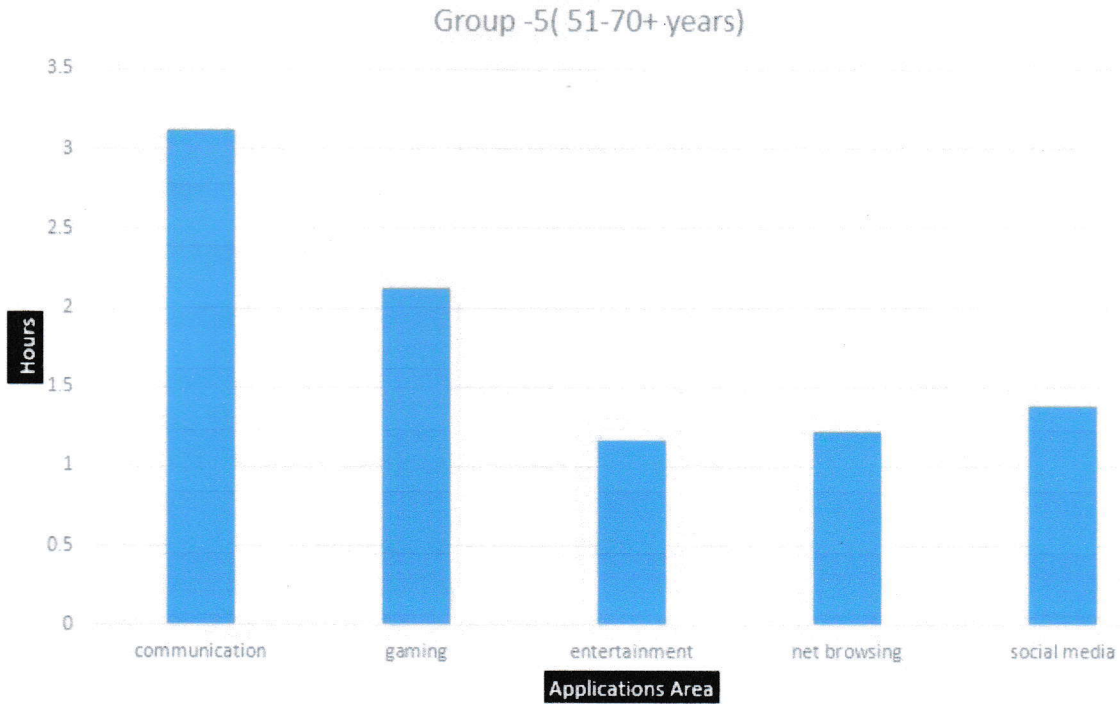
Group -5(51-70+ years)

Figure: 3.5(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.

Chapter 4: Effect Discussion

4.1 Consult with Doctors, Psychologists, IT Experts

After analyzed all necessary documents, we met a special doctor, Psychologists and IT experts about the frequency ranges of mobile phones network and its harmful effect on the human for its long-time excessive uses. We show all the required documents which we collected. Doctor's opinion about this:

4.2 Doctors Opinion

Short term effects:

➢ Headache
➢ Increases Stress Levels
➢ Negatively Affects Emotions
➢ Fatigue
➢ Increases Risk Of Illnesses In Your Immune System
➢ Increases Risk Of Chronic Pain
➢ Increases Risk Of Eye Vision Problems
➢ Sleeplessness
➢ Skin disease

Long terms effects:

➢ **Tumor and cancer risk:**

After analyzing our collected data a large amount of the children and teenage used mobile phones for a long time per day. For excessive use of mobile phones, they may affect tumor or brain cancer because their body structured to be continued for maturity. That's why children have a great risk for brain tumors and cancer. There has also a risk for all classes of people who are using their smartphones for a long time.

➢ **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 behavioral tendencies and have trouble learning new things or focusing properly.

➢ **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:**

Recent studies found that, 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.

4.3 Psychologists Opinion

> **Concentration:**

The *Daily Mail 2016*, published an article about this. They focus on a new study claims like that-

- 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 do 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 can not make proper decisions or can't set fixed goals because of their unstable mind.

4.4 IT Expert Opinion

➤ **Cyberbullying:**

Cyberbullying means that cyber harassment to someone using electronic systems on online. A recent study show that especially teenage are doing that.

Impacts of cyberbullying-

- 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.

Chapter 5: Probable Solutions

According to Doctors, psychologists, IT expert opinion and lots of study of the topic, we found these solutions how we mitigate the problem of excessive uses of mobile phone:

> 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 can use the "Tawkon" application which helps us for monitoring the radiations of our mobile phones and it suggests when we should stop using it.

> Avoid unnecessary calls. We can use text, email or other messaging services instead of making that call might be the simplest way of reducing your exposure.

> We should turn off our smartphones before going to bed. Or our phone should be away from our sleeping bed. Because when we sleep for a long time, the radiation of the mobile phone definitely very much harmful for us.

> 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

> We need to take extra care if there is a mobile phone tower on our living building or near most. Because the nearest tower provides an extra amount of radiations.

> While we are traveling from one place to another by Airbus or any type of door or windows blocked vehicles, we should avoid using the mobile phone. In the close metal body or any close places are need to more radiations to maintain a proper signal.

> 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.

5.1 Others Probable Solutions

> **Unnecessary uses should be avoided:**

We need to use the mobile phone only for our desirable purpose, we should avoid unnecessary calls, messaging, games, etc.

> **Long-time uses should be shut down:**

Longtime uses of mobile phones are extremely bad for us. Because it makes radiation and the negative effects of health.

> **Delete all the apps you don't use:**

Sometimes we install an unnecessary application which is no need for us. But this type of app kills our valuable time. That's why we need to delete all unnecessary apps.

> **Set specific boundaries for smartphone usage:**

When we take the mobile phone in our hands, we start using it for a long time. We are not concern about our uses time. So, to make sure necessary uses we need to set specific boundaries for its usage.

> **No phone usage at mealtimes:**

Now -a- days everywhere is seen that when we take a meal, we start using our mobile phone. It totally disturbing for us.

> **No phone usage in the restroom:**

After working or in our resting time, we should avoid our mobile phone use. When we use a mobile phone in our restroom it seems to be busy with mental work. It should be avoided.

> **No phone usage at social events:**

Nowadays, people are going lots of social events and they are focusing on capture selfie or live streaming. But the main task or purpose may be disturbed for that. So, we should aware of that.

> **No phone usage in the bedroom:**

Say that the bedroom is the most important place for relaxing or sleeping. Sleeping is the best way to remove our tiredness. If we use regularly mobile phone in our bedroom it will be disturbed for us. That's we need to uninterrupted sleeping. So it should avoid unnecessary uses of mobile phone use.

> ➤ **Avoid unnecessary group chats:**

Unnecessary group chats or call is very much problematic. Because in group chats or call lots of friends may join and it continues for a long time. Exposing our eyes to that kind of light in the day itself is harmful, but right after we wake up, when we can't even make out what is what, it is extremely harmful.

> ➤ **Avoid call or messaging while driving:**

In highway road, nowadays seen that some of the major accidents occurred for talking over the phone while driving the car. So, for saving our lives, we need to aware of our uses of mobile phones. We should avoid mobile use when we are driving vehicles.

> ➤ **Loss of hearing:**

It is seen that most of the time especially the young generation listening to music with high volume. That's why the hearing problem is rapidly increased for excessive use of the mobile phone. So, for mitigating the problem we need to avoid its excessive uses.

> ➤ **Health Problems:**

Some studies suggest that the electromagnetic radiation produced by mobile phones causes harm to human health. Brain cancer has been cited as a possible effect of long-term regular phone usage. However, it should be noted that there is no solid agreement on the level of harm that may cause by mobile phones. So, for maintaining proper health, we need to follow some restrictions on using mobile phones. Excessive uses of the mobile phone may damage your health.

5.2 Experience

Working in this thesis was a big opportunity for us. We have learned a lot about the comprehensive study of excessive mobile phone Use and its impacts.

5.3 Future Work

- ▶ More than 10+ parameter will be added in our survey list
- ▶ We will include about 10000 people
- ▶ We will focus on the young generation about the excessive use of mobile phone effects

Chapter 6: Conclusion

Today's world is a world of technology and inventions, and there are many tools which essentially facilitate our life. Mobile phones play an important role in the development of human civilization, but their excessive use brings severe problems like germs, traffic accidents, cancer, electromagnetic radiation, and health effects such as changes in brain activity and sleep patterns. To reduce their harmful effects, one should always remember that the mobile phone is a friend, not a master, and it should never be used too much. People can avoid health hazards by understanding what the risks are and how to avoid them.

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