

## CELL PHONES ARE MORE DANGEROUS THAN SMOKING

Aysar AbdulKhaleq Abdulrahman<sup>1</sup>

Department of Computer Science, University of Sulaimani,  
IRAQ.

<sup>1</sup>aysser.abdulrahman@univsul.edu.iq

### ABSTRACT

*The topic of this paper is that cell phones are dangerous like smoking. This comparison between cell phone and smoking used to show how much cell phone usage can be dangerous on human life. The main four parts of this paper are introduction to cell phone, background of cell phone, literature review, cell phone: safe or unsafe, and conclusion. Some research groups and organization such as FDA insists that cell phone use is safe. This research paper argues that cell phone use is unsafe for both humans and animals. There are four main reasons for this argument. First, cell phone towers have more non-thermal effects than thermal effects which might cause DNA damage. Second, a practical study proved that cell phone radiation affects not only the human body, but also animals. Third, the laxity of the Federal Communication Commission (FCC). Finally, that the FCC standards are unsafe and pose a health threat to people and animals. So, using cell phone is unsafe and might cause serious illnesses.*

**Keywords:** Cell phones, FDA, FCC

### INTRODUCTION

Mobile phones could kill far more people than smoking or asbestos, a study by an award-winning cancer expert has concluded (Lean, 2008). A cellular telephone is a small wireless device which plays a major role in our lives. It provides many services such as voice communications, SMS (Short Message Service), MMS (Multimedia Message Service), and Internet services. Although a cell phone has many benefits, it also has some health risks which are greater than its benefits. Many scientific studies and research have proved that using cell phones is not safe because they have found that cell phone tower radiation affects animals' behavior and human health. Equally important, because the weakness of the Federal Communications Commission (FCC) standards. Therefore, using cell phones puts us at risk. Cellular phone systems can be either analog or digital; older systems were analog, and newer systems are digital. In cellular systems, the specific area- city or town- is divided into smaller sections called cells. Each cell has its own antenna (Tower). The work of these towers is to cover specific geographical areas and to provide service for cellular phone users. Cell phones communicate with cell phone towers through a form of energy in the electromagnetic spectrum between frequency modulation (FM) waves and microwaves, which are called radio frequency (RF) waves. When a subscriber- user of a cell phone- makes a call, signals are transmitted back and forth to the base station- cell phone towers. The signal is sent from phone's antenna to the nearest base station antenna. Then, the signal is sent to a switching center, which transfers the call to its destination. Using these types of phone systems could be harmful because the level of the cell phone radiation might be dangerous for human. There are two types of radiation which are thermal radiation and non-thermal radiation. Thermal radiation is a type of electromagnetic radiation that is emitted when an object is heated up to a certain point such as sunlight radiation. Non-thermal radiation is not related to the temperature of the body emitting it and so cannot be used as a guide to the

temperature of its source. For example, radiation released when an electron interacts with a magnetic force field such as microwaves oven radiation. Therefore, industries must follow the FCC standards to keep the radiation at the safely level. (FCC), an independent United States government agency, was established by the Communications Act of 1934. It is responsible to regulate international communications including radio, television, wire, satellite and cable. The FCC's jurisdiction covers the 50 states, the District of Columbia, and U.S. possessions (FCC, 2011).

The idea of wireless technology started in 1865 with dentist Dr. Mahlon Loomis of Virginia. He was the first person who used wireless communication to transmit telegraphic messages between the tops of Cohocton and Beorse Deer Mountains, Virginia using the Earth's atmosphere. In 1973, from that important groundwork came more advances. Dr. Martin Cooper invented the first handset and made the very first cell phone call. Wide scale testing of this new technology started as early as 1977. The first public cell phone test started with 2,000 customers in the city of Chicago followed by Washington D.C. and Baltimore. Then at the end of 1977, cell phone became public. Cell phone technology was developed quickly to reach more than 60 million customers in 2008 (Cell phones, 2008). In 1996, the industry lobbied Congress with \$39 million and won the right to locate their towers everywhere. This law took away people's right to oppose mobile towers because there is no supervision to ensure that the towers are not emitting radiation more than what is legally allowed (Allday, 2011).

The controversy of using cell phone started after 1996 when some researchers found that cell phone radiation might has negative effects on human health. Unfortunately, they are theoretical studies. Although the Food and Drug Administration (FDA), the World Health Organization, and the National Institute of Health (NIH) insist that cell phones use is safe, the Bioregional Ecology Center (BEC) and the Washington Warren matter proved that using cell phone is dangerous and harmful for the human body.

## **PREVIOUS WORK ON CELL PHONE DANGEROUS**

People use cell phones every day at work, university, school, home, and everywhere. Therefore, it is very important to know if cell phones are dangerous or not. Some groups insist that using cell phone is safe while others believe that it is dangerous and has negative effects on the human body.

The (FDA)- an agency of the United States Department of Health and Human Services, one of the United States federal executive departments-, and the WHO- a specialized agency of the United Nations (UN) that acts as a coordinating authority on international public health-state that cell phone radiation has no negative effects on the human body. The FDA and the FCC are responsible for monitoring and controlling cell phone radiation to keep it safe. Also, the new study, which was published in the American Medical Association by the National Institutes of Health (NIH), proves that although using a cell phone for a long time affects brain activity, the effects have not been found to be harmful or pose a risk of causing brain tumors (Allday, 2011; FDA, 2010).

Even though a lot of groups insist that cell phones are safe, and they do not have any negative effect on the human body, there are many other groups who proved that using cell phone for longer periods has many negative effects on human and animals' behaviors. Both the BEC and the Electromagnetic Radiation Network (EMR), which are non-profit organizations, mentioned that cell phone radiation affects human health even at the low level, and it might cause serious illnesses such as damage to cell tissue and DNA. Also, Washington Warren

matter, an organization formed by friends and residents united in opposition to a plan to put cell phone towers in rural areas, reported that cell phone towers not only effect the human body, but also animals (Levitt, 1995; Löscher & Käs, 1998; Rogers, 2002).

### **CELL PHONES: SAFE OR UNSAFE?**

Several organizations, industries, and research groups say there is no conclusive evidence that using cell phones can harm human health. According to the International Association for the Wireless Telecommunications Industry, cell phones and other wireless devices are safe. Also, there is no connection between mobile phone use and brain cancer or any other diseases.

Allday (2011) shows that although the new study, published in the NIH, proves that using a cell phone for more than 50 minutes at a time affects brain activity, the effects have not been found to be harmful. Many researchers and doctors confirmed that the result of the study aforementioned is not presently disturbing, and more research in this field is necessary; they need more than 20 years to know all of the negative effects of radiations on cell phone users. For example, Dr. Mitch Berger, chairman of the department of neurosurgery at United Consumer Financial Services (UCFS), confirmed that the results of the study are not worrying and more research is needed in this field. He said, "I do not think you can extrapolate this to assume there is a health hazard here" (as cited in Allday, 2011, para.16). Also, according to the International Association for the Wireless Telecommunications Industry, cell phones and other wireless devices are safe. Moreover, there is no connection between mobile phone use and brain cancer or any other diseases.

According to the FDA, the research which supports the negative effects of cell phone usage is not true. The FDA and WHO state that cell phone radiation has no negative effects on the human body. The FDA and the FCC are responsible for monitoring and controlling cell phone radiation to keep it safe. The FDA is authorized to take action against any industry which uses high level of radiation which might be harmful to the user. According to the study of Interphone and WHO in 2000, which included thirteen countries without the United States, long term cell phone use has little or no risk of causing brain tumor. Therefore, these rules control industries and keep them working within the safe level of radiation (FDA, 2010).

Although there are many researchers and several organizations related with the government that insist cell phone use is safe, it is clear that using cell phones is dangerous for four reasons. First, non-thermal effects of the cell phone tower radiation on the human body. Second, cell phone radiation affects not only the human body, but also animals (Löscher & Käs, 1998). Third, the laxity of the FCC. Fourth, the unsafe FCC standards.

Although some studies have insisted that cell phone radiation has no negative effects, those studies are not completely true because they considered only the thermal effects and neglected the non-thermal effects. Non-thermal radiation has negative effects. Its effects do not occur immediately like the thermal effects, but they take long time. For this reason, although their studies did not show any negative effects, they still do not sure about the long-term effects. According to the FDA (2010), Abiy Desta, network leader of science at FDA's Center for Devices and Radio logical Health, said "There are still questions on the effect of long term exposure to radio frequency energy that are not fully answered by Interphone" (as cited in FDA, 2010, para.5). According to Rogers (2002), various studies conducted that the cell phone tower radiation may cause serious illnesses such as damage to cell tissue and DNA even at low level of radiation. Dr.Gerard Hyland, twice nominated for the Nobel Prize in Medicine, stated that the cell phone towers are completely unsafe, and they have non-thermal effects. Also, Dr.Neil Cherry, Ph.D. biophysicist form New Zealand, reported that the non-thermal effects of the cell phone radiation can cause cell death and DNA breakdown. Besides

that, it can increase the risk of cancer two to five times. Since 1973, the incidence of brain cancer has increased 25% in the United States. Moreover, most of researches focused on cell phones radiation, and they did not mention anything about the effects of the cell phone tower radiation, which has more effects than a cell phone. There are more than two million cell phone towers in the United States, which emit radiation. The radiation of cell tower has more effects on children, frail, and pregnant. Therefore, some doctors from the United Kingdom urged that children under sixteen years old should not use cell phones. In addition, there are more than 100 physicians and scientists at Harvard and Boston University Schools of Public Health and 33 delegate physicians from 7 countries are declared that the cell phone towers has negative effects of public health. Equally important, Elizabeth Jacobsen, deputy Director of the Department of Health and Human Services, states that there is no study or research proves the safety of cell phone radiation. Therefore, the California Public Utility Commission asked the mobile phone industries to build cell phone towers far of schools and hospitals (Rogers, 2002).

Besides that, the research, which was done by the Institute of Pharmacology, Toxicology and Pharmacy of the Veterinary School of Hanover in Germany, proved that cell phone tower radiation not only affects human health but also animals behaviors. The study involved dairy cows to see what effects of cell phone tower radiation had on them. The study shows that the high frequency of cell phone towers affect the dairy cows that were kept in close proximity to them. Cows have showed a reduction in milk production and health problems such as heavy flood of tears and itching. When cows were removed from the cell phone tower area, their conditions cleared up in five days, and they returned to their former health. When they were returned to the cell phone tower areas, the strange health problems came back. Therefore, cell phone towers might have even more negative effects than cell phones on human beings (Löscher & Käs, 1998).

Depending on the FCC standards to control cell phones industries is not enough to consider them safe because of the FCC laxity. They based on theoretical measurements, using computer models, to monitor radiation emission levels rather than practical measurements (Levitt, 1995). In 1996, the industry lobbied Congress \$39 million industries to have the right to locate their towers everywhere. This law took away people's right to oppose mobile towers because there is no supervision to ensure that the towers are not emitting radiation more than what is legally allowed. Therefore, one frustrated has spent \$7000 to test a cell phone tower, which is near his home. He found that the tower is emitting radiation 250% over the legal limit (Rogers, 2002). This completely proves the laxity of the FCC to do its job. Also, the FCC standards are considered unsafe because they do not consider pregnant women, children, and elderly, who are more susceptible to adverse exposures, when they set their standards. Also, they based on the thermal effects of the radiation, but they did not take non-thermal effects into consideration. Moreover, they base on theoretical measurements, using computer models, to monitor radiation emission levels rather than practical measurements (Levitt, 1995).

## **CONCLUSION AND FEURTURE WORK**

Why there is no any caution from the government about using a cell phone? As the number of cell phones increases every year, many people and groups of researchers think that using cell phones is safe. They believe that more studies and research are required in this area to prove that there are negative effects from the cell phone radiation. Also, they believe that industries follow safety standards, which are mandated by the FCC. Although that many groups believe that cell phone use is safe, it is unsafe and has many negative effects on both human the

human and animals behaviors and may cause serious illnesses. There are many reasons to consider cell phone use unsafe. First, non-thermal effects of the cell phone tower radiation. Second, a practical study proved that cell phone radiation affects not only the human body, but also animals. Third, laxity of the FCC. Finally, unsafe the FCC standards. I believe that the government should alert people about the negative effects of cell phone radiation. Also, it should pass new laws and standards based on new research for monitoring and controlling cell phone industries. But the most important question is if the government took those actions, will people stop of using cell phone? Will you do?

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