



HEALTH HAZARDS FROM MOBILE TOWER: A REVIEW

Avni KP Skandhan	Aster MIMS Hospital, Kottakkal, Kerala India
Skandhan KP*	Sree BMK Ayurveda College, Belagavi, Karnataka India. *Corresponding Author
Prasad BS	Sree BMK Ayurveda College, Belagavi, Karnataka India

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INTRODUCTION

Our knowledge on X-rays, gamma rays and ultraviolet radiation is ionising¹. Non-ionising gadget radiation is from Mobile Phone, Laptop, Tablet Smart TV etc. and harmful radiations is from mobile towers². FM radio waves, Microwaves, Visible light are also other forms of non-ionizing radiation.

Radio Frequency (RF) wave is continuously emitted from tower and it is highly powerful at close area of base station³. Transmission of RF signals back and forth to the base stations during calls, leading to release of RF waves to the environment where people are exposed¹. Energy released from RF waves decreases when the distance between antenna and mobile phone increases. The widespread use of cell phones in recent decades has led to a large increase in the number of cell phone towers (base stations) being placed in our communities. Cell phones communicate with nearby cell towers through RF waves. When RF signals are transmitted back and forth to the base station during calls, the RF waves produced at the base station are given off to the environment where people get exposed⁴.

DISCUSSION

Many people are concerned about the RF waves possibly causing bad health effects¹. Exposure to RF waves is higher close to the cell phone tower¹.

These towers have electronic equipment antennas that receive and transmit cell phone signals using RF waves⁴. The transmitted power from each tower is 100 to 400W^{5,6}.

Approximately 90 crore cell phone subscribers are present in our country. Supporting functioning of cell phones more than 5.4 lakh cell phone towers are present^{5,6}. Considering the whole world, cell phone tower radiation was maximum and the worst in India⁷.

An argument revolves around the belief that the implementation of 5G technology will increase human and animal exposure to RF radiations by 10X to 100X⁸. The society in large concern about the base station and its antennae which provide link to and from cell phones.

The low frequency electromagnetic radiation is continuously eroding our health and exposing us to greater health risks. Ensure mobile tower installation beyond the standard safe distance from the place, generally home and office where you spend most of your time⁹. The microwave frequencies utilized in mobile communications cause thermal and non-thermal effects and leave a negative impact on the biological system⁴. RF energy can heat human tissue, like the way that microwaves heat food¹. Body is not outfitted to consume the unnecessary volume of heat. This gives injuries including skin burns, deep burns, heat depletion and heat stroke. Eyes are exposed extensively which results to lack of blood flow to

cornea leading to cataracts, psychic excitation, distress, hunger distress and lethargy⁴. Studies reveal mobile phone towers within the range of 400 meters can cause adverse impacts on human health⁹.

In an isolated case Supreme Court of India advised Bharat Sanchar Nigam Limited (BSNL), Government owned Telecommunication Company to remove a mobile tower in Gwalior city. Reason given was which caused cancer to a resident nearby tower¹⁰.

Several studies are conducted by different groups of authors to understand if any ill effects are caused by cell phone tower. The health hazards caused by mobile towers are many. The reasonable risk to health caused by such similar towers are known well now. Mounting evidences are available to show the ill effects caused by presence of mobile towers nearby. It is worse among children and elderly people (may be they remain exposed to towers, most of the day).

Mobile towers are not allowed in many countries, the first major one to take this step is Belgium^{11,12}.

In India, many health complaints are reported among people living near cell towers. They complained of severe headaches, body aches, fatigue, skin rashes and unbearable itchiness³. A detailed study showed that cell phone tower causes disrupted sleep, dizziness, headache, altered reflexes, depression, fatigue, joint pains, heart disorders, Alzheimer's, Parkinsonism, DNA damage and cancers. These are to mention some of the health hazards of exposure to cell tower radiation^{3,13}. Radiation from phone antennas has been connected with a more prominent rise in brain tumours¹⁴. A case study conducted at Gurgaum, South Haryana showed people suffer from severe head ache but not ordinary where nerves are strained and it is unbearably painful. People remained insomniac with feeling of tiredness and with uneasiness getting up in the morning. Radiation test undertaken show all rooms are with high level of radiation³.

It causes neurological disorders, badly affects concentration and altered reflexes, irritation and immune system degradation, all related to electrical activity of brain. It causes stress, leads to forgetfulness, head ache, insomnia, depression, palpitation of the head, visual disorder and buzzing in the head. Cardiovascular problems are reported which include heart attack¹⁵.

International Agency for Research on cancer under WHO reported in 2011, that radiation from cell phone towers cause cancer and Glioma, a type of brain cancer. The impact is higher in children who has smaller and thinner skulls^{3,16}. One report showed cancer cases have increased when the victims were exposed to towers¹³.

It was shown that increasing number of people died of cancer who were staying close to a mobile tower¹³.

Cancer due to exposure to electromagnetic fields is primarily affecting prostate, breasts, lungs, kidneys and liver. Besides cancer other dysfunctions are genetic mutation, memory disruption, hindered learning, ADD, insomnia, brain disorders, hormonal imbalances, infertility, dementia and heart complications¹⁷. Increased risk of heart attacks is also seen¹⁵.

The records of victims showed they were affected with cancer either on breast, oesophagus, rectum, liver, throat or spinal cord¹³.

An isolated case of a family in Gurgaum where two of their brothers suffered from cancer. Their pet dog suffered from cancer and died³.

One case study showed in Usha Kiran Building Worli, Mumbai, seven people were diagnosed with cancer after mobile tower installation nearby. Since then illness both minor and major have become a part of the life of residents here and nearby. In that area later on two of three brothers were diagnosed with brain cancer.

In another case study residents of Peddar Road of Mumbai had all similar symptoms and a number of cancer cases were seen where a doctor certified that health problems are due to radiation³.

In a study conducted by scientists from Brazil concluded 80% of people who died with cancer were living nearer to cell phone tower, within 500 meters distance⁶. Among victims malignancy is well established¹⁵. A study conducted in Taiwan showed most children exposed to cell phone towers are prone to get cancer.

Several studies conducted in different other countries such as Germany, Austria, Brazil, Israel and others observed increase in cancer cases in 5-10 years where radiation level is more than 1 mW/m². The global permissible safe limit of radiation is 0.5 milli Watt per meter square. In India, this limit was surpassed this level, harming the Indian society¹⁸.

Considering reproductive function, irreversible infertility is common; it affects pregnancy and may lead to abortion. Radiations cause harmful effects on body like lower sperm count, birth defects¹⁵.

A report from IBNlive showed 5.4 lakh mobile towers in our country pose huge threat to the health of the citizens of our country⁷. Experts calculated this, the amount of radiation emitted from these towers in a day is equivalent to putting one's body in an oven for 90 minutes. This report showed that cancer cases increased with proximity to cell phone towers. Report has given the age of people died with cancer as from 17-73 years. They were all living within 91 metre from a mobile tower⁷.

Report from IBNlive continued saying that India has worst cell phone tower radiations norms in the world. Within 2 years, the health of 1 crore Indians could be affected⁷.

The consequences are not recognized in the primary years of vulnerability as the body has specific security mechanisms and the burden is on the stress proteins of the body, particularly specific security mechanisms like heat shock proteins^{4, 19}. This indicates that the body identifies these electromagnetic radiations as a potential harm. A supplementary concern is that if the pressure goes on lengthy, there's a decreased rejoinder, and consequently, the cells are less defended against the loss. This is the reason, extended or chronic expressions may be dangerous, even at very low concentrations.

Many of reported health conditions made by, are irreversible. The health hazards may continue for years, generation after generation.

Considering all above reports we support Kriti Bhalla's lines "sufficient reasons to believe that the radiation emitted from mobile tower is extremely harmful and injurious to the health and safety of the people"⁸.

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