



G- Journal of Environmental Science and Technology

(An International Peer Reviewed Research Journal)

Available online at <http://www.gjestenv.com>

Study of Public Perception about Health Hazards and Risks by Electromagnetic Emission from Cell Phones and Base Stations in India

Brajendra Kumar Gupta* and J.K. Tandon

School of Business administration & management, Jaipur National University, Jaipur, Rajasthan, INDIA

ARTICLE INFO

Received: 14 Jun 2017

Revised: 18 July 2017

Accepted: 24 Aug 2017

Key words:

Telecom, Mobile, Radiation, Health-Hazard, ICNIRP

ABSTRACT

Telecom wireless communication is changing from slow to fast, voice to data centric changing technologies earlier we already have 2G, 3G, & now 4G & future is about 5G. With this tele-density is increasing & user's demand of higher bandwidth has become need of the hour, whether it is transactions, education, social networking etc.

All this need network expansion to share the load to accommodate newer technologies. Hence need for more mobile towers, more micro sites, here comes the role of public perception how they look at these new technologies & hyped health hazards by media/ activists associated with EMF used in mobile communication.

If the perception is negative, there would be protest by public in installing near towers as well as removing existing ones. It is therefore vital to understand the gap between scientific assessment of emission from tower & phone instrument & public perception.

How this gap can be narrowed? What policy should be adopted by Govt.? Whether precautionary steps are helpful? Role of media are to be examined by way of primary data collected & secondary data taken DOT, TRAI, WHO etc.

With the help of primary data collected from the four largest states (area wise Rajasthan, Madhya Pradesh(MP),Uttar Pradesh(UP), Maharashtra)with the help of 30 questions, this article seeks to explore the public perception about health hazards , Fischhoff [1].

1) INTRODUCTION

1.0 Indian Telecom Scenario: Indian Telecommunication sector has emerged out as the second largest in the world in terms of telephone users (both Fixed and Wireless Phone) with a total subscriber base of 1.153 billion as on 31 Dec 2016 as per TRAI press release no. 12/2017 [2]. This revolution in Indian telecommunication sector has been one of the most laudable achievements of the Liberalization policies since 1990s. High pace of market Liberalization enabled India to become one of the most Aggressive and competitive market in the world as a result of it country witnessed one of the cheapest call rate all across the globe.

For the last couple of decades' Indian telecommunication sector has emerged as the driving force of Indian economy where the country witnessed a tremendous growth in wireless telephony segment. The share of wireless telephony segment now is 97.73% [2]. This high growth of wireless has transformed the telecom sector and taken it to the new heights.

Table 1.1 EMF radiation limits in India for Mobile tower base stations

| Frequency | ICNIRP Radiation norms (Watt/ Sq.m) | Revised DoT Norms effective from 01.09.2012 (Watt/ Sq.m) |
|-----------|-------------------------------------|--|
| 900 MHz | 4.5 | 0.45 |
| 1800 MHz | 9.0 | 0.90 |
| 2100 MHz | 10.5 | 1.00 |

(Source: DoT website www.dot.gov.in)

1.2 Exposure to Electromagnetic Field and its effect

Even though a lot of scientific research and studies conducted by the national and International organization clearly indicates that there is no concrete evidence of mobile phone or base station causing cancer, but as a precautionary measure and to give more clarity to this topic till further development International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as "possibly carcinogenic to humans" (Group 2B), based on an increased risk for "Glioma", a malignant type of brain cancer , associated with wireless phone use.

According to Michael Repacholi, (2011) Chairman Emeritus International Commission on Non-Ionizing Radiation Protection and former Coordinator, World Health Organization's International EMF Project; "This 2B classification has been misinterpreted as meaning that RF field cause cancer, this is absolutely not what a 2B classification means. IARC assigns the 2B classification when there is a limited evidence of carcinogenicity in human studies as discussed by repacholi and covered by IARC and WHO as [3, 4, 5].

1.3 Media and Public Perception

Media has a great impact on masses in shaping the public opinion. Depending on the objective media can create, modify

* Corresponding Author: **Brajendra Kumar Gupta**

Email address: bkgupta123@gmail.com

or nullify the public opinion. On Microscopic level it can be concluded that media influences the public opinion but to what extent they are able to influence. Sometime the media can alter the news according to their center of interest which most of the time is nothing but making Money by whatsoever way. Media is clearly demonstrably biased just to sell more and more ad space.

1.4 The Precautionary Principle

COMEST (2005) World Commission on the Ethics of Scientific Knowledge and Technology concluded that “the grounds for concern that can trigger the Precautionary Principle need to be plausible or tenable” and that the scientific uncertainty should be consider-able as per COMEST [6].

This is the important principle laid down by reputed world commission (COMEST) that plausibility of risk must be there as a necessary condition on scientific fact otherwise there is no need to have the precautionary approach which might otherwise backfire in risk communication.

2. (Research Methodology)

2.1 Objectives of the study

The objectives of the study are as follows:

1. Assessment of pertinent health hazards and risk associated with electromagnetic emissions.
2. To measure the level of public perception of health risk due to electromagnetic emissions.
3. To study the roll of media/activists in risk communication
4. To critically examine precautionary measures of regulations on public perception

2.2 Review of literature

2.2.1 Health Concerns from emissions of mobile towers.

Vijayalaxmi and Scarfi (2014) reviewed international expert group evaluations on the biological and health effects reported in all animal and human cells (including human epidemiological investigations) exposed *in vitro* and *in vivo* to non-ionizing radiofrequency fields. According to this study IARC expert group reviewed the available articles in 2011 and concluded that there is no risk of meningioma glioma with mobile phone use. With the more use of mobile phones at the highest cumulative hours a little risk of glioma can be expected. IARC also recommended the RF radiation to be recognized as a class 2-B carcinogenic substance as per Vijayalaxmi and Scarfi [7].

ICNIRP expert group in 2009 evaluated the articles available and concluded that it is impossible to disprove non-thermal effects of RF radiations. Expert group also found poor evidence for chronic/low-level effects. Studies with adequate RF exposure assessment did not reveal any health-related effects.

2.2.2 Public perceptions theory in general and specifically about EMF Technology.

As per Gerry Kruk (2008) EMF risks are inherently frightening because they are said to pose a threat of particularly dreadful illnesses such as leukemia and cancer, especially for the most vulnerable people such as young children, the unborn and the elderly. Anxiety is further increased because these threats are not brief and immediately apparent but are instead ongoing and delayed, even intergenerational as per Kurk [8].

2.2.3 Public policy and precautionary measures.

Mike Dolan and Jack Rowley (2009), Barnett et al. (2007); Wiedemann and Schutz (2005) advocated that there is

research showing that undertaking precautionary measures for the purpose of reassuring the public sends out mixed messages and actually increases community concern precautionary advice was generally interpreted as causing concern rather than providing reassurance. This suggests the need for care around the provision of precautionary advice as part of public health information. It seems clear that providing such advice as a response to public concern is unlikely to reassure. Barnett et al. (2007) point out that government health advice implicitly relies on increasing concern if it is intended to change as aspect of people’s behaviour. There is a logical fallacy in issuing precautionary advice with the stated aim of decreasing public concern as per Dolan , Barnett and Wiedemann [9, 10, 11].

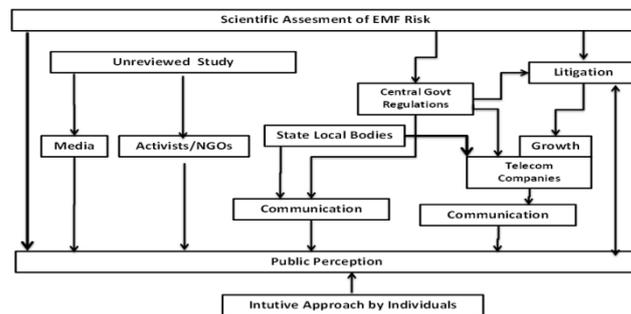
2.2.4 EMF Risks and trust in Government policy.

As per the scholars Diana Van Dongen et. al. (2013), Infas (2004); Bolte et al. (2005), Siegrist et al. (2005), Visschers, Keller, and Siegrist (2011), Trust in government policy affects the way people perceive and handle risks. The critical point is to find the relationships between trust in government policy regarding Electro-Magnetic Field (EMF), perceived risk and perceived benefits of public and personal EMF sources, perceived control over exposure to EMF and responses to the possible EMF health risk (e.g. protest against placement of mobile phone base stations or taking own measures against EMF exposure). Generally speaking, that perceived risk and benefits mediate the relationship between trust and people’s risk responses as per Dongen et. al. , Bolte st. al. , Siegrist et. al. and Visschers [12-17].

2.3 Identification of Problem and Research Gap

This research assessment however is not same as risk on human health perception by public. This gap varies country to country may be due to socio-economic/ awareness/roll of media etc. there has not been systematic studies in this regard in Indian context which itself is so diverse. it is further important to understand the reasons for this gape to suitably workout the communication by regulators and other stakeholders to public to mitigate the fears. India has aa long way to go for wireless internet through mobile devices.

Research Model (Figure 1)



In the Indian context, part of the reason for public concern has been the high visibility of antenna sites in urban areas. This is partly a consequence of the Indian government decisions whereby there are as many as 11 or 12 operators (most countries have three to five) in an area where each have about one quarter of the spectrum available to mobile operators elsewhere in the world. In order to provide service, mobile operators in India must reuse their spectrum frequently, which means more antennae

2.4 Hypothesis

1. Null hypothesis H-1: - There is no significant gap between EMF risk assessment by scientists and risk perception by public.
2. The media/activists have insignificant impact on risk communication to public.
3. Null hypothesis- Precautionary measures by regulation/ Government are counterproductive in risk communication, resulting in higher apprehension of EMF risk rather than positive effect.

2.5 Data Collection

The primary data collection is undertaken by taking physical questionnaire (30 questions) from the target population by enumerators. In majority of cases, the respondents themselves filled up the questionnaire(annexure-1).

Another method used for primary data collection is through online process by sending the links through E-mail & WhatsApp. The questionnaire was prepared in two languages Hindi & English. The participation from house wife, retired, other categories were generally less than 5% of total respondents. The total responses are 740 (Online & Offline put together)

Secondary research will be carried out to collect data from international agencies like World Health Organization (WHO)/IARC regarding EMF risk assessment. Department of Telecom website, TRAI website and many other publications and journals.

2.6 Limitations of the Study

1. The informational requirements are to a large extent area-specific. Since the research will be conducted in a few urban and rural areas of four states.
2. The sample under-represents women and has limited value for gender disaggregation.

3. Profile: profile of respondents and profile of states under study

Population & universe: - Four states Rajasthan, Madhya Pradesh, Maharashtra & Uttar Pradesh are chosen as per the largest geographic area in the country. Total respondents are 740 (Rajasthan- 257, Uttar Pradesh-225, Madhya Pradesh-146, Maharashtra-112) after removing incomplete /unclear responses of questioner. Respondents from Madhya Pradesh & Maharashtra are less because of less questioning manpower employed here due to resource constraint. The universe is India. It would be worthwhile to quote basic statistics about these states as follows: - **Table 3A** [17]

Demographic Profile of respondents

Gender classification: The respondents in the female category are 14.05% and male category 85.95% of the all 04 states taken together.

Age classification: The respondents in the age group less than 35 years are 59.32%, in the age group between 35 to 55 are 34.73%, in the age group more than 55 years are 5.95% of the all 04 states taken together.

Urban/Rural classification: The respondents from rural area are 18.38%, from urban area are 81.62% of the all 04 states taken together

Occupation Classification

Major chunk of respondents is from service category which is 52.57%, Student respondents are second largest in count which is 20.68 %, Business/Self-employed respondents are third largest in count which is 18.92%. House wife respondents are around 4.86% and respondents in retired and

| S.N | Particulars | Rajasthan | Madhya Pradesh | Maharashtra | Uttar Pradesh |
|-----|--|------------|----------------|-------------|---------------|
| 1 | Area (Sq. Km) | 342239 | 308252 | 307713 | 240928 |
| 2 | Population (Census 2011) | 68,548,437 | 72,626,809 | 112,374,333 | 199,812,341 |
| 3 | Density (Per Sq. Km.) | 200 | 236 | 365 | 829 |
| 4 | Rural(%) | 75.11 | 72.37 | 54.77 | 77.72 |
| 5 | Urban(%) | 24.89 | 27.63 | 45.23 | 22.28 |
| 6 | Per capita Income per year (2011-12) (Rs.) | 39967 | 32222 | 83471 | 26355 |
| 7 | Literacy Ratio (2011) | 67.06 | 70.63 | 82.91 | 69.72 |
| 8 | Tele Density (as on 31.10.2016) | 86.11 | 62.49 | 101.7 | 68.2 |

other category is insignificant in numbers EMF risk assessment by scientists and risk perception by public.

4.0 EMF Risk Assessment by scientist and risk perception by public

4.1 Null Hypothesis H-1

The first hypothesis is "There is no significant gap between EMF risk assessment by scientists and risk perception by public."

Some questions (as per Annexure-1) are introduced to judge the perception of people regarding EMF risks from mobile towers as well as from mobile phones. The questions under this category are mainly related with:

1. Trust in regulator/ Govt. (Question No. 4,5 & 6).
2. Mobile tower acceptance (Question No. 11,12 & 13).
3. Fear of mobile tower radiations (Question No. 17,18,19, 25 & 26).

The responses of all the questions are analysed individually as well as in group with other related question on the basis of weighted average basis as mentioned about.

4.2 Overall analysis of responses and related hypothesis:

In the individual and weighted average analysis of question 4, 5 & 6 related with respondents trust in Govt. there is an overwhelming (58.29%) trust in Govt. However, in Q. No. 11,12 & 13 about 45% of the people are not ready to accept the mobile towers in their own property as well as in neighborhood due to negative perception of EMF health hazards and other reasons. Again the similar question no. 17,18 & 19 related with risk to human health from mobile signals revealed that about 40% of respondents think that EMF used in mobile communication is risk to health hazards this is a big no. of respondents therefore null hypothesis is not proven and alternate hypothesis validated.

Suggestion for policy/ Scheme Design: (Q4 to Q6) even though the weighted average figure is 58.29% for trust in Govt., it is not reflected in acceptance of towers, from fear of health hazards due to EMF emissions. So clearly there is a gap between the trust in the Govt. and actual situation in the ground of opposing mobile towers that means there is a strong need of communication by the Govt. to the people assuring them that there are no health hazards due to mobile signals.

Suggestion for policy/ Scheme Design:(Q11 to Q13) There could be different reason for different people about not accepting the mobile base station like property devaluation,

esthetic reasons, fear of dreaded diseases like cancer and generational passing of health hazards etc. these perceptions are not in line with scientific assessment of no health hazards. Clearly the fear factor of health hazards due to mobile signals is in the mind of the people. Unless this fear is removed by way of communicating that scientific assessment and building the trust with the people, situation may not improve.

Suggestion for policy/ Scheme Design: -(Q17 to Q19) There is a big no. of urban & rural population believing that mobile tower and mobile phone is a health hazards and threat to human health. This misconception can only be rectified by proper communication of scientific facts by the Govt. agencies, radiologist of high reputation, well known scientist in whom the public have a trust. They have to jointly come forward and express scientific facts on mass media

5.0 Role of media in influencing the perception of people with respect to health hazards due to EMF

5.1 Null Hypothesis H-2

The Second hypothesis is “The media/ activists have insignificant impact on risk communication to public.”

Some questions (As per Annexure-1) are introduced to judge the role of media/ activists in making perception of people regarding EMF risks from mobile towers as well as from mobile phones. The questions under this category are mainly related with:

- Lack of trust in media/activists coverage about EMF health hazards (Question No. 8,9 & 10).
- Media influence on health risk perception, Higher Coverage of press reporters/ activists in media than by Government (Question No. 21,22 & 24).
- Media coverage is driven by (Question No. 27).
- Source of information about EMF & preference of source to receive information (Question No. 28 & 29).

The responses of all the questions are analysed individually as well as in group with other related question on the basis of weighted average basis as mentioned above.

5.2 Overall analysis and related hypothesis.

The Q. No. 8, 9& 10 related with distortion of truth revealed that (about 75% of the respondents in urban and 68% in rural) very high percentage of respondents feel that the truth is distorted by media/ activists. The null hypothesis “The media/activists have insignificant impact on risk communication to public.” is rejected and Alternate Hypothesis “The media/activists have significant impact on risk communication to public.” is validated.

The Q. No. 21,22 & 24 related with influence of media in risk perception, contents trustworthiness and effect of higher coverage by media reporters/ activists revealed that the weighted average of all states are 49.61% for urban & 43.45% in rural for distrust in media. This is huge percentage of respondents that their perception of EMF hazards is created by media/ activists through negative risk communication.

The analysis Q. No. 27 revealed that Media coverage is mainly driven by negative factors like sensationalism, TRP competition, conflict & controversies creation, untrue reporting by media/activist. Total counts are 77.96% attributed to negative reasons for press coverage. The remaining counts 22.04% are only responsible for coverage due to scientific & economic impact of technology. It shows how media is Miss-Contributing in the perception of EMF technology and that is why there is huge gap between scientific assessment and public perceptions about EMF radiation in mobile technology.

Hence, the hypothesis H-2 is not proved and therefore rejected and alternate hypothesis is validated.

5.3 Suggestion for policy/ Scheme Design: - (Q8to Q10)

That means majority of respondents do not take away as what is covered in media. Than why the public perception is so negative for EMF radiation? There are multiple reasons for it like: -

- Radiation is linked with dreaded disease like cancer & trans-generational health hazards. Creating fear & panic among masses.
- There is no choice of not being exposed to radiation whether you are enjoying the benefits of technology or not. If some negative stories, anecdotes selective research coverage is written repeatedly, people start believing in it if not fully may be partly.
- Since the mass media plays vital role in risk communication, the Govt. agencies, radiologist & scientific community has to establish the dialogue with media and enter into good rapport and persuade them to cover factual position as per scientific assessment in the interest of nation at large.

Suggestion for policy/ Scheme Design: -(Q21,Q22,Q24)

There is huge percentage of respondents saying that their perception of EMF hazards is created by media/ activists through negative risk communication. It is therefore very important to ensure that Govt. Coverage is increased in mass media and also persuade media to write factual scientific assessment rather than twisting the facts and concentrating juicy stories related with health hazards due to EMF. The Govt. has to take all the steps to narrow down the gap between scientific assessment and public perception.

6.0 Precautionary steps whether useful in creating positive perception about health hazards due to EMF.

6.1 Question 2, 15, 7 & 23 analysed as follows

6.2 Over all analysis of precautionary measures and hypothesis H-3 “Precautionary measures by regulation/Government are counterproductive in risk communication, resulting in higher apprehension of EMF risk rather than positive effect.”

- The response of Q. no. 15 regarding “Govt. of India decided EMF signal level in India as 1/10th of International Standard by ICNIRP” is 69.46% of all the states saying it is good precautionary measures by Govt. of India. The precautionary measures here appreciated by respondents overwhelmingly. So the hypothesis H-2 is not proven and therefore rejected.
- The weighted average of Q. 7 and Q. 23 is 63.40% in urban & 60.01% in Rural for all states against the precautionary warnings. Hypothesis H-2 in this case is proven and therefore accepted.
- From para. 1 & 2 above it is clear that all the precautionary steps are not giving desired results. At one hand the Govt. is saying no health hazards from EMF and at the other hand putting warning signals on the tower, confusing the people. So one has to be very careful and honest in risk communication/ precautionary measures to be adopted otherwise they will backfire.

a. **Suggestion for policy/ Scheme Design: -** It is evident that precautionary measures conflicting with scientific assessment may backfire. While adopting precautionary measures one is accepting the problem otherwise what is the need of precaution. Certain percentage of people will always draw the negative meaning of precaution. Here in this case

on the one hand Govt. is saying that mobile signal exposure is harmless while on the hand it is putting warning signage's around the mobile tower. The masses will definitely get confused by this contradicting approach. It is therefore suggested that any precautionary measures should be put in practice after thorough analysis only. The Govt. Should review its policy of putting warning signage's on immediate basis.

7. Variations noted in comparing the four states.

7.1Q-4 I have no problem with radiation from mobile tower (if within standards limits) and measured by government office: - Broadly speaking 4 out of 5 respondents believes in EMF measurement done by Govt. agency. It shows very high faith in Govt. However, in Maharashtra 24.11% of respondents do not believe in Govt. so much. and measurement done by it. Maharashtra has the highest literacy ratio, highest per capita income (more than double from other states) and highest urban population (45.23%) as per table 3A. It implies that these factors make Maharashtra people more conscious about radiation from mobile towers.

a. In fact, high literacy makes person more vocal if not properly made to understand the science, technology & International standards of safety being followed in the country.

b. Urbanization needs more towers to share the load of telecommunication, so the visibility of towers increases there by resulting in more health concerns. Tower problem is further deteriorated in urban area due to property devaluation concerns.

7.2Q-11) Rent seeking for allowing mobile towers in self occupied property: -The respondents are divided on the issue. A significant population is not in favour of allowing mobile towers to be installed in their own property (average 40.50% in Urban & 37.04% in rural). There might be few reason for it: People think that value of their property may go down after installation of mobile towers. People may be scared of health hazard due to mobile tower signal.

In case of Maharashtra, 47.37% in Urban & 47.06% in Rural population is in favour of mobile towers installation for rent (i.e. 52.63% in Urban & 62.96% in Rural people would say no to mobile towers in their premises).

Conclusion: -Hypothesis H-1 "There is no significant difference between EMF risk assessment by scientist and risk perception by Public" is disproved. And alternate hypothesis is proved in Chapter-4.

Hypothesis H-2 "The media/ activists have insignificant impact on risk communication to public." Is disproved and alternate hypothesis is proved in Chapter-5

Hypothesis H-3 "Precautionary measures by regulation/Government are counterproductive in risk communication, resulting in higher apprehension of EMF risk rather than positive effect." This hypothesis is true/false depending upon the precaution.

4. Michael repacholi (2011) former coordinator, WHO's EMF project.
5. <http://www.who.int/peh-emf/about/WhatisEMF/en/>, 2002
6. COMEST (World Commission on the Ethics of Scientific Knowledge and Technology). 2005. The Precautionary Principle.
7. Vijayalaxmi and Maria R. Scarfi in their article "International and National Expert Group Evaluations: Biological/Health Effects of Radiofrequency Fields" published in "International Journal of Environmental Research and Public Health" (2014)
8. Kruk Gerry (2008) "Risk communications and the management of EMF Risks. Gerry Kruk & Associates Communications Ltd., Calgary, Alberta, Canada.
9. Dolan Mike & Rowley Jack (2009) The Precautionary Principle in the Context of Mobile Phone and Base: Station Radiofrequency Exposures. Environ Health prospect 117:1329-1332
10. Barnett J, Timotijevic L, Shepherd R, Senior V. 2007. Public response to precautionary information from Department of Health (UK) about possible health risks from mobile phones. Health Policy 82(2):240-250.
11. Wiedemann PM, Schütz H. 2005. The precautionary principle and risk perception: experimental studies in the EMF area. Environ Health Perspect 113:402-405.
12. Dongen Diana van, Liesbeth Claassen, Tjabe Smid & Danielle Timmermans (2013) "People's responses to risks of electromagnetic fields and trust in government policy: the role of perceived risk, benefits and control" Journal of Risk Research Volume 16, 2013 - Issue 8
13. Infas (Institut für angewandte Sozialwissenschaft GmbH). 2004. www.mobilitaetindeutschland.de/pdf/ergebnisbericht_mid_ende_144_punkte.pdf
14. Bolte, J.F.B., M.J.M. Pruppers, R.M.J. Pennders, and R. van Poll. 2005. Research in concerns about mobile phone base stations.
15. Siegrist et. al. 2005. Perception of mobile phone and base station risks. Risk Analysis 25, no. 5: 1253-64.
16. Visschers, V.H.M., C. Keller, and M. Siegrist. 2011. Climate change benefits and energy supply benefits as determinants of acceptance of nuclear power stations: Investigating an explanatory model. Energy policy 39: 3621-9.
17. www.censusindia.gov.in, www.trai.gov.in & www.pbplanning.gov.in (retrieved 03.08.2017)

REFERENCES

1. Fischhoff Baruch. 2011. Book on "Risk Perception and Communication Unplugged Twenty Years of Process" Official Publication of the society for risk analysis.
2. www.trai.gov.in (TRAI, Press Release No.12/2017)
3. www.iarc.fr, IARC, 2010: International agency for research on cancer

Annexure-I

| “Study of Public Perception about EMF Health Hazard & Risk from Mobile Tower in India” | | | | | | |
|--|-------------------------------------|--|-------------------------------------|--------------------------|---|------------------------------------|
| Good morning/afternoon/ evening. | | | | | | |
| This is survey on EMF Health hazard & risk. This survey is being carried out by B.K. Gupta (Research Scholar). We would appreciate if you could spare some of your valuable time to answer a few questions. Assure for the confidentiality. Thank You. | | | | | | |
| Respondent's Details | | | | | | |
| Respondent's Name | | | | Gender (Tick✓) | Male <input type="checkbox"/> | Female <input type="checkbox"/> |
| Age | <35Yrs | 35-55yrs | > 55 Yrs | Area (Tick✓) | Urban <input type="checkbox"/> | Rural <input type="checkbox"/> |
| Occupation(Tick ✓) | Service <input type="checkbox"/> | Business/Self-employed <input type="checkbox"/> | Student <input type="checkbox"/> | House Wife | Retire d <input type="checkbox"/> | Other <input type="checkbox"/> |
| Address | | | | | | |
| | District | State | Mobile No. | | | |
| Public Perception about Electromagnetic Emission in Mobile Technology (Please Tick (✓) Mark). | | | | Yes | No | |
| 1. I understand the term Electro-magnetic field(EMF) used in Mobile Communication. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2. I am aware that Department of Telecom has uploaded Electro-Magnetic Emission awareness material on website and also conducted workshops. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3. Installation of more mobile towers is required for better mobile communication services. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. I have no problem with radiation from mobile tower (if within standards limits) and measured by government office. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. I have faith in Govt that it would ensure the Emission by mobile tower is within the safe limits. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. I trust government (for information about safe Emission from Mobile Tower) more than other source of information like media &activists. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 7. Not allowing the Installation of mobile tower near School, hospital etc. conveys a meaning that EMF is risk to health. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8. Do you think that articles by some activists, self-positioning as credible experts distorts the truth & confuses masses? | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9. Do you think media/activists coverage is based on non-scientific issues such as blame ,fear, stories etc? | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 10. Do you think health hazards if any, due to EMF are being hyped by activists/media? | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 11. Will you accept tower in your property & there by getting some rent? | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 12. I have an objection if mobile tower is installed in my neighbourhood. | | | | <input type="checkbox"/> | <input type="checkbox"/> | |
| 13. I do not want Mobile Tower in Proximity (Near Residence/Shop)because(Please Tick (✓) any one)- | | | | | | |
| a) Appearance is not pleasant <input type="checkbox"/> | | | | | | |
| b) Health Concerns <input type="checkbox"/> | | | | | | |
| c) Both a & b <input type="checkbox"/> | | | | | | |
| d) I am o.k. with tower <input type="checkbox"/> | | | | | | |

| | | | | | | |
|---|--|--------------------------|-----------------|------------------|--------------|-----------------------|
| 14. I am using mobile phones for(Please Tick (✓) any one)- | | | | | | |
| a) Less than 3 years <input type="checkbox"/> | | | | | | |
| b) Between 4 to 6 years <input type="checkbox"/> | | | | | | |
| c) Between 7 to 10 years <input type="checkbox"/> | | | | | | |
| d) More than 10 years <input type="checkbox"/> | | | | | | |
| 15. Govtof India decided EMF signal level in India as 1/10 th of International Standard by ICNIRP(Tick (✓) any one)- | | | | | | |
| a) It is good precautionary measure by Govt of India <input type="checkbox"/> | | | | | | |
| b) International Limit are not safe <input type="checkbox"/> | | | | | | |
| c) It means acceptance of health risk due to EMF <input type="checkbox"/> | | | | | | |
| d) Safe limit is reduced by Govt of India due to pressure of media/activist <input type="checkbox"/> | | | | | | |
| 16. You use Mobile phones in a day(Tick (✓) any one)- | | | | | | |
| a) Upto one hours <input type="checkbox"/> | | | | | | |
| b) Up to 2 Hrs <input type="checkbox"/> | | | | | | |
| c) Upto 3 Hours <input type="checkbox"/> | | | | | | |
| d) Upto 4 Hours <input type="checkbox"/> | | | | | | |
| e) Upto 5 Hours <input type="checkbox"/> | | | | | | |
| f) More than 5 Hours <input type="checkbox"/> | | | | | | |
| (Please Tick (✓) any one) | | Strongly Disagree | Disagree | Can't say | Agree | Strongly Agree |
| 17. Do you consider mobile tower as a threat to human health. | | | | | | |
| 18. Do you Consider use of mobile phone is a risk to health. | | | | | | |
| 19. Seeing the mobile base station in the area make me uncomfortable. | | | | | | |
| 20. Mobile communication & technology is useful to me. | | | | | | |
| Media(Please Tick (✓) any one) | | | | | | |
| 21. Does the Media Influence your health risk perception due to mobile emission negatively? | | | | | | |
| 22. Media contents are trustworthy. | | | | | | |
| 23. Precautionary signage installed at Mobile Tower like Warning, Caution, and Dangerous conveys a health risk due to mobile emission. | | | | | | |
| 24. The press coverage by Activists/press reporters is much higher as compared to Govt. about mobile emission health risk. Does the public perception go with what is frequently written in media? | | | | | | |
| 25. As per Scientists, smoking and use of tobacco causes Cancer. While Cancer due to mobile tower radiation is not proved than why so much noise about Mobile Tower Radiation.(Please Tick (✓) any Two) | | | | | | |
| a) Due to negative media Campaign about EMF <input type="checkbox"/> | | | | | | |
| b) Activists twisting scientific studies. <input type="checkbox"/> | | | | | | |
| c) Vested interest by various groups. <input type="checkbox"/> | | | | | | |
| d) Ignorance of people about EMF. <input type="checkbox"/> | | | | | | |
| e) Lack of information about EMF from Govt. to people. <input type="checkbox"/> | | | | | | |

26. If you have Health Risk perception due to EMF (Please Tick (✓) any three factors)

a) Media/ Activists Coverage of EMF.

b) I do not use mobile technology. Why should I be exposed to EMF.

c) Unfamiliar technology.

d) It Can cause dreaded diseases like cancer, disability etc.

e) Lack of control over installation of tower.

f) I feel more exposed to EMF risk due to proximity of tower from my house.

g) Do not trust Govt. would safeguard people

h) No trust on service operator

27. Media coverage of EMF is mainly driven by(Please Tick (✓) any Three)

a) Scientific coverage of EMF

b) Social and economic impact due to mobile technology.

c) Sensationalism.

d) Competition among media for TRP ratings.

e) Media believes that News is mainly driven by crisis, conflict & controversy.

f) Media is more interested in spicy stories than in dry facts.

g) Press reports/activists own ideas which may not be true many times.

28. What is the main source of information about health risks linked to electromagnetic fields?(Tick (✓) any Two)

| | | |
|--|---|--|
| a) Newspaper/Magazine <input type="checkbox"/> | b) Official Publication <input type="checkbox"/> | c) Television /radio/internet <input type="checkbox"/> |
| d) Friends & relative <input type="checkbox"/> | e) Information at your work place. <input type="checkbox"/> | f) Exhibition/conference by subject experts <input type="checkbox"/> |

29. Which mode of communication you prefer to receive information about health risks linked EMF? Tick (✓) any Two)

| | | |
|---|--|---|
| Newspaper/Magazine <input type="checkbox"/> | Official Publication <input type="checkbox"/> | Television /radio/internet <input type="checkbox"/> |
| Friends & relative <input type="checkbox"/> | Information at your work place. <input type="checkbox"/> | Exhibition/conference by subject experts <input type="checkbox"/> |

30. Any Other point you would like to share.

*****Thank You*****

| | | | |
|-------------------|------------------------------------|-------------------------------------|---------------------------------|
| For Scholar use | | | |
| Interview Date | | Interviewer's Name | |
| Mode of Interview | In Person <input type="checkbox"/> | Telephonic <input type="checkbox"/> | E-mail <input type="checkbox"/> |