

The knowledge of the living people in Ankara about electromagnetic fields

Ankara il merkezinde yaşayanların elektromanyetik alan hakkındaki bilgi durumu

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Abstract

Aim: Electromagnetic field is an effect that electrical particles with electrical load create power their own area and on other loaded particles. In modern life people are unavoidably in electromagnetic field and waves during their daily routine. In this study we aim to obtain societys knowledge, behaviour and treatment about electromagnetic field issue in the capital city of Turkey.

Matherial and method: This research is realized July 2012 and used face to face interview method with the participation of over 18 years old people who make an aplication to Community Health Center.

Results: 73.7% of the literates, 85.6% of elementary school graduats, 95.2% of university graduats specified that base stations effect peoples health. 92.7% of students, 90.1% of housewives, 85.5% of unemployments, 81.6% of workers and 96.6% of officers specified that base stations effects peoples health.

Conclusion: The aim of our study is to point out society knowledge attitude and behaviour about electromagnetic field. In this issue the literature is not enough there are a few limited study so our study is discussed with ownself. People, who live near electromagnetic sources and have high education level thought high voltage lines and base stations effects peoples health.

Key words: Electromagnetic fields, base stations, high voltage lines.

Özet

Giriş: Elektromanyetik alan; elektrik yükü olan parçacıkların çevrelerinde yarattıkları ve diğer yüklü parçacıklar üzerinde kuvvet uyguladığı bir etkidir. Çağımızda insanlar gündelik hayatlarında ister istemez elektromanyetik alan ve dalgaların içinde olmaktadır. Yapılan bu çalışmada Türkiye'nin başkenti olan Ankara'da 18 yaş üstü kişilerde elektromanyetik alan konusunda bilgi, tutum ve davranış hakkında bilgi edinilmesi amaçlanmıştır.

Yöntem: Araştırma, Temmuz 2012'de aile sağlığı merkezlerine başvuran 18 yaş üstü kişilere yüz yüze görüşme yöntemiyle gerçekleştirilmiştir.

Bulgular: Okur yazarların %73.7'si, ilkökul mezunlarının %85.6'sı, üniversite mezunlarının %95.2'si baz istasyonlarının insan sağlığını etkilediğini düşündüğünü belirtmiştir. Öğrencilerin %92.7'si, ev hanımlarının %90.1'i, işsizlerin %85.5'i, işçilerinin %81.6'sı, memurların %96.6'sı baz istasyonlarının insan sağlığını etkilediğini düşündüğünü belirtmiştir.

Sonuç: Çalışma toplumun EMA konusundaki bilgi tutum ve davranışlarını belirleme amacıyla olup, bu konuda yeterli literatür bulunmadığından kısıtlı birkaç çalışma ile ve daha çok kendi içinde tartışılmıştır. Elektromanyetik alanlara yakın oturan ve yüksek eğitim düzeyine sahip kişiler yüksek gerilim hatları ve baz istasyonlarının insan sağlığını etkilediğini düşünmektedir.

Anahtar kelimeler: elektromanyetik alanlar, baz istasyonları, yüksek gerilim hatları.

Introduction

Electromagnetic field is an effect that electrical particles with electrical load create power in their own area and on other loaded particles. Because of technological developments and the situation that people demand increase in modern life devices that produces electromagnetic wave usage is increasing day by day, so that in daily life exposure of electromagnetic wave is increasing (1).

In modern life people are unavoidably in electromagnetic field and waves during their daily routine. All electrical devices in our lives electrical household appliances, laptops and cellphones are the reason of electromagnetic radiation. High voltage lines and base stations close to the residences are also an electromagnetic field source (1).

To express mobile phones and base stations radiation damages in peoples tissues and heat effect SAR (spesific absorbtion rate) concept occurs and determined standartizations main standard is average peoples body temperature 1oC increases EM Energy absorbsion being harmful.

EMR has property that spreading in space and it has two types called ionizing and non ionizing (3). Non ionizing radiation has an important place in societies health effect physical factors. It is too difficult to avoid from non ionizing radiation.

Electromagnetic field exposure is affected from power,distance and type of electromagnetic field (5).

Usage of technology simplify our daily lives. Some of the new technologies acceptance is faster than others. Devices, which are the source of electromagnetic field ,are becoming popular. Although in science EMF is a popular issue. We don't know the knowledge about this issue. It is important to do studies about societies knowledge level

In this study we aim to obtain societys knowledge behaviour and treatment about electromagnetic field issue in capital city of Turkey, Ankara.

Method

This research is realized July 2012 and used face to face interview method with the participation of over 18 years old people who make an aplication to Community Health Center. Performing duration of the survey is 6-8 minutes. Our research is a descriptional research and in the scope of research 1217 people has been reached.

For statistical analyses, the software package SPSS 15.0 was used. Statistic methods were determined statistics, chi-square, Yate's chi square test.

Results

24.9% of the participants are under 25 years old, 25.8% of them are between 26-35 years old and 57% of the participants are women 66.2% of them are married 35.8% of them are high school graduated and 31.1% of them are collage graduated.

73.7% of the literateds, 85.6% of elementary school graduateds, 95.2% of university graduateds specified that base stations effects people health. 92.7% of students, 90.1% of housewifes, 85.5% of unemployments, 81.6% of workers and 96.6% of officers specified that base stations effect people health.

There is a statistically significant difference according to education situation. ($p<0.05$) This difference is because being not literated,and having the education of high school and over. There is a statistically significant difference according to profession ($p<0.05$). This difference is because of students,officers and retired.

71.1% of the literateds, 82.8% of elementary school graduateds and 93.6% university graduateds specified that high voltage lines

effect peoples health. 93.7% of students, 82% of housewives, 76.3% of unemployments, 74.5% of workers and 94.6% of officers specified that high voltage lines effects peoples health.

There is a statistically significant difference according to education situation and according to profession ($p<0.05$).

76.6% of the participants whose total monthly household income is under 1000 TL, 95.6% of 4000 TL and higher specified that high voltage lines effects peoples health. There is a statistically significant difference according to total monthly household income ($p<0.05$).

87.4% of people who don't live near a bas station, 96.9% of people who live near a base station specified that base stations effects peoples health. 83.6% of the participants who don't live near a high voltage line, 94.9% of the participants who live near a high voltage line specified that high voltage lines effects peoples health. There is a statistically

significant difference according to living near a base station and high voltage line between the thought of base stations and high voltage lines effects peoples health ($p<0.05$).

91.0% of the participants specified that base stations causes cancer in long term, 61.6 % of them said causes depression, 53.2% of them said it causes abortion and 42.5% said it causes sleeping pattern problems. 50.8% of the participants specified that electromagnetic field causes cancer in long term, 39.8% said it causes sleeping pattern problems and 38.4% said it causes tachycardia.

Participants use mobile phones meanly 9.12 ± 4.36 year, median is 8 (min;1-max;20) years. Participants uses mobile phones in a day meanly 45.34 ± 45.91 seconds, median is 8 (min;1-max 300) minutes.

Table 1. The Distribution Of The Participants Thoughts About Base Stations Effects Over Peoples Health According To Some Descriptif Properties Ankara, 2012

The Thought That Base Stations Affects Peoples Health					
	Affect		Do Not Affect		
	Number	%*	Number	%*	χ^2 / p
Age Groups (n=1212)					5.905 / 0.206
≤ 25 age	27	9.0	274	91.0	
26-35 age	26	8.3	288	91.7	
35-45 age	19	7.1	249	92.9	
46-55 age	24	13.0	160	87.0	
56 ≥ age	10	6.9	135	93.1	
Gender (n=1209)					0.227 / 0.634
Female	58	8.4	630	91.6	
Male	48	9.2	473	90.8	
Marital Status (n=1174)					0.354 / 0.552
Married	66	8.5	710	91.5	
Single	38	9.5	360	90.5	
Educational Status (n=1212)					59.744 / 0.0001
Illiterated	3	4.9	58	95.1	
Literated	10	26.3	28	73.7	
Elementary School Graduated	21	14.4	125	85.6	
Secondary School Graduated	31	19.9	125	80.1	
High School Graduated	23	5.3	410	94.7	
University Graduated	18	4.8	360	95.2	
Profession Status (n=1210)					28.223 / 0.0001
Student	14	7.3	178	92.7	
Housewife	33	9.9	302	90.1	
Unemployed	11	14.5	65	85.5	
Employee	18	18.4	80	81.6	
Officer	10	3.4	284	96.6	
Retired	4	5.4	70	94.6	
Self-employed	16	11.3	125	88.7	
Presence Of Social Assurance (n=1199)					27.919 / 0.0001
No	32	19.6	131	80.4	
Yes	73	7.0	963	93.0	
Monthly Household Income (n=1204)					7.216 / 0.065
≤ 400 EU	18	9.0	183	91.0	
400-800 EU	53	11.0	428	89.0	
801-1600 EU	27	6.6	382	93.4	
≥1601 EU	6	5.3	107	94.7	
Presence Of Chronic Disease (n=1204)					2.706 / 0.100
No	60	7.6	730	92.4	
Yes	43	10.4	381	89.6	

Table 2. The Distribution Of The Participants Thoughts About Base Stations Effects Over Peoples Health According To Living Near A Base Station, Ankara, 2012.

The Thought That Base Stations Affects Peoples Health					

Table 3. The Distribution Of The Participants According To Living Near A High Voltage Line If High Voltage Lines Effect Peoples Health , Ankara, 2012.

The Thought That Base Stations Affects Peoples Health				
Affect			Do Not Affect	
Number			Number	
%*			%*	
The Situation That Living Near A High Voltage Line (n=1202)				
No			142	16.4
Yes			725	83.6
			318	94.9
			$\chi^2=26.898$	p=0.0001

Table 4. The Distrubition Of The Participants That Answer The Questions About The Health Affects Of Base Stations, High Voltage Lines ,Electromagnetic Field, And Mobile Phones in Long Term Ankara, 2012.

	Base Station		High Voltage Line		Electromagnetic Field		Mobile Phone	
	Number	(%)*	Number	(%)*	Number	(%)*	Number	(%)*
Cancer	873	91.0	482	57.7	411	50.8	632	67.5
Abortion	511	53.2	373	44.6	255	31.5	329	35.1
Infertility	193	20.3	395	47.3	278	34.4	484	51.7
Depression	591	61.6	342	40.9	238	29.4	452	48.3
Eye Problems	305	31.8	297	35.5	227	28.0	261	27.9
Hearing Loss	364	37.9	281	33.6	288	35.6	722	77.2
Tachycardia	324	33.7	303	36.2	311	38.4	362	38.7
SleepingPattern Problems	408	42.5	425	50.8	322	39.8	476	50.9
Balance Problems	378	39.4	312	38.4	343	42.4	305	32.6

Discussion

From participants 73.7% of illiterates, 85.6% of elementary school graduated, %80.1 of middle school graduated, 94.7% of high school graduated and 95.2% of university graduated spesificied that base stations effects peoples health. Our thought about this topic is ,the level of education effects electromagnetic fields knowledge.

Nearly 2/3 of people whose monthly household income $\leq$ 400 EU, almost all of people whose monthly household income is 1601 EU and more specified that high voltage lines effects human health. This make it thought when monthly household income increases awareness on human health rises.

In this study nearly 1/3 of the participants specified that electromagnetic field makes damages in sleep regulation. In the research of Vaizoğlu and friends in 2009 just about half of participants specified that electromagnetic field causes insomnia (6). Life close to base stations has higher frequency in Istanbul.It has been thought that difference between this and our research take its source from much more awareness on this topic.

In this study nearly 1/3 of participants specified that electromagnetic field causes tachycardia In Vaizoglu and friends's study 1/3 of participants said electromagnetic field brought tachycardia in last 3 months (6). This results resembles with our study.

In this study 2/3 of the participants thought that base stations causes depression A similar study which has done in 2006. In other part of Turkey Adana Çukurova University over the half of the participants thought that they live near a base station and 2/3 of them specified base stations causes phycological problems (2). These results are similar with our study.

In our study using time of mobile phones from participants is meanly 9 years.

Participants use mobile phones in a day mainly 45 minutes.The study which Vaizoğlu

and her friends has done participants use mobile phones mainly six years and they use mobile phones mainly 28 minutes per day (6). We thought that this difference is because of this study has done in past years and because of the GSM operators.The usage of mobile phone is increasing day by day. A study in Elazığ in elemantery school students use telephone in a day meanly 36 minutes (2). This difference is because of the age level of the participants .

The aim of our study is to point out societies knowledge attitude and behaviour about electromagnetic field. In this issue the literature is limited there are a few limited study so our study is discussed with oneself.

Result

In this study, main evidence is if the education level is higher and electromagnetic field source is getting closer, high voltage lines and base stations effects peoples health thought frequency increases.

Nowadays electromagnetic field exposure in our lifes is unavoidable.

It must be the duty of public institutions science area and civil society establishments about exposure sources and health effects issue society must informed throughly.

It can be deliver brochures to the costumers about electromagnetic fields health effects in the places where electromagnetic field producer devices like mobile phone and computer.

For self protection if it is possible mobile phones should be used for short conversations. For long conversations and work discussions wired telephone should be used Mobile phone should be taken to the ear after a few seconds later the phone turns on. Otherwise informing the community about the terms on electromagnetic field other health risks in life areas take attention to health effects are necessary.

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