

Pregnant Women Concept Regarding Electromagnetic Effect of Home Devices

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Abstract: Descriptive study to study pregnant women concept regarding electromagnetic effect of home devices, was conducted at outpatient clinics of Ain Shams University Maternity hospital, through using Simple random sample technique through registered follow up book of antenatal care. A total of 210 pregnant women were subjected to the following criteria: Had at least two categories electromagnetic devices, Can read & write, Different age group and socio-economic levels, Free from any problems or medical complications. data were collected through two tools, Arabic Questionnaire Sheet, and Three Levels Likert attitude scale. Result of study illustrated that majority of women had incomplete concept about electromagnetic effect of home devices. the study concluded that, There are incomplete knowledge and negative attitude toward electromagnetic effect of home devices. recommendation Include the electromagnetic effect in curriculum of nursing maternity, Designing a training program for outpatient nurses about electromagnetic effect to improve pregnant women knowledge and attitudes and further researches are still needed to educate women safety measures for using electromagnetic home devices.

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1. Introduction

Electromagnetic radiation (EMR) is energy in waves (like visible light), emitted from a source. It travels at the speed of light. This energy is both electrical and magnetic. The waves alternate rapidly, from positive to negative in electrical terms, and from North to South pole in magnetic terms. (Shaw, 2010)

The main natural source of electromagnetic radiation is the sun. Natural electromagnetic energy (i.e., sunlight) is necessary for photosynthesis in plants. Man-made sources, however, account for most of the electromagnetic radiation in our environment. With the proliferation of new technological devices in our home and workplace we are all exposed to electromagnetic radiation daily. Everyday household electrical devices such as television sets and video, computer and electronic games, wireless telephone and mobile phone networks, lasers, microwaves, and doubled towers, radio and television broadcasting and receiving stations broadcast satellite stations and wireless communications, hairdryers, electrical ovens, fluorescent lights, microwave ovens, stereos emit electrical and magnetic fields of varying intensities. (Skelly, 2009)

Electromagnetic fields suppress the activity of the Pineal Gland" which is a magneto sensitive organ, to electromagnetic fields. Also reduce melatonin production and affect serotonin production. It have a negative impact on health which cause many diseases as severe headache, tumor, brain cancer, sleep interference, allergic reactions, heart disease, infertility and Alzheimer's disease as well as a sense of constant headaches and dizziness and a sense of stress and fatigue and

muscle pain even when its minimal effort (Ahlbom et al, 2009)

Pregnancy is very critical period in the woman life which associated with many mechanical and hormonal changes that occur during pregnancy and lead to change and depress the immune system which may cause pregnant women to be more susceptible to many hazards and may enhance the severity of the illness, thereby increasing mortality rates in this vulnerable population. Pregnant women have been classified as a high-risk group (Savitz, 2009).

Proper use of electromagnetic through daily use of TV, Cellular phone, computer, ...etc is very important as protective method from the disease specially for pregnant woman as high risk group so the maternity nurse has a vital role in teaching how use electromagnetic devices daily properly and counseling them because these devices may cause fetal deaths, deformities and miscarriages for better health by creating a positive attitude toward healthy life style. (Lindbohm, 2009)

Significance of the study

Nowadays there are presences of growing utilization of electromagnetic devices and new technology for man to live easy life so, the exposure to electromagnetic field (EMF) is very common especially through daily use of home devices and concern about its harmful effects has been raised than the past. Pregnant women and fetus as one of high risk group more susceptible. Electromagnetic radiation on embryonic, will prevent the early cell division, even resulting in cell death, and also prevents the normal development of the placenta. Science shows that combined during fetal development, of the first 3 months of

pregnancy risk is much greater than the risk of pregnancy, advanced. Specifically, 1-3 months for the embryonic period, strong electromagnetic radiation can cause abortion, can also cause fetal defects or malformations of extremities; 4-5 months for the fetal period, electromagnetic radiation may damage the central nervous system, leading to mental retardation in infants; 6-10 months of fetal development, its main consequence is immunosuppression, after the birth of weak Constitution, resistance difference, So the researcher suggested the present study to view real situation in Egypt as one of developing country misuse these electromagnetic devices especially during pregnancy hazards on women and their babies

Aim of the study:

Assess pregnant women concept regarding effect of electromagnetic of home devices through:

1. Assessing pregnant women's knowledge toward electromagnetic effect
2. Assessing pregnant women's attitude toward electromagnetic

Study hypothesis:

The pregnant women have incomplete concept regarding electromagnetic_home_devices.

2. Subjects and methods:

Research design: : Descriptive study.

Setting: The study will be conducted at antenatal outpatient clinic At Ain Shams University Maternity Hospital

Sample:

Size: Sensitive analysis will be used to determine sample size from total admission pregnant women attend at antenatal outpatient clinic At Ain Shams University Maternity Hospital (210 case out of 4201 primigravida pregnant women attend in year 2010)

Type: Simple random sample technique was used through registered follow up book of antenatal care

Criteria:

- 1- Had at least two categories electromagnetic devices
- 2- Can read & write.
- 3-Different age group and socio-economic levels
- 4- Free from any problems or medical complications.
- 5-Had telephone number for contact.

Tools of Data Collection:

Two types of tools were used for data collection and conduction of the study. These consisted of woman's level of knowledge regard Electromagnetic radiation structured interviewing Arabic questionnaire sheet; Likert attitude scale.

1. Woman's level of Knowledge Regard Electromagnetic radiation Structured Interviewing Arabic Questionnaire Sheet:

It was designed by the researchers after reviewing of related literature. The tool which included 29 multiple choices questions, as well as

open and close-ended questions. It was divided into three parts:

Part I (questions 1-4): It covered the general characteristics of the sample as personal identification, demographic data, e.g., age of woman, place of residence, and occupation if present and living condition of pregnant women, educational level, socioeconomic level,etc. Part II (questions 5-10): This part is concerned with reproductive history and questions about present pregnancy. Part III (questions 11-29): This part was designated to assess pregnant woman's level of knowledge regarding electromagnetic radiation , electromagnetic devices use .

Knowledge scoring system: Scores 3, 2, or 1 were assigned to each answer representing good, average and poor respectively. Total knowledge scores ranged from zero to 30; from 0-9 were evaluated as poor, from 10-20 as average, and from 21-30 as good knowledge.

2. Three Levels Likert Attitude Scale:

It is a self administered scale was used to assess pregnant women's attitude regarding effect of electromagnetic home devices.

Scoring system:

Three responses were offered for each statement; agree, uncertain, disagree. It consisted of 10 statements, scored as followed: agree response given three scores, uncertain response given two scores and disagree response scored as one. Twenty scores represented uncertain attitude, more than twenty scores considered positive attitude while less than twenty considered as negative one.

Validity and reliability:

These tools were reviewed by jury of 3 expertises' in the field of maternity and neonatal nursing to test its contents and face validly. Reliability was done by Cronbach's Alpha coefficient test, $R=0.81$.

Administrative design and ethical considerations:

An official approval was obtained from the Maternal & Neonatal Health Nursing department counsels & the Scientific Research Ethical Committee that were approved by the Faculty of Nursing, Ain Shams University Counsel. Also a letter containing the title and aim will be directed to the director of Ain Shams Maternity University Hospital to obtain his approval for data collection, The aim of the study was explained to each pregnant woman before applying the tools to gain her confidence and trust. An oral consent was obtained from each woman to participate in the study, after ensuring that data collected will be treated confidentially. The study maneuvers do not entail any harmful effects on participating pregnant women or their new born. Women were informed that they have the right to withdraw from the study at any time without giving a reason.

Operational design:

The study, to be completed, has passed through different phases: The preparatory phase, then the pilot study, and lastly the fieldwork phase.

Preparatory phase:

Review of the current local and international related literature using books, articles and scientific magazines was done by the research team. This helped them to be acquainted with the problem, and guided them in the process of tools' designing. The tools were then presented to experts for review and validation.

Pilot study:

A pilot study was carried out on 10% of pregnant women those were excluded in the main study sample. Its aim was to evaluate the simplicity, clarity, validity and reliability of the tools. It also helped in the estimation of the time needed to fill in the forms. According to the results of the pilot study, simple modifications were done .

Fieldwork:

Official permission was obtained to perform the study. Data were collected 3 day/ week starting from 10 am to 1 pm. All attended women fulfilling study criteria were included. All participants were informed about purpose of the study, and consent was obtained from each participant then the interviewing questionnaire sheet and likert scale were used.

3. Result:

Table (1): show the number and percent distribution of study sample pregnant woman regard their demographic characteristics .concerning women's age 47.6% ranged between 25-33 years. As regards their place of residence 66.7% of them were from urban area. While 52.4% of them had higher school education, also 52.4% house wife and their average income is 675±100.

Table (2): show number and percent distribution of study sample pregnant woman regard their living conditions. Concerning numbers of family members 66.7 % of pregnant women living with her husband. Concerning house area 52.4% of the their house area ranged from 80- 100 m , and had 3 rooms. As regards house ventilation the majority of them (76.2%) had ventilated house. Also 57% of them don't know if there tower network or not

Table (3) :show number and percent distribution of study sample pregnant woman regard their different types of devices present at pregnant women's home. The majority of them 90.4% had one TV and receiver ,76%had radio, 19% had video, 85.7% had computer, 90.4% had no play station nor hair dryer , 81% had one mobile 95.3 had no microwave and all of them had more than 2 lamps in their house

Tables (4): illustrate number and percent distribution of study sample pregnant woman regard

their total knowledge regards electromagnetic. The majority of them 80 % had poor knowledge .

Table (5): illustrates number and percent distribution of study sample pregnant woman regards their Sources of knowledge. 71.4% of them had their knowledge from friends and family, 23.8% had her knowledge from TV and radio, while 4.8% had their knowledge from net.

Table (6): shows number and percent distribution of study sample pregnant woman regard their total attitude regards electromagnetic devices. 60% Of them had negative attitude

Table (1): Number and percent distribution of study sample pregnant woman regard their demographic characteristics:

Items	n = 210	
	No.	%
Age		
18<25	80	38.1
25-33	100	47.6
>33	30	14.3
Mean±SD	27.19±4.03	
Place of Residence		
Rural	70	33.3
urban	140	66.7
Education level		
read and write	30	14.3
Secondary education	70	33.3
Higher education	110	52.4
Occupation		
Work	100	47.6
House wives	110	52.4
Income average		
-500-800	50	76.2
>800	160	23.8
Mean ± SD	675±100	

Table (2): Number and percent distribution of study sample pregnant woman regard their living conditions:

Items	n = 210	
	No.	%
Number of family members		
• <3	140	66.7
• 3-6	30	14.3
• >6	40	19
House area		
• 70- < 80	20	9.5
• 80-100	110	52.4
• >100	80	38.1
Rome numbers		
• 2	20	9.5
• 3	110	52.4
• >4	80	38.1
house ventilation		
• Yes	160	76.2
• No	50	23.8
Place of tower network		
• near	40	19
• far	50	24
• don't know	120	57

Table (3): Number and percent distribution of study sample pregnant woman regard their different types of devices present at pregnant women's home:

Device type	Number of devices		
	0	1	2
	%	%	%
• TV	0	90.4	9.5
• Radio	24	76	0
• Video	81	19	0
• Receiver and dish	0	90.4	9.5
• Computer	14.3	85.7	0
• Playstation	90.4	9.5	0
• Wirless phone	100	0	0
• Mobile	0	81	19
• Hair dryer	90.4	9.5	0
• Microwave	95.3	4.7	0
• Oven	4.7	95.3	0
• Fluorescent lamp	0	0	100

Table (4): Number and percent distribution of study sample pregnant woman regard their total knowledge regards electromagnetic

Items	N=210	
	No	%
Good	4	2
Average	38	18
Poor	168	80

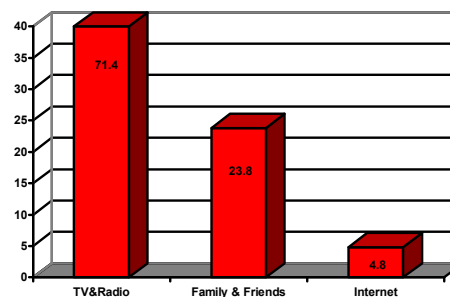


Figure (1): Study sample's sources of Knowledge regard Electromagnetic

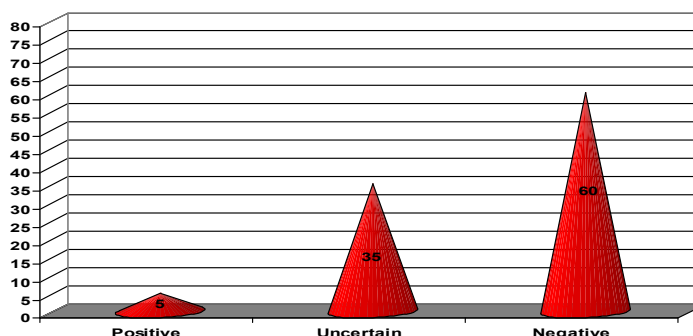


Figure (2): Pregnant women attitude regard Electromagnetic

4. Discussion:

Electromagnetic fields (EMF) are all around world to see, to listen to radio and watch television, to communicate using mobile phones, and generate them every time. (Millar, 2011)

The sociodemographic characteristics of the studied women revealed that majority of them were between 25 to 33 years old, half of them living in urban area, more than half had higher education and they were not working. , most of them had regular antenatal care, and all of them had pregnancy associated problems

The current study pointed out that , about 47.6% ranged between25-33 years, with mean age 27.19±4.03 . This finding in same line with EDHS (2008) which found that women age of marriage was between 25-30years.

Concerning living condition of the studied women, the current study showed that, more than third of pregnant women had 2-3 family member lived in the house, about half of the studied sample

had 3 rooms in house, while the majority of studied pregnant women had ventilated house.

In the present study, a large proportion of sample were poor knowledge regarding to the electromagnetic. This means that there were poor knowledge and/or misunderstanding of electromagnetic .This could be due to insufficient information provided to the public about this topic.

These findings are supported by **Abdelfatah ,2011** in Egypt , who found that a considerable proportion of women lack of knowledge about electromagnetic. This concerning the lack of knowledge related to electromagnetic in Egypt shows that, health teaching was almost universally deficient in developing countries.

The present study shows number and percent distribution of study sample pregnant woman regard their total attitude regards electromagnetic devices. 60% of them had negative attitude, These findings are supported by **Lee et al,(2005)**, who found that a

most women have negative concern regarding electromagnetic devices.

Also the study found that an electromagnetic field is a physical field composed of two elements, magnetic fields and electric fields both magnetic fields and electric fields have negative impact on women health.

Conclusion

The pregnant women have incomplete concept regarding electromagnetic home devices.

Recommendations

- Include the electromagnetic effect in curriculum of maternity nursing
- Designing a training program for women about electromagnetic effect to improve pregnant women knowledge and attitudes
- Further researches are still needed to educate women safety measures for using electromagnetic home devices

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