

Knowledge of The Effect of ionizing radiation, Khartoum state medical personnel

Maha Esmeal Ahmed Esmeal, Ph.D
Khartoum, Sudan

Abstract: *Whatever man does, he couldn't reach the degree of perfection because perfection is only ascribed to almighty Allah. However, the continuous and serious follow up, assessment and reassessment are important for any program, particularly if this program impinges the environment. The man employs his qualification to lead a life that makes him capable of providing the needed contribution in serving the homeland.*

Based on this fact, the effect of ionizing radiation increases environmental hazards, so it's required to control normal exposure, to prevent the spread of contamination during normal working condition, and to prevent or limit the extent of potential exposure.

According to the researcher's knowledge, no previous study is available in this field. Thus this study aims to know the effect of ionizing radiation in increasing the environmental hazards in Khartoum state, and suggests the necessary means of improving the level of knowledge among the health personnel, a matter that leads to development of medical services.

A random sample that comprises five hospitals representing the public medical services sector in Khartoum state is selected, in which (250) medical personnel were interviewed.

The initial information of this study was collected through interviews and questionnaire, and then the data is analyzed using computer. This study has examined the knowledge, attitude and behavior of the medical personnel towards the effect of ionizing radiation as a factor that increases environmental hazards. The summary of the results of the study is as follows:

1-(2%) of the health personnel selected knows nothing about the effect of ionizing radiation.

2-(85%) of them has a good knowledge about the effect of ionizing radiation.

3-(13%) of them is weak in their knowledge about effect of ionizing radiation.

4-The radiographic technologist's knowledge about effect of ionizing radiation is good.

I. Introduction

Many types of radiation are harmless, but ionizing radiation can seriously injure human cells. We are exposed to many sources of ionizing radiation. This source can be divided into two main categories: the natural and the terrestrial radiation. There are three components of natural environmental radiation, these are: the cosmic rays, terrestrial radiation, and naturally occurring radionuclides in the human body, which can be called the internally deposited radionuclides.

Cosmic rays are particulate and electromagnetic radiation emitted by the sun and stars. Terrestrial radiation is emitted from uranium, thorium, and other radionuclides in the earth. The intensity of the terrestrial radiation depends on the geological properties of the area.

The largest component of natural environmental radiation is radon. It's a radioactive gas produced by the natural decay of uranium, which is present in trace quantities in the earth base materials, such as concrete, bricks and gypsum wallboard, which contain radon alpha emitter.

The Objectives

1-To give an idea about the effect of ionizing radiation as a factor that increases environmental hazards.

2-To determine the knowledge, behavior, and attitude of the health personnel towards the effects ionizing radiation.

3-To seek for the best ways and mean for introducing and developing the ionizing radiation in Sudan.

4-To control the optimal exposures and prevent the spread of contamination during optimal working condition.

5- To prevent and limit the extent of potential exposure.

II. Materials and Method

A random sample for this study was selected i.e. includes: x-ray technologists, physicians, dentists, medical laboratory technologists, nurses and medical schools professors. This study is implemented

mainly to examine the knowledge of medical personnel about the effect of ionizing radiation in increasing environmental hazards.

Depending on interviews and questionnaire. This kind of data collection is essential in quantitative studies. The computer is used for data analysis.

III. Data Collection

A random sample of 250 persons working in the health facilities in Khartoum state was selected. Personnel are of both sexes, different age groups, medical specialization and academic qualification. The data relevant to this study was collected firstly, the answer given on the questionnaire, which is especially designed for this purpose of this study.

Secondly, the researcher's observations about the members of medical community.

IV. The Results

This study was conducted in a random sample of 250 medical personnel at Khartoum state with different ages, sexes, specializations, and degrees of qualification.

According to the researcher's viewpoint this figure (250) could lead to a highly confident results. When selecting the study sample, the researcher has considered the following:

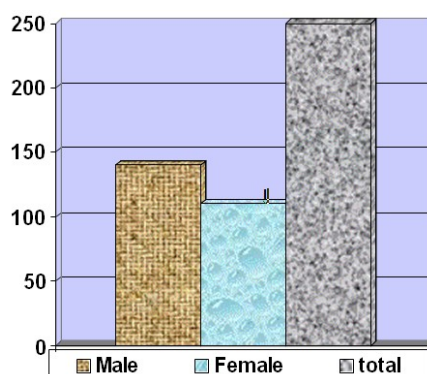
- 1 The sample represent both sexes
- 2 The sample represents different age groups.
- 3 The sample covers different medical specialization.
- 4 The sample represents different medical qualification.
- 5 The sample covers hospitals located in the three localities that constitute Khartoum state.

The researcher summarized the results she obtained after collecting, symbolizing, classifying and analyzing the questionnaires.

Firstly: the general characteristics of the study sample here under the researcher summarize the characteristics of the sample under study.

1- the distribution of the study sample according to the sex, it is form table (1) that 56% of the sample population covered by the sample are male and remaining 44% are females

Sex	Frequency	Valid percent
Male	140	56%
Female	110	44%
total	250	100%



2-The distribution of the study sample according to age:

- 1 The average age covered by the sample of the study is 29 years.
- 2 If we considered table (2) we find that the highest percentage of the population covered by the study sample (86%) lies in the age between 20-30 years.

Age distribution	Frequency	Valid percentage
<20Y	3	1.2%
(20-30)Y	217	86.8%
(30-40)Y	30	12%
Total	250	100%

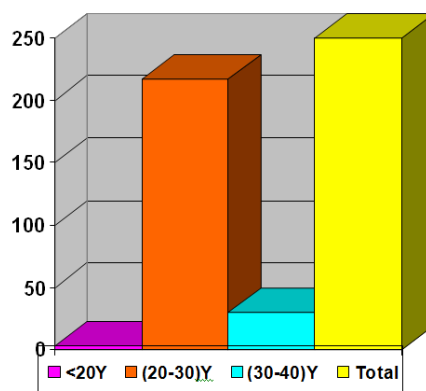
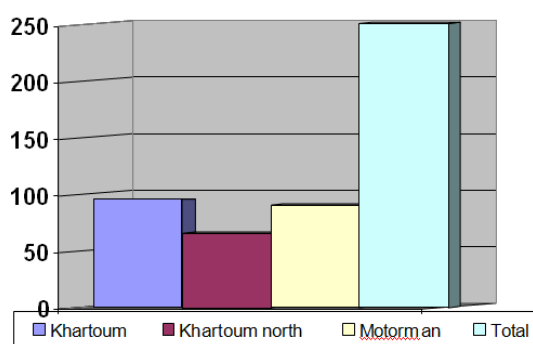


Table (2): Age Distribution.

3-The distribution of study sample according to the localities:

It is obvious from table (3) that 38% of the sample individuals covered by the study are in Khartoum locality 36% are in Khartoum locality and 26% are in Khartoum North locality.

Locality	Frequency	Valid percent
Khartoum	95	38%
Khartoum north	65	26%
Motorman	90	36%
Total	250	100%



4-The distribution of the study population according to the academic qualification: From table (4) we come out with the following:

- 1 Bachelor holders constitute the highest percentage (72%)
- 2 The percentage of the diplomas holders (14%).
- 3 The percentage of the postgraduate diploma holders is (6.4%).
- 4 The percentage of the master holders is (6%).
- 5 The percentage of the PhD holders is (1.6%).

Academic qualification	Frequency	Valid percent
Diploma	35	14%
B.sc	180	72%
PGD	16	6.4%
M.sc	15	6%
PhD	4	1.6%
Total	250	100%

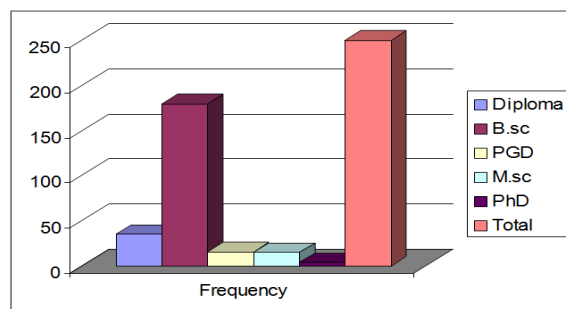


Table (4) Academic qualification.

Secondly

The information available to the interviewees about the effect of ionizing radiation in increasing environmental hazards:

1-When the question:” Do you know any thing about effect of ionizing radiation in increasing environmental hazard”? Was asked:

1 16%of those questioned replied by saying they know nothing about the effect of ionizing radiation in increasing environmental hazards.

2 84% of those questioned answered by “Yes”.

2- when the question: what is the source of knowledge on effect of ionizing radiation in increasing environmental hazards?

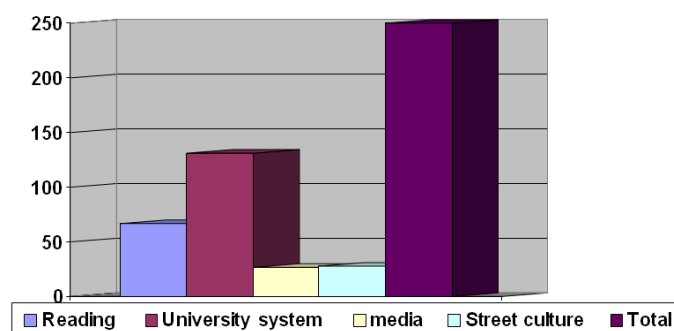
1 52.4% of those said the source is the university study.

2 26.4%answered by saying “ through reading”.

3 10.4% answered by saying “through the media”.

4 10.8%answered by saying “ through the street culture “.

Source of knowledge	Frequency	Valid percent
Reading	66	26.4%
University system	131	52.4%
media	26	10.4%
Street culture	27	10.8%
Total	250	100%



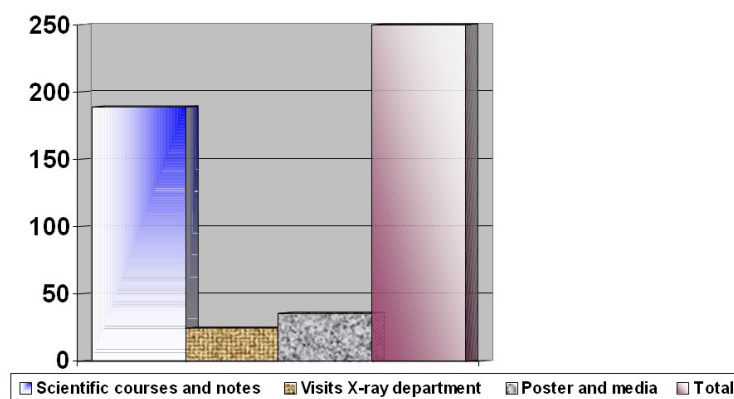
3-When the question “ Which type of communication do you prefer for furthering your knowledge about the effect of ionizing radiation in increasing environmental hazards:

1 75.6%answered by saying through scientific courses and notes

2 14.4%answeredby saying though posters and media.

3 Answered 10%by saying through visiting X-ray departments .

Furthering your knowledge in effect of ionizing radiation inincreasing environmental hazard .	Frequency	Percent
Scientific courses and notes	189	75.6%
Visits X-ray department	25	10%
Poster and media	36	14.4%
Total	250	100%



V. Discussion

After conducting the descriptive analysis for the facts which the researcher obtained from the questionnaire on the sample, the researcher from observations obtained from the results and by using the statistical indicator will review here under the relation ship between the variables and whether this relation ship has statistical indication or not.

The Variable

The dependent variable

One of the objectives of this study is to know to what extent the medical community of Khartoum state is familiarized with effect of ionizing radiation in increasing environmental hazard is the dependant variable in this study and it is represented by the question: Do you have information about the effect of ionizing radiation in increasing environmental hazards?

The independent variables:

1. Academic qualifications.
2. Place of qualification.
3. Occupation.
4. Source of knowledge.
5. Visting X-ray departments.
6. The relation ship between the knowledge of effect of ionizing radiation in increasing environmental hazard and the academic qualification?

The study showed that the Bachelor holders obtain the highest percentage of knowledge compared to the holders of other scientific degree. This indicates that information was received during the years of university study at the level of bachelor degree. As the academic qualifications increases the knowledge becomes weaker because it forms number of questions about the cause of this weakness. The relationship between the knowledge of the effect of ionizing radiation in increasing environmental hazard and the place where the academic qualification was obtained: The study shows that there is no relation ship between the knowledge and the elsewhere the academic qualification is obtained, whether in side or out side Sudan.

The relation ship between the knowledge of the effect of ionizing radiation in increasing environmental hazard and the occupation: This is a very important indicator. The logic says that the radiographic technologists are the people who the best knowledge because there is a very close relation.

The relation ship between the effect of ionizing radiation in increasing environmental hazard and the source of knowledge:

1-The knowledge derived from the university system through the tow processes of education and learning, lectures, seminars (75%).

2-Reading and general information (25%)based on this facts we observed that the most important means that introduced and spread effect of ionizing radiation in increasing environmental hazard where lectures and seminars.

Acknowledgement

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May almighty Allah make this research of special benefit to the development of health services all over the world.

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