

## **Public Experiences and Awareness of Albaha Citizen towards Radiation Health Hazards**

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### **Abstract:**

**Introduction:** Radiation has become a part of modern living, reaching every piece of our civilization. All individuals are exposed to ionizing radiation, both from natural and man-made radiation sources. In these days use of medical imaging has increased, due to rapid improvements in technology. Long-term exposure or high doses of ionizing radiation have potentially harmful biological effects, when used in medical imaging procedures.

**Objectives:** assess the level of awareness about the radiation health hazards and possible risks caused by radiological examinations among Albaha citizens

**Methodology:** A cross-sectional web survey was introduced to the residents of Albaha region. The questionnaire contain sections focused on participants' socio-demographic, different aspects of radiation exposure. **Results:** A total of 844 questionnaires were completed, the highest respondent rate was from females, 77.3%, while males constitute only 22.7 %. Among the respondents (62.5%) had underwent X-Ray exposure and 36.1%, 30.3%, 31.8% and 15.4 of them experienced CT, ultra-sonographic, MRI and mammography respectively, with regard to body area, the respondents reveal that all parts of the body can be target for radiation imaging which include the head (34.6%), chest (45.3%), abdomen (47.1%) back (29.3%) and limbs (43.0%) .51.6% of the respondents showed that they underwent radiation exposure for more than three times with more than one year interval between each exposure and the other (48.0%).

**Conclusion:** Results obtained from our study it was found that most of Albaha citizens were somewhat aware of ionizing radiation and their health hazards. Moreover, most of them were aware of these hazards during pregnancy and lactation.

**Recommendation:** More researches should be directed to determine levels of knowledge and awareness towards exposures to ionizing radiations. Educate the general public on ionizing radiations, its health hazards and safety measures through health programmes and on the mass media

**Keywords:** Radiation, awareness, Albaha, pregnancy .

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### **I. Introduction**

Physical hazards are factors within the environment that can harm the body without necessarily touching it, of these is radiation, including ionizing, non- ionizing (EMF's, microwaves, radio-waves, etc.). Radiation has become a part of modern living, reaching every piece of our civilization. All individuals are exposed to ionizing radiation, both from natural and man-made radiation sources. [1, 2] In these days use of medical imaging has increased, due to rapid improvements in technology. [3, 4] Long-term exposure or high doses of ionizing radiation have potentially harmful biological effects, when used in medical imaging procedures. [5-7] In our study, we aimed to assess the level of awareness about the radiation health hazards and possible risks caused by radiological examinations among Albaha citizens specially those who had been exposed to imaging in one or other time.

## II. Methods

This was a descriptive cross-sectional study carried out among 844 individuals reside at Albaha , Saudi Arabia who underwent for some time a medical imaging or have an experience this as co-patients. All the subjects were interviewed using a self-administered questionnaire, the objectives of the study were explained to participants and questions were explained for all participant included in the study, and they were informed that their participation was voluntary. Data were collected and coded, entered, and analyzed using the excel sheets for

## III. Results and discussion

A total of 844 questionnaires were completed, the highest respondent rate was from females, 77.3%, while males constitute only 22.7 %. Most of the respondents were young age, their ages in years were shown at Fig. (1) Below.

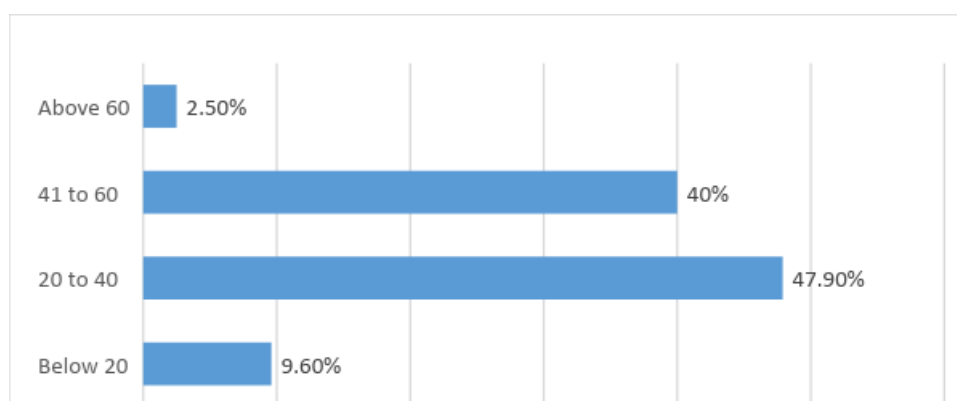


Figure (1): Age distribution of the Participants

### Experiences for Radiation Exposure, types of radiation and body area:

Regarding the exposure for radiological imaging among respondents, 80.8% of them had an experience using medical imaging as an investigation tool for themselves while 19.2 % of them have experience as a co patient these were shown in (Table 1). Among the respondents (62.5%) had underwent X-Ray exposure and 36.1%, 30.3%, 31.8% and 15.4 of them experienced CT, ultra-sonographic, MRI and mammography respectively as shown in fig (2). with regard to body area, as shown in Fig(3) the respondents reveal that all parts of the body can be target for radiation imaging which include the head (34.6%), chest (45.3%), abdomen (47.1%) back (29.3%) and limbs (43.0%)

Table (1): Respondents' Experiences for Radiation Exposure

	Number	Percentage %
Yes	688	80.8 %
No	163	19.2 %

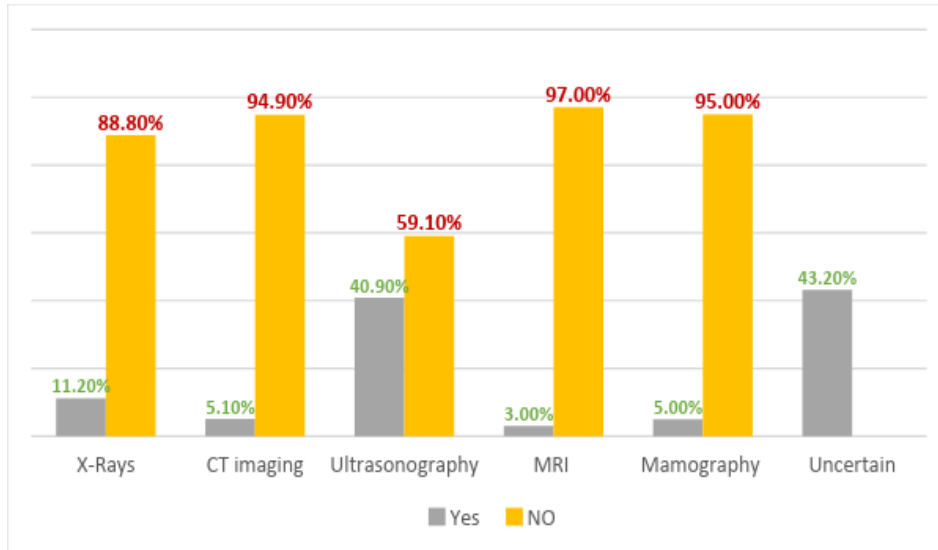


Figure (2): Types of Radiation Exposure among the Participants

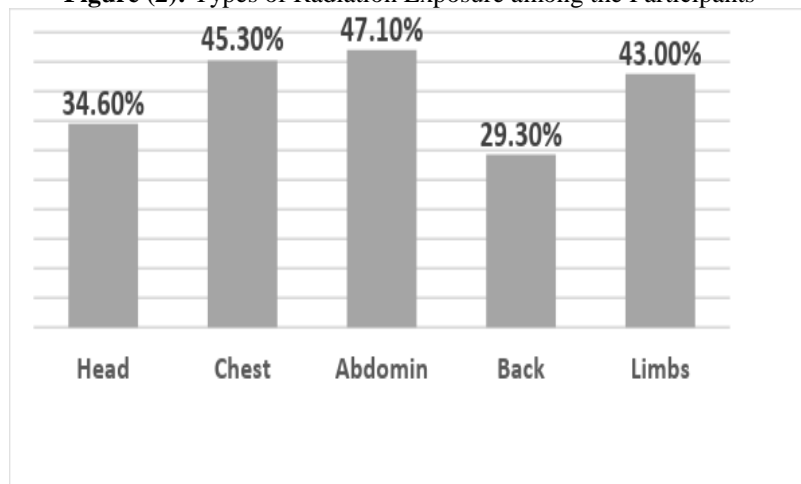


Figure (3): Body parts Exposure among the Participants

**Interval between exposures:** 51.6% of the respondents showed that they underwent radiation exposure for more than three times with more than one year interval between each exposure and the other (48.0%) as shown in Fig.( 4&5) .

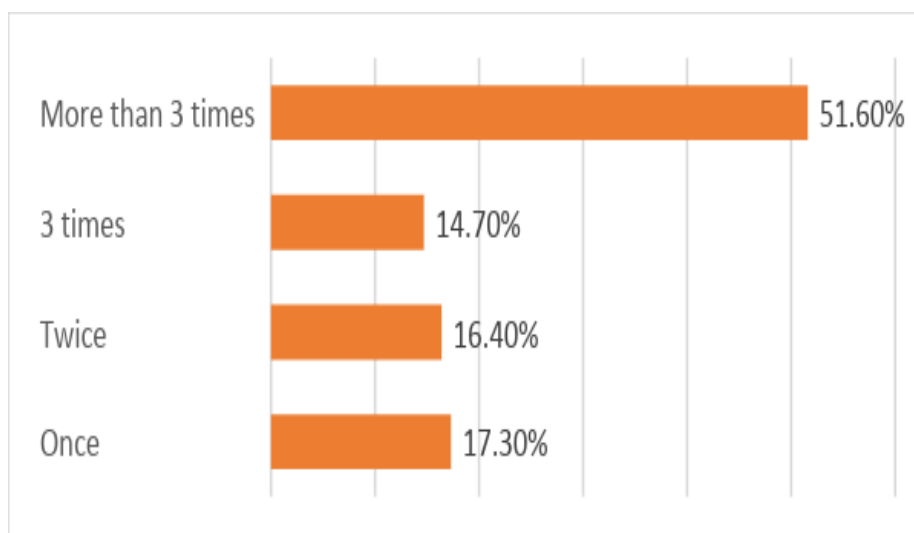
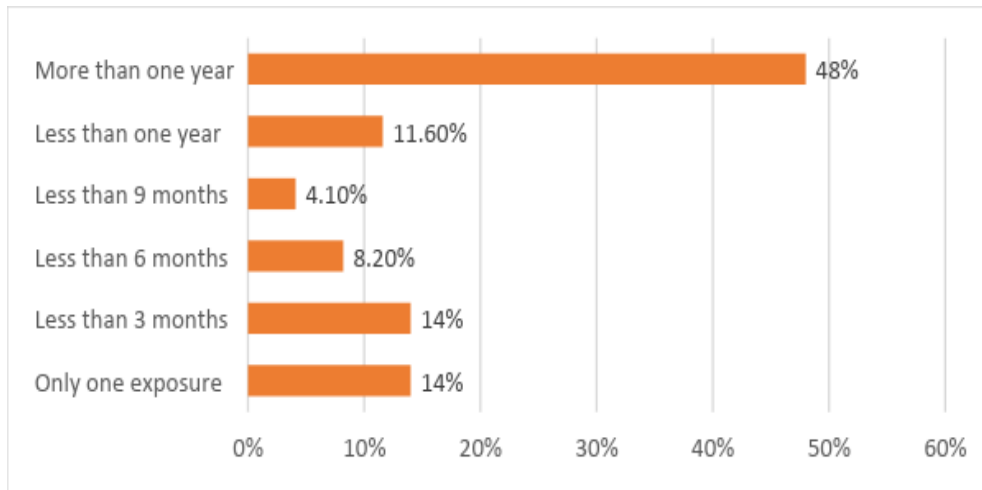


Figure (4): Times of Exposure among the Participants



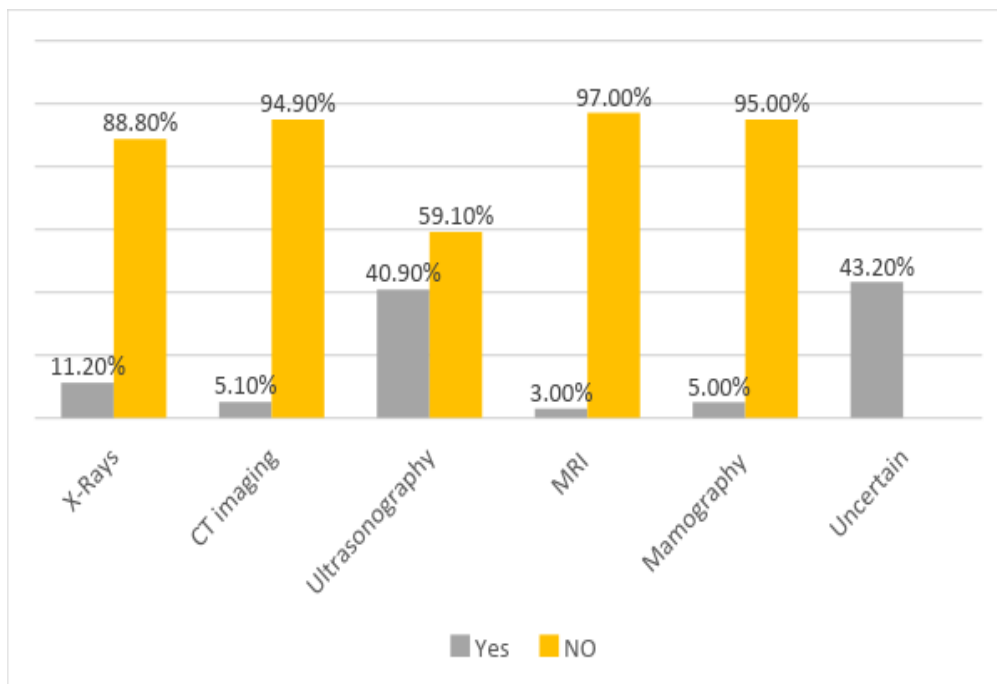
**Figure (5):** Interval of Exposure among the Participants

Regarding the side effect of radiation exposure, 4% of them show some side effect due to these exposures inform of pain at the site, headache ....etc. among the respondents 31.5% claim that side effects can be due to MRI, while only 0.8% claim that the side effects can be due to ultrasonography as shown in table (2).

**Table (2):** Side effects Experiences for Radiation Exposure

	Number	Percentage %
X-RAY	103	12.4 %
CT	86	10.3 %
Ultrasonograhly	7	0.8 %
MRI	262	31.5 %
Mammogram	56	6.7 %

**Radiation exposure during pregnancy and lactation:** the awareness of using radiation **safely** during pregnancy and lactation among our respondents reveal there is a satisfactory awareness as almost all of them denied uses of the radiation in pregnancy and lactation as shown in Fig (6) and table (3) below.



**Figure (5):** safety of using radiation during pregnancy among the Participants

**Table (2):** Side effects Experiences for Radiation during lactation

	Number	Percentage %
Yes	240	28.7 %
No	268	32 %
Don't know	329	39.3 %

#### IV. Conclusion

Results obtained from our study showed that most of Albaha citizens were somewhat aware of ionizing radiation and their health hazards. Moreover, most of them were aware of these hazards during pregnancy and lactation.

#### Recommendation:

Based on the findings of our study, we recommend the following:

- More researches should be directed to determine levels of knowledge and awareness towards exposures to ionizing radiations.
- Educate the general public on ionizing radiations, its health hazards and safety measures through health programmes and on the mass media.

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