

# Awareness of Radiologists and Radiographers toward Patient Care in the Interventional Radiology Department

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## Abstract

**Background:** The hospitals and health care centres are organized around the patient, a model in which healthcare providers partner with patients and families to identify and satisfy patients' needs and preferences. Providers respect patients' values and preferences, address their emotional and social needs, and involve them and their families in decision making. According to the best of our knowledge, there is no evidence to prove, radiologists and radiographers are aware enough about the patient safety, care, and code of conduct with their patients in the interventional radiology department. **Objective:** This article aims to measure the awareness of radiologists and radiographers toward care and safety in an interventional radiology department. **Material and Method:** This study was carried in period from 15 February to 20 April 2022. One hundred sixty-four radiographers and radiologists participating in this study completed the questionnaire, which equals a response rate of approximately 82%. The questionnaire was fully completed by almost all responders; only a few of them gave partial answers. **Results:** The first question for radiographers and radiologists was "the sufficient awareness about the patient safety and care during the interventional radiology procedure. Also, the majority of the radiographers and radiologists are providing the patients with sufficient information when he/she ask for help or queries. A large number of radiographers and radiologists were participating in this study explaining the procedures to patients before starting the examinations in a structured way. Finally, the result shows both radiographers and radiologists respect the patient's rights, privacy, and dignity and also kept the radiation protection during the interventional radiology procedures. **Conclusion:** This article summarizes the key categories of awareness of patient care issues in the provision

of interventional radiology services, from the joint perspectives of radiographers and radiologists, and provides references for further reading in all major relevant areas.

### **Keywords**

Interventional Radiology, Patients Care, Awareness in Interventional Radiology

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## **1. Introduction**

Since the announcement of their discovery by Röntgen in December 1895, X-rays and the radiological techniques associated with their use have become increasingly central tools in medical diagnosis and management. As a result of the growth in the usefulness of imaging, other, non-radiation based, imaging techniques have been developed (e.g., ultrasound and magnetic resonance imaging), and image-guided interventional means of treating patients have become commonplace. On the other hand, patient-centered care is organized around the patient, a model in which health care provider's partner with patients and families to identify and satisfy patients' needs and preferences. Providers respect patients' values and preferences, address their emotional and social needs, and involve them and their families in decision making. Health care services are coordinated such that critical information is reliably passed on to all members of the clinical care team, and clinical support services are designed around patients' needs rather than physicians' needs. Health care providers treat patients respectfully and use patient-centered communication needs and preferences [1].

Interventional radiology (IR) is a minimally invasive procedure that involves use of various radiological techniques, including X-ray fluoroscopy, Ultrasonography, computed tomography (CT), and magnetic resonance imaging (MRI), as specifically targeted therapy. Diagnostic radiology includes a variety of subspecialties, including neuroradiology, pediatric radiology, nuclear radiology, hospice, and palliative medicine, pain medicine, and vascular and IR [2].

Interventional radiology (IR) procedures are subject to all the risks to patient safety that apply to any radiological procedure, and all appropriate precautions taken in the setting of other modalities must also be observed in IR. IR procedures also carry additional risks to patients, relating to potential complications or negative outcomes of the relevant procedures, and the possibility of injury or harm resulting from insufficient care being applied before and during procedures. Drug use during IR procedures may include (among others) sedatives, Vaso-active substances, analgesics, and antibiotics; each of these can have specific safety issues [3].

Otherwise the radiology department has a constant stream of a wide variety of patients each day, referred from ambulatory care and from the emergency department and inpatients. All these patients are likely to have contact with radi-

ology professionals, and possibly with other members of the radiology multidisciplinary team. A teach step and for each professional, good communication skills are vital. In order to involve a patient in his/her own healthcare process, it is of maximum importance to explain the whole examination or procedure in a structured way [4].

Also the duty of radiologists and radiographer to answer the patient's concerns and at the same time to impart knowledge of radiation and some techniques risks to their clinical colleagues [5].

The benefits to patients from these methods of investigation and treatment have been immeasurable. However, it would be unwise to imagine that no harm can come to patients from the use of radiation-based and other imaging techniques, or from interventional radiology procedures. Radiographers and radiologists are specifically trained users of the imaging modalities involved. Paramount in their training is the optimal use of imaging for the benefit of patients and awareness of potential risks from the use of ionizing radiation, including the need to minimize the likelihood of harm from inappropriate or excessive radiation use. Many other aspects of radiographer and radiologist practice encompass elements of awareness and care for patient safety [6].

### **Objective Explanation**

This Article Mainly aims to measure the awareness of Radiologists and Radiographers toward care and safety in an interventional radiology department.

Fundamental to all applications of radiological Techniques is the requirement that all possible efforts should be made to ensure patients are no worse off after their interaction with radiographers and radiologists than before.

The radiologists and radiographers as part of a team caring for patients have responsibility for patient safety and care; joint attention to the primacy of patient safety in all we do is a key to ensuring a safe environment for the patients.

## **2. Material and Methods**

This is a cross-sectional descriptive study the Sample was One hundred sixty four Radiographers and Radiologists work in interventional radiology department participating in this study completed the questionnaire selected randomly, regardless of their age, race and gender. The sample size obtain depend upon a confidence level of 95% that the real value is within  $5\pm\%$  of the measured/surveyed value. The margin of error was 5%, 50% population proportion and the population size was 200. A quantitative research study was conducted in various interventional Radiology departments carried in period between 15/2/2022 to 20/4/2022 at Saudi Arabia Jeddah State.

The researchers developed an online survey with questions that addressed the aims of study and attempt to highlight the level of awareness about some of the areas of patient care that form part of normal practice for radiographers and radiologists, and which must always be considered when we use, they skills to investigate and

treat patients. A group of question needs to answer by end of this study such as:

- Are the radiographers and radiologists having the sufficient awareness about the patient safety and care during the interventional radiology procedure?
- Are the radiologists and radiographers providing the patient by sufficient information, where he/she asked?
- Are the radiographers and radiologist explaining the procedures to the Patients?
- Is the radiographer and radiologist concern about the patient right including (the privacy and dignity)?
- The radiographer and radiologist kept the radiation protection during the interventional radiology procedure?

A questionnaire was developed to acquire data about the awareness of radiologists and radiographers about the patient's care and safety in the interventional radiology departments throughout Jeddah state. The survey form consisted of Three sections each section contains a certain number of questions are used to identify trends in measurement of awareness. Based on this information a questionnaire was deemed the most appropriate method for data collection [7]. The questions were formulated after reviewing the American Standard (ASRT) and previous studies. All the questions allowed for Very dissatisfaction, dissatisfaction, satisfaction, very satisfaction and Neutral options, just in Q3: strongly disagree, disagree, agree, and strongly agree. The research questionnaire was piloted before data collection. Sixteen radiographers and radiologist at the Al-Gahd College for Applied medical Sciences in KSA Jeddah participated in the pilot study and they were requested to provide feedback on the clarity of the questions in the questionnaire. The questionnaire design by use GOOGLE FORM 2022 to make Online Survey sat

(<https://docs.google.com/forms/d/1HiR6OgFp5ATB3WsUSME1rzaauhQaLc3AAf5OKiuUAf0/edit?hl=ar>) as official online questionnaire link. Face-to-face interviews using the questionnaire were conducted by one of authors to reduce potential bias in the event of data were collected by the medical team. The interviews took place in a calm corner of the department.

Statistical analyses of data were performed using Excel Microsoft 2007 Data were expressed as percentage and frequencies. The findings from the questionnaires are presented in the following set of figures.

### **Ethical Considerations**

The radiographer and radiologist had the right to refuse completing the questionnaires. Radiographers and radiologist willingly completed it and shall not coerce into doing so. No identification of them was required, which ensured anonymity.

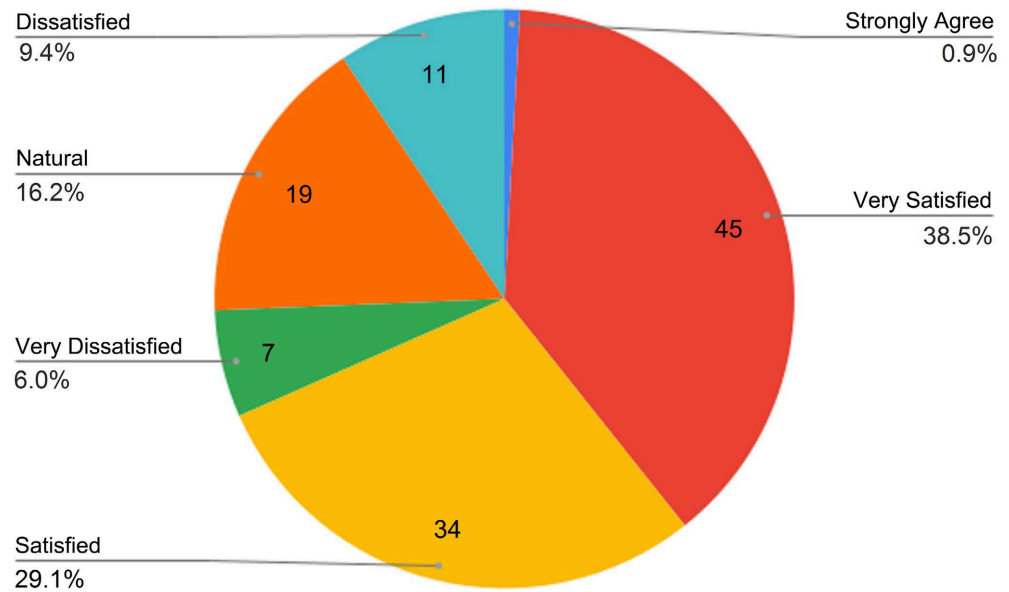
### **3. Results**

One hundred sixty four radiographers and radiologists participating in this

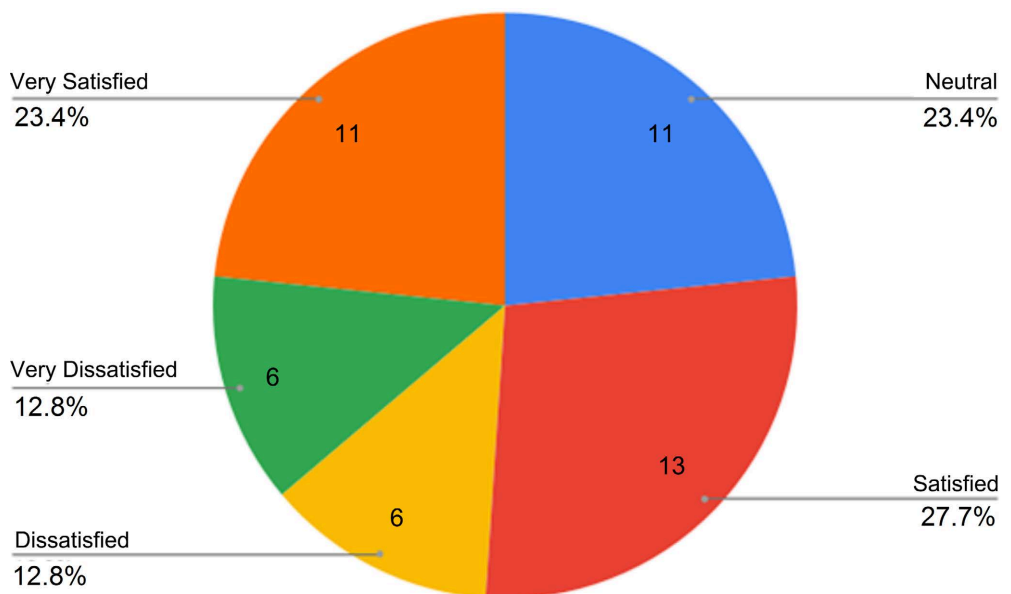
study completed the questionnaire, which equals a response rate of approximately 82%. The questionnaire was fully completed by almost all responders; only few of them gave partial answers.

The data presenting indicate to the biographical information of the participants and their responses to the patient care survey that they completed.

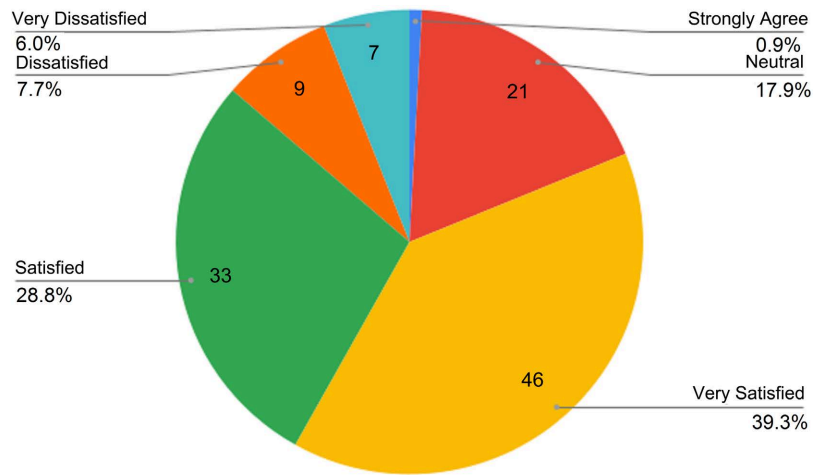
Participants in the survey were asked if they were sure about the sufficient awareness about the patient care during the interventional radiology procedure, the following responses were achieved: (**Figures 1-12**).



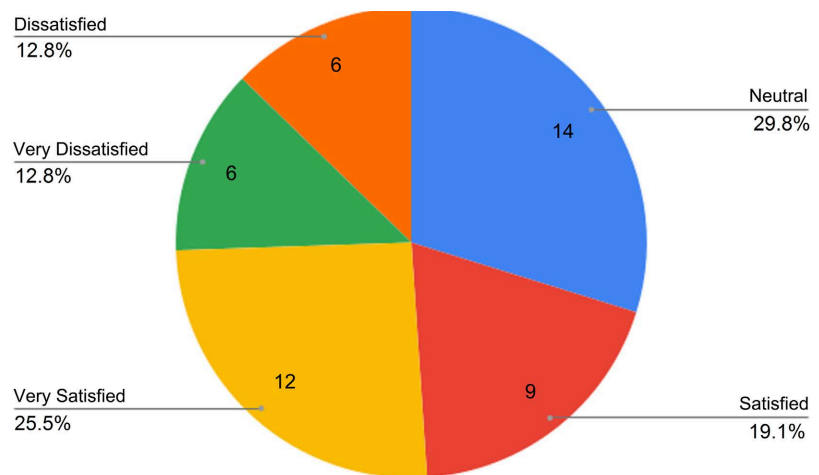
**Figure 1.** Pie chart demonstrates the count of radiographers if they have sufficient awareness about the patient care during the interventional radiology procedure.



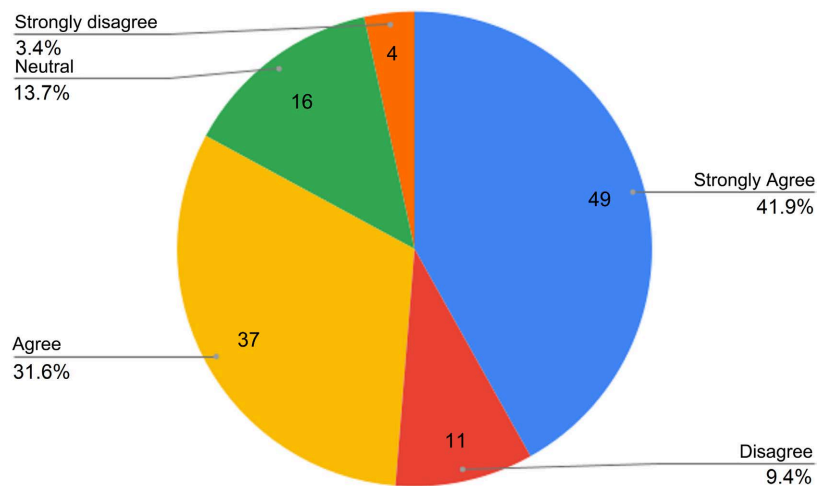
**Figure 2.** Pie chart demonstrates the count the radiologist sure about the sufficient awareness about the patient care during the interventional radiology procedure?



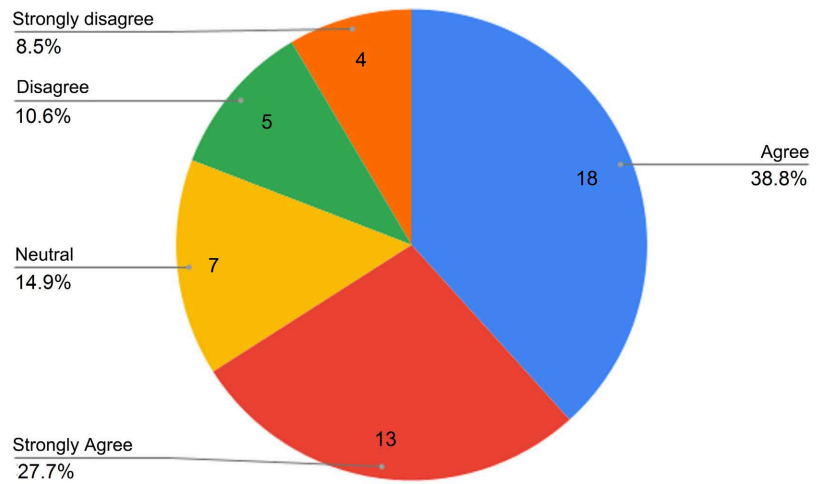
**Figure 3.** Pie chart demonstrates the count of radiographers provided the patients by sufficient information, when he/she ask?



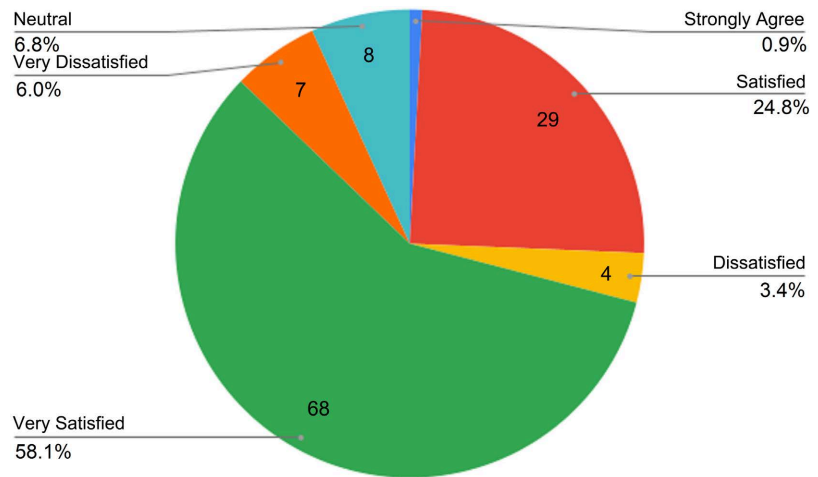
**Figure 4.** Pie chart demonstrates the count is the radiologist who provides the patient by sufficient information, where he/she ask?



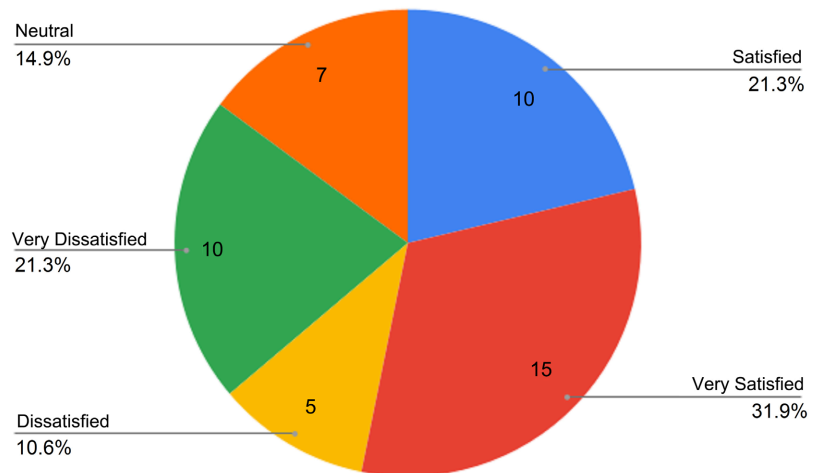
**Figure 5.** Pie chart demonstrates the count of radiographers are explanation the procedures for patients?



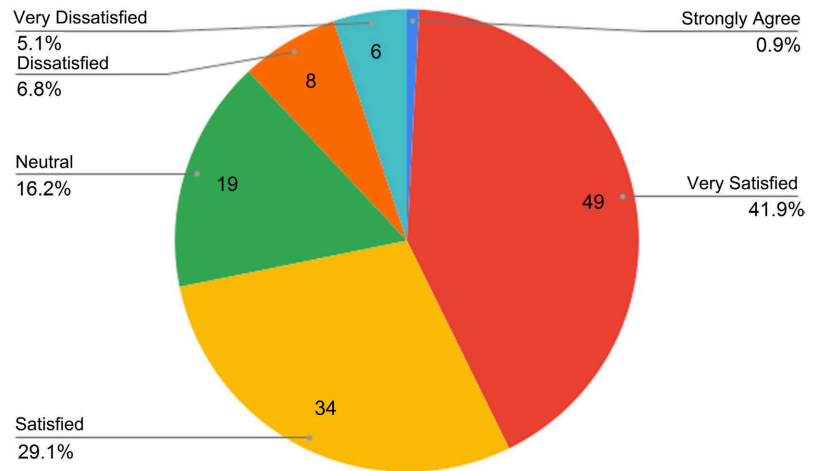
**Figure 6.** Pie chart demonstrates the count is the radiologist ensures to explanation the procedures for patients?



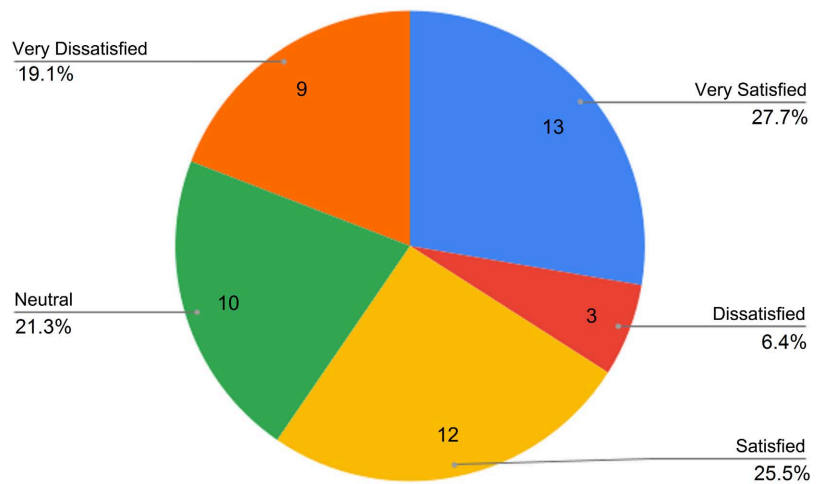
**Figure 7.** Pie chart demonstrates the count of radiographers is concern about the patient right including (the privacy and dignity)?



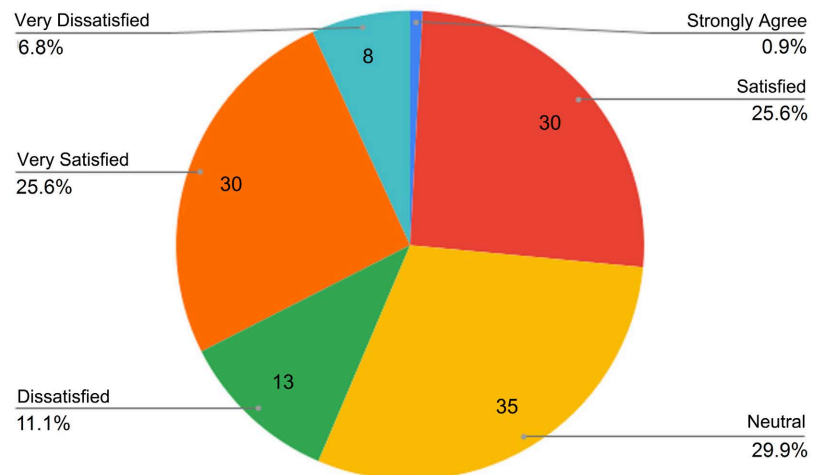
**Figure 8.** Pie chart demonstrates the count the radiologist concern about the patient right including (the privacy and dignity)?



**Figure 9.** Pie chart demonstrates the count of radiographers is kept the radiation protection during the interventional radiology procedure?

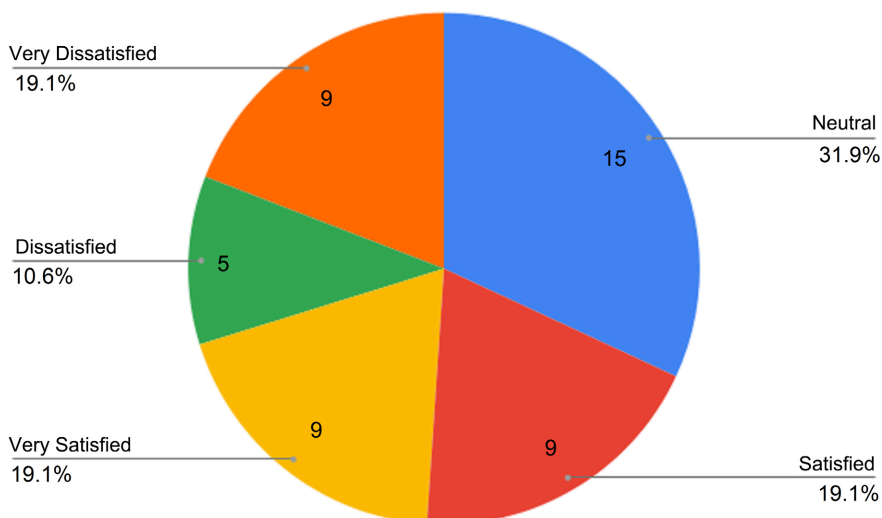


**Figure 10.** Pie chart demonstrates the count the radiologist ensuring kept the radiation protection during the interventional radiology procedure?



**Figure 11.** Pie chart demonstrates the count of radiographers are keep the department highly performance by Dealing with IT system, adequate declaration and documentation?





**Figure 12.** Pie chart demonstrates the count the radiologist keep the department highly performance by adequate declaration and documentation?

#### 4. Discussion

This study is guided by the following research questions which are based on [8]:

- Are the radiographers and radiologists having the sufficient awareness about the patient safety and care during the interventional radiology procedure?
- Are the radiologists and radiographers providing the patient by sufficient information, where he/she asked?
- Are the radiographers and radiologist explaining the procedures to the Patients?
- Is the radiologist and radiographer kept the department highly performance by adequate declaration and documentation?
- Is the radiographer and radiologist concern about the patient right including (the privacy and dignity)?
- The radiographer and radiologist kept the radiation protection during the interventional radiology procedure?

The finding will be presenting and discuss according to each of the above questions.

The First question for radiographers and Radiologists was “the sufficient awareness about the patient safety and care during the interventional radiology procedure” **Figure 1** forty fives (38.5%) of radiographers and eleven radiologists working in the interventional radiology department have very satisfied awareness about patient care during the interventional radiology procedure, also thirty-four (29.1%) radiographer and threaten (23.4%) radiologist have satisfied awareness, eighteen (15.4%) and twelve (25.6%) they were dedicated dissatisfied awareness and nineteen (16.2%) eleven (23.4%) respectively have other opinions. This result finding **Figure 2** is related to [9] [10] [11] say’s about continuing education in the area of practice.

**Figure 3** demonstrates the count of radiographers and radiologists are provide

the patients with sufficient information when he/she ask for help or queries. Seventy-nine (67.5%) radiographers provided information to the patients according to their needs. Sixteen (13.7%) there were not sure and twenty-one (17.9%) weren't concerned about the patient's questions. **Figure 4** fifteen (31.1%) radiologists provided and answered the patients, and twelve of them weren't satisfied providing information to their patients. However as [12] [13] Said about allowing the patient or relative (or the legal guardian) time to ask questions and offering follow-up if needed to be taken into account and, whenever possible, respected. Also, the author is concerned about involving a patient in his/her healthcare process; it is of maximum importance to explain the whole examination or procedure in a structured way. **Figure 5** and **Figure 6** demonstrate the count of Radiographers and Radiologists explaining the procedures to patients. In our study eighty-six (72%) radiographers and thirty-one (66%) radiologists agreed with and explained the procedures to patients and fifteen (12.8%) and nine (19%) aren't doing.

[14] [15] Mentioned; the radiographers of their ethical duties and treatment towards their patients, as well as their adherence to the code of conduct for radiographers. **Figure 7** shows ninety-seven (72.9%) of the total sample of radiographers and twenty-five (53.1%) of radiographer respects the patient's rights, privacy and dignity during the interventional radiology procedures. But the same percentage of radiologist and eleven (9.4%) radiographer aren't concerned about it **Figure 8**.

**Figure 9** and **Figure 10** demonstrate (71%) of Radiographers and (56.1%) radiologists are kept the radiation protection during the interventional radiology procedure, According to International Commission on Radiological Protection [16] [17] Radiation protection is a key aspect of maintaining the safety of patients in diagnostic and interventional radiology. The three fundamental principles of radiation protection of patients are justification, optimization, and the application of doses As Low As Reasonably Achievable (ALARA).

Sixty (51.2%) of Radiographers and eighteen (39.2%) Radiologists as **Figure 11** and **Figure 12** are keep the department highly performance by adequate declaration, documentation and Dealing with IT system. That is important recommendation by (ESR) [17].

## 5. Conclusions

This study summarizes the key categories of awareness of patient care issues in the provision of interventional radiology services, from the joint perspectives of radiographers and radiologists, and provides references for further reading in all major relevant areas.

Several considerations can be drawn from the results of this study. The first one relates to the level of awareness itself. Answers to the first questions for radiographer and radiologist show low percentages that maybe need to further investigations.

Secondly, the results show that large groups of radiographers and radiologists provide the patients with sufficient information when he/she ask for help or queries. In the same context, a good percentage of radiographers and radiologists explain the procedures to patients.

In addition, the radiographers and radiologist respect their ethical duties toward their patients by respecting the patient's rights, privacy and dignity during the interventional radiology procedures.

Lastly, our data demonstrate that the situation of the radiation protection during the interventional radiology procedure the majority of radiographers and radiologists consider the (ALARA) principles during the procedures.

### Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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## Appendix

### Section one questionnaire professional questions of radiographers:

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Is the Radiographer sure about the sufficient awareness about the patient care during the interventional radiology procedure?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiographer providing the patient by sufficient information, where he/she ask?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiographer ensure to explanation the procedures for patients?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiographer keep the department highly performance by adequate declaration and documentation?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiographer concern about the patient right including (the privacy and dignity)?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiographer kept the radiation protection during the interventional radiology procedure?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied

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### Section two questionnaire professional questions of radiologist:

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Is the Radiologist sure about the sufficient awareness about the patient care during the interventional radiology procedure?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiologist providing the patient by sufficient information, where he/she ask?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiologist ensures to explanation the procedures for patients?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiologist keep the department highly performance by adequate declaration and documentation?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiologist concern about the patient right including (the privacy and dignity)?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied
Is the Radiologist ensuring kept the radiation protection during the interventional radiology procedure?	Very Dissatisfied	Dissatisfied	Neutral	Very Satisfied	Satisfied

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