

Knowledge of Radiologic Technologists Image Interpretation Improve X-Ray among Radiographer Nurses In Saudi Arabia 2024

Abdulrahman Hussain Alyami¹, Anas Mohammed Shiqdar², Sultan Abdulmoniam Alali³, Mansour Sewileh Mesleh Almodhaibri⁴, Setah Rashd Alshammari⁵, Mohammed Abdulaziz Alhurayri⁶, Abdulaziz Nasser Alqaydhib⁷, Mohammad Saeed Alkhorimi⁸, Amnah Arar Hassan Al gobi⁹, Norah Saad Hamad Aljebreen¹⁰, Motaz Hussain Alsamli¹¹, Hamad Nasser Alsharef¹¹

¹Family medicine senior registrar, King Abdulaziz Hospital, Saudi Arabia.

²Physical therapist, Alnoor specialist hospital, Saudi Arabia.

³Medical Physics Specialist, Madinah Cardiac Center, Madinah Health Cluster, Saudi Arabia.

⁴Radiology technician, Dhalea Rashid Health Center, Saudi Arabia.

⁵ER Resident, East Jeddah Hospital, Saudi Arabia.

⁶Nursing Technician, Maternity&Children's Hospital_Dammam, Saudi Arabia.

⁷Medical Device Engineering, Ministry of Health, Alkharj, Saudi Arabia.

⁸Nursing technician, Jeddah's first health gathering

⁹Nursing specialist, Erada & Mental Health Complex, Saudi Arabia. - Mental services -Jeddah, Saudi Arabia.

¹⁰Nursing specialist, Al-Quwayiyah General Hospital, Saudi Arabia.

¹¹Nursing technician, Ministry of Health, Makkah, Saudi Arabia.

ABSTRACT

Background

Radiation protection aims to reduce unnecessary exposure to X-ray radiation, protecting patients and healthcare workers. Although diagnostic imaging techniques contribute minimally to overall exposure, risks still exist. Radiologic technologists and nursing perform X-ray procedures in diverse settings, collaborating with medical teams to ensure quality patient care. X-ray imaging is a common procedure performed on a regular basis for diagnostic purposes all over the world. The use of X-rays is increasing rapidly with the introduction of new radiation-oriented therapeutic practices. Although it carries significant diagnostic benefits, extensive exposure to X-ray imaging has been shown to be associated with multiple dose-dependent health risks. Plain X-Ray is a common procedure performed on a regular basis for diagnostic purposes all over them world. The use of Plain X-Ray, Resonance Imaging is increasing rapidly with the introduction of new radiation-oriented therapeutic practices. Awareness and knowledge among radiographer nurses regarding the effects of X-ray imaging, therefore, becomes important. **Aim of the study:** To assessment the knowledge of radiologic technologist's image interpretation X-ray among radiographer nurses in Saudi Arabia 2024. **Methods:** This cross-sectional study was conducted from Public Sector Hospitals kingdom of Saudi Arabia, convenience sampling technique was adapted to recruit 200 participants for the study. A pretested questionnaire was used to assess the knowledge of radiation among nursing, radiographer and health care workers their perception regarding the necessary safety measures required to be undertaken during the X-ray imaging procedure. .Health care working in X-Ray, department It includes questions on socio demographic variables, knowledge of regarding during the January to April 2024. **Results:** majority of participant (4.0%0) have average of the knowledge towards risks Associated with the Use of X-Ray followed by (38.0%) of participant high but weak were (22.0%) while Range(7 -18) and Mean \pm SD(11.287 \pm 2.247) X^2 23.360 and a significant relation $P=0.001$. **Conclusion:** The radiographer nurses working in the public sector care hospitals of Saudi Arabia seem to lack the knowledge and awareness regarding the hazards of ionizing radiations and the necessary safety measures required to be undertaken during X-ray imaging. More awareness programs should be conducted to increase the level of radiographer nurses awareness to protect them from unnecessary health risks.

Keywords: Knowledge, radiologic technologists image, X-Ray, radiographer nurses, health care working, Saudi Arabia.

INTRODUCTION

Increased use of radiological imaging in all departments of medicine, especially in the Emergency Department, requires that radiographer nurses have a high level of knowledge regarding commonly used imaging methods and high awareness of the risks of examinations (1)

Due to the extensive use of X-ray imaging, its effects should be fully understood. The most important factor when discussing the effects of X-rays is not the amount at a point in the air (exposure) but the amount of energy absorbed by tissue (dose) (2) The dose-dependent adverse effects of X-rays have been linked to cancer and have been a focus for many researchers studying cancer risk in adults and children (3). It is estimated that radiation exposure during medical imaging may be associated with 1.5% to 2% of all cancers in the United States in the future (4). Prior to any researches on X-rays, radiologists and nursing who were exposed to significant amounts of X-rays were shown to develop severe forms of dermatomes, cataract, hematological disorders and various cancers (5). This led to the development of a radiation safety principle known as ALARA (As Low As Reasonably Achievable) to allow the use of radiation with lowest possible doses required to achieve the desired diagnostic effect (6)

Over the past decade, several studies involving groups of radiographer nurses, radiologists, and radiographers have highlighted a concerning deficiency in their understanding of radiation protection.(7) Many of these professionals underestimated the radiation doses associated with various imaging methods, and in some instances, they were unable to accurately differentiate between X-ray and author radiation imaging techniques.(8)

Radiographers, commonly referred to as radiologic technologists, diagnostic radiographers, or medical radiation technologists, are healthcare professionals who use medical imaging equipment to perform X-ray examinations in various settings, including hospitals, physician's offices, clinics, medical imaging centers, surgical centers, and mobile imaging agencies. (9) They collaborate with other medical professionals to ensure high-quality outcomes and enhance the patient experience. (10) the key responsibilities of radiologic technologists nursing include accurately positioning patients and producing quality diagnostic images. They work closely with radiologists—physicians who interpret these medical images for diagnostic purposes. The technologist nursing performs proper imaging procedures to ensure accurate interpretation (11)

When healthcare professionals, such as radiology nursing, deliver healthcare services without considering the current existing research evidence, they may overlook optimal decisions that could benefit patients, potentially leading to significant harm instead (12) A thorough review of studies from 2012 to 2017, focusing on healthcare professionals' capabilities in EBP revealed that many reported having a good grasp of EBP knowledge, skills and attitudes. However, this may not necessarily translate to using EBP in their current practice, highlighting the disconnection between their knowledge about EBP and the importance of applying it in real-world healthcare settings (13)

LITERATURE REVIEW

Frangi et al., 2018 reported that It is important to acknowledge that a considerable number of participants had a thorough understanding of radiation effects and radiation protection factors. Radiographer nurses and Radiological staff must prioritize appropriate radiation protection measures to safeguard themselves, the general population, and the environment (Frangi et al., 2018).

Previous studies,(14) along with a recent (under press), reported that nurses scored lowest in the 'Principles' component of radiation knowledge. These lower scores may reflect gaps in formal radiation safety education during their academic training, particularly if such content was not adequately emphasized in the curriculum.(15)

The Guidelines component showed a relatively lower mean score, suggesting that while students gain theoretical and practical knowledge in radiation safety, there may still be gaps in their understanding of formal regulatory guidelines and compliance standards. This highlights the need for additional emphasis on institutional and international guidelines within the curriculum to ensure students develop a comprehensive understanding of best practices in radiation use. (16)

While radiations are extremely useful diagnostically, a study conducted in the UK estimated that up to 20% of medical X-rays ordered are not beneficial and only add to the unnecessary exposure in patients, contributing to 100-250 cases of cancer each year in the region (17)

According to the study published by Papanicolas et al., in high-income countries the average number of magnetic resonance imaging (MRI) and mean computed tomography (CT) scans were 82 and 151 per 1000 persons, respectively. These numbers were 118 and 245 in the United States, respectively, and in terms of the number of radiological imaging, the United States is the second country with the highest rate of MRI and CT technology use, following Japan (18)

Study by Johary et al., 2018, reported an excess of radiation-induced cataracts for technologists who received an eye lens dose of 55.7 mGy on average with the interquartile range from 23.6 to 69.0 mGy. The excess risk for cataract associated with radiation exposure from low-dose and low dose-rate occupational exposures (19)

Staff exposure has a high amount of variability, according to Morcillo et al. 2022, probably due to the varied level of complexity (20) According to the linear no-threshold (LNT), any radiation dose can cause biological effects (DNA damage) that may be harmful to the exposed person, and the magnitude or probability of these effects is directly proportional to the dose (delayed effects) (21) Somatic, genetic, and teratogenicity effects are the three types of effects. (22)

In Pakistan no study has yet been conducted to evaluate knowledge of X-ray imaging among the patients. also need to evaluate the necessary safety measures undertaken during X-ray imaging in these hospitals, and the perception of patients regarding the importance of these measures (23) Currently, there is a lack of data on radiation exposure delivered to patients in Saudi Arabia, although radiobiology researchers and other researchers have addressed the association between the relatively high doses from CT and stochastic and deterministic effects. Nevertheless, still, there is a need to optimize the dose by introducing the diagnostic reference level . (24)

RATIONAL

Lack of reference regarding the precise roles requires increased perception and minute refusals to embrace nursing involvement in radiology. In some healthcare organizations, there is no policy framework for how involved nurses are in imaging departments, making it ambiguous, and many radiologists or technologists might not be willing to involve the nurses in all aspects of imaging. The overall knowledge of the nursing care government hospitals of Saudi Arabia regarding improve X-ray and its hazards is unsatisfactory. Nurses might also experience heads unwilling to allow them to work in radiology despite research proving that their presence benefits the patient and enhances the procedure's completion rate . Overall, these findings emphasize the critical role of structured education in improving radiation knowledge of radiologic technologists image interpretation improve X-ray among radiographer nurses in Saudi Arabia .

AIM OF THE STUDY

To assessment the knowledge of radiologic technologist's image interpretation X-ray among radiographer nurses in Saudi Arabia 2024.

METHODOLOGY

Study Design

A descriptive cross-sectional web-based questionnaire was administered from January to April 2024 to 400 randomly selected participants by voluntary response sampling. A pretested questionnaire was used the survey comprised questions divided into three sections: demographic information, knowledge of radiation protection, and awareness of radiation doses for various procedures and knowledge of radiologic technologist's image interpretation X-ray among radiographer nurses , The data collected were analyzed using descriptive and inferential statistics with SPSS .

Study area

The study was carried out in Public Sector Hospitals at Saudi Arabia .

Study Population

The study was conducted among radiologic technologist's radiographer nurses in Public Sector Hospitals at Saudi Arabia during the period of study in 2024 .

Selection criteria:

A- Inclusion criteria:

- study focus on the role of nurses in X-ray procedures, including their impact on patient safety, experience, and procedural efficiency.
- studies and policy reports from healthcare institutions with active nursing involvement in radiology departments..
- Both males and females.
- All nationalities.

Exclusion criteria:

- We excluded emergency nursing and health care working who refused to participate, had neurological disease, did not have the capacity to give informed consent, and/or if they were unable to understand the communication language.

Sampling technique:

The researcher used Multi-stage random sampling technique, by using random number generator. Then simple random sampling technique was applied to select the Public Sector Hospitals. Also, convenience sampling technique was utilized to select the participants in the study.

Data collection tool:

The questions which were used in the survey were based on similar studies in the literature and on past experience. The questionnaire was designed to find the answers to the following three questions:

1. Do radiographer nurses and health care working consider their level of knowledge sufficient on imaging methods?
2. Do radiographer nurses and health care working evaluate the risks associated with the radiological test, before ordering an imaging method?
3. Do radiographer nurses and health care working explain the risks associated with the imaging method to the patients, and discuss the risks and benefits of the imaging with the patients?.

Data collection technique:

The questionnaire consists of parts .

The **first part** of the survey contained data socio-demographic characteristics on the specialties of radiographer nurses and health care working the total duration of their work in the relevant specialties . In the **second part** of the questionnaire, radiographer nurses were asked to evaluate their knowledge of Risks Associated with the Use of Plain X-Ray, Computed Tomography, and Magnetic Resonance Imaging “little”, “moderate”, “good” and “very good.”

In the **third part** of the survey, the radiographer nurses were asked to indicate one or more sources from which they obtained information on imaging methods.

The comprehensibility and clarity of the items in the questionnaire were tested by radiographer nurses and health care working, physicians from any specialty of internal sciences, physicians from any specialty of surgical sciences, radiologists by face-to-face interview. In order not to affect the results, the answers of these physicians were excluded from the study. Those who did not complete the questionnaire .

Data entry and analysis:

The Statistical Package for Social Sciences (SPSS) software version 24.0 was used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics using Chi-Square tests (χ^2) to test for the association and the difference between two categorical variables were applied. A p-value ≤ 0.05 was considered statistically significant.

Pilot study:

Was piloted among 20 participants, after permission was taken through from the researcher, with some modification and preamble letter was issued to explain the aim of the study, request to participate, and appreciation for a response. Then, the questionnaire was validated by three consultants. A pilot study was conducted in one PHC in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire was clear and no defect was detected in the methodology.

Ethical considerations:

The ethical approval for this study was obtained from the ethical committee for health research (2024). The objectives of the study were explained to the participants and confidentiality was assured. Participation was voluntary. A written consent was obtained from the participants. Permission from the X-Ray, Computed Tomography, and Magnetic Resonance Imaging was obtained; permission from the Directorate Public Sector Tertiary Hospitals.

Budget: Self-funded

RESULT

Table 1: Distribution of socio-demographic characteristics of participant . (n=400)

	N	%
Age		
<30	88	22
30-40.	104	26
40-50.	120	30
>50	88	22
Gender		
Male	216	54
Female	184	46
Marital status		
Single	120	30
Married	164	41
Divorced	64	16
Widow	52	13
Department		
Radiology	156	39
Emergency department	88	22
Radiotherapy	156	39
Medical specialty (cadre)		
Doctor	84	21
Nurse	88	22
Imaging scientist	80	20
Radiographer	64	16
Physicist	40	10
Biomedical engineer	44	11
Length of practice (in years)		
<10 Years	160	40
>10 Years	240	60

Table 1 show study included 400 participant, the remaining socio-demographic characteristics of the participant regarding age most of participants 40-50 years were (30.0%) followed by 30-40 years were (26.0%) while the age <30 and >50 year were (22.0%), regarding the gender majority of participants

were (54.0%) were male while female were (46.0%), regarding the marital status the most of participant were (41.0%) married while single were (30.0%) but divorced were (16.0%), regarding the department the most of participant radiology were (39.0%) while emergency department were (22.0%) while radiotherapy were (39.0%), regarding medical specialty most of participant nurse were (22.0%) while doctor were (21.0%) but imaging scientist were (20.0%) but the radiographer were (16.0%), regarding the length of practice (in years) most of participant > 10 Years were (60.0%) while <10 years were (40.0%) .

Table 2: Distribution of knowledge of Risks Associated with the Use of X-Ray .

Knowledge of Risks radiographer image	N	%
How can you assess your own level of knowledge on imaging methods?		
Very little	64	16
Moderate	120	30
Good	160	40
Very good	56	14
What is the source of your information on imaging methods? You can select multiple choices.		
Medicine school training	72	18
Specialty training	80	20
Individual interest- based research	76	19
Radiological courses or seminars	80	20
Other	92	23
Do you routinely consider the risks associated with direct radiography for the patient before ordering		
Yes	272	68
No	128	32
Do you routinely consider the risks associated with computed tomography for the patient before ordering		
Yes	280	70
No	120	30
Do you routinely consider the risks associated with magnetic resonance imaging for the patient before ordering		
Yes	240	60
No	160	40
Do you routinely pay attention to radiation exposure before you order a direct radiography		
Yes	280	70
No	120	30
Do you routinely pay attention to whether the examination was performed already for the same indication before ordering direct radiography		
Yes	244	61
No	156	39
Do you routinely pay attention to radiation exposure, before you order a computed tomography scan		
Yes	288	72
No	112	28
Do you routinely pay attention to contrast-induced nephropathy, before you order a computed tomography scan		
Yes	320	80
No	80	20
Do you routinely pay attention to contrast agent allergy, before you order a computed tomography scan		

Yes	336	84
No	64	16

Table (2) showed distribution of knowledge of Risks Associated with the Use of X-Ray, regarding can you assess your own level of knowledge on imaging methods the majority of participant answer good were (40.0%) followed by moderate were (30.0%) while very little were (16.0%) but very good were (14.0%), regarding the source of your information on imaging methods the majority of participant answer other were (23.0%) followed by radiological courses or seminars and Specialty training were (20.0%) while individual interest- based research were (19.0%) while medicine school training were (18.0%), regarding routinely consider the risks associated with direct radiography for the patient before ordering the majority of participant answer Yes were (68.0%) followed by No were (32.0%), regarding routinely consider the risks associated with computed tomography for the patient before ordering the majority of participant answer Yes were (70.0%) followed by No were (30.0%), regarding routinely consider the risks associated with magnetic resonance imaging for the patient before ordering the majority of participant answer Yes were (60.0%) followed by No were (40.0%) , regarding routinely pay attention to radiation exposure before you order a direct radiography the majority of participant answer Yes were (70.0%) followed by No were (30.0%) , regarding routinely pay attention to whether the examination was performed already for the same indication before ordering direct radiography the majority of participant answer Yes were (61.0%) followed by No were (39.0%), regarding routinely pay attention to radiation exposure, before you order a computed tomography scan the majority of participant Answer Yes were (72.0%) followed by No were (28.0%) , regarding routinely pay attention to contrast-induced nephropathy, before you order a computed tomography scan the majority of participant answer Yes were (80.0%) followed by No were (20.0%) , regarding routinely pay attention to contrast agent allergy, before you order a computed tomography scan the majority of participant answer Yes were (84.0%) followed by No were (16.0%)

Table 3 continued Knowledge of Risks Associated

Table 3 continued Knowledge of Risks Associated	N	%
Do you routinely pay attention to whether the examination was performed already for the same indication before ordering computed tomography?		
Yes	248	62
No	152	38
Do you routinely pay attention to radiation exposure, before you request a magnetic resonance imaging?		
Yes	280	70
No	120	30
Do you routinely pay attention to contrast-induced nephropathy, before you request a magnetic resonance imaging?		
Yes	272	68
No	128	32
Do you routinely pay attention to contrast agent allergy, before you request a magnetic resonance imaging		
Yes	280	70
No	120	30
Do you routinely pay attention to whether the examination was performed already for the same indication before requesting magnetic resonance imaging		
Yes	212	53
No	188	47
Do you routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering direct radiography?		

Yes	292	73
No	108	27
Do you routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering computed tomography?		
Yes	256	64
No	144	36
Do you routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering magnetic resonance imaging		
Yes	316	79
No	84	21

Table 2 continued Knowledge of Risks Associated showed regarding routinely pay attention to whether the examination was performed already for the same indication before ordering computed tomography the majority of participant answer Yes were (62.0%) followed by No were (38.0%), regarding routinely consider the risks associated with computed tomography for the patient before ordering the majority of participant answer Yes were (70.0%) followed by No were (30.0%), regarding routinely pay attention to radiation exposure, before you request a magnetic resonance imaging the majority of participant answer Yes were (68.0%) followed by No were (32.0%) , regarding routinely pay attention to contrast-induced nephropathy, before you request a magnetic resonance imaging the majority of participant answer Yes were (68.0%) followed by No were (32.0%) , regarding routinely pay attention to contrast agent allergy, before you request a magnetic resonance imaging the majority of participant answer Yes were (70.0%) followed by No were (30.0%), regarding routinely pay attention to whether the examination was performed already for the same indication before requesting magnetic resonance imaging the majority of participant Answer Yes were (53.0%) followed by No were (47.0%) , regarding routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering direct radiography the majority of participant answer Yes were (73.0%) followed by No were (27.0%) , regarding routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering computed tomography the majority of participant answer Yes were (64.0%) followed by No were (36.0%) , regarding routinely inform the patient regarding the risks associated with the imaging method and discuss the risks and necessity with the patient before ordering magnetic resonance imaging the majority of participant answer Yes were (79.0%) followed by No were (21.0%) .

Table 3: Distribution of knowledge of Risks Associated with the Use of X-Ray .

		Knowledge		Score	
		N	%	Range	Mean±SD
Weak		88	22	7-18.	11.287±2.247
Average		160	40		
High		152	38		
Total		400	100		
Chi-square	X ²	23.360			
	P-value	<0.001*			

This table 3 shows the majority of participant (40.0%) have average of the knowledge towards risks Associated with the Use of X-Ray followed by (38.0%) of participant high but weak were (22.0%) while Range(7 -18) and Mean \pm SD(11.287 \pm 2.247) X^2 23.360 and a significant relation $P=0.001$.

Figure (1): Distribution of knowledge of Risks Associated with the of Plain X-Ray .

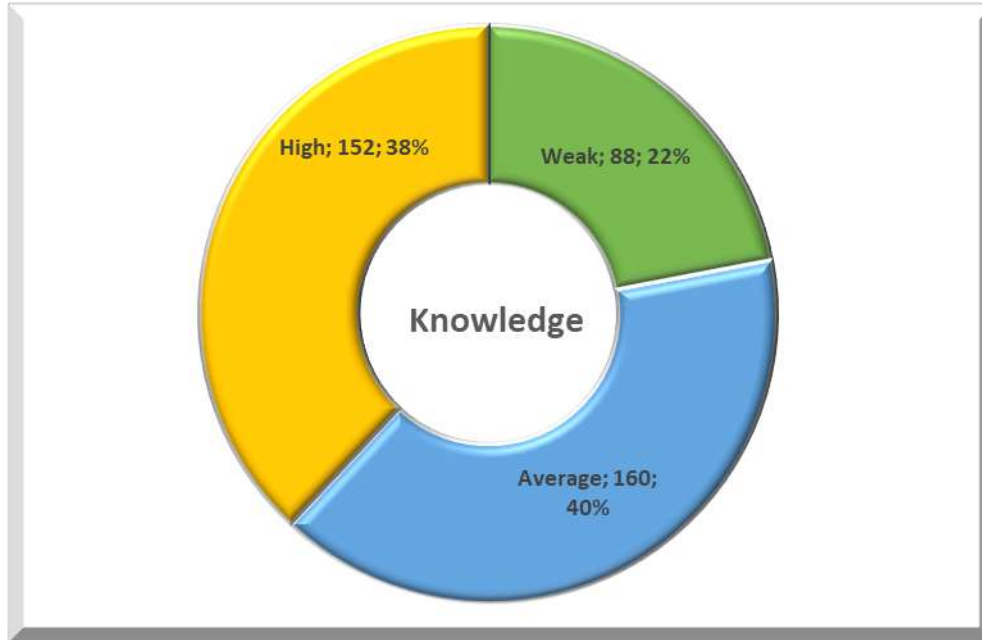


Table 4 Distribution the relation between knowledge about the Use of X-Ray and socio-demographic

Items		N	Knowledge			F or T	ANOVA or T-tets	
			Mean	\pm	SD		test value	P-value
Age	<30	88	13.216	\pm	2.580	F	81.303	<0.001*
	30-40.	104	12.279	\pm	1.861			
	40-50.	120	11.100	\pm	1.064			
	>50	88	9.398	\pm	1.150			
Gender	Male	216	11.884	\pm	2.122	T	3.892	<0.001*
	Female.	184	11.043	\pm	2.190			
Marital status	Single	120	11.483	\pm	1.402	F	94.921	<0.001*
	Married .	164	12.884	\pm	2.160			
	Divorced	64	10.125	\pm	0.984			
	Widow	52	8.846	\pm	1.073			
Department	Radiology	156	12.936	\pm	2.385	F	91.505	<0.001*
	Emergency department	88	11.318	\pm	1.630			
	Radiotherapy	156	10.160	\pm	1.133			
Medical specialty (cadre)	Doctor	84	12.405	\pm	0.933	F	69.638	<0.001*
	Nurse	88	9.852	\pm	2.071			
	Imaging scientist	80	10.850	\pm	1.751			
	Radiographer	64	13.813	\pm	0.889			
	Physicist	40	9.525	\pm	1.281			

	Biomedical engineer	44	12.659	±	2.241			
Length of practice (in years)	<10 Years	160	10.119	±	1.494	T	-11.966	<0.001*
	>10 Years	240	12.417	±	2.100			

Table 4 show regarding age, results show a significant relation between knowledge and age were $F=81.303$ and $P\text{-value}=0.001$, increase (in <30years), the mean +SD were (13.216 ± 2.580) . Regarding gender show a significant relation between knowledge and gender were $T=3.892$ and $P\text{-value}=0.001$ increase in male the mean +SD were (11.884 ± 2.133) . Regarding marital status there is a significant relation between knowledge and marital status were $F=94.921$ and $P\text{-value}=0.001$, increase (in married), the mean+ SD were (12.884 ± 2.160) . Regarding department there is a significant relation between knowledge and department were $F=91.505$ and $P\text{-value}=0.001$, increase (radiology), the mean +SD were (12.936 ± 2.385) . Regarding Medical specialty (cadre) is a significant relation between knowledge and Medical specialty (cadre) were $F=69.638$ and $P\text{-value}=0.001$, increase in (Radiographer), the mean +SD respectively were (13.813 ± 0.889) . Regarding Length of practice (in years) there is a significant relation between knowledge and Length of practice (in years) were $T=-11.966$ and $P\text{-value}<0.001$, increase(>10 Years), the mean +SD respectively were (12.417 ± 2.100) .

DISCUSSION

Nursing is a cornerstone of patient care in hospitals and healthcare facilities, and radiology departments are no exception. With the increasing complexity of medical imaging technologies and the growing demands of patient-centered care, the role of nurses in the radiology workflow has become both critical and multifaceted (25)

Through this study, we aimed to highlight Knowledge of Risks Associated with the Use of Plain X-Ray, among radiographer nurses and health care working in X-Ray department in Public Sector Hospitals at Saudi Arabia 2024, almost half of all ED visits in the Saudi Arabia resulted in at least one imaging examination, and about 1 in 6 patients were ordered to undergo CT One of the foremost barriers to technology adoption in nursing is the inherent resistance to change.(26) radiographer nurses should have a good knowledge of the imaging methods often used.(12) in our study show study included 400 participant, the remaining socio-demographic characteristics of the participant regarding age most of participants 40-50 years were (30.0%) followed by 30-40 years were (26.0%) while the age <30 and >50 year were (22.0%), regarding the gender majority of participants were (54.0%) regarding the department the most of participant radiology were (39.0%) while emergency department were (22.0%) while radiotherapy were (39.0%), regarding medical specialty most of participant nurse were (22.0%) while doctor were (21.0%) but imaging scientist were (20.0%) but the radiographer were (16.0%) (See table 1)

Many radiographer nurses, especially those who have been in the profession for several years, may feel comfortable with established practices and workflows. This resistance often stems from a fear of the unknown; nurses may worry that new technologies could disrupt their routines or complicate their existing knowledge base. For radiological technologies, such as advanced imaging systems or electronic health record (EHR) integrations, there is often an emotional transition required to abandon tried-and-true methods. Consequently, this reluctance can lead to a lack of enthusiasm for training sessions or reluctance to engage with the new technologies, delaying the transition process (30) in our study showed the source of your information on imaging methods the majority of participant answer other were (23.0%) followed by radiological courses or seminars and Specialty training were (20.0%) while individual interest- based research were (19.0%) while medicine school training were (18.0%), regarding routinely consider the risks associated with magnetic resonance imaging for the patient before ordering the majority of participant answer Yes were (60.0%) followed by No were (40.0%) , regarding routinely pay attention to radiation exposure before you order a direct radiography the majority of participant answer Yes were (70.0%) followed by No were (30.0%) (See table 2)

Besides, nurses know the contraindications and experiences necessary to identify them when patients undergo imaging procedures. For example, in patients with certain diseases, claustrophobia, pregnancy, or certain orthopedic problems, nurses can intervene to evaluate possible dangers, report to

the radiology department, and guarantee patient safety at all study stages. The possibility of performing interventions about these risks helps to avoid adverse effects, and the safety of the patient matters, which makes their role very significant. (22) These results are differing from those that we found in the literature. A study conducted in Hong Kong reported that 87.9% of the local patients were unaware of the fact that plain X-rays contain radiations (27). Another study reported similar results, where 34% of participants did not know that imaging may expose them to radiations (20). As opposed to these, a study reported 70.8% of participants showing an overall understanding of the imaging technique that they were undergoing (19). Our study also demonstrated the majority of participant (4.0%0) have average of the knowledge towards risks Associated with the Use of X-Ray followed by (38.0%) of participant high but weak were (22.0%) while Range (7 -18) and Mean \pm SD(11.287 \pm 2.247) X2 23.360 and a significant relation $P=0.001$.(See table 4)

In our study show a significant relation between knowledge and age were $F=81.303$ and $P\text{-value}=0.001$, increase (in <30years), the mean \pm SD were (13.216 \pm 2.580). Regarding department there is a significant relation between knowledge and department were $F=91.505$ and $P\text{-value}=0.001$, increase (radiology), the mean \pm SD were (12.936 \pm 2.385). Regarding Medical specialty (cadre) is a significant relation between knowledge and Medical specialty (cadre) were $F=69.638$ and $P\text{-value}=0.001$, increase in (Radiographer), the mean \pm SD respectively were (13.813 \pm 0.889). (See table 5)

CONCLUSION

The involvement of nursing professionals in the X-ray imaging procedures is very important in that it has a lot of benefits, the following being among them: The involvement of nursing professionals in the X-ray imaging procedures is very important in that it has a lot of benefits, the following being among them: So, the involvement of the nursing professional in X-ray imaging has the following benefits: It is for the reasons mentioned above that the integration of nursing professionals into X-ray imaging has the Several studies have shown that nurses can enhance diagnostic imaging service delivery in some key areas such as patient teaching, placement, and safety observation roles. However, there are some barriers, including inadequate training and lack of clear working roles; if these obstacles are to be resolved, this area of nursing has the potential to be more developed.

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