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RADIOGRAPHERS' KNOWLEDGE AND ATTITUDE TOWARD INFORMED CONSENT

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Abstract: Health professionals are obliged to provide the patient and/or his or her guardian with information about examinations and treatment. In the case of examinations involving the use of ionizing radiation, informed consent is essential to weigh the associated benefits and risks. This study evaluates the knowledge and attitude of radiographers regarding informed consent in the radiology department. It is a descriptive cross-sectional study using an online questionnaire, divided into three sections and containing 19 questions, detailing the demographics, knowledge, and attitude of radiographers. Participant responses were scored between 1 and 3, then calculated and averaged to determine mean scores. Student's t-test was used to determine the statistical significance between means. Mean scores for knowledge and attitudes ranged from 11.60 ±1.72 to 18.73 ±1.84. Radiographers with more experience showed a statistically significant difference (17.45 ±1.23) ($p < 0.00$) with those with less experience (15.34 ±1.52). Twenty-one percent of the respondents did not seek consent from patients prior to examination. This study demonstrated that these professionals are knowledgeable about informed consent; however, more emphasis should be placed on practice by providing training courses and disseminating correct practice.

Keywords: radiographers, radiology, diagnostic imaging, informed consent, knowledge, attitude

Conocimientos y actitud de los radiógrafos hacia el consentimiento informado

Resumen: Los profesionales sanitarios están obligados a facilitar al paciente y/o a su tutor información sobre los exámenes y el tratamiento. En el caso de los exámenes que implican el uso de radiaciones ionizantes, el consentimiento informado es esencial para sopesar los beneficios y riesgos asociados. Este estudio evalúa los conocimientos y la actitud de los radiógrafos en relación con el consentimiento informado en el departamento de radiología. Se trata de un estudio descriptivo transversal en el que se utilizó un cuestionario en línea, dividido en tres secciones y que contenía 19 preguntas, en las que se detallaban los datos demográficos, los conocimientos y la actitud de los radiógrafos. Las respuestas de los participantes se puntuaron entre 1 y 3, y luego se calcularon y promediaron para determinar las puntuaciones medias. Se utilizó la prueba t de Student para determinar la significación estadística entre las medias. Las puntuaciones medias de los conocimientos y las actitudes oscilaron entre 11,60 ±1,72 y 18,73 ±1,84. Los radiógrafos con más experiencia mostraron un mayor nivel de conocimientos y actitudes. Los radiógrafos con más experiencia mostraron una diferencia estadísticamente significativa (17,45 ±1,23) ($p < 0,00$) con los que tenían menos experiencia (15,34 ±1,52). El 21% de los encuestados no solicitó el consentimiento de los pacientes antes de la exploración. Este estudio demostró que estos profesionales tienen conocimientos sobre el consentimiento informado; sin embargo, se debería hacer más hincapié en la práctica impartiendo cursos de formación y difundiendo la práctica correcta.

Palabras clave: radiógrafos, radiología, diagnóstico por imagen, consentimiento informado, conocimientos, actitud

Conhecimento e atitudes de radiologistas sobre consentimento informado

Resumo: Profissionais da saúde são obrigados a fornecer ao paciente ou seu guardião informações sobre exames e tratamentos. No caso de exames envolvendo o uso de radiação ionizante, consentimento informado é essencial para balancear os benefícios e riscos associados. Esse estudo avalia o conhecimento e atitudes de radiologistas a respeito do consentimento informado no departamento de radiologia. É um estudo transversal usando um questionário online, dividido em três seções e contendo 19 perguntas, detalhando a demografia, conhecimento e atitudes de radiologistas. As respostas dos participantes foram classificadas entre 1 e 3, e então calculadas e calculadas as médias para determinar os escores médios. O teste t de Student foi usado para determinar a significância estatística entre as médias. Escores médios para conhecimento e atitudes variaram de 11,60 ±1,72 a 18,73 ±1,84. Radiologistas com mais experiência mostraram uma diferença estatisticamente significante (17.45 ±1.23) ($p < 0.00$) daqueles com menos experiência (15.34 ±1.52). 21% dos respondentes não buscaram consentimento dos pacientes antes do exame. Esse estudo demonstrou que esses profissionais estão cientes do consentimento informado; entretanto, mais ênfase deve ser dada na prática ao fornecer cursos de treinamento e disseminando práticas corretas.

Palavras chave: radiologistas, radiologia, diagnóstico por imagem, consentimento informado conhecimento, atitudes

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Introduction Seeking patient consent and approval before undertaking any medical examination or treatment procedure is a fundamental and ethical requirement for all healthcare practitioners*(1).* Nevertheless, healthcare providers are required to provide the patient and/or his guardian with information regarding examinations and treatment camp*(2)*. For those examinations that involve the use of ionizing radiation and/or radioactive materials for radiotherapeutic purposes, there are additional requirements including, female patients should be asked by both the referring practitioner and those who are responsible for conducting the examination about the possibility of a pregnancy*(3)*. They consider the answer in the choice and justification of the examination or treatment. The patient answers should always be documented within the patient file as well as the request form sent to the radiology department.

Consent should always be sought from the patient or his legal representative prior to medical exposure, each at their level from the referring clinics to the radiology department to ensure that he was informed correctly and in a way that he could understand about the medical radiological procedure, including the benefits and risks associated with medical exposure. In the case of radiotherapeutic procedures and interventional radiology, where an invasive procedure may be carried out, oral communication is not enough. A written consent form should illustrate to the patient the benefit and the risk associated with these types of examinations*(4)*. This written form should then be signed by the patient or his legal representative and retune to the patient file.

In the context of obtaining consent for the radiology examinations, the attending radiologist has the responsibility to ensure that the consent is obtained*(3)*. However, this task can be delegated to the radiographers, especially where no intervention or invasive technique is required. Nevertheless, it should be notice that radiographers have limited time with the patient and might not have seen the patient before their arrival, making it hard for the patient to give consent on such short notice*(5)*. Therefore, those involved in obtaining the consent form should have adequacy in terms of explaining the procedures in simple language that an ordinary can understand and give consent. Nevertheless, the knowledge and skills will have an impact on whether patients have fully understood the procedures and why consent should be obtained in the first place. However, it should be mentioned that at this stage, when the patient has already arrived at the radiology department, the patient feels that it is a waste of time and resources not to just give his/her consent. Hence, those performing the procedures must be knowledgeable and have the right skills to be able to explain the examinations to the patients. This paper determines the knowledge and the practice of the radiographers who are responsible for performing most of the radiological examinations.

Materials and Method

This is a cross-sectional descriptive study using an online questionnaire. Ethical approval was sought from the institutional board (Najran University) before conducting the study. We used a questionnaire that was previously developed and modified some questions to include 19 questions which come in multiple-choice answers*(6)*. The questionnaire is divided into three parts including, firstly, the demographic data such as age, gender, and years of experience. The second section includes questions on the knowledge regarding informed consent while the third section determines the practice of obtaining the consent form before conducting the exam.

This study was conducted between July to August 2022 in 5 hospitals and one undergraduate diagnostic radiology department within Najran city (southern region of Saudi Arabia). Both radiographers and diagnostic radiography students' interns were the study population of this study. The sample included all those who are employed in one of these five hospital or students during the internship year in the undergraduate diagnostic radiology course.

All responses to the questionnaire were coded based on answers either 1, 2, or 3(yes, no, not sure). For the third section, answers were coded into 1, 2, or 3, in which 1 means I never do, while 2 (I do it sometimes) and 3 is always. Then, the scores were averaged in which knowledge and attitude are considered positive when the scores are high and considered negative when the scores

are low. The statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 25. The student *t*-test, as well as the one-way ANOVA test, were used to analyze the data from the second and the third section of the questionnaire in which the confidence level is set at 95% while the P value is considered significant at <.05

Results

The total number of participants was 236 (126 females) radiographers/ diagnostic radiography students with a mean age of 26 ±6.2 years. From the demographic data, it appears that a large proportion of the participant (68%) are within the age range of 23 – 33 years old. additionally, 57% of the radiographers have less than 5 years of experience. Table 1 shows the demographic data for the study population.

The mean scores of the knowledge and attitude are shown in Table 2, which range for the respondents from 11.60 ±1.72 to 18.73 ±1.84. Additionally, respondents holding a postgraduate degree had a greater knowledge of the graduates which was statistically significant (p < 0.00). The mean knowledge score was assessed among the study population about their experience, in which a statistically significant (P < 0.00) was found between those who had 10 years of experience or more (17.45 ±1.23) in comparison to those who had less than 5 years of experience (15.34 ±1.52).

Table 1: Demographic data of the study population

Age (years)	Frequency
23-33	160
34-43	54
>43	22
sex	
Males	110
Females	126
Experiences	
Less than 5 years	134
5- 10 years	78
More than 10 years	24
Qualification	
Bachelors	225
Masters	11

The majority of the study group (92%) appears to be familiar with the consent form. Most of the respondents (72%) had knowledge about the consent form and they ways patients can give their consent. However, 47% were uncertain regarding the consent in the case of those aged between 16- and 18-years old attending without their parents. Only 21% of the respondents were not seeking consent from the patients before the exam, while 62% refer to verbal consent as approval to perform the exam without taking signatures from the patients. Table 3 shows the frequency of the responses to the knowledge and attitude survey.

Table 2: the mean knowledge and attitude scores of the participants in relation to the independent variables

	Attitude scores		Knowledge scores	
Variables	Mean ±SD	P value	Mean ±SD	P value
Age				
23 - 33	18.14 ±1.62		9.11 ±1.73	
34 - 43	18.43 ±1.83		9.34 ±1.69	
>43	18.59 ±1.41	0.12	9.89 ±1.34	0.31
Sex				
Males (110)	18.21 ±1.79		9.62 ±1.31	
Females (126)	18.94 ±1.52	0.22	9.47 ±1.58	0.67
Experiences				
Less than 5 years	18.03 ±1.92		9.06 ±1.65	
5- 10 years	18.46 ±1.68		9.22 ±1.82	
More than 10 years	18.91 ±1.21	< 0.01	9.40 ±1.55	0.14
Qualification				
Bachelors	18.73 ±1.85		9.05 ±1.81	
Masters	19.42 ±1.34	< 0.01	10.11 ±1.57	< 0.01

Table 3: shows the Frequency of responses regarding knowledge, attuited

Statement	Yes	No	Not sure
I know what an informed consent is	203	26	7
I know what verbal consent is	185	30	18
I know what written consent is	193	13	30
I Should take a signature from the patient even if verbal consent is only required	106	41	89
I should take the patient consent before the examination	138	24	74
I should take the patient consent after examination	31	141	64
I should take the consent directly from the patient if his/her age is between 16 and 18	88	101	47
Patients consent is required by the law	174	17	45
I am aware of the Saudi Guideline for Inform Consent	167	50	19
I am aware that informed consent should be on the patient file and should be given to the patient if asked.	112	47	77
Attitude	always	Sometimes	never
I have you been taking consent from the patient	94	129	13
Do you take signatures even if it is a verbal consent?	118	86	32
In non-ionizing radiation exams such ultrasound, do you take consent?	83	97	56
Do you take consent when applying contrast media ?	187	46	3
If patient asks to take a copy of the consent form, do you provide a copy?	142	59	35

Discussion

This study was carried out to determine the knowledge and attitude of radiographers regarding informed consent for radiological procedures. A total of 236 participants from Najran city, the southern region of Saudi Arabia, responded to the questionnaire. To our knowledge, no study to assess such a subject has been carried out within the same district area before.

The study results showed that radiographers who have more experience tend to have more knowledge regarding informed consent. This could be attributed to the fact that patient expands their knowledge about their rights, in which complaints are referred to the patients' rights office when no consent was taken from the patients then involved radiographers are informed*(7)*. Additionally, most of those with more than 10 years of experience are supervisors either currently or previously, which is a complaint for them to be aware of such requirements within the department. Regarding the qualification, the mean knowledge and attitude scores of radiographers holding master's degrees were higher than those with only undergraduate degrees. This is more likely to be due to widening postgraduates students' prospects regarding medical ethics and the importance of respecting patients' decisions including informed consent*(8)*.

The majority of the participants showed their awareness of informed consent through their answers to the first statement. This is in line with different studies assessing the healthcare professionals' knowledge in regard to obtaining consent forms. Although the radiogeology department is relatively different from other clinical settings by providing mainly diagnostic services, receiving any health services remains one of the patient's rights*(9,10)*. It should be notice that within this study, more than 80% of the participants are aware of verbal consent, which is considered one of the practices of taking informed consent. Nevertheless, more than half of the participants take the consent form patients occasionally, which is also

observed in other studies, which can result due to lack of time or negligence from the radiographers.

Informed consent in terms of children is challenging especially in some cases where a patient considered his/herself an adult while in fact is defined as a child by the law*(2,11)*. The majority of the participants will never take consent directly from a patient under the age of 18 years. It should be mentioned that Saudi law encourages healthcare professional to take consent from patients' parents as long as the patient is under the age of 18, which are considered child*(12,13)*. In this study, most of the radiographer is aware of the Saudi guideline for informed consent, however, this might be due to the fact that healthcare professional has to undertake a comprehensive exam according to their specialty before allowing them to work, which makes patients right one of the common subject covered by the exam.

Assessing the knowledge and attuited of the radiographers in this study were based on an online self-report method which provides a comfortable atmosphere for the radiographers. The privacy of the participants was granted by assuring them that ethical approval was obtained before conducting the study and that their responses will only be used for research and improving practices. In this study, the majority of participants appear to be knowledgeable regarding informed consent, however, their attitude toward informed consent might need improvement and more radiographers should be taking the consent form more often. This could be accomplished by introducing training programs to emphasize patient rights and allow radiographers to be more familiar with consent.

Conclusion

Informed consent is ethical and moral before can be a legal requirement. Patients should be known what medical intervention is going through and whether it has a possible complication or not. In radiology departments, radiographers should be able to discuss the exams with the patients and obtain informed consent. This study showed that radiographers are knowledgeable regarding informed consent, however, more emphasis should be placed on the practice through providing training courses and spreading the correct practice among radiographers.

Conflict of interest: None.

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References

1. Nijhawan L, Janodia M, Muddukrishna B, Bhat K, Bairy K, Udupa N, et al. Informed consent: Issues and challenges [Internet]. *Journal of Advanced Pharmaceutical Technology and Research* 2013 [cited 2022 Oct 5]; 4: 134-40. Available from: https://www.japtr.org/article.asp?issn=2231-4040;year=2013;volume=4;issue=3;spage=134;epage=140;aulast=Nijhawan
2. Kaushik JS, Narang M, Agarwal N. Informed consent in pediatric practice. Indian Pediatr 2010 [Internet] 2011 Jan 8 [cited 2022 Oct 5]; 47(12): 1039-46. Available from: https://link.springer.com/article/10.1007/s13312-010-0173-4
3. Baheti AD, Thakur MH, Jankharia B. Informed consent in diagnostic radiology practice: Where do we stand? *Indian J Radiol Imaging* [Internet] 2017 Oct 1 [cited 2022 Oct 5]; 27(4): 517. Available from: /pmc/articles/PMC5761182/
4. Bhutta ZA. Beyond informed consent. *Bull World Health Organ* [Internet] 2004 [cited 2022 Oct 5]; 82: 771-7. Available from: http://www.who.int/bulletin
5. Kelly MJ, Kinnersley P, Phillips K, Savage K, Farrell E, Morgan B, et al. PP34 Interventions to Promote Informed Consent for Invasive Healthcare Procedures: A Cochrane Systematic Review and Meta-Analysis. *J Epidemiol Community Heal* [Internet] 2013 Sep 1 [cited 2022 Oct 5]; 67(Suppl 1): A63-A63. Available from: https://jech.bmj.com/content/67/Suppl_1/A63.1
6. Gupta V V., Bhat N, Asawa K, Tak M, Bapat S, Chaturvedi P. Knowledge and attitude toward informed consent among private dental practitioners in Bathinda city, Punjab, India. *Osong Public Heal Res Perspect* [Internet] 2015; 6(2): 73-8. DOI: http://dx.doi.org/10.1016/j.phrp.2014.12.005
7. Agu KA, Obi EI, Eze BI, Okenwa WO. Attitude towards informed consent practice in a developing country: A community-based assessment of the role of educational status. *BMC Med Ethics* [Internet] 2014 Oct 22 [cited 2022 Oct 5]; 15(1): 1-8. Available from: https://bmcmedethics.biomedcentral.com/articles/10.1186/1472-6939-15-77
8. Schouten BC, Eijkman MAJ, Hoogstraten J, Den Dekker J. Informed consent in Dutch dental practice: knowledge, attitudes and self-efficacy of dentists. *Patient Educ Couns*. 2001 Feb 1; 42(2): 185-92.
9. O'neill O. Some limits of informed consent. *Elder Leg Ethical Issues Healthc Policy* [Internet] 2017 Jan 1 [cited 2022 Oct 5]; 103-6. Available from: https://www.taylorfrancis.com/chapters/edit/10.4324/9781315240046-9/limits-informed-consent-neill
10. Thannhauser RE, Morris ZA, Gamble N. Informed Consent, Confidentiality, and Practitioner Disclosure in Therapeutic Work with Youth: A Systematic Review of Practitioners' Perspectives. *Adolesc Res Rev* [Internet] 2022 Sep 1 [cited 2022 Oct 5]; 7(3): 355-82. Available from: https://link.springer.com/article/10.1007/s40894-021-00173-2
11. Picano E. Informed consent and communication of risk from radiological and nuclear medicine examinations: How to escape from a communication inferno [Internet]. *British Medical Journal. British Medical Journal Publishing Group* 2004 [cited 2021 Dec 16]; 329: 849-51. Available from: https://www.bmj.com/content/329/7470/849
12. The Saudi Commission for Health Specialties. *Code of Ethics for Healthcare Practitioners. Saudi Comm Heal Spec* [Internet] 2014 [cited 2021 Dec 16]; 60.
13. Ministry of Health. *Saudi Guidelines for Informed Consent*. 2019.

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