



## JOURNAL OF RADIOGRAPHY AND RADIATION SCIENCES



### ROLE EXTENSION TO FILM REPORTING: HOW COMPLIANT ARE RADIOGRAPHERS IN THE SOUTHEASTERN NIGERIA?

<sup>1</sup>Abubakar Umar\*<sup>ID</sup>, <sup>2</sup>Johnson U. S <sup>2</sup>Ugwu A C, <sup>3</sup>Adamu Y

<sup>1</sup>Department of Radiography, Faculty of Allied Health Sciences, College of Health Sciences, Usmanu Danfodiyo University, Sokoto Nigeria

<sup>2</sup>Department of Radiography and Radiological Science, Faculty of Health Sciences and Technology, Nnamdi Azikiwe University, Nnewi Campus, Nigeria.

<sup>3</sup>Department of Medical Radiography, Faculty of Radiography and Applied Health Sciences, College of Health Sciences, Federal University of Lafia, Nasarawa State, Nigeria.

Correspondence: [umar.abubakar5@udusok.edu.ng](mailto:umar.abubakar5@udusok.edu.ng)

<https://doi.org/10.82547/jrrs/2026/EXKK9434>

#### Article info

First Submission  
7<sup>th</sup> September 2025

Revised  
10<sup>th</sup> October 2025

Accepted  
21<sup>st</sup> December 2025

#### ABSTRACT

**Background:** Role extension in radiography, particularly participation in image interpretation and film reporting, has been adopted in several healthcare systems to improve service delivery and address workforce shortages. In Nigeria, radiographers increasingly undertake extended roles, yet the level of compliance with film reporting practices and the contexts in which these roles are performed remain insufficiently documented.

**Objective:** This study aimed to evaluate the extent of radiographers' involvement in X-ray film reporting as part of role extension and to assess patterns of compliance among practicing radiographers in South-Eastern Nigeria.

**Methods:** A cross-sectional survey design was employed. Data were collected using a structured, self-administered questionnaire distributed electronically to practicing radiographers who met predefined inclusion criteria. The questionnaire assessed demographic characteristics, training in image interpretation, involvement in film reporting, practice setting, and perceptions of role extension. Data were analyzed using the Statistical Package for Social Sciences (SPSS), and results were summarized using descriptive statistics.

**Results:** Findings revealed that a proportion of radiographers were actively involved in X-ray film reporting, with higher participation observed in private healthcare facilities compared to public institutions. Involvement was more common among radiographers who had received formal or informal training in image interpretation. However, variability in compliance with structured reporting practices and institutional support was identified.

**Conclusion:** Radiographers in South-Eastern Nigeria demonstrate growing involvement in film reporting as part of role extension, particularly in private practice. Structured training, professional recognition, and policy support are recommended to strengthen compliance and ensure safe, standardized implementation of extended reporting roles.

**Keywords:** Radiography; Role extension; Film reporting; Image interpretation; Nigeria

## Introduction

Medical imaging plays a central role in modern healthcare, influencing clinical decision-making, patient management, and treatment outcomes [1]. Radiographers, as frontline imaging professionals, are integral to this process through their responsibility for image acquisition, patient positioning, radiation protection, and quality assurance [2]. Over time, the scope of radiography practice has expanded in response to increasing service demands, workforce shortages, technological advancements, and evolving healthcare delivery models [3]. This expansion has given rise to the concept of role extension within diagnostic radiography.

Role extension in radiography refers to the structured expansion of professional responsibilities beyond traditional boundaries, particularly into areas historically reserved for radiologists [4, 5]. One of the most prominent forms of role extension is radiographer involvement in image interpretation and reporting, especially of plain radiographs [6]. Globally, rising imaging volumes and shortages of radiologists have placed significant pressure on diagnostic services, leading to reporting backlogs and delayed clinical decisions [6, 7, 8]. In response, several healthcare systems have adopted extended radiographer roles as a pragmatic and evidence-based solution to improve service efficiency.

In developed healthcare systems such as those in the United Kingdom, Australia, and parts of Europe, radiographer reporting has been formally integrated into clinical practice [9, 10, 11, 12]. These roles are supported by postgraduate education, competency-based training, professional accreditation, and robust clinical governance structures [9, 13, 14, 15, 16]. Empirical evidence from these settings indicates that trained reporting radiographers demonstrate high levels of diagnostic accuracy, comparable to radiologists in selected imaging examinations [6, 17, 19, 20]. The benefits of such role expansion include reduced turnaround times, improved patient flow, enhanced interprofessional collaboration, and optimized use of the radiology workforce [5, 21, 22, 23].

Despite these global advancements, the adoption of radiographer role extension remains uneven across low- and middle-income countries. In Nigeria, the radiography workforce continues to face challenges related to limited manpower, uneven distribution of radiologists, and increasing demand for imaging services [24]. In many healthcare facilities, particularly in rural areas and private diagnostic centres, radiographers are frequently required to provide informal image interpretation or preliminary opinions to referring clinicians [26]. This practice often occurs in the absence of formal training, legal recognition, or standardized reporting frameworks.

The informal nature of radiographer involvement in film reporting in Nigeria raises important professional, ethical, and patient safety concerns. Without clearly defined policies, regulatory guidance, and structured educational pathways, there is a risk of variability in reporting quality and accountability [9]. At the same time, the continued reliance on radiographers for interpretative input suggests an unmet clinical need that may warrant structured role extension rather than informal practice. Understanding how radiographers currently engage in film reporting, and the extent to which such practices align with professional standards, is therefore essential [22].

However, there is a paucity of empirical data documenting radiographers' involvement in X-ray film reporting and their compliance with acceptable reporting practices in Nigeria. Existing literature has largely focused on role extension in high-income settings, with limited attention to the realities of practice in resource-constrained environments [25]. This gap in evidence limits informed decision-making by professional bodies, educators, and policymakers regarding training requirements, regulation, and the safe expansion of radiography roles.

Against this background, the present study seeks to evaluate radiographers' involvement in X-ray film reporting as a form of role extension and to assess compliance patterns among radiographers practicing in South-Eastern Nigeria. By generating empirical evidence on current practices, this study aims to contribute to the body of knowledge required to guide

policy formulation, curriculum development, and professional regulation. Ultimately, the findings may support evidence-based discussions on the structured integration of reporting roles within diagnostic radiography practice in Nigeria, with a focus on patient safety, professional competence, and healthcare system efficiency.

## Methods

This study adopted a cross-sectional survey design to assess the participation of radiographers in X-ray film reporting as part of role extension practice in South-Eastern Nigeria. The study was conducted across Anambra, Abia, Ebonyi, Enugu, and Imo States, selected due to the availability of both public and private radio-diagnostic facilities and a relatively high concentration of practicing radiographers. The study population comprised qualified and registered radiographers practicing in these states, and only those with valid practicing licenses at the time of the study were eligible to participate. A convenience sampling technique was employed, and a total of one hundred radiographers who consented to participate were recruited. Inclusion criteria required that participants be qualified and registered radiographers currently practicing in Nigeria, possess a valid practicing license, have basic or advanced training in X-ray film interpretation, and consent to participate, while radiographers who did not meet these criteria or

declined participation were excluded. Data was collected using a semi-structured, self-administered questionnaire adapted from a previous study by Gqweta [7], designed in line with the objectives of the study. The questionnaire consisted of two sections: Section A collected socio-demographic information including age, sex, year of graduation, highest academic qualification, years of professional experience, and place of employment, while Section B assessed involvement in X-ray film reporting, training in image interpretation, understanding of role extension, and recommendations for improving role extension practice. One hundred copies of the questionnaire were distributed through direct physical distribution and online platforms, and completion and return of the questionnaire implied informed consent. Ethical principles of confidentiality and anonymity were strictly observed, as no identifying information was collected from participants, and respondents were adequately informed about the purpose of the study through an accompanying cover letter. Data obtained from completed questionnaires were coded and analyzed using the Statistical Package for Social Sciences (SPSS), with descriptive statistics of frequency counts and percentages used for data analysis, while results were presented using tables and bar charts where appropriate.

Table 1: Socio-demographic Characteristics of Respondents (n = 100)

Variable	Category	Frequency	Percentage (%)
Sex	Male	51	51.0
	Female	49	49.0
Age (years)	21–25	11	11.0
	26–30	30	30.0
	31–35	35	35.0
	36–40	12	12.0
	>40	12	12.0
Year of graduation	1990–2000	7	7.0
	2001–2010	35	35.0
	2011–2020	33	33.0
	2021–date	25	25.0
Highest qualification	DCR/DIR	25	25.0
	BSc	72	72.0
	MSc	3	3.0
Years of experience	0–5	39	39.0
	6–10	24	24.0

	11–15	18	18.0
	16–20	13	13.0
	≥21	6	6.0
Institution	Private	55	55.0
	Government	45	45.0

Table 2: Frequency of Providing Opinions on Radiographs by Gender and Institution

Frequency of opinion	Male (Private)	Male (Government)	Female (Private)	Female (Government)
Never	6	3	2	7
Rarely	6	4	5	7
Sometimes	12	5	7	6
Often	6	1	2	2
Always	6	2	3	8

Table 3: Preferred Mode of Commenting on Radiographic Findings

Mode of comment	Frequency	Percentage (%)
<b>Verbal</b>	<b>60</b>	<b>60.0</b>
<b>Written</b>	<b>17</b>	<b>17.0</b>
<b>None</b>	<b>23</b>	<b>23.0</b>

Table 4: Anatomical Areas Where Comments Were Most Frequently Requested

Anatomical area	Frequency	Percentage (%)
Trauma (extremities)	69	69.0
Skull	70	70.0
Chest	58	58.0
Spine	60	60.0
Abdomen	61	61.0
Pelvic girdle	60	60.0

Table 5: Reasons for Providing Opinions on Radiographic Findings

Reason	Day duty n (%)	Night duty n (%)
To attend to emergencies	11 (16.0)	3 (20.0)
Makes work faster	5 (8.0)	2 (13.0)
Better patient management	36 (57.0)	8 (53.0)
Lack of confidence	6 (10.0)	2 (13.0)
No specific reason	5 (8.0)	0 (0.0)

Table 6: Basis for Priority in Reporting Across Anatomical Regions

Basis of priority	Frequency	Percentage (%)
Based on undergraduate teaching	63	63.0
Based on personal research	27	27.0
No stated reason	10	10.0

Table 7: Acquisition of Image Interpretation Skills and Recommended Improvement Strategies

Source of skill	Frequency	Percentage (%)
Experience through practice	48	48.0
Personal reading	33	33.0
University courses	17	17.0
Postgraduate training	2	2.0

**Discussion:**

This study demonstrates that radiographers in South-Eastern Nigeria are actively involved in X-ray film reporting, particularly within private health facilities, and that this involvement is largely informal and

predominantly verbal. These findings align with earlier reports from Nigeria and other low- and middle-income settings, which have shown that radiographers often contribute to image interpretation in response to workforce shortages and service pressures, especially

where radiologists are few or absent [26]. Like the present study, Ekpo et al. reported that Nigerian radiographers frequently provide opinions on radiographic findings in private practice, although such practices are rarely formalized or regulated [27].

The predominance of trauma-related examinations, especially extremity radiographs, as the most common area where radiographers' opinions were sought is consistent with international evidence [28]. Studies from the United Kingdom have shown that radiographer reporting initially developed and gained acceptance in skeletal trauma imaging because of its high volume, relatively standardized patterns, and demonstrable reporting accuracy following appropriate training [29]. The present findings suggest that a comparable practice pattern is emerging locally, albeit without the structured postgraduate training and credentialing frameworks that characterize practice in developed settings.

The strong preference for verbally overwritten reporting observed in this study contrasts with established practice in countries where radiographer reporting is formally integrated into clinical governance structures. In such settings, radiographers are trained and authorized to produce written diagnostic reports that form part of the patient record [17]. The reliance on verbal communication in the current study may reflect institutional restrictions, medico-legal concerns, and limited confidence in formal reporting, particularly among radiographers without advanced qualifications. This difference underscores the need for regulatory clarity and standardized training pathways to support safe expansion of radiographer-led reporting.

Undergraduate education and experiential learning emerged as the primary sources of image interpretation skills among respondents, a finding that mirrors earlier Nigerian studies which highlighted gaps between undergraduate training and the demands of extended clinical roles [29]. In contrast, evidence from the United Kingdom and Australia indicates that postgraduate education and competency-based assessments are central to successful role extension in reporting [30, 31].

## Conclusion

This research found that many radiographers are already involved in X-ray film reporting, especially in private hospitals, and they support expanding their roles in this area. They often give verbal opinions to help with emergencies and patient management. However, they feel they need more formal training. The study recommends that universities and professional boards should create more postgraduate courses and update the radiography curriculum to include proper training in film reporting. This would help standardize the practice, improve the quality of reports, and better support the healthcare system in Nigeria.

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