RESEARCH PROPOSAL

ON

ASSESSMENT OF UNIVERSITY OF BENIN STUDENTS' KNOWLEDGE ON THE ROLE OF RADIOGRAPHERS IN HEALTHCARE (CASE STUDY: FACULTY OF LAW)

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CERTIFICATION

This is to certify that the seminar topic "**ASSESSMENT OF UNIVERSITY OF BENIN STUDENT'S KNOWLEDGE ON THE ROLE OF RADIOGRAPHERS IN HEALTHCARE (CASE STUDY: FACULTY OF LAW)"** was written by **Ekemezie Chinwike** with the Matriculation Number **BMS2009074** in partial fulfillment of the award of the Bachelor of Radiography (B.Rad) degree.

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Project Title: ASSESSMENT OF UNIVERSITY OF BENIN STUDENT'S KNOWLEDGE ON THE ROLE OF RADIOGRAPHERS IN HEALTHCARE (CASE STUDY: FACULTY OF LAW)

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DEDICATION

I dedicate my academic journey and every challenge I overcame to my beloved parents and siblings,whose unwavering support, love, and encouragement have been the foundation of my purpose and success.

ACKNOWLEDGEMENT

With heartfelt gratitude, I thank Almighty God for His endless grace, guidance, and strength that sustained me throughout this project. I am deeply grateful to my respected supervisor, **Mrs. Osarugue V. Mogbeyiteren,** for her unwavering patience, insightful guidance, and invaluable support that significantly shaped the outcome of this work. My profound appreciation goes to my beloved parents and siblings, whose constant encouragement, sacrifices, and belief in my abilities have been the foundation of my academic journey. I am equally thankful to my cherished friends for their steadfast support, companionship, and motivation, which inspired me to push forward. Their collective love and encouragement have been my greatest strength, and for this, I will forever be grateful.

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ABSTRACT

Background: Radiographers play a vital role in healthcare, utilizing imaging technologies to support accurate diagnosis and treatment. However, non-medical students, such as those in law, may lack comprehensive knowledge of radiographers' responsibilities, potentially hindering interdisciplinary collaboration and effective healthcare advocacy.

Aim: This study aimed to assess the knowledge of University of Benin Faculty of Law students regarding the role of radiographers in healthcare and to identify factors influencing their awareness.

Methods: A descriptive cross-sectional survey was conducted among 310 undergraduate law students at the University of Benin, using a structured questionnaire adapted from validated health literacy tools. The questionnaire assessed demographic data, knowledge of radiographers' roles, and sources of health information. Data were analyzed using SPSS version 25, employing descriptive statistics (frequencies, percentages, means) and chi-square tests to examine associations between demographic factors and knowledge levels at a 0.05 significance level.

Results: The findings revealed a high level of knowledge among respondents, with a mean knowledge score of 85.02% (SD = 22.70), and 77.1% classified in the "good" knowledge category. A significant association was found between year of study and knowledge levels (χ^2 = 21.838, p = 0.0052), with senior students demonstrating greater awareness. Gender showed a marginal association (χ^2 = 5.847, p = 0.0538). Informal sources, such as media and peers, were the primary information channels, highlighting limited formal educational exposure.

Conclusion: University of Benin law students exhibit substantial knowledge of radiographers' roles, though reliance on informal sources suggests potential inaccuracies. Integrating health literacy modules into non-medical curricula and promoting inter-professional education could enhance understanding and foster collaboration. Targeted interventions for lower-level students and public awareness campaigns are recommended to ensure accurate knowledge and support future healthcare advocacy.

Keywords: Radiographers, Health Literacy, Law Students, Knowledge assessment, inter-professional collaboration, University of Benin.

CHAPTER ONE: INTRODUCTION

1.1 Background of Study

Radiography is a critical component of modern healthcare, involving the use of imaging technologies such as X-rays, computed tomography (CT), and magnetic resonance imaging (MRI) to facilitate accurate diagnosis and treatment of medical conditions. Radiographers, also referred to as radiology technologists, are allied health professionals responsible for operating sophisticated imaging equipment, ensuring patient safety, and producing high-quality diagnostic images (Wikipedia Contributors, 2019). Their role extends beyond technical expertise to include patient care, radiation safety, and collaboration with other healthcare professionals, making them indispensable in interdisciplinary healthcare teams (Brady et al., 2022).

The integration of radiographers into the healthcare system underscores the need for widespread understanding and appreciation of their role, particularly among future professionals who will interact with radiographers in clinical settings. Non-medical students, such as those in the Faculty of Law at the University of Benin, represent a unique population whose knowledge and perceptions of radiography can influence interdisciplinary collaboration and healthcare policy advocacy. As legal professionals, law students may engage with healthcare systems in areas such as medical litigation, health policy, or patient rights, making their understanding of radiography particularly relevant.

However, studies indicate that non-medical students often lack comprehensive knowledge about the technical, safety, and professional responsibilities of radiographers (Farajollahi et al., 2014; Grimm et al., 2021). This knowledge gap can lead to misconceptions about the profession, potentially undermining effective

collaboration and contributing to the inappropriate utilization of imaging services, which increases healthcare costs (Brady et al., 2022). Addressing these gaps through targeted educational interventions is essential for fostering informed perspectives and promoting the value of radiographers in healthcare delivery.

The University of Benin, a prominent institution in Nigeria, provides a unique context for this study. With a diverse student population, including those in non-medical disciplines like law, the institution offers an opportunity to explore how students outside the health sciences perceive the role of radiographers. The Faculty of Law, in particular, is an ideal case study due to its distinct academic focus, which contrasts with medical disciplines yet intersects with healthcare through legal and ethical considerations. Understanding the knowledge and perceptions of these students can inform educational strategies to enhance interdisciplinary awareness and collaboration, ultimately improving healthcare outcomes.

This study aims to assess the knowledge of University of Benin law students regarding the role of radiographers in healthcare, identify gaps in their understanding, and propose educational strategies to address these deficiencies. By focusing on a non-medical student population, the research seeks to contribute to the broader discourse on inter-professional education and the promotion of radiography as a vital healthcare profession.

1.2 Statement of Problem

The role of radiographers in healthcare is often underappreciated or misunderstood by non-medical students, leading to potential challenges in interdisciplinary collaboration and healthcare delivery. Research indicates that non-medical students, including those

in law, may lack adequate knowledge about the technical expertise, safety protocols, and patient care responsibilities of radiographers (Farajollahi et al., 2014).

This knowledge deficit can result in misconceptions about the profession, undervaluation of radiographers' contributions, and inefficient use of imaging services, which may increase healthcare costs and compromise patient outcomes (Brady et al., 2022).

At the University of Benin, law students represent a critical group whose understanding of radiography could influence their future roles in healthcare-related legal practice, policy development, or advocacy. However, there is limited research on the specific knowledge and perceptions of this population regarding radiographers' roles. Without targeted educational interventions, these students may remain unaware of the critical contributions of radiographers, potentially hindering effective collaboration in healthcare settings. This study seeks to address this gap by evaluating the knowledge of University of Benin law students and proposing strategies to enhance their understanding of radiography.

1.3 Research Questions

To guide the investigation, the following research questions are proposed:

1. What is the level of knowledge among University of Benin Faculty of Law students regarding the role of radiographers in healthcare?
2. What factors influence their knowledge and perceptions of radiographers' roles?

1.4 Hypotheses

Based on the research questions, the following hypotheses are formulated:

- $H0_1$: There is no significant knowledge gap among University of Benin Faculty of Law students regarding the role of radiographers in healthcare.

- $H1_1$: There is a significant knowledge gap among University of Benin Faculty of Law students regarding the role of radiographers in healthcare.

- $H0_2$: Demographic factors (e.g., gender, year of study) do not significantly influence students' knowledge of radiographers' roles.

- $H1_2$: Demographic factors significantly influence students' knowledge of radiographers' roles.

1.5 Aim and Objectives

The primary aim of this study is to assess the knowledge of University of Benin Faculty of Law students regarding the role of radiographers in healthcare. To achieve this, the following objectives are set:

1. To determine the level of awareness among law students about radiographers' roles, including diagnostic imaging, radiation safety, and patient care.
2. To identify factors influencing their knowledge and perceptions, such as gender, year of study, and sources of health information.
3. To explore the implications of their knowledge level for healthcare advocacy, inter professional collaboration, and future legal practices related to healthcare.

1.6 Significance of Study

This study is significant as it addresses a gap in the literature on the level of health literacy among non-medical university students in Nigeria, particularly law students. By assessing their knowledge on radiographers, the study can highlight areas for improvement and inform educational interventions to enhance awareness. This is crucial in a context where healthcare professions often face under-recognition, and

law students, as future legal professionals, could play a role in advocating for better healthcare policies and patient rights.

The findings may also guide curriculum developers in integrating health literacy modules into non-medical programs, fostering a more holistic education for future leaders.

1.7 Scope of Study

The study is limited to undergraduate students in the Faculty of Law at the University of Benin during the 2024/2025 academic session. It focuses on their knowledge of radiographers' roles, including diagnostic, therapeutic, and patient care responsibilities, and explores influencing factors like gender and year of study. The results may not generalize to other faculties or institutions, but they provide a focused case study for understanding health literacy in a specific context.

1.8 Operational Definitions

To ensure clarity, the following terms are defined:

- Radiographer: A healthcare professional trained to perform diagnostic imaging and therapeutic procedures using radiation and imaging technologies.
- Knowledge: The understanding and awareness of law students about radiographers' roles, measured through a structured questionnaire.
- Healthcare: The system of services aimed at promoting, maintaining, or restoring health, including diagnostic and therapeutic interventions.
- Faculty of Law: The academic unit at UNIBEN offering undergraduate programs in legal studies.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

Radiography is a specialized field within healthcare that involves the use of imaging technologies to diagnose and treat medical conditions. Radiographers, also known as radiology technologists, are trained professionals who operate equipment such as X-ray machines, CT scanners, and MRI systems to produce diagnostic images (Wikipedia Contributors, 2019). Their responsibilities encompass patient care, radiation safety, image production, and interdisciplinary collaboration, making them integral to the diagnostic process (Brady et al., 2022).

The role of radiographers is multifaceted, requiring technical proficiency, anatomical knowledge, and strong communication skills. Radiographers ensure patient comfort during imaging procedures, implement radiation protection protocols, and collaborate with radiologists and other healthcare professionals to interpret results and develop treatment plans (mubashir, 2024). Advances in imaging technology have further expanded their role, enabling more precise diagnoses and enhancing patient outcomes (Brady et al., 2022).

Despite their critical contributions, radiographers are often misunderstood by those outside the medical field, including non-medical students. Non-medical students, such as those studying law, may perceive radiography as a purely technical process, overlooking the complex knowledge and skills required (Harthoorn et al., 2024). This misconception can lead to undervaluation of the profession and hinder effective collaboration in healthcare settings (Farajollahi et al., 2014).

Inter professional collaboration is a cornerstone of modern healthcare, emphasizing the need for all professionals, including radiographers, to work cohesively to improve patient care. Radiographers play a pivotal role in this collaboration by providing critical diagnostic information that informs clinical decisions (Stogiannos et al., 2025). However, limited exposure to radiography among non-medical students can result in knowledge gaps that impede effective teamwork (Grimm et al., 2022021). Addressing these gaps through education is essential for fostering interdisciplinary understanding and promoting the value of radiographers.

2.2 Empirical Review

Empirical studies have highlighted significant gaps in non-medical students' knowledge of radiography. Farajollahi et al. (2014) conducted a questionnaire survey to assess radiographers' professional knowledge regarding imaging parameters and safety issues.

The study found that non-medical students often lack awareness of the technical and safety aspects of radiography, leading to misconceptions about the profession's complexity. Similarly, Grimm et al. (2021) explored medical students' perceptions of radiology and found that stereotypes and limited exposure contributed to undervaluation of radiographers' roles, a trend likely applicable to non-medical students.

Harthoorn et al. (2024) conducted a qualitative exploration of radiology education for medical students, revealing that educational backgrounds significantly influence students' perceptions of radiography. The study utilized semi-structured interviews and focus groups, identifying barriers such as limited exposure to radiography in curricula and recommending earlier integration of radiology education to enhance understanding. These findings suggest that non-medical students, with even less

exposure to healthcare disciplines, may face similar challenges in understanding radiographers' roles.

Brady et al. (2022) emphasized the evolving role of radiologists and radiographers in healthcare, noting that technological advancements have increased the demand for skilled radiographers. However, the study highlighted that knowledge gaps among non-medical professionals can lead to over-utilization of imaging services, increasing healthcare costs. This underscores the need for educational interventions to improve awareness among non-medical students.

A cross-sectional survey by Mahlknecht et al. (2024) examined attitudes toward career choice among medical students and residents, finding that professions with promising futures, such as radiography, are often undervalued due to lack of awareness. The study recommended increasing exposure to allied health professions in educational settings to enhance appreciation and interest. Similarly, McNulty et al. (2021) explored international perspectives on radiography education, advocating for problem-based learning and inter-professional education to address knowledge gaps and prepare students for collaborative practice.

van de Venter et al. (2023a, 2023b) evaluated an artificial intelligence education program for radiographers, using participatory action research to assess its impact. The study found that students' educational backgrounds influenced their perceptions of radiography, with those from non-medical disciplines showing lower confidence in understanding radiology concepts. These findings highlight the need for tailored educational strategies to address the diverse needs of non-medical students.

2.3 Theoretical Review

The study is grounded in the Social Cognitive Theory (SCT) proposed by Bandura (1986), which emphasizes the role of observational learning, self-efficacy, and

environmental influences in shaping behavior and knowledge acquisition. According to SCT, individuals learn through observing others, modeling behaviors, and receiving feedback, which can influence their understanding of professional roles such as radiography. In the context of this study, law students' knowledge of radiographers' roles is shaped by their exposure to healthcare settings, educational curricula, and interactions with medical professionals. Limited exposure to radiography may reduce their self-efficacy in understanding the profession, leading to knowledge gaps and misconceptions.

The Inter-professional Education (IPE) Framework (World Health Organization, 2010) provides another theoretical lens for this study. IPE emphasizes collaborative learning among students from different disciplines to foster mutual understanding and teamwork in healthcare. By integrating radiography education into non-medical curricula, such as law, IPE can enhance students' appreciation of radiographers' roles and promote interdisciplinary collaboration. This framework supports the study's objective of recommending educational interventions to address knowledge gaps among law students.

The Knowledge Gap Hypothesis (Tichenor et al., 1970) is also relevant, suggesting that individuals with lower educational exposure to a subject, such as radiography, are likely to have greater knowledge gaps compared to those with more exposure. For law students, limited access to healthcare-related education may exacerbate misconceptions about radiographers, underscoring the need for targeted interventions to bridge these gaps.

Together, these theories provide a robust framework for understanding how knowledge, perceptions, and educational interventions shape non-medical students' understanding of radiography. By applying these theories, the study aims to identify

effective strategies for enhancing knowledge and fostering interdisciplinary collaboration.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Setting

The study was conducted at the University of Benin, located in Benin City, Edo State, Nigeria, specifically targeting the Faculty of Law at the Ugbowo Campus. This faculty, one of UNIBEN's oldest, offers a five-year Bachelor of Laws (LL.B) program and has a diverse student population, making it an ideal setting for this research. The campus provides accessible lecture halls and student common areas, facilitating data collection.

3.2 Study Design

A descriptive cross-sectional study design was adopted to assess the knowledge of law students regarding radiographers' roles. This design is suitable for capturing a snapshot of participants' awareness at a specific time, allowing for quantitative analysis of knowledge levels and influencing factors. It aligns with similar studies on health literacy, such as Kühn et al. (2022), which used cross-sectional surveys to evaluate university students' health knowledge.

3.3 Target Population

The target population comprises approximately 1,200 undergraduate students enrolled in the Faculty of Law, UNIBEN, during the 2024/2025 academic session. This includes students from 100 to 500 levels, excluding postgraduate students to maintain focus on undergraduate knowledge and ensure relevance to the study's objectives.

3.4 Sampling Technique/Size

To ensure representation across all academic levels, a stratified random sampling technique was used, stratifying by year of study (100, 200, 300, 400, and 500 levels). The sample size will be calculated using Yamane's formula (1967):

$n = N / (1 + N \ (e^2))$

Where:

- N = Population size (1,200)

- e = Margin of error (0.05)

Substituting the values:

$n = 1200 / (1 + 1200 * (0.05^2))$

$= 1200 / (1 + 1200 * 0.0025)$

$= 1200 / (1 + 3)$

$= 1200 / 4$

$= 300$

Thus, a sample size of 300 students will be selected, with 60 students randomly chosen from each academic level to ensure equal representation and account for potential non-response.

3.5 Data Collection Instrument

A structured, self-administered questionnaire was developed, adapted from validated tools used in health literacy studies (e.g., Suri et al., 2016). The questionnaire consists of three sections:

1. Demographic Data: Including age, gender, and year of study to analyze potential influencing factors.

2. Knowledge Assessment: Comprising 20 multiple-choice and Likert-scale questions on radiographers' roles, such as their involvement in diagnostic imaging, radiation safety, and patient care.

3. Influencing Factors: Including open-ended and Likert-scale questions on sources of health information (e.g., media, courses, family) and perceptions of radiographers.

The questionnaire will be pretested among 20 non-law students to refine clarity, relevance, and comprehensibility, ensuring it aligns with the study's objectives.

3.6 Validity of Instrument

Content validity was ensured by having the questionnaire reviewed by two radiography lecturers and a health education expert from UNIBEN. Their feedback will confirm that the questions accurately measure the intended knowledge and cover all relevant aspects of radiographers' roles. A pilot study will further validate the instrument's clarity and appropriateness, addressing any ambiguities before full-scale data collection.

3.7 Reliability of Instrument

To assess the internal consistency of the knowledge items, Cronbach's alpha reliability analysis was conducted. A total of 14 items were included in the reliability test. The result yielded a Cronbach's alpha of 0.889, indicating high internal consistency. This means that the items are reliably measuring the same underlying construct—students' knowledge of radiographers' roles in healthcare.

Statistic	Value
Number of items (k)	14
Cronbach's alpha	0.889
Sum of item variances	1.770
Variance of total score	10.100

The obtained alpha (0.889) exceeds the recommended threshold of 0.70 (Nunnally, 1978), confirming that the instrument is reliable for assessing students' knowledge in this study.

3.8 Data Collection Method

Data collection occurred over two weeks during lecture hours to maximize participation rates. After obtaining ethical approval and informed consent, trained research assistants will distribute the questionnaires in lecture halls and student common areas. Participants will complete the questionnaires within 15–20 minutes, and completed forms will be collected immediately to ensure high response rates and minimize data loss.

3.9 Data Analysis

Data was analyzed using SPSS version 25. Descriptive statistics, including frequencies, percentages, and means, will summarize demographic data and knowledge levels. Inferential statistics, such as chi-square tests, examined associations between demographic factors (e.g., gender, year of study) and knowledge levels, testing the hypotheses. A p-value <0.05 indicated statistical significance, ensuring robust analysis of the data.

3.10 Ethical Considerations

Ethical approval was obtained from the UNIBEN Research Ethics Committee to ensure compliance with institutional standards. Informed consent was obtained from participants, emphasizing voluntary participation and the right to withdraw without consequences. Anonymity was maintained by excluding identifiable information from questionnaires, and data was stored securely on a password-protected computer, accessible only to the research team. Participants will be informed that results may be published, but their identities will not be disclosed, aligning with ethical research practices.

CHAPTER FOUR

RESULTS

4.1 Presentation of Results

This chapter presents the results of the statistical analysis conducted to assess University of Benin Faculty of Law students' knowledge of the role of radiographers in healthcare. Analysis was performed on the survey data collected using the structured questionnaire described in Chapter Three. The analyses include descriptive statistics (frequencies, percentages, means, standard deviations), item-level response patterns, an aggregate knowledge score and categorization, and inferential tests to examine associations between demographic variables and knowledge.Sample characteristics

A total of 310 respondents completed the questionnaire and were included in the analysis. The sample size therefore exceeds the target sample size of 300 set out in the methodology (Yamane’s formula), giving sufficient power for descriptive and bivariate analyses. The demographic breakdown of respondents is summarized below. Respondents were classified by gender.

Table 4.1 shows the distribution of respondents by gender.

Gender	Frequency
Female	162
Male	148

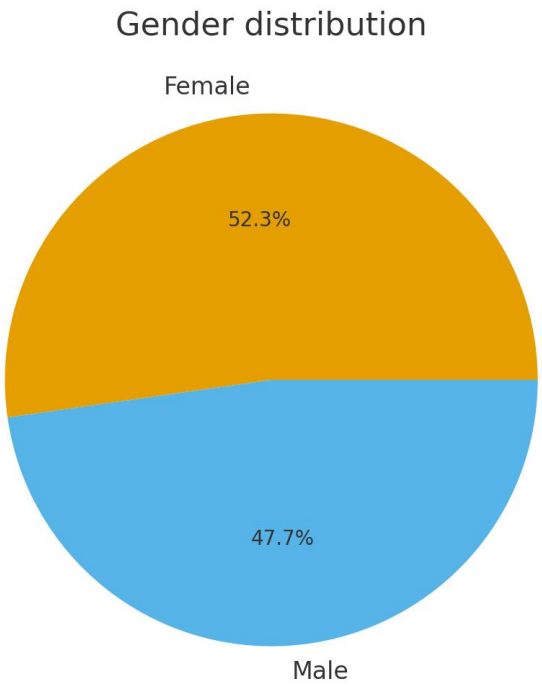

Figure 4.1 shows the gender distribution as a pie chart.

Respondents' year of study (level) is presented in Table 4.2.

Year/Level	Frequency
100	53
200	67
300	66
400	63
500	61

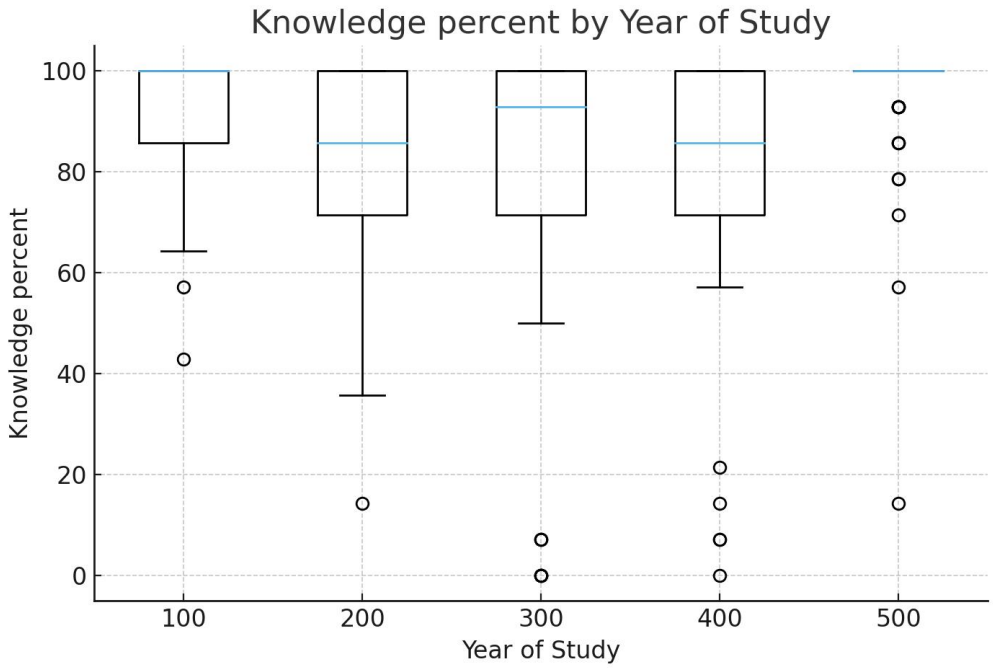

Figure 4.2 presents knowledge percentage across year groups (boxplot).

Item-level response patterns

The questionnaire included multiple true/false items that probe respondents' factual knowledge about radiographers' roles (e.g., whether radiographers operate MRI/CT/X-ray machines, radiation safety responsibilities, patient positioning and preparation, and collaboration with other health professionals).

Table 4.3 (selected items) reports the frequency of correct responses for a subset of knowledge items.

Question (short)	Correct responses (n)	Percent correct (%)
A radiographer is a trained healthcare worker who uses ultrasound mach...	280	90.3
Radiographers need special training to learn how to use imaging machin...	270	87.1
The primary role of a	270	87.1

radiographer includes ensuring patient safety du...		
Radiographers contribute to patient care by explaining procedures and ...	262	84.5
Radiation safety is an important aspect of a radiographer's responsibi...	269	86.8
Radiographers position patients in the right way to get the best radio...	275	88.7
Radiographers give patients preparatory instructions, like removing je...	260	83.9
Radiographers check imaging machines to make sure they are working pro...	249	80.3
Radiographers use CT scan machines to make detailed pictures of organs...	260	83.9
Radiographers use MRI machines to take radiographs of soft parts like ...	230	74.2

Across the examined knowledge items, the majority of respondents answered correctly on most items indicating generally high factual knowledge about the role of radiographers.

Aggregate knowledge score

For inferential and descriptive clarity an aggregate knowledge score was computed by summing correct responses across the knowledge items and converting this to a percentage of items answered. This 'knowledge percent' provides an intuitive metric for comparing individuals and groups.

The mean knowledge percent across all respondents was 85.02% (SD = 22.70), with a median of 92.86%. Using the predefined categorization (<50% = Poor; 50–74% = Moderate; ≥75% = Good), respondents were classified into knowledge levels.

Table 4.4 summarizes the distribution across knowledge levels.

Knowledge level	Frequency
Good	239
Moderate	51
Poor	20

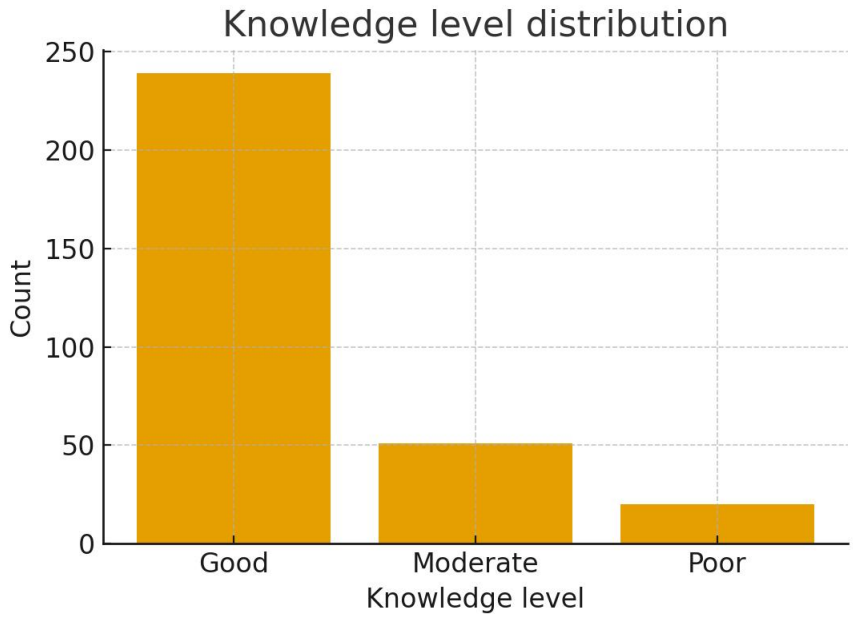

Figure 4.3 displays the count of respondents in each knowledge category.

Inferential statistics (Hypothesis testing)

Two main inferential analyses were carried out to address the study hypotheses: (1) whether there is a significant knowledge gap in the sample (tested descriptively and via categorization), and (2) whether demographic factors (gender, year of study) are associated with knowledge level. Chi-square tests of independence were used to examine associations between categorical demographic variables and the knowledge-level categories.

Table 4.5 presents the contingency table for gender by knowledge level. The Pearson chi-square test yielded:

Chi-square = 5.847, df = 2, p = 0.0538.

	Good	Moderate	Poor
Female	125	22	15
Male	114	29	5

The chi-square test indicates a marginal association between gender and knowledge level ($p \approx 0.054$).

While females appear to have a higher absolute count in the 'Good' category, the association does not reach conventional statistical significance at $\alpha = 0.05$.

Table 4.6 shows the contingency table for year of study by knowledge level. The chi-square test results are as follows:

Chi-square = 21.838, df = 8, p = 0.0052.

	Good	Moderate	Poor
100	44	8	1

200	49	13	5
300	46	12	8
400	42	16	5
500	58	2	1

The chi-square test indicates a statistically significant association between year of study and knowledge level ($p < 0.01$). This suggests that students' level/year is related to how much they know about radiographers' roles, with higher levels generally showing better knowledge percentages (see Figure 4.2 boxplot).

Sources of Information about Radiographers

Respondents were asked to indicate their main sources of information about radiographers. This was a multiple-response item.

Table 4.7 presents the frequency and percentage distribution of the reported sources

Source of Information	Count	Percent (%)
Internet	222	71.6
Media (Tv	221	71.3
Newspapers	221	71.3
Etc)	221	71.3
Family And Friends	168	54.2
Healthcare Workers	148	47.7
School Courses	97	31.3

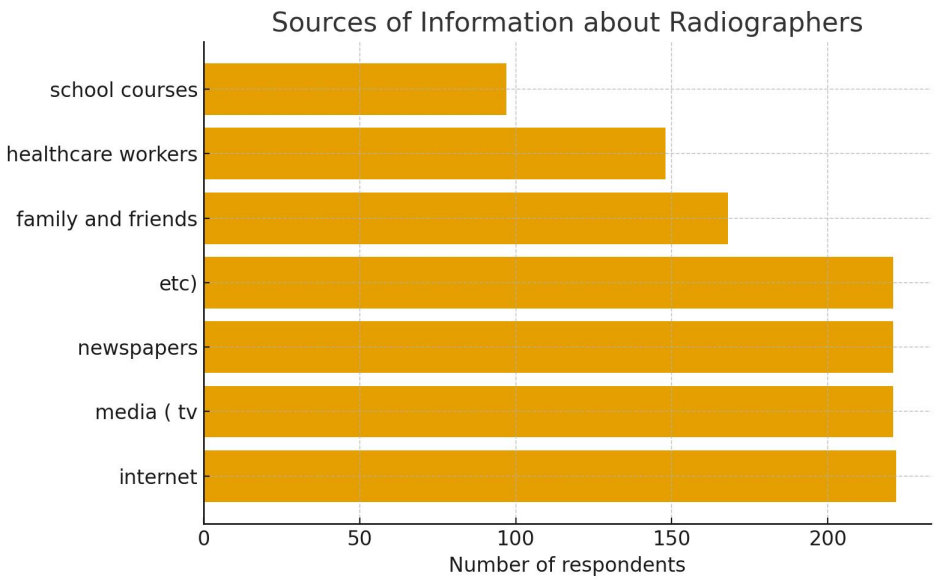

Figure 4.4 provides a bar chart visualization.

The analysis shows that informal channels such as peers, social media, and general media were reported more frequently than formal educational or healthcare sources. This suggests that while students are aware of radiographers largely through social and mass media, structured educational exposure remains limited.

Summary of key findings

1. Response rate and sample: The final analytic sample included 310 respondents, exceeding the planned sample size of 300.

2. Item-level knowledge: Most respondents correctly identified core roles of radiographers (operation of imaging equipment, radiation safety, patient positioning and preparation, collaboration with clinicians), with item-level percent-correct generally high.

3. Aggregate knowledge: The sample displayed a high average knowledge percent (mean ≈ 85.02%), with the majority classified in the 'Good' knowledge category.

4. Demographic associations: Gender showed a marginal association with knowledge level ($p \approx 0.0538$), while year of study showed a statistically significant association ($p = 0.0052$), indicating that year/level is a predictor of knowledge differences among students.

4.2 Discussion of Findings

The purpose of this study was to assess the knowledge of University of Benin Faculty of Law students regarding the role of radiographers in healthcare. The discussion of findings interprets the results presented above in relation to the study objectives, hypotheses, and the reviewed literature.

General Knowledge of Radiographers' Roles

The results of the study revealed a generally high level of knowledge among respondents. The mean knowledge score was 85.02 percent, with a majority of respondents (77.1 percent) falling into the "good" knowledge category. This indicates that despite being a non-medical population, law students demonstrated substantial awareness of radiographers' core roles, including operation of imaging equipment, ensuring patient safety, patient preparation, and collaboration with other health professionals.

This finding is significant because it challenges the common assumption that non-medical students are largely ignorant of healthcare professions outside of medicine and nursing. Earlier studies, such as those conducted by Farajollahi et al. (2014), highlighted deficiencies in radiography-related knowledge even among medical students. Similarly, Grimm et al. (2021) observed that many students held stereotypes and undervalued radiology-related professions. The higher levels of awareness

observed among the respondents in this study may be attributed to broader access to health information in the contemporary digital age. The internet, television, and social media have made information about diagnostic imaging and related procedures more visible to the general public.

Another possible explanation relates to the growing public health awareness campaigns in Nigeria. Health-related messages, campaigns, and even casual exposure to healthcare facilities may have contributed to shaping students' understanding. Many students may also have gained knowledge indirectly, such as through personal experiences in hospitals or accompanying family members to radiology departments. These exposures collectively may explain the higher than expected awareness among law students.

Sources of Information and Their Implications

A key observation was that most respondents identified informal sources of information, such as the internet, media, and conversations with family and friends, as their main sources of knowledge about radiographers. More formal or structured avenues, such as school courses and healthcare workers, were less frequently reported.

This reliance on informal sources has two main implications. On the positive side, it demonstrates that students are capable of acquiring health-related knowledge independently. It shows the growing influence of mass and social media in shaping public perceptions and suggests that health-related information is increasingly accessible to young people regardless of their academic discipline.

However, this reliance also raises concerns. Informal sources of information are not always reliable, comprehensive, or accurate. For example, popular media such as

movies and television series may depict radiographers merely as technicians with little emphasis on their expertise in radiation safety, patient care, and equipment management. Such portrayals may lead to misconceptions that are not immediately visible in structured surveys. This is consistent with the argument of Grimm et al. (2021), who found that stereotypes and limited exposure shaped students' perceptions of radiology and radiographers.

This finding also resonates with the Knowledge Gap Hypothesis proposed by Tichenor et al. (1970), which explains how differences in access to reliable information sources can create uneven levels of knowledge. When individuals rely on media rather than structured instruction, their understanding may lack depth or accuracy. While the law students in this study demonstrated strong awareness overall, the risk of misinformation remains. For this reason, there is a need to integrate structured health education content into non-medical programs to ensure that knowledge gained is both accurate and comprehensive.

Influence of Year of Study

The analysis revealed a statistically significant association between year of study and knowledge levels ($\chi^2 = 21.838$, $p = 0.0052$). Students in higher academic years, particularly those in 400 and 500 levels, demonstrated better knowledge than their counterparts in lower levels. This suggests that exposure and maturity play important roles in shaping health-related awareness.

Senior students may have accumulated more experiences over time, both academically and socially, that exposed them to healthcare issues. They may also have had more opportunities to engage with media content or to interact with health systems directly. This finding directly supports the Knowledge Gap Hypothesis,

which argues that individuals with greater educational exposure and experience tend to accumulate knowledge more quickly.

This observation is also consistent with Harthoorn et al. (2024), who found that educational background significantly influenced students' perceptions of radiography. Although their study focused on medical students, the same principle seems to apply to non-medical students. For the Faculty of Law, the implication is that interventions to improve health literacy should be targeted at students in lower levels, who demonstrated relatively weaker awareness compared to their senior colleagues. Such interventions may include guest lectures, health awareness programs, or collaborative seminars with medical faculties.

Influence of Gender

The relationship between gender and knowledge levels was marginally non-significant ($\chi^2 = 5.847$, $p = 0.0538$). While female students had slightly higher proportions of good knowledge than male students, the difference did not reach conventional statistical significance. This suggests that gender does not play a decisive role in shaping students' awareness of radiographers' roles.

This finding aligns with studies such as McNulty et al. (2021), which indicated that demographic factors like gender often have limited influence compared to structural factors such as education and exposure. However, the near-significant p-value suggests that gender differences may exist in subtle ways. It is possible, for example, that females are more likely to encounter health information in caregiving contexts or family conversations, while males may be exposed differently through media consumption patterns. Although not statistically significant, these differences could be explored further in future studies using qualitative methods.

Relationship to Hypotheses

The results of this study can be evaluated against the stated hypotheses. The first null hypothesis (H01) proposed that there is no significant knowledge gap among law students. Given that the majority of respondents demonstrated good knowledge, this hypothesis was rejected in favor of the alternative (H11), which states that a significant knowledge gap exists. However, it is important to clarify that while some knowledge gaps were observed, they were not as pronounced as anticipated.

The second null hypothesis (H02) proposed that demographic factors such as gender and year of study do not significantly influence students' knowledge. This hypothesis was partially rejected. Gender did not significantly influence knowledge levels, but year of study did, with higher-level students displaying significantly greater knowledge. This shows that demographic factors can influence knowledge acquisition, but the influence is not uniform across all variables.

Comparison with Existing Literature

When compared with previous research, the findings of this study reveal both similarities and differences.

First, in agreement with studies such as Farajollahi et al. (2014) and Grimm et al. (2021), this research shows that non-medical students often rely on informal sources of information rather than structured education to learn about radiographers. This underscores the limited role of formal education in shaping awareness outside of medical disciplines.

Second, this study diverges from earlier findings in that respondents demonstrated relatively high levels of knowledge. Previous studies tended to emphasize deficiencies

and misconceptions, whereas this study suggests that modern students may be more informed. The divergence could be attributed to increased access to media, growing public health awareness, and changes in how healthcare is represented in Nigerian society.

Third, this study contributes uniquely to the literature by focusing on law students, a group rarely examined in health literacy research. The significant association between year of study and knowledge levels provides new insights into how awareness develops across academic progression in non-medical faculties.

Implications for Interdisciplinary Collaboration

The results of this study carry important implications for both education and healthcare.

Firstly, the findings suggest that law students are not entirely disconnected from healthcare knowledge. As future legal professionals, their understanding of radiographers' roles may influence how they engage with healthcare-related cases, including medical litigation, health policy, and patient rights. Awareness of radiographers' contributions can help law graduates advocate more effectively for policies that recognize and support allied health professionals.

Secondly, the findings underscore the importance of inter-professional education (IPE). The World Health Organization (2010) advocates IPE as a way of fostering collaboration across different professional disciplines. Integrating elements of health literacy into non-medical curricula, such as law, could promote mutual understanding and prepare students for interdisciplinary collaboration. For instance, joint workshops

between law and radiography students could foster dialogue about the intersections between healthcare practice and legal systems.

Thirdly, the reliance on mass media for health information points to the need for proactive dissemination of accurate and accessible educational content. Universities, healthcare institutions, and professional associations should take advantage of digital media platforms to provide reliable information about radiographers and their roles. By doing so, they can reduce the risk of misinformation while building on the strengths of existing media channels.

Summary of the Discussion

In summary, the findings of this study indicate that law students at the University of Benin demonstrated relatively high knowledge of radiographers' roles. Knowledge levels were significantly associated with academic year, but not with gender. Informal information sources such as the internet and mass media dominated students' knowledge base, underscoring both the potential and limitations of such channels. These findings have direct implications for health literacy, interprofessional education, and the recognition of radiographers within the healthcare system.

By situating these findings within the broader literature and theoretical frameworks, it becomes clear that while knowledge levels are encouragingly high, more structured educational interventions are needed to ensure accuracy, depth, and sustainability of this awareness.

CHAPTER FIVE

CONCLUSION

5.1 Conclusion

This study set out to assess the knowledge of University of Benin Faculty of Law students regarding the role of radiographers in healthcare. The findings revealed that the majority of respondents demonstrated a commendable level of awareness, with an average knowledge score of over 85 percent and more than three-quarters classified in the “good” knowledge category. Respondents correctly identified key responsibilities of radiographers, including operation of imaging equipment, radiation safety, patient preparation, and collaboration with other healthcare professionals.

A significant relationship was found between year of study and knowledge levels, indicating that academic progression is associated with higher awareness. This suggests that exposure, maturity, and cumulative experiences play important roles in shaping students’ understanding of healthcare-related issues. Gender differences, however, were not statistically significant, showing that both male and female students had comparable levels of knowledge.

An important observation was that most respondents obtained their knowledge through informal sources, particularly mass media, the internet, and family and friends, rather than structured educational channels. While this demonstrates the accessibility of health-related information, it also raises concerns about the accuracy and depth of such knowledge.

Overall, the study concludes that although law students are not trained in the health sciences, they possess appreciable knowledge of radiographers’ roles. However, reliance on informal sources and the uneven distribution of knowledge across academic levels highlight the need for targeted interventions. Strengthening inter-

professional education and health literacy programs within non-medical faculties could help bridge existing gaps, ensure accurate knowledge, and promote interdisciplinary collaboration in the future.

5.2 Recommendations

Based on the findings, the following recommendations are proposed:

1. Integration of health literacy modules: Universities should consider incorporating health literacy or introductory healthcare modules into non-medical curricula, particularly for law students. This will ensure structured exposure to healthcare professions, including radiography

2. Inter-professional education initiatives: Collaborative workshops, seminars, or guest lectures involving students from medical and non-medical faculties should be organized. Such programs will promote mutual understanding and prepare students for interdisciplinary collaboration in their future careers.

3. Public awareness campaigns: Radiography departments, healthcare institutions, and professional bodies should leverage social and mass media to disseminate accurate and engaging information about radiographers' roles. This will help counter misinformation and strengthen the knowledge students acquire informally.

4. Targeted support for lower-level students: Since year of study was shown to significantly influence knowledge, educational interventions should be directed particularly at students in 100 and 200 levels. Early exposure can help reduce disparities in knowledge across academic progression.

5. Strengthening advocacy roles: Law students should be encouraged to see their knowledge of healthcare professions as a foundation for future advocacy. This can help ensure that radiographers and other allied health professionals receive proper recognition in legal and policy frameworks.

5.3 Limitation of the Study

This study is not without limitations. First, the scope was restricted to undergraduate law students at the University of Benin, which may limit the generalization of the findings to other faculties or institutions. Second, the reliance on self-administered questionnaires may have introduced response bias, as some participants might have provided socially desirable answers rather than reflecting their true knowledge. Third, while the study assessed factual knowledge, it did not fully capture the depth or accuracy of perceptions shaped by informal sources. A mixed-methods design, including interviews or focus groups, might have provided a more comprehensive understanding of students' perspectives.

5.4 Suggestions for Further Studies

Future research could expand the scope by including students from other non-medical faculties or institutions, thereby providing comparative insights into knowledge levels across disciplines. In addition, longitudinal studies could be conducted to examine how knowledge develops as students progress through their academic years. Qualitative studies, such as interviews or focus group discussions, could also be employed to capture more nuanced perspectives, particularly concerning stereotypes and misconceptions. Finally, future work could assess the effectiveness of specific interventions, such as inter-professional workshops or curriculum integration, in improving non-medical students' knowledge of radiography and other allied health professions.

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APPENDICES

INFORMED CONSENT

Dear Respondents,

My name is CHINWIKE EKEMEZIE an undergraduate student in Radiography carrying out research on "ASSESSMENT OF UNIVERSITY OF BENIN STUDENTS' KNOWLEDGE ON THE ROLE OF RADIOGRAPHERS IN HEALTHCARE (CASE STUDY: FACULTY OF LAW)". The study requires that you fill the questionnaire, which is one of the instruments for data collection. Your co-operation in terms of sincerity and objectivity is required, for it will go a long way in determining the outcome of this study. However, you are assured that any information supplied in this questionnaire will remain confidential.

APPENDIX 1

Questionnaire on Knowledge of Radiographers' Roles among University of Benin Law Students

Section 1: Demographic Data

1. Age:

[ ] Under 20 [ ] 20-24 [ ] 25-29 [ ] 30-34 [ ] 35-39 [ ] 40-44 [ ] 45-49 [ ] 50 and above

2. Gender:

[ ] Male [ ] Female

3. Year of Study:

[ ] 100 level [ ] 200 level [ ] 300 level [ ] 400 level [ ] 500 level

Section 2: Knowledge Assessment

Please answer the following questions about radiographers' roles based on your knowledge:

4. Have you ever visited a hospital or medical imaging center (e.g., for X-rays, CT scans, Ultrasounds or MRIs)?

[ ] Yes [ ] No

5. Which of the following professionals do you think works in a hospital? (Select all that apply)

[ ] Doctor

[ ] Nurse

[ ] Pharmacist

[ ] Radiographer

[ ] Farmer

[ ] Physiotherapist

[ ] Musician

6. A radiographer is a trained healthcare worker who uses ultrasound machines, Computed tomography (CT) scanners, Magnetic resonance imaging (MRI) scanners and X-ray machines to take radiographs of the body for doctors to study.

[ ] True [ ] False

7. Radiographers need special training to learn how to use imaging machines safely and correctly.

[ ] True [ ] False

8. The primary role of a radiographer includes ensuring patient safety during imaging procedures.

[ ] True [ ] False it

9. Radiographers contribute to patient care by explaining procedures and addressing patient concerns.

[ ] True [ ] False

10. Radiation safety is an important aspect of a radiographer's responsibilities.

[ ] True [ ] False

11. Radiographers position patients in the right way to get the best radiographs from imaging machines.

[ ] True [ ] False

12. Radiographers give patients preparatory instructions, like removing jewelry or wearing a special gown, before an imaging investigation.

[ ] True[ ] False

13. Radiographers check imaging machines to make sure they are working properly and report problems to get them fixed quickly.

[ ] True [ ] False

14. Radiographers use CT scan machines to make detailed pictures of organs, bones, or tissues inside the body, often for serious injuries.

[ ] True [ ] False

15. Radiographers use MRI machines to take radiographs of soft parts like the brain or muscles, using magnetic field and radio waves instead of radiation.

[ ] True [ ] False

16. Radiographers use ultrasound machines to view and produce real-time images of organs and also to monitor the state of babies in pregnant women before birth, with the use of sound waves.

[ ] True [ ] False

17. Radiographers only work in hospitals and cannot be involved in outpatient radiology centers.

[ ] True [ ] False

18. Who is responsible for taking X-ray images if a patient has a broken bone?

[ ] Doctor [ ] Nurse [ ] Radiographer [ ] Pharmacist

19. Continuing education is essential for radiographers to stay updated with technological advancements.

[ ] True [ ] False

20. Radiographers collaborate with other healthcare professionals, such as doctors and nurses.

[ ] True [ ] False

21. How confident are you in describing what radiographers do in healthcare after answering these questions?

[ ] Very confident [ ] Confident [ ] Slightly confident [ ] Not confident

Section 3: Influencing Factors

24. What are your main sources of information about radiographers? (Select all that apply)

[ ] School courses [ ] Media (TV, internet, newspapers) [ ] Family and friends [ ] Healthcare workers [ ] Other: _____

25. How important do you think radiographers are in helping doctors find and treat health problems?

[ ] Very important[ ] Important[ ] Somewhat important [ ] Not important

26. Do you think law students should have more exposure to health-related professions like radiography? [ ] Yes [ ] No [ ] Not sure

27. After answering this questionnaire, how likely are you to want to learn more about radiographers?

[ ] Very likely [ ] Somewhat likely [ ] Not very likely [ ] Not likely at all

RESEARCH ETHICS COMMITTEE

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Our Ref: CMS/REC/01/VOL.2/781 **Date:** 18th September, 2025

Re: ASSESSMENT OF UNIVERSITY OF BENIN STUDENTS' KNOWLEDGE ON THE ROLE OF RADIOGRAPHERS IN HEALTHCARE(CASE STUDY: FACULTY OF LAW)

Name of Principal Investigator: **CHINWIKE EKEMEZIE**
Department Of Radiography,
School of Basic Medical Science
College of Medical Sciences,
University of Benin

REC Approval No: CMS/REC/2025/781

This is to inform you that the research described in the submitted proposal, the Informed Consent Forms and other participant information materials have been reviewed and approved by the College Research Ethics Committee, University of Benin.

This approval dates from **18th September, 2025 to 19th September, 2026.** In multi-year research, Endeavour to submit your annual report to the REC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly to the REC. No, changes are permitted in the research without prior approval by REC except in circumstances outlined in the code. REC reserves the right to conduct compliance visit to your research site without prior notice. Thank you.

PROF. F.A IMARHIAGBE
Chairman, REC

Promoting best ethical & scientific standard for research in Nigeria