ASSESSMENT OF THE CHALLENGES FACED BY THE UNIVERSITY OF BENIN RADIOGRAPHY STUDENTS DURING CLINICAL POSTING

BY

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DEPARTMENT OF RADIOGRAPHY

SCHOOL OF BASIC MEDICAL SCIENCES

COLLEGE OF MEDICAL SCIENCES

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BENIN CITY

MARCH, 2025

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SUBMITTED TO THE DEPARTMENT OF RADIOGRAPHY

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UNIVERSITY OF BENIN

BENIN CITY, EDO STATE, NIGERIA

IN PARTIAL FUFILMENT FOR THE REQUIREMENTS OF THE AWARD OF BACHELOR DEGREE IN RADIOGRAPHY (B.RAD) DEGREE

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CERTIFICATION

This is to certify that this project work was satisfactorily carried out by **PIUS HOPE OLUCHI** with the matriculation number **BMS2010673** under our guidance.

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MRS F. IGBINEDION DATE

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DEDICATION

To my heavenly father Jehovah God for His provision, wisdom and guidance in making my academic journey a huge success.

ACKNOWLEDGMENT

First and foremost, my incessant gratitude goes to Jehovah God for His unfailing love and support throughout my academic pursuit.

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ABSTRACT

Despite the importance of clinical postings in providing practical experience for radiography students of the University of Benin, various challenges hinder the students' ability to maximize the benefits of this experience. This study assessed the challenges faced by radiography students of the University of Benin during clinical postings. A descriptive cross-sectional survey was conducted using a questionnaire distributed to 194 radiography students across three academic years. Reliability was established using Cronbach's alpha (0.71). Data were analyzed using SPSS version 28, employing descriptive statistics and ANOVA for hypothesis testing. The findings revealed that time constraints (88.7%), difficulty understanding complex procedures without guidance (85%), and limited access to equipment (74.2%) were the most significant challenges. These challenges negatively impacted students' hands-on experience, understanding of procedures, and overall progress in radiography education. Students primarily coped through self-directed learning (89.2%), seeking guidance from other healthcare professionals (82%), and peer support (73.2%). However, only 24.8% felt adequately prepared for professional practice. Demographic factors were analyzed using ANOVA to identify significant relationships with perceived challenges. Recommendations include restructuring clinical posting schedules, establishing formal mentorship programs, implementing simulation-based education, and reducing student-to-supervisor ratios. The study provides valuable insights for improving clinical education in radiography at the University of Benin.

CHAPTER ONE

INTRODUCTION

1.1 Background

Radiography education in Nigeria involves both classroom theory based academic knowledge and clinical training processes. Training in this contest is used to describe the transformation process from novice to expert radiographer, and this begins in the first year of the radiography education. This includes theoretical learning, simulations in skill laboratories and hospital-based practice under the supervision of clinical tutors. (Ohagwu et al., 2016)

The study of radiography involves both academic knowledge and practical training in hospitals. The theoretical proficiency is done in the classroom while the practical training involves simulations in skill laboratories and hospital-based practice or clinical posting. The skill laboratories entail the use of phantom to study anatomy and positioning of patients, use of virtual radiography app. (Ohagwu et al., 2016)

Clinical posting is an essential requirement for the award of bachelor degree for every radiography student. It constitutes about 50% of radiography education and it is a compulsory component of the clinical year from 300 - 500 level of the course. To apply what is learned in the classroom to real-world conditions, it is done in a clinical environment. During clinical posting students are taught to use, adapt and integrate the theoretical aspect of radiography training into the clinical environment, acquiring skills to become a proficient radiographer. Clinical posting helps to develop students' knowledge and clinical skill in preparation for professional practice. (Ohagwu et al., 2016)

Clinical placements in hospitals is not the time for reflection, theoretical teaching and learning, it is a time to acquire clinical skills. A qualified radiographer is responsible for supervising the student during the clinical posting in the hospitals to ensure the appropriate and necessary clinical skill and knowledge is transferred to the students.

Clinical training is one of the requirements for the award of Bachelor's degree for every radiography student and it is an important part of the professional Radiography education at the Usmanu Danfodiyo University Sokoto. (Ohagwu et al., 2016). Therefore clinical posting is a compulsory component of the clinical year (300 - 500 level) syllabus, which ensures high quality training of a radiography student for optimal delivery of radiographic services and patient care. In order to demonstrate this competency, graduate radiographers most be able to practice in the real word. (Ohagwu et al., 2016)

Clinical placements are an integral component of the radiography programme worldwide. Radiography students spend approximately 50% of their training time on clinical placement in hospitals affiliated with the schools of radiography. During clinical placements, students learn by having planned periods of observation, education, reflection, and work alongside their clinical supervisors. This enables them to acquire the necessary knowledge, attitudes and skills of the radiography profession as required by regulators and professional bodies, such as the Radiographers Registration Board of Nigeria (RRBN). Clinical placements in radiography are important from many aspects. From a regulatory point of view, practice in clinical learning environment is required to ensure fitness to practice as a radiographer. From an educational perspective, working with a patient provides students with the opportunity to apply theory into practice.

During the clinical posting, students are taught to use, adapt and integrate the theoretical aspect of radiography training within the clinical environment, acquiring skills necessary to become competent radiographers.(Ohagwu et al., 2016) A qualified Radiographer is responsible for supervising the student during the clinical posting at the various hospitals, and diagnostic centers where the students are posted to in other to ensure that appropriate clinical skills and knowledge are transferred to the students. Therefore identifying the challenges faced by Radiography students during clinical posting at the various sites could improve the quality of the training. Several challenges have been documented in many countries regarding clinical training, and even in some part of Nigeria. (Ohagwu et al., 2016).

Since University of Benin is preparing to award the first batch of radiography students a Bachelor of Radiography (B.Rad) in Science degree, it became crucial to note the difficulties they encountered during their clinical posting. As a result, the need to document the challenges faced by radiography students in the university arose. Radiography students from University of Benin encounter difficulties during clinical placements, which reduces the quality of their training and their ability to learn. In order to ensure the continued development of future radiography students at this university, it is crucial to identify the difficulties they encountered and document suggestions on how to address them.

1.2 Statement of Problem

Despite the importance of clinical postings in providing practical experience for radiography students of the University of Benin, various challenges hinder the students' ability to maximize the benefits of this experience. The specific challenges faced by the students during these postings are not well understood, which hinders the development of effective strategies to address them. This study aims to assess the challenges faced by radiography students of

University of Benin during clinical postings, in order to identify areas for improvement and enhance the quality of the posting experience. The extent of the challenges and nature of the challenges need to be identified, explained, documented and addressed.

1.3 Research Questions

1. What are the challenges encountered by radiography students of University of Benin during clinical postings?
2. What is the impact of these challenges on student's learning experience?
3. What are the coping strategies employed by students?

1.4 Research Hypothesis

Null Hypothesis (H0): There is no significant difference in the perceived challenges faced by radiography students during clinical postings across different levels of study (300, 400, and 500 level).

Alternate Hypothesis (H1): There is significant difference in the perceived challenges faced by radiography students during clinical postings across different levels of study (300, 400, and 500 level).

1.5 Aim and Objectives of the Study

1.5.1 Aim of the Study

To identify major challenges faced by radiography student of University of Benin during their clinical posting.

1.5.2 Specific Objectives of the Study

1. To identify the challenges encountered by radiography students of University of Benin during clinical postings.
2. To determine the impact of these challenges on student's learning experience.
3. To determine the coping strategies employed by students. .

1.6 Significance of Study

The study on the challenges faced by University of Benin radiography students is important for several reasons. Firstly, radiography is a critical field in the healthcare industry, and it is essential that students receive high-quality education and training to meet the demands of the profession. Secondly, understanding the challenges faced by University of Benin radiography students can help educators and policymakers develop effective strategies to improve the quality of education and training that these students receive. By identifying the specific challenges that students face, educators can tailor their teaching methods and curricula to better meet the needs of their students. Policymakers can also use this information to develop policies and programs that support radiography students of University of Benin and improve their access to resources and opportunities. Finally, the study can help raise awareness of the challenges faced by University of Benin radiography students and highlight the importance of providing equal opportunities and resources to all students, regardless of their background or financial situation. By promoting greater equity in education, we can help ensure that all students have the chance to achieve their full potential and contribute to society in meaningful ways.

1.7 Scope of Study

This study is centered on the challenges faced by University of Benin students during their clinical postings. However, focus is on the 300, 400 and 500 level radiography students in University of Benin, Edo state. This study began in October 2024 and ended in February 2025.

1.8 Operational Definition of Terms

Radiography Student: An individual pursuing a degree or diploma in radiography, a healthcare profession that involves the use of medical imaging modalities (X-radiation, computed tomography scan, magnetic resonance imaging, ultrasound) to diagnose and treat diseases.

Clinical Posting: Practical component of radiography students' education, where they are assigned to work in a clinical setting (diagnostic centers, hospital or clinic) under the supervision of a qualified radiographer, in order to apply theoretical knowledge, and develop skills in medical imaging procedures.

Assessment: Evaluation and measurement of performance, knowledge, and skills during clinical posting.

Challenges: Difficulties, obstacles, or problems encountered by radiography students during their clinical posting.

CHAPTER TWO

LITERATURE REVIEW

2.1 Conceptual Review

Clinical education refers to the practical component of healthcare education, where students gain hands-on experience through clinical placements in hospitals and other healthcare settings. For radiography students, clinical education is a crucial component of their training, as it provides them with the opportunity to apply the theoretical knowledge they have gained in the classroom to real-world situations.

However, radiography students of the University of Benin students may face challenges in accessing clinical education opportunities. For example, University of Benin may have limited partnerships with hospitals and other healthcare facilities, making it difficult for students to secure clinical placements due to the high number of students. Additionally, radiography students of University of Benin students may face competition from students in other universities, who may have access to more clinical education opportunities.

The lack of access to clinical education opportunities can impact the quality of education that radiography university of Benin students receive. Without hands-on training, students may struggle to develop the practical skills and knowledge necessary to succeed in the field. This can impact their employ-ability after graduation and hinder their ability to contribute to the healthcare industry.

Understanding the challenges that radiography students of University of Benin face in accessing clinical education is important in finding ways to improve their access to these opportunities. This can include developing partnerships with hospitals and other healthcare facilities, as well as

providing financial support to help students cover the costs associated with clinical placements. By addressing these challenges, we can help ensure that all radiography students have access to high-quality clinical education and the opportunity to succeed in the field.

2.1.1 Theory-Practice Gap

The theory-practice gap is a concept that is relevant to the challenges faced by radiography students in university of Benin, particularly in relation to the lack of access to hands-on training and clinical experience. The theory-practice gap refers to the disconnection that can occur between what students learn in the classroom and what they experience in the real world. In other words, students may be well-versed in the theoretical aspects of radiography but may lack the practical skills and experience needed to apply this knowledge in a clinical setting. This gap can be particularly significant for students in university of Benin who may have limited access to good theoretical background.

The theory-practice gap can have a number of negative consequences, including reduced confidence and competence among students, lower quality of care for patients, and decreased job satisfaction among healthcare professionals. In order to address this gap, it is important for educators and policymakers to develop effective strategies for bridging the divide between theory and practice. This may include providing students with more opportunities for hands-on training, increasing access to well-equipped radiography labs and hospitals, and promoting greater collaboration between academic institutions and healthcare facilities. By addressing the theory-practice gap, radiography students can receive the high-quality education and training they need to succeed in the field, and patients can receive the best possible care.

2.1.2 Requirements for Clinical Posting Site

Clinical posting sites provide students with the opportunity to gain practical experience in a real-world healthcare setting. In order for a clinical posting site to be suitable for radiography students, it must meet certain requirements. The following requirements for clinical posting sites are generally recognized by radiography education programs and healthcare institutions worldwide, and are not specific to the Radiographers Registration Board of Nigeria (RRBN) and they include:

i. Availability of equipment and resources: A suitable clinical posting site must have the necessary equipment and resources to provide students with hands-on training in radiography. This includes x-ray machines, ultrasound equipment, and other imaging tools.

ii. Qualified staff: The clinical posting site must have qualified staff who can provide students with guidance and support during their training. This includes radiographers, radiologists, and other healthcare professionals who are experienced in the field.

iii. Adequate patient volume: A suitable clinical posting site must have an adequate number of patients to provide students with the opportunity to gain practical experience in radiography. This includes patients with a variety of conditions and illnesses, as well as those from different age groups and backgrounds.

iv. Safety and infection control: The clinical posting site must adhere to strict safety and infection control protocols to ensure the safety of students, staff, and patients. This includes proper handling and disposal of hazardous materials, as well as the use of personal protective equipment (PPE)

v. Accessibility and location: The clinical posting site must be easily accessible to students, with convenient transportation options and an appropriate location. This includes proximity to the university and other resources, as well as access to public transportation.

By meeting these requirements, a clinical posting site can provide radiography students with the practical experience they need to succeed in the field. It is important for universities and other educational institutions to carefully select clinical posting sites that meet these requirements, and to work closely with these sites to ensure that students receive the best possible training and support.

2.2 Empirical Review

According to Akpaniwo et al., (2018) clinical posting for clinical training and experience forms a major requirement in radiography education in Nigeria and for the award of Bachelor's degree at the Usmanu Danfodiyo University Sokoto. The competence level of a qualified radiography student is ensured by the effectiveness and quality of the clinical training obtained during the teaching-learning process. Therefore identifying the challenges of Radiography students in the clinical learning environment during clinical posting is imperative to improving the quality of the training. The aim is to highlight major challenges faced by students undergoing undergraduate radiography study during their clinical posting. A prospective study employing a descriptive survey approach was conducted, targeting 300 and 400 level undergraduate radiography students in the clinical year, 2016/2017 academic session at the Radiography department of Usmanu Danfodiyo University, Sokoto. A 14-item self-completion questionnaire consisting of four sections, designed in line with the aim of the study, was used for data collection. After data analysis, the study identified the following challenges faced by the students and these included lack of allocation of the students to ward or theatre rooms (84%), and Dental imaging rooms

(88%). The allotted time to each of the imaging modality rooms such as Computed Tomography (CT), Magnetic Resonance Imaging (MRI), and Ultrasound had (26%), (24%) and (38%) respectively, before they were rotated and this was grossly inadequate and only a few had hands-on in the radiographic examination of the mandible (4%), or had witness mammographic examination (6%), absence or inadequate number(s) of qualified radiographers, lack of Knowledge update (Seminars/presentations), and distance from accommodation to the hospital had a distribution of 10(20%), 22(44%) and 24(48%) respectively. The research revealed, that majority (68%) of the students were of the opinion that clinical posting was very educating regardless of the challenges faced. These challenges include, inadequate allocation of students to different wards (ward radiography), inadequate time allotted to some of the imaging modality rooms, absence or inadequate qualified radiographers, lack of Knowledge update (Seminars/presentations), and distanced to accommodation.

Chinene et al., (2023) stated in their study that unlike classroom education, during clinical placements, much of the day-today activities are unplanned and unstructured, hence, learning occurs in a complex environment. While a clinical setting may provide a more authentic learning environment, it however does include many challenges for the students. Identifying the challenges experienced by students is of importance so that appropriate mitigation strategies can be put in place. The aim of the study was to explore the challenges experienced by radiography students during their clinical placements.

Harden and Laidlaw (2017) noted that the use of simulation can provide students with an active learning experience closely modeled on real situations that creates a bridge between the theory and practice.

Adegoke et al., (2021) found that radiography students' universities in Nigeria struggle to secure clinical placement opportunities due to a lack of available sites and competition with other healthcare programs. The study recommends that university of Benin work to establish partnerships with healthcare organizations and develop innovative solutions to address this challenge.

Challen et al., (2017) noted that students say "College is the place where professionalism is taught to us to a large extent, and clinical placement gives us an opportunity to reflect upon all of it and compare with it…and often things are not so professional in hospitals"

Challen et al., also noted that the students experience disparity regarding experience control he stated that one student said: "I was scared when I saw a radiographer approached a patient with a skin infection without wearing any gloves. I thought that she might catch the infection. It was scary".

Kumsa et al., (2022) noted that 'There is shortage of imaging equipment in our hospitals; one machine is out of order currently and we are using only one machine. Therefore, it is difficult to teach students as well as service provision to patients'. Another said; 'We do have one old machine which we cannot use to properly train future practitioners, we do also have only one CT scanner but with only one machine, we cannot accept many students at once because we always need to attend to many patients on a daily basis therefore, it is difficult to serve all patients while training students because we are mostly in a hurry to serve patients in order to avoid complaints'. The student perspective was supported as below: 'Most of the hospitals do not accept more than two students to train on one machine because of patients' privacy or comfort. Therefore, they return some of us back to the university and the department tries to solve this problem by placing

us in turns every other day, this means we practice for half of the intended time allocated for practice'.

Bwanga et al., (2019) noted challenges including; lack of dedicated training imaging equipment, high student-to placement site ratio and lack of radiation monitoring badges for students were previously reported. It was noted that these challenges need to be given urgent consideration as part of efforts to harmonize practice through the training and development of radiography students and educational programmes respectively.

Fowler and Wilford et al., (2016), radiography students expressed concern with an increase in the workload. This resulted in radiographers not paying attention to students' learning needs.

Greenway et al., (2019) noted that to further improve clinical skills, higher education institutes offering radiography training should design their curricula to cater for adequate training within the clinical skills laboratory of the university and the CP sites. Also, the use of clinical instructors/tutor could serve at teacher at both sites to ensure a unified learning outcome and a clear link between both theory and practice. More importantly, it should be agreed by all parties that theory and practice will continue to explore mechanisms and processes by which clinical training can be further improved and developed to bridge the practice-theory gap.

Eze et al., (2020) noted that university of Benin in Nigeria struggle to provide adequate supervision and mentorship for their students during clinical posting, which can lead to a lack of feedback and support for students as they develop their skills. The study recommends that University of Benin establish formal mentorship programs and provide more opportunities for students to receive feedback and guidance from experienced practitioners.

Kumsa et al., (2022) noted that students reported an inconvenience in relation to a high student-to-placement site ratio. There exists a mismatch between number of students placed at a hospital or imaging center and the available resources to support their learning. This is a key challenge to teaching and learning of clinical skills as highlighted, some students said "we are encountering many problems concerning clinical practice. Among other things, mismatch between the numbers of students we have and the available placement area". Because of the high number of students, radiography staff are not able to properly communicate and tutor the radiography students properly. This results in lack of hands-on practice and patient interaction by most students as there is no time and space to attend to all the students that come to the hospital for clinical placement.

Kumsa et al., (2019) identified transportation as an issue for the students which has impacted negatively on their clinical placement. It also shows that often there is lack of transportation or elevated transportation costs beyond the means of students. It was also highlighted that the lack of personal upkeep allowance (pocket money) had its impact on the learning activities of Ethiopian health undergraduate students. The challenges with transportation service network and cost impacts on the attendance of both students and clinical supervisors.

Kumsa et al., (2022) noted out that, the lack of transportation or inconvenience with transportation disrupted attendance and, in some instances, made students very anxious as they are mostly late or absent due to cost of transportation for the round journey to clinical placement is a challenge especially for some students when they miss the only available university transport. Another problem relates to transportation services. We use one service in common with all students at the college of health sciences. This service has to go to all areas in order to drop each

student; Most of the time we reach our site very late, therefore, we could not use our time effectively'.

2.3 Summary of Review

From the empirical review it was noted that, students need to be properly taught in class before undergoing clinical posting, there is lack of adequate training modalities in placement site which hinders student learning. It is the duty of the radiography staff to make certain input during clinical training to facilitate the knowledge gained by the students. There is also high student to modality ratio, making the total number of student in a room at a time to be far higher than the available resources. This hinders the level of experience students' gain during clinical posting. Also, in public universities staffs of the hospitals find it hard to make out time for their students either due to the high student to staff ratio or high workload in the hospital or general negligence by the staff. Finally, it was noted that students' daily life affects how well they carry out their clinical posting.

How these aforementioned challenges relate to and differ from challenges University of Benin students may face hasn't been documented.

This work intends to document and address how the various challenges University of Benin radiography students face will affect the students during clinical posting and how it will affect their perception to clinical posting.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter outlines the methodology employed in conducting the study on Assessment of Challenges Faced by Radiography Students of University of Benin During Clinical Posting. It provides details on the research design, study design, population, sampling method, data collection instrument, data analysis, and ethical considerations that ensures protection of participants rights and dignity.

3.1 Research Setting

The research was carried out in the radiography department of University of Benin in Benin City, Edo State.

3.2 Research Design

A cross sectional research design was used to assess the challenges faced by University of Benin radiography students during their clinical posting.

3.3 Target Population

In the study, the target population were the 300, 400 and 500 level radiography students in University of Benin.

Inclusion criteria

1. University of Benin radiography students
2. Radiography students in their third, fourth and fifth years
3. Students who have gone for clinical posting.

Exclusion criteria

1. Non-University of Benin radiography students
2. Radiography students who aren't in their third, fourth and fifth years
3. Students who haven’t gone for clinical postings

3.4 Sample Size Determination

The sample size was determined using Taro Yamane’s formula (Yamane, 1973), which provides statistically valid number of participants based on a known population size.

Table 3.4 Academic levels and frequency

LEVEL	FREQUENCY
500 LEVEL	92
400 LEVEL	130
300 LEVEL	153
TOTAL	375

Taro-Yamane’s formula $$n = \frac{\mathrm{N}}{1 + \mathrm{N(e)\text{^}2}}$$ (Yamane, 1973)

Where:

n = Sample size

N = Total population size (375)

e = Margin for error (0.05)

Therefore: $$n = \frac{375}{1 + 375(0.05)\text{^}2}$$

$$n = \frac{375}{1.9375}$$

$$n = 193.5484$$

Rounding up to the nearest whole number: 194

3.4.1 Sampling Technique

A proportionate stratified sampling technique was used to obtain the number of participants from each academic level. Breakdown by level:

300 level: 153/375 = 0.408 (41% of sample) = 79

400 level: 130/375 = 0.347 (34.7% 0f sample) = 67

500 level: 92/375 = 0.245 (24.5% of sample) = 48

A total number of 194 students will be selected from the target population.

3.5 Instrument for Data Collection

3.5.1 Questionnaire

A self-structured questionnaire was used to assess the challenges faced by the radiography students of University of Benin during clinical posting. The questionnaire consisted of sections, designed in line with the aim of the study, it contained questions derived from the research objectives that developed and generated more responses and insights into the study. (See appendix I)

3.5.2 Questionnaire Structure

1. Section A: Demographics of participants (sex and age)

2. Section B: To determine the challenges encountered by radiography students of University of Benin during clinical postings.

3. Section C: To determine the impact of these challenges on student's learning experience.

4. Section D: To determine the coping strategies employed by students.

The questionnaire was designed with the five point likert scales as follows:

Strongly Agree (SA) = 5

Agree (A) = 4

Neutral (N) = 3

Disagree (D) = 2

Strongly Disagree (SD) = 1

3.6 Validity and Reliability of Instrument

3.6.1 Validity of the Instrument

The questionnaire was subjected to face and content validity by my research supervisor. Face validity ensured that the questionnaire was subjected to review by my research supervisor to ensure it has a good representation. Content validity ensured that all relevant aspect of the subject to be measured are covered by subjecting it to review and receiving feedback on how each question measured the construct in question. The questionnaire was assessed for final approval by my supervisor.

3.6.2 Reliability of the Instrument

The study used Cronbach's alpha for reliability testing by distributing 19 questionnaires (about 10% of the 194 total sample size) to radiography students at the University of Benin, outside the sampled population. A coefficient of 0.71 indicate reliability.

3.7 Method of Data Collection

The questionnaires were administered to the participants through a face-to-face administration. However, electronic copies were sent to some of the participants who were away during the holiday. Participants were informed about the purpose of the study, and their consents were obtained before any data collection began. Responses were collated, recorded and analyzed.

3.8 Method of Data Analysis

Data collected was analyzed using Statistical Package for Social Science (SPSS, Version 26). Here both descriptive and inferential statistics will be utilized appropriately. Inferential statistics, such as ANOVA, was used to identify significant relationship between demographic variables and perceived challenges across levels. The data was analyzed based on simple percentages, round up to 2 decimal places.

3.9 Ethical Consideration

Ethical approval for the study was obtained from the University of Benin Ethics Committee (see appendix II). This study adhered to the principle of informed consent, confidentiality, and anonymity. Participants provided written informed consent prior to data collection. All data was stored securely and anonymized to prevent identification. The potential risk and benefits to participants are minimal. Participants were allowed to withdraw from the study at any time

without penalty. By addressing these ethical considerations, this study ensured protection of participants' rights and dignity.

CHAPTER FOUR

RESULTS

This chapter presents the analysis and discussion of findings from the study on the Assessment of the Challenges Faced by the University of Benin Radiography Students During Clinical Posting. The findings are discussed in relation to the research objectives and relevant literature.

4.1 Presentation of Results

Table 4.1: Demographic characteristics of respondents

Characteristic	Category	Frequency	Percentage
Age of respondent	15-20	69	35.6
	21-25	112	57.7
	26-30	13	6.7
Gender of respondent	Female	153	78.9
	Male	41	21.1
Year of study	Year 3	79	40.7
	Year 4	67	34.5
	Year 5	48	24.7
Duration of clinical posting in weeks	0-10 Weeks	155	79.9
	11-20 weeks	22	11.3
	21-30 weeks	17	8.8

Table 4.1 shows the demographic characteristics of the respondents. It shows that the respondents comprised young adults, with 57.7% in the 21-25 age bracket, 35.6% between 15-20

years, and a mere 6.7% between 26-30 years old. The gender distribution revealed a pronounced female majority (78.9%) relative to male respondents (21.1%).

In terms of academic development, the highest proportion of respondents were in their third year of study (40.7%), followed by fourth-year students (34.5%), with fifth-year students being the smallest group (24.7%). The majority of responses (79.9%) indicated brief clinical posting duration of 0-10 weeks, while a much smaller proportion of students had extended clinical exposures of 11-20 weeks (11.3%) or 21-30 weeks (8.8%).

Table 4.2: Challenges encountered during clinical postings

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Difficulties with insufficient equipment or outdated facilities	16(8.2)	45(23.2)	33(17.0)	77(39.7)	23(11.9)	3.24	1.18
Inadequate supervision or mentorship from clinical instructors	16(8.2)	73(37.6)	25(12.9)	49(25.3)	31(16.0)	3.03	1.27
Challenging to understand complex procedures without proper guidance	0(0.0)	10(5.2)	19(9.8)	92(47.4)	73(37.6)	4.18	0.81
Lack of structured learning objectives during posting	16(8.2)	57(29.4)	32(16.5)	53(27.3)	36(18.6)	3.19	1.27
Interpersonal challenges with staff or other students	16(8.2)	63(32.5)	24(12.4)	46(23.7)	45(23.2)	3.21	1.34
Number of students per clinical supervisor was too high	32(16.5)	51(26.3)	15(7.7)	69(35.6)	27(13.9)	3.04	1.36
Time constraints during clinical rotations limited practical learning	0(0.0)	12(6.2)	10(5.2)	89(45.9)	83(42.8)	4.25	0.82

Table 4.2 shows the challenges encountered during clinical postings. Time limits emerged as the most urgent concern (mean = 4.25, SD = 0.82), with an astounding 88.7% of respondents either agreeing or strongly agreeing that time limitations during clinical rotations hindered their practical learning possibilities. Similarly, trouble understanding complex procedures without sufficient assistance constituted another major obstacle (mean = 4.18, SD = 0.81), with 85% of students indicating agreement. Equipment-related issues were particularly prominent, with

51.6% of respondents noting difficulty with insufficient or obsolete facilities (mean = 3.24, SD = 1.18). The data showed mixed opinions regarding supervision and mentorship, with 41.3% arguing that supervision was inadequate, while 41.3% reported experiencing inadequate supervision (mean = 3.03, SD = 1.27). Nearly half of the respondents (49.5%) cited a lack of organized learning objectives during their posts (mean = 3.19, SD = 1.27), while 46.9% experienced interpersonal issues with staff or other students (mean = 3.21, SD = 1.34). The student-to-supervisor ratio was regarded excessively high by 49.5% of respondents (mean = 3.04, SD = 1.36).

Table 4.3: Impact of Challenges on Learning Experience

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Challenges negatively affected confidence in performing procedures	0(0.0)	49(25.3)	26(13.4)	80(41.2)	39(20.1)	3.56	1.08
Limited access to equipment reduced hands-on experience	0(0.0)	30(15.5)	20(10.3)	70(36.1)	74(38.1)	3.97	1.05
Inadequate guidance impacted understanding of procedures	0(0.0)	50(25.8)	9(4.6)	62(32.0)	73(37.6)	3.81	1.19
Challenges hindered progress as a radiography student	0(0.0)	34(17.5)	25(12.9)	79(40.7)	56(28.9)	3.81	1.04
Interest in radiography profession affected by difficulties	18(9.3)	62(32.0)	4(2.1)	35(18.0)	75(38.7)	3.45	1.49

Table 4.3 shows the impact of challenges on learning experience. Limited access to equipment severely limited hands-on experience for 74.2% of respondents (mean = 3.97, SD = 1.05), while 69.6% said that poor advice harmed their knowledge of processes (mean = 3.81, SD = 1.19). Similarly, 69.6% felt that these problems affected their overall progress as radiography students (mean = 3.81, SD = 1.04). The problems negatively affected students' confidence in performing procedures, with 61.3% expressing agreement (mean = 3.56, SD = 1.08). Perhaps most troubling is the result that 56.7% of students said that these obstacles impaired their interest in the radiography profession (mean = 3.45, SD = 1.49).

Table 4.4: Coping Strategies Employed by Students

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Mean	SD
Sought help from peers to overcome challenges	0(0.0)	30(15.5)	22(11.3)	87(44.8)	55(28.4)	3.86	1.00
Relied on self-directed learning	0(0.0)	9(4.6)	12(6.2)	109(56.2)	64(33.0)	4.18	0.74
Actively sought feedback from clinical supervisors	0(0.0)	10(5.2)	35(18.0)	112(57.7)	37(19.1)	3.91	0.76
Practiced stress management techniques	0(0.0)	23(11.9)	88(45.4)	77(39.7)	6(3.1)	3.34	0.73
Focused on specific tasks that could be controlled	0(0.0)	13(6.7)	27(13.9)	116(59.8)	38(19.6)	3.92	0.78
Approached other healthcare professionals for guidance	0(0.0)	2(1.0)	33(17.0)	133(68.6)	26(13.4)	3.94	0.59
Despite challenges, feels adequately prepared for professional practice	16(8.2)	25(12.9)	105(54.1)	44(22.7)	4(2.1)	2.97	0.88

Table 4.4 shows the coping strategies employed by students. Self-directed learning emerged as the most prevalent way (mean = 4.18, SD = 0.74), with 89.2% of respondents depending on this method. Seeking guidance from other healthcare professionals was another popular technique (mean = 3.94, SD = 0.59), adopted by 82% of the students, emphasizing the importance of interprofessional learning in clinical settings. Students also focused on specific controllable tasks (mean = 3.92, SD = 0.78), with 79.4% adopting this technique, and actively sought input from clinical supervisors (mean = 3.91, SD = 0.76), with 76.8% applying this strategy. Peer assistance was crucial for 73.2% of respondents (mean = 3.86, SD = 1.00), demonstrating the relevance of collaborative learning among students. Stress management approaches were adopted to a lower

extent (mean = 3.34, SD = 0.73), with 42.8% of students employing such measures, while 45.4% remained neutral on this strategy.

Hypothesis Testing

Table 4.5: Mean comparison of challenges encountered based on academic level

Year of study	Mean	Std. Deviation	F	P
Year 3	3.3020	0.72012	11.32	<0.001
Year 4	3.3049	0.87460		
Year 5	3.8869	0.52299		
Total	3.4477	0.77557		

The table showed that the year 5 students tend to have the highest level of challenge and from the post hoc analysis was significantly higher than year 3 and year 4. The mean difference in the different level if statistically significant ($p<0.001$). We therefore reject the null hypothesis.

Discussion of Findings

The study showed a largely young adult population of radiography students, with the majority (57.7%) aged 21-25 years. There is a large gender imbalance, with females forming 78.9% of

respondents. Most students were in their third year of study (40.7%), and the majority (79.9%) had relatively limited clinical posting periods of 0-10 weeks.

The most important problem mentioned was time limits during clinical rotations (mean = 4.25), with 88.7% of students believing that this reduced their practical learning opportunities. This study corresponds with Akpaniwo et al., (2018), who stated that the allowed time to specialize imaging modalities such as CT, MRI, and ultrasound was "grossly inadequate." They especially underlined that these rooms had limited allocation times of 26%, 24%, and 38% correspondingly before students were rotated to other places. The second most significant obstacle was difficulty understanding complex procedures without sufficient assistance (mean = 4.18), with 85% of students in agreement. This corresponds with Eze et al., (2020), who highlighted that colleges in Nigeria "struggle to provide adequate supervision and mentorship for their students during clinical posting, which can lead to a lack of feedback and support for students as they develop their skills." Equipment-related issues were mentioned by 51.6% of respondents (mean = 3.24). This is congruent with findings from Kumsa et al., (2022), who emphasized statements from clinical staff such as "There is scarcity of imaging equipment in our hospitals; one machine is out of order today and we are using only one machine. Therefore, it is challenging to train pupils as well as service provided to patients." Bwanga et al., (2019) similarly cited "lack of dedicated training imaging equipment" as a barrier in radiography education. There were conflicting perspectives regarding supervision, with 41.3% of students reporting inadequate supervision or mentorship (mean = 3.03). This issue was also observed by Fowler and Wilford (2016), who reported that radiography students expressed concern about rising workloads resulting in radiographers not paying attention to students' learning needs. Nearly half (49.5%) of the students believed that the number of students per clinical supervisor was too high (mean = 3.04).

This aligns with Kumsa et al., (2022), who reported that "students reported an inconvenience in relation to a high student-to-placement site ratio" and noted that "there exists a mismatch between number of students placed at a hospital or imaging center and the available resources to support their learning." A large proportion (49.5%) of respondents acknowledged a lack of structured learning objectives during their clinical posts (mean = 3.19). This issue corresponds to Chinene et al.,'s (2023) comment that "unlike classroom education, during clinical placements, much of the day-to-day activities are unplanned and unstructured, hence, learning occurs in a complex environment." Interpersonal issues with staff or other students were reported by 46.9% of respondents (mean = 3.21). This corresponds with Challen et al.,'s (2017) findings, where students noted disparities between what they were taught about professionalism and what they observed in hospitals, with one student stating: "College is the place where professionalism is taught to us to a large extent, and clinical placement gives us an opportunity to reflect upon all of it and compare with it…and often things are not so professional in hospitals."

The most major impact identified was limited hands-on experience due to equipment limits (mean = 3.97), affecting 74.2% of students. This correlates with Akpaniwo et al., (2018), who reported that only a small fraction of students had hands-on experience with certain procedures, such as radiographic evaluation of the mandible (4%) or seeing mammographic examinations (6%). Poor guidance significantly impacted 69.6% of students' grasp of processes (mean = 3.81). This finding connects to Challen et al.,'s (2017) observation of students feeling disparity in their clinical experiences, with one student expressing concern about observed practices that contradicted their schooling. The problems inhibited overall achievement for 69.6% of pupils (mean = 3.81). This aligns with Adegoke et al.,'s (2021) conclusion that "radiography students universities in Nigeria struggle to secure clinical placement opportunities due to a lack of

available sites and competition with other healthcare programs." Reduced confidence in completing procedures was observed by 61.3% of students (mean = 3.56). This refers to Greenway *et al.'s* (2019) advice that "to further improve clinical skills, higher education institutes offering radiography training should design their curricula to cater for adequate training within the clinical skills laboratory of the university and the CP sites." Perhaps most alarming, 56.7% of students said that these problems negatively influenced their interest in the radiography profession (mean = 3.45). This conclusion underlines the possible long-term impact of these difficulties on the radiography workforce.

The most popular coping method was self-directed learning (mean = 4.18), utilized by 89.2% of pupils. This strategy illustrates kids' perseverance and adaptability in the face of obstacles. Seeking help from other healthcare professionals was taken by 82% of students (mean = 3.94), demonstrating the importance of inter-professional learning in clinical settings. Students also concentrated on specific controllable tasks (79.4%, mean = 3.92) and actively sought feedback from clinical supervisors (76.8%, mean = 3.91). Peer support was vital for 73.2% of respondents (mean = 3.86), highlighting the relevance of collaborative learning among students. Stress management approaches were less often adopted (42.8%, mean = 3.34), with many students (45.4%) staying indifferent on this strategy. Despite these coping techniques, only 24.8% of students felt well prepared for professional practice (mean = 2.97), with the majority (54.1%) staying neutral on this topic.

CHAPTER FIVE

CONCLUSION, RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER STUDIES

5.1 Conclusion

This study assessed the challenges faced by radiography students of the University of Benin during clinical postings. The findings reveal that radiography students encounter significant challenges that impact their learning experience and professional development. Time constraints during clinical rotations emerged as the most pressing challenge, with an overwhelming majority of students (88.7%) reporting that limited time hindered their practical learning opportunities. Difficulty understanding complex procedures without proper guidance was another major challenge reported by 85% of students. Equipment and facility limitations significantly impacted the quality of clinical experience, with 74.2% of students reporting that limited access to equipment reduced their hands-on experience. Additionally, the high student-to-supervisor ratio, lack of structured learning objectives, and interpersonal challenges with staff further complicated the learning environment. These challenges collectively affected students' confidence in performing procedures, understanding of radiographic processes, and overall progress in their education. Despite these challenges, students demonstrated resilience by employing various coping strategies, with self-directed learning being the most prevalent approach (89.2%). Other strategies included seeking guidance from healthcare professionals outside their direct supervision, focusing on controllable tasks, actively seeking feedback, and relying on peer support. However, it is concerning that only 24.8% of students felt adequately prepared for professional practice after their clinical postings.

5.2 Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. The Radiography Department at the University of Benin should review and restructure the clinical posting schedule to allow for more time in each rotation, particularly for specialized imaging modalities such as CT, MRI, and ultrasound, ensuring students gain adequate exposure and hands-on experience.
2. A formal mentorship program should be established, pairing students with dedicated clinical instructors who can provide consistent guidance, feedback, and support throughout the clinical posting period.
3. The university should invest in simulation-based education to supplement clinical experience, particularly in areas where equipment access is limited, allowing students to practice procedures in a controlled environment before patient interaction.
4. A reduction in the student-to-supervisor ratio should be considered, possibly by establishing partnerships with additional clinical sites or implementing a staggered rotation system.

5.3 Suggestions for Further Studies

The following areas are suggested for further research:

1. A comparative study of radiography clinical education models across different universities in Nigeria to identify best practices and potential areas for standardization.
2. An investigation into the correlation between specific clinical challenges and performance in professional examinations to determine the long-term impact of these challenges.
3. A longitudinal study tracking radiography students from clinical education through to early professional practice to assess the adequacy of clinical preparation.

5.4 Limitations of the Study

This study had several limitations that should be acknowledged:

1. The study was conducted at a single institution (University of Benin), which may limit the generalization of findings to other radiography programs in Nigeria or beyond.
2. The cross-sectional design provides a snapshot of students' experiences at a particular point in time but does not capture changes in perceptions over the course of their education.
3. The reliance on self-reported data through questionnaires may introduce response bias, as students might over-report or under-report challenges based on their recent experiences or expectations.
4. The study did not include the perspectives of clinical supervisors, radiography staff, or lecturers in the department, which could have provided a more comprehensive understanding of the challenges.

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APPENDIX I

ETHICAL APPROVAL

RESEARCH ETHICS COMMITTEE
COLLEGE OF MEDICAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.

Chairman: Prof. F. A Imarhiagbe
MBChb, FMCP
Cert Clin Res and ethics (NIH), MD.
0803449092

P.M.B 1154, BENIN CITY
Email: researchethics.cms@gmail.com

Our Ref: CMS/REC/01/VOL.2/726 **Date: 17th March, 2025**

Re: ASSESSMENT OF THE CHALLENGES FACED BY RADIOGRAPHY STUDENTS OF UNIVERSITY OF BENIN DURING CLINICAL POSTINGS

Name of Principal Investigator: **PIUS HOPE OLUCHI**
Department Of Radiography,
School of Basic Medical Sciences,
University Of Benin,
Benin City.

REC Approval No: CMS/REC/2024/726

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 **17th March, 2025 to 18th March, 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

APPENDIX II

QUESTIONNAIRE

Dear Respondent,

I PIUS HOPE OLUCHI, a student of the University of Benin, Radiography department is carrying out a research study on Assessment of the Challenges Faced by Radiography Students of University of Benin During Clinical Postings Your co-operation is highly needed in answering the questions below, as this will enhance success of the study. All information given will be strictly confidential and used for the purpose of the study only.

Thanks for your co-operation.

Yours faithfully,

PIUS HOPE OLUCHI

Section A: Demographic Information

1. Age: 15-20 [ ] 21-25 [ ] 26-30 [ ]

2. Gender:

Male [ ] Female [ ]

3. Year of Study:

Year 3 [ ] Year 4 [ ] Year 5 [ ]

4. Duration of Clinical Posting in weeks: 0-10 weeks [ ] 11-20 weeks [ ]

21-30 weeks [ ]

Section B: Challenges Encountered During Clinical Postings

Please indicate your level of agreement with the following statements.

1. I encountered difficulties with insufficient equipment or outdated facilities during my clinical posting.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

2. I experienced inadequate supervision or mentorship from clinical instructors.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

3. I found it challenging to understand complex procedures without proper guidance.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

4. There was a lack of structured learning objectives during my posting.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

5. Interpersonal challenges with staff or other students impacted my clinical experience.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

6. The number of students per clinical supervisor was too high, limiting individual attention.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

7. Time constraints during clinical rotations limited my practical learning opportunities.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

Section C: Impact of Challenges on Learning Experience

1. The challenges I encountered negatively affected my confidence in performing radiographic procedures.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

2. Limited access to equipment or facilities reduced my hands-on experience.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

3. Inadequate guidance impacted my understanding of radiographic procedures.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

4. I feel that these challenges have hindered my progress as a radiography student.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

5. My interest in the radiography profession has been affected by the difficulties faced during clinical postings.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

Section D: Coping Strategies Employed by Students

1. I sought help from my peers to overcome challenges during clinical postings.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

2. I relied on self-study and additional resources to supplement my clinical training.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

3. I actively sought feedback from clinical supervisors to improve my performance.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

4. I practised stress management techniques to deal with the demands of clinical postings.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

5. I focused on specific tasks I could control to make the most of my clinical experience.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

6. I approached other healthcare professionals (e.g., senior students, staff) for guidance when needed.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree [ ]

7. Despite these challenges, I feel adequately prepared for professional practice.

Strongly Agree [ ]

Agree [ ]

Neutral [ ]

Disagree [ ]

Strongly Disagree