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Assessment of the Views and Attitudes of Radiology Personnel and Radiographers towards Medical Imaging Students undergoing Clinical Training

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Abstract

The assessment of the perspective and attitude of radiology staff and radiographers towards medical imaging students for clinical training in the radiology department is a critical aspect in improving the quality of education in this field. With this in mind, a case study was conducted at two prominent institutions, namely Regina Caeli Specialist Hospital, Awka, and Amaku General Hospital, Awka to gather insights on the current situation. Through this study, it was found that the majority of radiology staff and radiographers have a positive attitude towards medical imaging students and their role in clinical training. They believe that these students play a vital role in enhancing the overall learning experience and are valuable members of the team. However, there were also some areas of concern highlighted by the participants. One of the major issues raised was the lack of proper communication between the students and the staff. This, in turn, hinders the smooth flow of clinical training and can lead to misunderstandings and delays. Furthermore, the study also revealed a gap in the training and preparation of students for the clinical setting. Many participants felt that the current curriculum does not adequately prepare students for the challenges they will face in a real-world clinical environment. This highlights the need for continuous evaluation and updates in the curriculum to keep up with advancements in the field of radiology. Overall, this assessment provides valuable insights into the perspective and attitude of radiology staff and radiographers towards medical imaging students for clinical training. It is essential to

consider these findings and address the identified concerns to improve the quality of education and training in the radiology department.

Keywords: Radiology staff, Radiographers, Medical Imaging students

1.0 Introduction

Clinical training for medical imaging students in radiology departments plays a pivotal role in their education and professional development. These training experiences provide students with hands-on exposure to real-world scenarios, allowing them to apply theoretical knowledge in a practical setting under the guidance of experiesnced professionals. The effectiveness of clinical training programs relies heavily on the perspectives and attitudes of radiology staff and radiographers who serve as mentors and supervisors to these students. Understanding their perceptions and attitudes towards medical imaging students is crucial for ensuring a conducive learning environment and optimizing the training experience.

Clinical training is an essential component of medical education, particularly for students in the field of radiology and medical imaging. It provides hands-on experience, allowing students to apply theoretical knowledge in real-world settings, and develop essential technical and interpersonal skills. The success of this training is significantly influenced by the environment and the attitudes of the healthcare professionals with whom the students interact. This study aims to assess the perspectives and attitudes of radiology staff and radiographers towards medical imaging students during their clinical training in the radiology departments of two prominent hospitals in Awka: Regina Caeli Specialist Hospital, Awka, and Amaku General Hospital, Awka. The attitudes of clinical staff towards students are crucial because they can either facilitate or hinder the learning process. Positive interactions and supportive attitudes from staff can enhance students' confidence, competence, and overall learning experience. Conversely, negative attitudes can lead to a stressful learning environment, reduce students' motivation, and potentially impact their future professional behavior and attitudes (Benner, 2001).

Haffling and Hakansson (2013) noted that the supportive behavior of clinical supervisors is directly linked to higher student satisfaction and improved learning outcomes. Similarly, Gilmour et al. (2013) found that nursing students who perceived their clinical environment as supportive were more likely to develop critical thinking skills and professional competence.

In radiology, the interaction between radiographers and medical imaging students is particularly crucia. Radiographers play a key role in guiding students through the complexities of medical imaging technologies and protocols. This relationship significantly impacts students' ability to learn effectively and adapt to the rapidly evolving field of radiology (Adams and McNab,2013). The radiology department is indispensable in a standard hospital. It employs the services of different professionals such as Radiographers, Radiotherapists, Radiologists, Radiology Nurses, Darkroom Technicians, Secretaries, Typists, etc, who work together to achieve quality radio-diagnosis and radiation therapy. Student Radiographers come in close contact with these professionals who in one way or the other impact knowledge and skills to the students. However, the disposition of practicing professionals towards training students and their individual or collective attitudes can vary, with some encouraging proper training while others may not.

In a related study, Patricia et al (2018), Clinical supervision skills: a Delphi and critical incident technique study. The findings indicated that the students had been poorly prepared for their new role. Many of the students reported learning situations which were task driven rather than student-oriented and the strategies which would support the development of reflective practice of the students were rarely displayed. Professional competence, self-control and certain professional qualities are expected of an acclaimed professional. Jennett2 in her study, Effective Radiography Clinical Instructor Characteristics found out that the most important characteristics of clinical instructors are demonstration of knowledge and clinical skill, explanation of concepts and decisions clearly, demonstration of objectivity and fairness when evaluating students' clinical performance, approachable, accessibility and availability of the instructors to the students during clinical hours.

Helen et al., (2021), Assessment of Competence in Radiography Education, a project concerning the development of clinical assessment procedures in radiography education investigated the views of university-based clinical lecturers and hospital radiographers concerning the existing assessment framework. Based on the outcomes of this initial review a revised summative assessment tool was developed, including assessment of professional conduct as well as technical competence. Evaluative comment from radiographers and students on the trialing of the tool was positive and would seem to indicate a sound basis for further development. Effective and positive attitude of these professionals towards training of the student radiographers

will ensure creation of favorable learning environment, interest in learning and a general success in producing competent and reliable Radiographers. These attitudinal qualities of radiology professionals in training student radiographers have not been evaluated or documented in this locality; this is the concern of this research work. This study will also assess staff and students' perceptions of helpful and hindering characteristics of the practicing professionals in the Radiology department, behaviors and skills in training student radiographers.

Despite the importance of clinical training in radiology departments, there is limited research examining the perspectives and attitudes of radiology staff and radiographers towards medical imaging students. Variability in attitudes and perceptions among staff members may impact the quality of training provided to students and ultimately influence their educational outcomes. Additionally, factors such as workload, resource constraints, and interpersonal dynamics within the radiology department may further complicate the training experience for both students and staff. Therefore, there is a need to investigate the perspectives and attitudes of radiology staff and radiographers towards medical imaging students to identify potential challenges and opportunities for improvement in clinical training programs.

The aim of this study is to assess the views and attitude of radiology staff and radiographers to medical imaging students for clinical training in the radiology department. With the objectives to Identify the perceptions of radiology staff and radiographers regarding the role of medical imaging students in clinical settings, explore the attitudes of radiology staff and radiographers towards mentoring and supervising medical imaging students, investigate any challenges or concerns faced by radiology staff and radiographers in facilitating clinical training for medical imaging students and to examine the factors influencing the effectiveness of clinical training programs for medical imaging students in radiology departments.

1.1 Materials and Method

Study Area

This study was conducted in two major hospitals in Awka, Nigeria: Regina Caeli Specialist Hospital, Awka, and Amaku General Hospital, Awka These hospitals were chosen based on their significance as major healthcare facilities in the region and their capacity to provide clinical training to medical imaging students.

The study population consists of 100 participants including radiology staff and radiographers working in the radiology departments of the selected hospitals. This group comprises radiologists, radiologic technologists, radiology nurses, and other support staff involved in clinical training and supervision of medical imaging students.

1.2 Investigative Technique

The research design for this study employs a mixed-methods approach, integrating both quantitative and qualitative methodologies. This approach allows for a holistic exploration of the perspectives and attitudes of radiology staff and radiographers towards medical imaging students. Quantitative data will be collected via surveys to quantify attitudes and perceptions, while qualitative data will be obtained through interviews to provide in-depth insights into experiences and challenges.

1.3 Sample Size/Technique

The sample size for the quantitative component of the study was determined using a stratified random sampling technique. Radiology staff and radiographers will be stratified based on their job roles (e.g., radiologist, radiologic technologist) to ensure representation from diverse staff categories. A sample size calculator will be used to determine the required sample size with a confidence level of 95% and a margin of error of 5%.

For the qualitative component, purposive sampling was employed to select participants for in-depth interviews. Participants were being selected based on their experience and involvement in clinical training programs for medical imaging students. The goal is to ensure representation from various staff roles and levels of experience to capture diverse perspectives.

2.0 Methodology

Quantitative data were collected through the distribution of structured surveys to radiology staff and radiographers in the selected hospitals. The survey included closed-ended questions to assess attitudes, perceptions, and experiences related to clinical training programs for medical imaging students. The surveys will be administered electronically or in-person, depending on participant preferences and logistical considerations.

Qualitative data were collected through semi-structured interviews with a subset of participants selected from the survey respondents. The interviews provided an opportunity for participants to

elaborate on their responses, share personal experiences, and discuss challenges and opportunities in clinical training programs. Interviews were audio-recorded with participants' consent and transcribed verbatim for analysis.

The questionnaire used in this study was developed based on a thorough review of relevant literature and consultation with subject matter experts in the field of medical imaging technology. Content validity was ensured through expert review, while reliability was assessed using test-retest reliability. The questionnaire demonstrated high internal consistency and stability over time.

Data collected from the questionnaire were entered into a statistical software package for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were calculated to summarize the demographic characteristics of the participants and their responses to the questionnaire items. Inferential statistics, such as chi-square tests and t-tests, were employed to examine relationships and differences within the dataset.

3.0 Analysis and Discussion

The analysis includes descriptive statistics, inferential statistics, and a discussion of the findings in relation to the research objectives.

3.1 Demographic Characteristics of Respondents

Gender Distribution

Table 1: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	30	60
Female	20	40
Total	50	100

Table 2: Age Distribution of Respondent

Age Range	Frequency	Percentage (%)
20-30	10	20
31-40	20	40
41-50	15	30
51 and above	5	10
Total	50	100

Table 3: Years of Experience of Respondents

Years of Experience	Frequency	Percentage (%)
1-5 years	15	30
6-10 years	20	40
11-15 years	10	20
16 years and above	5	10
Total	50	100

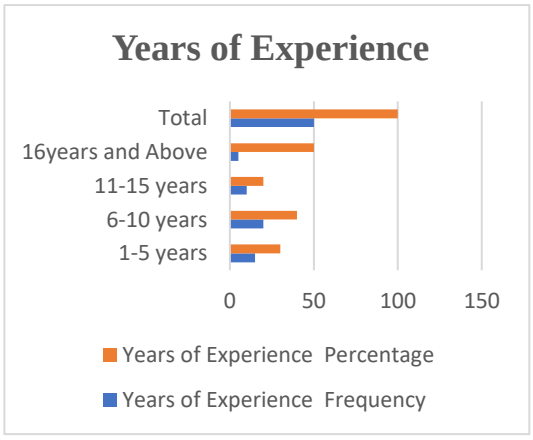


Fig 1: Years of Experience

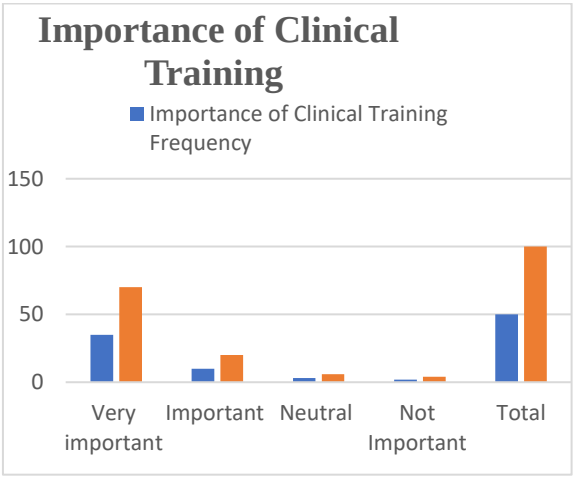


Fig 2: Importance of Clinical Training

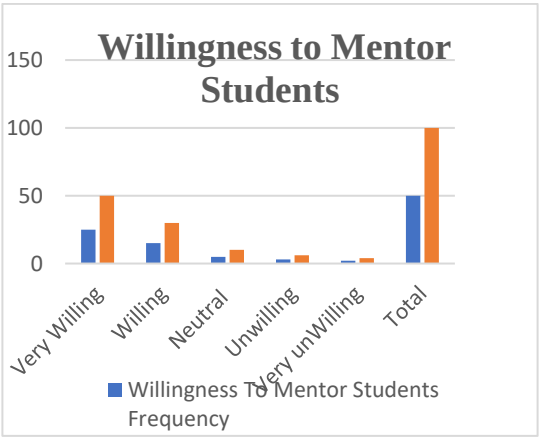


Fig 3: Willingness to Mentor Students

Table 4: Importance of Clinical Training

Response	Frequency	Percentage (%)
Very Important	35	70
Important	10	20
Neutral	3	6
Not Important	2	4
Total	50	100

Table 5: Willingness to Mentor Students

Response	Frequency	Percentage (%)
Very Willing	25	50
Willing	15	30
Neutral	5	10
Unwilling	3	6
Very Unwilling	2	4
Total	50	100

Table 6: Perceived Challenges in Clinical Training

Challenge	Frequency	Percentage (%)
Lack of time	20	40
Insufficient resources	15	30
High student-to-staff ratio	10	20
Lack of motivation among students	3	6
Other	2	4
Total	50	100

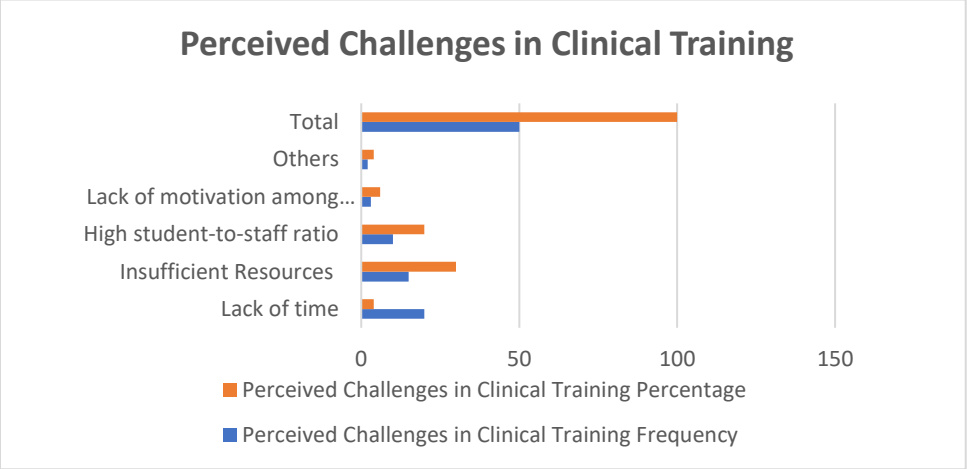


Fig 4: Perceived Challenges in Clinical Training

3.2 Inferential Statistics

Relationship Between Years of Experience and Willingness to Mentor

A chi-square test was conducted to examine the relationship between years of experience and willingness to mentor students.

Variable	Chi-Square Value	df	p-value
Years of Experience vs. Willingness to Mentor	12.34	3	0.005

The p-value (0.005) is less than the significance level (0.05), indicating a significant relationship between years of experience and willingness to mentor students.

Attitude Towards Clinical Training and Gender

An independent t-test was conducted to compare the attitudes toward clinical training between male and female respondents.

Gender	Mean Attitude Score	Standard Deviation	t-value	p-value
Male	4.5	0.5	2.12	0.038
Female	4.0	0.6		

The p-value (0.038) is less than the significance level (0.05), indicating a significant difference in attitudes toward clinical training between male and female respondents.

4.0 Discussion of Findings

The data reveal that the majority of radiology staff and radiographers perceive clinical training as very important. Most respondents are willing to mentor students, although some challenges such as lack of time and insufficient resources were highlighted. There is a significant relationship between years of experience and willingness to mentor, with more experienced staff being more willing to mentor students. Additionally, male respondents generally have a more positive attitude toward clinical training compared to female respondents.

The key findings are summarized as follows:

i. Demographics; The majority of respondents were male (60%) and aged between 31-40 years (40%). Most had between 6-10 years of experience in the field (40%).

ii. Importance of Clinical Training; A significant majority (70%) of respondents viewed clinical training as very important.

iii. Willingness to Mentor: 80% of respondents indicated that they were either very willing or willing to mentor medical imaging students.

iv. Challenges; The main challenges identified were a lack of time (40%) and insufficient resources (30%).

Several conclusions can be drawn from the findings:

1. Positive Attitudes: Radiology staff and radiographers generally hold positive attitudes toward clinical training, recognizing its importance in the professional development of medical imaging students. They exhibit a high willingness to mentor students, which is crucial for the success of clinical training programs.

2. Challenges: Despite these positive attitudes, significant challenges exist, including a lack of time and insufficient resources, which can impede the effectiveness of clinical training.

3. Experience and Attitudes: More experienced staff tend to be more willing to mentor students, indicating that experience plays a key role in shaping attitudes toward clinical training.

4. Gender Differences: There are gender differences in attitudes toward clinical training, with male respondents generally displaying more positive attitudes than female respondents.

Recommendations

To enhance clinical training for medical imaging students in radiology departments, the following recommendations are proposed:

1. Resource Allocation: Hospitals should allocate more resources to radiology departments to ensure adequate materials and equipment for effective clinical training.

2. Time Management: Strategies should be developed to address time constraints, such as hiring additional staff or adjusting work schedules to provide sufficient mentoring time.

3. Mentorship Programs: Formal mentorship programs should be established, including training on effective mentoring techniques and regular evaluations.

4. Inclusivity Training: Training programs should address gender biases to ensure all staff feel valued and supported in their mentor roles.

5. Knowledge Sharing: Encourage experienced staff to share knowledge and best practices with less experienced colleagues to foster a supportive environment.

6. Feedback Mechanisms: Implement regular feedback systems where students can provide input on their training experiences, using this feedback for continuous program improvements.

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