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Motivation and Clinical Performance in X-ray modality: A Correlational Study among Junior Radiologic Technology Interns in Calamba City

[1]Jessica G. Bitara, [2]Jenrose Elsa A. Pardines, [3]Ma. Angelika Jestine C. Perez, [4]Ghia Jilliane P. Francia, [5]Zhedrik D. Pelagio
Calamba Doctors' College
[1]jessica@calambadoctorscollege.edu.ph, [2]jepardines@calambadoctorscollege.edu.ph,
[3]majperez@calambadoctorscollege.edu.ph, [4]gfrancia@calambadoctorscollege.edu.ph,
[5]zdpelagio@calambadoctorscollege.edu.ph

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Corresponding Email:
jessica@calambadoctorscollege.edu.ph

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Index Terms:

motivation, clinical performance, clinical environment, student interns, career opportunities, x-ray modality

Abstract. Motivation plays an important role in influencing students' engagement, confidence, willingness to learn, and commitment during clinical duties. This study aimed to determine the relationship between motivation and clinical performance among junior Radiologic Technology interns assigned in the X-ray modality. Specifically, it examined academic motivation, career motivation and opportunities, and clinical environment support in relation to clinical performance in patient handling, positioning techniques, radiation safety practices, and equipment operation. The study utilized a descriptive-correlational research design and involved sixty-seven (67) respondents. Data were collected using a structured questionnaire and analyzed through weighted mean and Pearson r. The findings revealed that respondents demonstrated high levels of motivation across all dimensions (M = 3.74) and strong clinical performance (M = 3.41). However, academic motivation showed no significant relationship with clinical performance in patient handling, positioning techniques, equipment operation, and radiation safety practices, as indicated by very weak correlations and p-values greater than 0.05. Similarly, career motivation and opportunities showed no significant relationship with patient handling, positioning techniques, and equipment operation, although a significant relationship was found with radiation safety practices (p-value = 0.044). Clinical environment support also showed no significant relationship with patient handling, positioning techniques, and equipment operation, but demonstrated a significant relationship with radiation safety practices (p-value = 0.026). Overall, the findings suggest that motivation alone does not strongly influence technical clinical performance, particularly in skill-based tasks requiring hands-on competence and technical proficiency. However, motivation and clinical environment support may contribute to professional responsibility and adherence to radiation safety standards. The study recommends strengthening practical training, structured clinical exposure, and competency-based learning experiences to further enhance interns' clinical performance.

Introduction

Radiologic Technology plays a crucial role in modern healthcare, particularly in diagnostic imaging where accurate X-ray procedures guide clinical decision-making and patient management. As part of professional training, clinical internships serve as a vital bridge between theoretical knowledge and real world application, ensuring students develop competencies required for safe and effective radiographic practice. Previous studies emphasize that structured clinical training significantly enhances technical competence, critical thinking, and readiness for professional practice among radiologic technology interns (Estira, 2024). According to the studies conducted by Chon

(2019), interns generally demonstrate moderate to high proficiency in radiographic tasks such as patient handling, positioning, and equipment operation, with performance improving through supervised practice and hands-on clinical experience. However, despite the established findings, prior research also reveals several limitations. Studies in radiography education indicate that interns often experience a mismatch between their expectations and actual clinical experiences during training, which can result in reduced motivation, lower engagement, and dissatisfaction in the clinical setting (Ago et al., 2025). Interns also experienced difficulties in translating theoretical knowledge into clinical practice, limited clinical exposure and insufficient support systems leading to barriers of skill development (Cerbito et al., 2020).

This gap points to a paucity of research, the relationship between motivation and clinical performance among radiologic technology interns, particularly in the context of X-ray modality. Existing literature tends to focus broadly on healthcare students or other disciplines, with limited attention given to specific motivations, attitudes, and challenges experienced by interns (Alshamrani et al., 2023; Alsharif et al., 2022). Understanding this relationship has important implications for education and clinical practice, wherein identifying how motivation, specifically academic, career opportunities and clinical environment support affect interns' performance, improves student outcomes and patient care quality.

Conceptual Framework

This study was based on the established theories that explain the relationship between motivation and performance in clinical training. It is grounded in three (3) theories, which are Social Cognitive Career Theory (Lent, Brown, & Hackett, 1994), the Job Demands-Resources (JD-R) Model (Demerouti et al., 2001), and Self-Determination Theory (Deci & Ryan, 2000). These frameworks collectively explain how internal factors such as self-efficacy, goals, and intrinsic motivation, as well as external factors such as clinical environment and support systems, influence interns' performance. The integration of these theories provides a comprehensive understanding of how motivation affects clinical outcomes in X-ray modality.

Figure 1 presents the conceptual framework of the study, illustrating the relationship between the independent and dependent variables. The independent variable is the motivation, which are categorized into academic motivation, career opportunity, and environment support. These components represent the different factors that may influence the performance of interns during their clinical internship. On the other hand, the dependent variable is clinical performance in X-ray modality, which is measured in terms of patient handling, equipment operation, positioning techniques, and radiation safety practices. These domains reflect the essential competencies required of radiologic technology interns in clinical settings.

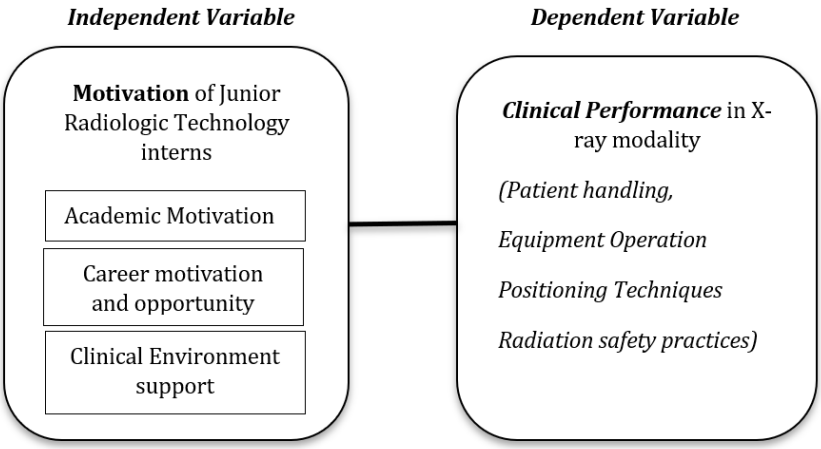

Figure 1. Research Paradigm

Statement of the Problem

The primary purpose of the study is to determine the relationship between motivation and clinical performance among junior radiologic technology interns in X-ray modality in Calamba City. Specifically, it aims to assess the interns' levels of motivation, evaluate their clinical performance, and determine whether significant associations exist between the variables.

Specifically, this study sought to answer the following research questions:

What is the level of motivation of junior radiologic technology interns in terms of academic motivation, career motivation and opportunity, and clinical environment support?
What is the level of clinical performance of junior radiologic technology interns in X-ray modality in terms of patient handling, equipment operation, positioning techniques, and radiation safety practices?
Is there a significant relationship between motivation and clinical performance among the junior radiologic technology interns?

Null Hypothesis

The hypothesis will be tested at a 0.05 level of significance.

Ho: There is no significant relationship between the level of motivation in terms of academic motivation, career opportunity, and clinical environment support, and the level of clinical performance among junior radiologic technology interns in X-ray modality in terms of patient handling, equipment operation, positioning techniques, and radiation safety practices in Calamba City.

Methodology

Research Design

The research design used in this study was descriptive-correlational research design, a quantitative design commonly used for describing the levels of variables and examining the relationship between variables (Creswell, 2014). The descriptive section of the design helped establish the levels of motivation among the radiologic technology interns in terms of academic motivation, career opportunity and clinical environment support, and the level of intern's clinical performance. The correlational mode of design tested the correlation of the levels of motivations with a clinical performance of interns in X-ray modality. This renders the design suitable, since the aim of the research is to determine whether the measure of motivations was associated with more or less clinical performance.

Research Locale

This study was conducted in Calamba City, Laguna. The locale includes the school institutions offering Radiologic Technology programs and their affiliated clinical training sites. These institutions provide structured clinical training where radiologic technology interns are exposed to actual patient care, radiographic procedures, and equipment operation, making it suitable for gathering relevant and sufficient data for the study.

Respondents of the Study

The participants of the study were junior Radiologic Technology (RT) interns undergoing their clinical internship in various institutions and clinical-affiliated sites within Calamba City. These participants were selected due to their direct involvement in clinical practice, providing pertinent information for the study objectives. A total of 67 junior interns who met the inclusion criteria and were accessible during the study period participated in the research.

Sampling Procedure

A non-probability sampling method known as total sampling was used in this study. This involves examining all members of a defined target group rather than a subset. All 67 junior Radiologic Technology interns were included in the study. This approach was chosen since the number of eligible respondents was manageable, ensuring that the data collected accurately reflects the entire population and provides a comprehensive understanding of the variables.

Research instrument

Questionnaires were adapted from the Academic Motivation Scale–College Version (AMS-C) by Vallerand et al. and Clinical Learning Environment (CLE) reframed specifically as a Source of Motivation and Career Motivation Profile were used. The subsequent tools were modified to suit the measurement of academic motivation, career motivation and opportunities and clinical environment support in the context of Radiologic Technology. The Motivational scale is divided into two parts: Part I for the demographic portrait of the respondents and Part II which is focused on motivation assessment. The Clinical Performance Evaluation Tool was utilized by clinical teachers to evaluate the performance of the interns. Validity was confirmed by five experts; reliability via pilot testing showed Cronbach's Alpha of 0.878 (motivation) and 0.929 (CPET), indicating high internal consistency.

Data Gathering Procedure

Following the completion of questionnaire validation and reliability testing, the researchers proceeded with the formal request for approval. Prior to the actual data gathering, letters were submitted to the respective deans or program head and clinical instructors to seek permission and support for the conduct of the study. Respondents were briefed on the study purpose and assured of confidentiality. The data collection process was then conducted, wherein the validated questionnaires were administered. The student interns responded to the motivational scale, while the Clinical Instructors evaluated the interns' clinical performance using the Clinical Performance Evaluation Tool, based on their recollection of the interns' prior clinical experiences and performances.

Instrument Scoring

Level of Motivation of Junior Radiologic Technology Interns

The level of motivation of the respondents, in terms of academic motivation, career opportunities, and clinical environment support, was measured using a structured Likert scale. The instrument employed response categories ranging from strongly disagree to strongly agree, each accompanied by corresponding verbal interpretations from very low to very high motivation. This scale provided the basis for the interpretation of the respondents' motivation levels, thereby ensuring a consistent, objective, and standardized procedure for data scoring and analysis.

Rank	Numerical Ranges	Categorical responses	Verbal Interpretation
4	3.26 – 4.00	Strongly Agree	Very High Motivation
3	2.51 – 3.25	Agree	High Motivation
2	1.76 – 2.50	Disagree	Low Motivation
1	1.00 – 1.75	Strongly Disagree	Very Low Motivation

Level of Clinical Performance of Junior Radiologic Technology Interns

The clinical performance of the respondents was assessed using the Clinical Performance Evaluation Tool (CPET). The scale consists of response categories ranging from unsatisfactory to excellent, with corresponding verbal interpretations from very low to very high performance. This framework provides a standardized basis for evaluating and interpreting the respondents' clinical competencies, ensuring consistency and objectivity in the assessment process.

Rank	Numerical Ranges	Categorical responses	Verbal Interpretation
4	3.26 – 4.00	Strongly Agree	Very High Performance
3	2.51 – 3.25	Agree	High Performance
2	1.76 – 2.50	Disagree	Low Performance
1	1.00 – 1.75	Strongly Disagree	Very Low Performance

Statistical Treatment of Data

Descriptive and inferential statistics were employed for data analysis. Weighted means and standard deviations evaluated motivation levels and clinical performance (patient handling, equipment operation, positioning techniques, radiation safety). The Pearson Product-Moment Correlation Coefficient (Pearson r) examined the relationship's strength and direction.

Ethical Consideration

The researcher ensured that ethical principles were observed throughout the study. An informed consent was obtained from authorities and participants, before the data gathering. Confidentiality and anonymity were guaranteed and all data were kept in a secured file accessible only to the researchers and the adviser. The researcher strictly adhered to the ethical guidelines stated in the research manual, and the works of other researchers and authors were properly acknowledged.

Results and Discussion

The analysis and interpretation of the collected data are presented in this section. It describes the levels of motivation and clinical performance among student interns. The results are reported using means, standard deviations, and Pearson correlation coefficients to determine both the extent of the variables and the significance of their relationships.

Table 1 shows the demographic profile of junior interns in terms of their sex and age. It presents the frequency and percentage distribution of the respondents, providing a clear overview of their demographic characteristics.

Demographic Variable	Frequency	Percentage
	Sex	
Male	39	58.21%
Female	28	41.79%
	Age	
19-20 years	1	1%
21-22 years	41	62%
23-24 years	24	36%
25-26 years	1	1%
Total:	**67**	**100**

Table 1: Demographic profile of the respondents

The data show that most respondents belong to the 21–22 age group, comprising 41 interns (62%), followed by those aged 23–24 years with 24 interns (36%). Only 1 respondent (1%) falls under the 19–20 age group, and another 1 respondent (1%) belongs to the 25–26 age group. This indicates that the majority of junior interns complete the Bachelor of Science in Radiologic Technology within the expected academic timeframe, with minimal cases of early or delayed completion, reflecting the standard progression of the program in the Philippines.

In terms of gender, out of 67 junior interns, 39 (58.21%) are female and 28 (41.79%) are male. The distribution shows a relatively balanced representation, with a slight predominance of females. This suggests that the Radiologic Technology internship program maintains near-equal gender participation, indicating that the field is accessible and continues to attract both male and female students in line with current trends in healthcare education.

Level of Motivation

Table 2 shows the level of motivation of junior radiologic technology interns in terms of academic motivation. It presents the weighted mean scores, standard deviation, and verbal interpretation, providing a clear summary of the respondents' level of academic motivation and the consistency of their responses.

Academic Motivation	Mw	SD	Verbal Interpretation
1. I am motivated because my studies allow me to continually learn about many aspects of medical imaging that fascinate me.	3.69	0.56	Very High
2. My education gives me a sense of personal satisfaction in striving for excellence in my studies and clinical performance.	3.73	0.54	Very High
3. I experience a sense of excitement or "high" when learning about new imaging techniques, technologies, or cases.	3.72	0.57	Very High
4. I feel satisfied when I am able to accomplish difficult imaging tasks or understand challenging topics.	3.94	0.24	Very High
5. I believe that further education will improve my competence as a future Radiologic Technologist.	3.82	0.49	Very High
Average	**3.78**	**0.39**	**Very High**

Table 2: Level of motivation in terms of Academic motivation

Among the indicators, statement 1 obtained the highest mean (M = 3.94), indicating that interns are highly motivated by achievement and mastery of complex concepts. Statement 2 obtained the lowest mean (M = 3.69), though still interpreted as very high, suggesting sustained intrinsic interest in learning. Overall, junior radiologic technology interns demonstrated

a very high level of academic motivation (M = 3.78), reflecting strong academic drive and commitment to their field. These findings suggest that high academic motivation is associated with increased engagement in learning and skill development. This aligns with Dimaunahan and Panoy (2021), who found that higher academic motivation enhances engagement in technical skill acquisition and supports the development of professional competence through persistence and active participation.

Table 3 shows the level of motivation of junior radiologic technology interns in terms of Career Opportunities. It presents the weighted mean scores, standard deviation, and verbal interpretation, providing a clear summary of the respondents' level of academic motivation and the consistency of their responses.

Career Opportunities	Mw	SD	Verbal Interpretation
1. The possibility of specializing in modalities (e.g., CT, MRI) motivates me to do well now.	3.67	0.47	Very high
2. Pursuing a degree in Radiologic Technology motivates me because it offers promising career opportunities in the healthcare field.	3.81	0.50	Very high
3. I am motivated to work in healthcare because of its stable and secure employment opportunities.	3.54	0.59	Very high
4. The availability of jobs for Radiologic Technologists locally and abroad motivates me to pursue this career.	3.70	0.55	Very high
5. I am driven to pursue RT because it aligns with my long-term career goals and interests in medical imaging.	3.60	0.65	Very high
Average	**3.66**	**0.41**	**Very high**

Table 3: Level of motivation in terms of Career motivation and Opportunities

Among the indicators, statement 2 obtained the highest mean (M = 3.81), indicating that interns are strongly motivated by career opportunities and prospects for professional growth. Statement 3 recorded the lowest mean (M = 3.54), though still interpreted as very high, suggesting that job stability is an important but relatively less dominant motivating factor. Overall, junior radiologic technology interns demonstrated a very high level of career motivation and opportunities (M = 3.66), reflecting strong interest in pursuing and advancing in their chosen profession due to favorable career prospects. These findings are supported by previous studies emphasizing that career motivation in healthcare is largely influenced by perceived opportunities for advancement and professional development. Hassan et al (2020) noted that healthcare career choices are shaped by factors such as professional status, challenging work environments, and growth opportunities, while Pambid and Agawin (2020) highlighted that radiologic technology students' career readiness is strengthened by training and expanding employment opportunities.

Overall, the results suggest that career motivation among interns is primarily driven by future-oriented factors such as professional growth and opportunities rather than job security alone, highlighting the importance of aligning academic and clinical training with evolving industry demands.

Table 4 shows the level of motivation of junior radiologic technology interns in terms of Clinical Environment support. It presents the weighted mean scores, standard deviation, and verbal interpretation, providing a clear summary of the respondents' level of academic motivation and the consistency of their responses.

Clinical Environment Support	Mw	SD	Verbal Interpretation
1. A positive and supportive atmosphere in the radiology department motivates me to remain committed to my training and future profession as a radiologic technologist.	3.72	0.47	Very high

2. Having access to functional and well-maintained imaging equipment motivates me to practice procedures with confidence and interest.	3.76	0.50	Very high
3. Receiving timely and constructive feedback from clinical supervisors motivates me to correct my mistakes and enhance my clinical performance.	3.81	0.59	Very high
4. The guidance and encouragement from clinical instructors and supervising radiologic technologists motivate me to do my best during clinical rotations.	3.75	0.55	Very high
5. The opportunities I am given to perform radiologic procedures during clinical duty motivate me to actively participate and improve my skills.	3.81	0.65	Very high
Average	**3.77**	**0.32**	**Very high**

Table 4: Level of motivation in terms of Clinical Environment support

Among the indicators, statements 3 and 5 obtained the highest mean (M = 3.81), ranking first. This suggests that hands-on clinical experience and constructive feedback are the most influential aspects of clinical environment support for interns. These factors allow students to apply theoretical knowledge in real situations while receiving guidance that helps improve their performance. On the other hand, statement 1 recorded the lowest mean (M = 3.72), although still interpreted as very high. This implies that while a generally supportive atmosphere is important, interns value the direct clinical exposure and feedback-based learning experiences that contribute to their skill development. This finding is supported by Morris and O'Connor (2023), who highlighted that feedback and reflective practices strengthen professional development and skill acquisition among interns. It plays a crucial role in enhancing interns' clinical competence, as these processes allow students to evaluate their performance, learn from experience, and continuously improve their professional skills. Overall, the results show that clinical environment support is a key factor in sustaining high motivation among junior radiologic technology interns. It highlights that a well-structured clinical setting characterized by supervision, access to resources, and effective mentorship plays a crucial role in enhancing students' engagement and motivation.

Level of Clinical Performance

Table 5 presents the level of clinical performance of junior radiologic technology interns in X-ray modality across four domains: *Patient Handling, Equipment Operation, Positioning Techniques, and Radiation Safety Practices.* It includes the weighted mean scores, standard deviation, and corresponding verbal interpretations. The table provides a clear overview of the interns' overall performance and highlights their strengths and variations in clinical skills during practical exposure.

Clinical Performance in terms of:	WM	SD	Verbal Interpretation
1. Patient Handling	3.41	0.57	Very high performance
2. Equipment Operation	3.32	0.59	Very high performance
3. Positioning Techniques	3.31	0.60	Very high performance
4. Radiation Safety Practices	3.59	0.47	Very high performance
Average	**3.77**	**0.56**	**Very high performance**

Table 5: Level of Clinical performance of Junior Radiologic Technology in X-ray modality

The results show that junior interns demonstrate a high level of clinical performance in X-ray modality, with an overall mean score of 3.77 interpreted as "Very high performance." Among the indicators, Radiation Safety Practices obtained the highest mean score (3.59), indicating strong awareness and prioritization of radiation safety. This is followed by Patient Handling (3.41), Equipment Operation (3.32), Positioning Techniques (3.31), reflecting consistent proficiency across core clinical skills.

Overall, the findings suggest that the interns are competent in essential radiologic technology practices, including patient care, equipment use, proper positioning, and radiation safety. These results are consistent with Umpar and Sison (2025), which highlight that radiologic technology interns generally exhibit strong clinical competencies, positive attitudes, and effective application of learned skills in clinical settings. This implies that their academic training effectively translates into competent performance during clinical practice.

Correlation Analysis

The Pearson Product–Moment Correlation was utilized to determine the relationship between student interns' motivation and their clinical performance in X-ray modality. This analysis examined whether academic motivation, career opportunities and Clinical environment is correlated to the clinical performance of junior interns.

Variables (Academic motivation vs)	**Pearson-r**		**Test for r-value**		**Significance df = 65 p<0.05**	**Decision**
	r-value	*Interpretation*	*Computed p-value*	*p-value*		
Patient Handling	0.104	Very Weak Relationship	0.403	0.05	Not Significant	Failed to reject H_0
Equipment Operation	0.010	Very Weak Relationship	0.935	0.05	Not Significant	Failed to reject H_0
Positioning Techniques	0.049	Very Weak Relationship	0.692	0.05	Not Significant	Failed to reject H_0
Radiation Safety Practices	0.206	Weak Relationship	0.094	0.05	Not Significant	Failed to reject H_0

Table 6: Correlation Analysis between Academic motivation and Clinical performance in X-ray modality

The findings reveal that academic motivation has no significant relationship with clinical performance in patient handling, equipment operation, positioning techniques, and radiation safety practices, as indicated by very weak correlations and p-values greater than 0.05, leading to the failure to reject the null hypothesis (H_0). This suggests that academic motivation alone does not sufficiently influence clinical performance, particularly in skill-based tasks requiring technical proficiency and hands-on application. According to Ryan & Deci (2020) academic motivation contributes to learning engagement and academic access but does not always directly predict actual performance outcomes if basic psychological needs of autonomy, competence, and relatedness are not met within the learning environment.

Variables (Career Motivation and Opportunities vs)	**Pearson-r**		**Test for r-value**		**Significance df = 65 p<0.05**	**Decision**
	r-value	*Interpretation*	*Computed p-value*	*p-value*		
Patient Handling	0.111	Very Weak Relationship	0.373	0.05	Not Significant	Failed to reject H_0
Equipment Operation	0.054	Very Weak Relationship	0.662	0.05	Not Significant	Failed to reject H_0
Positioning Techniques	0.049	Very Weak Relationship	0.694	0.05	Not Significant	Failed to reject H_0
Radiation Safety Practices	0.247	Weak Relationship	0.044	0.05	Significant	Reject H_0

Table 7: Correlation Analysis between Career motivation and Opportunities, and Clinical performance in X-ray modality.

The findings reveal that career motivation and opportunities show no significant relationship with clinical performance in patient handling, equipment operation, positioning techniques as indicated by very weak correlations and p-values greater

than 0.05, leading to the failure to reject the null hypothesis (H_0). This indicates that long-term aspirations do not necessarily translate into immediate clinical skill development. A study by Montalbo (2022) concludes that findings suggest that clinical performance is largely influenced by external factors rather than internal motivation alone. This suggests that career-motivated students may not demonstrate strong performance when adequate supervision, structured exposure and training resources are insufficient. Meanwhile, radiation safety practices (p-value=0.044) shows significant relationship as indicated by weak correlations and p-values less than 0.05, leading to the rejection of the null hypothesis (H_0). This indicates that career motivated students may have a greater awareness of professional standards and ethical responsibilities related to radiologic practice. Supporting this, Moore (2021) emphasized that radiation safety culture is fundamentally rooted by professional motivation and human factors which plays a critical role in promoting safe radiologic practices. This suggests that career-motivated students values the radiation safety as a core professional responsibility and as their professional goal rather than regulatory burden.

Variables (Clinical Environment Support)	**Pearson-r**		**Test for r-value**		**Significance df = 65 p<0.05**	**Decision**
	r-value	*Interpretation*	*Computed p-value*	*p-value*		
Patient Handling	0.198	Very Weak Relationship	0.108	0.05	Not Significant	Failed to reject H_0
Equipment Operation	0.109	Very Weak Relationship	0.379	0.05	Not Significant	Failed to reject H_0
Positioning Techniques	0.032	Very Weak Relationship	0.797	0.05	Not Significant	Failed to reject H_0
Radiation Safety Practices	0.271	Weak Relationship	0.026	0.05	Significant	Reject H_0

Table 8: Correlation Analysis between Clinical Environment Support and their Clinical performance in X-ray modality

The findings reveal that clinical environment support show no significant relationship with clinical performance in patient handling, equipment operation, positioning techniques as indicated by very weak correlations and p-values greater than 0.05, leading to the failure to reject the null hypothesis (H_0). A study in BMC Nursing by Zhu et al (2025) highlighted that supportive and student-centered environments enhance learners' satisfaction, engagement and sense of belonging but it does not necessarily improve clinical performance outcomes. This suggests that although interns may be motivated in a well-structured clinical learning environment it did not significantly influence technical performance, indicating that a positive learning environment is insufficient to ensure clinical skill mastery among student interns. Meanwhile, radiation safety practices (p-value=0.026) shows significant relationship as indicated by weak correlations and p-values less than 0.05, leading to the rejection of the null hypothesis (H_0). According to Samaniego-Mananghaya, clinical environment components are more closely linked to professional responsibility and adherence to standards. The results suggest that clinical environment support contributes more to compliance, safety practices, and professional behavior, rather than to the development of technical clinical skills.

Conclusion and Recommendations

The study concluded that Bachelor of Science in Radiologic Technology interns in Calamba City, Laguna demonstrated very high levels of motivation and clinical performance in the X-ray modality. Academic motivation emerged as the strongest motivational factor, while radiation safety practices showed the highest level of clinical performance. Despite these high levels, no statistically significant relationship was found between academic motivation, career motivation and opportunities, and most areas of clinical performance, including patient handling, positioning techniques, and equipment operation. However, career motivation and clinical environment support showed a significant relationship with radiation

safety practices, indicating that professional responsibility, supervision, safety culture, and institutional support contribute to adherence to radiation protection standards. The findings suggest that motivation alone does not directly influence technical clinical competence, which is more strongly shaped by hands-on experience, structured clinical training, supervision, and repeated practice. Overall, the study emphasizes the importance of competency-based learning, practical exposure, and supportive clinical environments in developing skilled and competent radiologic technologists.

Based on the findings, schools and training institutions are encouraged to enhance competency-based and practice-oriented learning approaches by incorporating more simulation-based training, laboratory activities, and structured clinical preparation programs before internship deployment. Strengthening coordination between academic institutions and clinical affiliates is also recommended to ensure well-supervised and organized clinical environments that support skill development and professional growth. For future researchers, it is recommended to investigate other factors that may influence clinical performance, such as quality of clinical supervision, level of hands-on exposure, workload, stress, and learning strategies. Future studies may also use larger sample sizes and different clinical settings to validate the findings further, particularly regarding the influence of institutional support and safety culture on radiation safety practices and professional behavior among Radiologic Technology interns.

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Competing Interests Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this article.

Data Availability Statement

Data sharing is not applicable to this article as no new data were created or analyzed in this study; all data used were obtained from previously published sources as cited in the reference list.

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Appendices

No appendices are attached to this study.