LEVEL OF COMMITMENT AND KNOWLEDGE OF RADIOGRAPHERS IN DIGITAL X-RAY AND THEIR ABILITY TO PRODUCE QUALITY IMAGE

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Abstract

This study examined how radiographers' commitment and knowledge relate to the production of high-quality digital X-ray images within selected hospitals in Ozamis City, Philippines. Grounded in Bandura's Social Cognitive Theory, the research posits that personal (knowledge, self-efficacy), environmental (resources, policies), and behavioural (commitment, adherence to protocols) factors jointly shape performance. Using a descriptive-correlational design, radiologic technologists using digital X-ray were recruited through convenience quota sampling. Data were collected via adapted Likert-scale questionnaires assessing commitment (equipment checks, cleaning, calibration, documentation, software updates, data security, protocol adherence), knowledge (technology, technical factors, troubleshooting, radiation safety, operations, preventive maintenance), and perceived ability to attain image quality (exposure factor selection, brightness/contrast, sharpness, collimation, SID, cassette selection). Descriptive statistics profiled respondents (predominantly 20–30 years; 5–10 years' experience) and summarized scores. Commitment showed a high overall mean (3.32), with very high adherence to protocols and record-keeping; knowledge was very high (3.50), especially in radiation safety and modality operation; perceived ability to attain quality was highly attained (3.90), notably in collimation, optimal kVp/mAs, and SID. Findings underscore that strong procedural commitment and robust technical knowledge co-occur with high self-rated image quality performance in digital radiography. Implications include reinforcing competency-based training that integrates dose optimization, exposure parameter selection, equipment quality assurance, and informatics (data security, archival). Institutional policies should support ongoing calibration, preventive maintenance, and access to continuing education. Future work should test causal pathways among self-efficacy, commitment, and objective image quality metrics, and explore interventions to close identified gaps in calibration and software updating practices.

Keywords: *adherence to protocols, exposure parameter selection*

procedural commitments

Chapter 1

INTRODUCTION

Rationale of the Study

Medical imaging is one of the many allied health professions that require competency in performing profession-specific tasks. As such, it is important to determine not only if a medical imager has attained the necessary skill level with which to perform the said task but also to be able to continue to develop and improve upon the skill over time.

To make radiologic medical expertise valuable in the modern multidisciplinary environment, radiologic services must be fast, accurate, accessible, and relevant (Forman, 2011). This includes competent guidance about imaging indications, adequate risk management and protocol selection for individual imaging studies, quality, and timeliness of reporting, active participation in the definition of clinical pathways, availability for second opinions on external images (role of a consultant), and regular participation in sub-specialized clinical rounds and tumor boards. The sub-specialized radiologist remains attached to his or her department but works closely with his clinical counterparts. He or she may also have a key role representing radiology in disease–related multidisciplinary centers (Reekers, 2014). This form of organization places the patient in the center of the multidisciplinary team of specialists. It has been shown in tertiary cancer care centers that radiologic consulting leads to important changes in patient management. However, the average daily work volume for second opinions and reinterpretation of external images may add up to almost 20% of the workload of a senior radiologist (Brook et al., 2011; DiPiro et al., 2002).

Digital radiography offers many advantages over film based radiography, such as immediate image display, no film processing and room storage, wider dynamic range and lower radiation dose. Generally, a raw X-ray image acquired directly from a digital flat detector contains a poor quality image, which may not be suitable for diagnosis and treatment planning. Therefore, a pre-processing technique is usually required to enhance image quality (Koonsanit et al., 2018)

Digital radiography has been used in human medical imaging since the 1980's with recent and rapid acceptance into the veterinary profession. Using advanced image capture and computer technology, radiographic images are viewed on a computer monitor. This is advantageous because radiographic images can be adjusted using dedicated computer software to maximize diagnostic image quality. Digital images can be accessed at computer workstations throughout the hospital, instantly retrieved from computer archives, and transmitted via the Internet for consultation or case referral (Mattoon, 2006). Digital radiographic data can also be incorporated into a hospital information system, making record keeping entirely paperless. Digital image acquisition is faster when compared to conventional screen-film radiography, improving workflow and patient throughput. In addition, digital radiography greatly reduces the need for "retake" radiographs because of the wide latitude in exposure factors. Also eliminated are costs associated with radiographic film and X-ray film development (Mattoon, 2018).

Several studies have been conducted on digital X-ray as the new technology used to produce quality images. However, most studies underscored faster acquisition of digital radiographic data and the increased workload due to several patients requiring second opinions. Also, some studies focused only on transmitting digital images and their enhancement. However, studies about the radiographers' knowledge and

commitment to producing a quality image are limited, especially in the Philippines, which is why the study is conducted. Learning about the radiographers' knowledge and commitment to producing quality images may enrich the knowledge base of the Radiologic Technology profession.

The study aims to investigate the relationship between the level of commitment and knowledge of radiographers in digital X-ray and their ability to produce high-quality images. The significance of this study lies in the fact that digital X-ray has become increasingly prevalent in medical imaging, and the quality of the images produced is critical for accurate diagnosis and treatment. Radiographers play a vital role in ensuring that these images are of high quality and must have the necessary knowledge and commitment to do so. By understanding the factors that influence the ability of radiographers to produce high-quality digital X-ray images, this study can help to identify areas where improvements can be made in training and education, as well as in the development of policies and procedures for the use of digital X-rays. Ultimately, this can lead to better patient outcomes and improved healthcare practices.

Theoretical Framework

This study is anchored on the Social Cognitive Theory (SCT) of Albert Bandura (1986). The SCT posits that personal, environmental, and behavioral factors influence human behaviour. These three factors interact with each other and shape an individual's behaviour. For example, personal factors refer to an individual's knowledge, skills, and attitudes.

The cognitive processes related to knowledge of radiographers play a crucial role in their ability to produce quality images in digital X-rays. Radiographers' knowledge encompasses their understanding of the technical aspects of digital X-ray imaging, image acquisition techniques, and interpretation of the results. This

knowledge influences their behavior and performance in carrying out their duties as radiographers. Personal factors, including individual characteristics and beliefs, are also important in relation to knowledge. Factors such as educational background, training, and experience can contribute to the level of knowledge possessed by radiographers. Additionally, self-efficacy beliefs, which refer to individuals' confidence in their ability to perform specific tasks, can influence the application of their knowledge in practice. Radiographers with higher self-efficacy beliefs are likely to be more motivated and effective in producing quality images.

On the other hand, commitment is a behavioral factor that influences the quality of image production in digital X-rays. Commitment refers to the degree of dedication, loyalty, and persistence radiographers demonstrate in their work. In the context of the research, commitment can be assessed through factors such as punctuality, adherence to protocols, attention to detail, and willingness to continuously improve their skills. Bandura's cognitive theory suggests that individuals' commitment is influenced by their cognitive processes, including their beliefs, goals, and self-perceptions. For instance, radiographers who perceive their work as important and meaningful are likely to be more committed to producing high-quality images. Similarly, radiographers with a strong sense of self-efficacy and outcome expectations for producing quality images are more likely to exhibit a higher level of commitment to their work.

Overall, Bandura's cognitive theory provides a theoretical framework to understand how radiographers' knowledge and commitment interact to influence their behavior and ultimately affect the production of quality images in digital X-rays. The theory emphasizes the importance of both cognitive and behavioral factors in shaping professional performance and offers insights into potential interventions to enhance radiographers' knowledge and commitment, leading to improved image quality.

Conceptual Framework

The goal of this study is to better understand how radiographers carry out their duties and use their commitment, knowledge and production of quality images. It also comes to the conclusion that there are three key areas where the function of the radiographer and knowledge requirements have changed: 1) commitment; (2 knowledge; 3) production of quality image.

The request includes data such as the patients' name and date of birth, and name of the clinician requesting the examination, the type of the examination required, the patient's case history, and sometimes the clinician's preliminary diagnosis. Another document was the paper booking schedule for patients.

Commitment. Digital X-ray technology has revolutionized medical imaging by providing faster, clearer, and more accurate images than traditional X-ray technology. Commitment to digital X-ray technology means investing in the latest equipment and software, ensuring that staff is trained and certified to operate the equipment, and maintaining a high standard of quality control and assurance. Commitment to digital X-ray technology also means taking steps to protect patient privacy and data security. This includes implementing secure data storage and transmission protocols, limiting access to patient information to authorized personnel only, and following industry best practices for cybersecurity. Overall, commitment to digital X-ray technology can improve patient outcomes by enabling faster and more accurate diagnoses, reducing radiation exposure, and improving the efficiency and effectiveness of medical imaging services (Smith, J. A., & Johnson, L. K. 2021).

Knowledge. Digital x-ray is a modern imaging technique that uses digital technology to capture X-ray images of the human body. This technology has largely replaced traditional film based X-ray imaging due to its numerous advantages, such as

improved image quality, faster processing time, and the ability to digitally manipulate and enhance the images.

Digital X-ray machines consist of a digital detector, which captures the X-ray image, and a computer system, which processes and stores the image data. The detector is made up of an array of sensors that convert the X-ray photons into electrical signals, which are then processed by the computer to produce a digital image. One of the main advantages of digital X-ray technology is its ability to produce high-quality images with lower radiation doses compared to traditional X-ray techniques. This is achieved through a process called dose modulation, which adjusts the radiation dose based on the patient's size and the specific area being imaged.

Another advantage of digital X-ray is its ability to store and transmit images electronically, which makes it easier for healthcare providers to share images with other healthcare professionals and to access patient records remotely. The digital format also allows for easy manipulation of the images, such as zooming in on specific areas or adjusting the contrast and brightness, which can aid in diagnosis. Overall, digital X-ray technology has revolutionized the field of medical imaging and has improved patient outcomes by providing faster, safer, and more accurate diagnostic imaging.

Computed radiography (CR) and digital radiography (DR) are the commonly used terms for digital radiographic detectors. Computed radiography uses a photostimulable storage phosphor that stores the latent image with subsequent processing using a stimulating laser beam and can be easily adapted to a cassette-based system analogous to that used in screen-film (SF) radiography. Historically, DR has been used to describe a digital x-ray imaging system that reads the transmitted x-ray signal. Image acquisition should be performed in accordance with the appropriate ACR modality or examination guideline or standard. At the time of acquisition, the system

must have capabilities for capturing demographic as well as imaging information such as accession number, patient name, identification number, date and time of examination, name of facility or institution of acquisition, type of examination, patient or anatomic part orientation (eg, right, left, superior, inferior), amount and method. The rapid movement in radiography away from SF technology to both CR and DR has created both improved efficiency and more options in radiology. Yet at the same time, the increased complexity and lack of transfer of skills learned in the SF era by both radiologists and technologists has produced a gap in the ability to perform quality assurance and quality improvement. It is imperative to understand these digital radiography systems to provide quality radiology services and to protect patients (MB Williams, EA Krupinski, KJ Strauss, 2007).

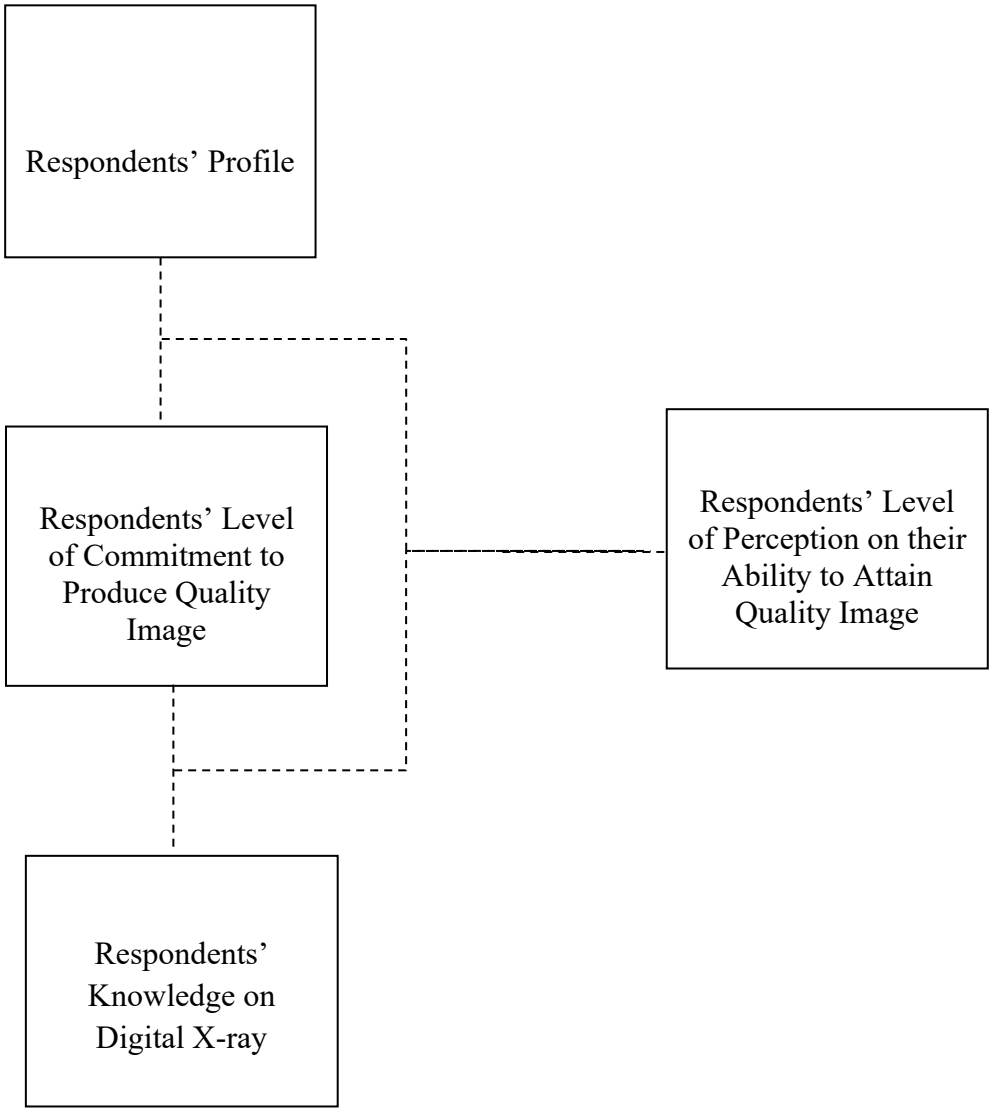

Figure 1. Schematic Presentation of the Study

Statement of the Problem

This study aims to determine the level of commitment and knowledge of radiographers in digital x-ray to produce quality image.

Specifically, this study sought to answer the following sub-problems:

1. What is the respondents profile in terms of age and years of experience as Radiologic Technologist?

2. What is the respondents' level of commitment to produce quality image in digital x-ray?

3. What is the respondents' knowledge on digital x-ray?

4. What is the respondents' level of perception on their ability to attain quality image?

Chapter 2

RESEARCH METHODOLOGY

This chapter discusses the research design, setting, respondents/participants, instruments, data gathering procedure ethical considerations and the data analysis.

Design

This study is descriptive-correlational research design. A descriptive-correlational research design aims to provide static pictures of situations as well as establish the relationship between different variables (McBurney & White, 2009).

Setting

The study was conducted in Selected Hospitals of Ozamis City, Philippines. Ozamis City is a 3rd class component city in the province of Misamis Occidental, Philippines. The main setting of this research will be in the Radiology department of the hospital.

Participants of the Study

The participants of this study included all radiologic technologist who are using digital x-ray. Regardless of their age and gender, as long as the respondents are Radiologic technologists in the hospital and are willing to participate in the study, they will be included in the sample. Respondents will be identified through convenience quota sampling.

Instrument

This study used the following adapted questionnaires:

I. A Level of commitment questionnaire. This is a four point Likert Scale. Presented below is the continuum that was used to interpret and analyze the data gathered.

SCALE	RANGE	DESCRIPTIVE EQUIVALENT	INTERPRETATION
4	3.41 – 4.00	Very Committed	Very high
3	2.61 – 3.40	Committed	High
2	1.81 – 2.60	Less Committed	Low
1	1.00 – 1.80	Not at all	Very low

II. Knowledge in digital x-ray questionnaire. This is a four point Likert Scale. Presented below is the continuum that was used to interpret and analyze the data gathered.

Scale	Range	Descriptive Equivalent	Interpretation
4	3.41 – 4.00	Very knowledgeable	Very high
3	2.61 – 3.40	Knowledgeable	High
2	1.81 – 2.60	Less Knowledgeable	Low
1	1.00 – 1.80	Not at all	Very low

Data Gathering Procedure

Before the actual data gathering, the researchers asked for permission from the Dean of the College of Nursing, Midwifery and Radiologic Technology of Misamis University and the hospitals' chief radiologic technologist to be able to conduct the study in the facility. After the approval of the request, the researchers then administered the questionnaire checklist in a complete enumeration survey from the Radiologic Department. Prior to the distribution of the questionnaire checklist an informed consent was presented to the respondents for them to understand the purpose of the study. The

researchers observed health protocols and social distancing during conducting of this study.

Ethical Considerations

Prior to the conducting of the study in the facility, the researchers physically sent a consent letter to the hospital's Chief Radtech. The objectives and purpose of the current investigation was stated in the consent letter. After receiving approval, a consent letter was used to request the research participants' informed consent. The respondents were be given enough time to think about participating. The researcher made sure that each respondent was willing to volunteer to participate in the study by consenting to complete the adapted questionnaire and has understood that she may withdraw from the study at any time without incurring any penalties. Through the investigation the researchers made sure the confidentiality of respondents, the privacy of the research data, and the identity of those taking part in the study. Additionally, the researcher guaranteed that the results of the study was remained private and the findings won't be used for any other purpose than the original study. The principles of justice and fairness to people who participated in this study was be cited.

Data Analysis Technique

Using the proper statistical methods, the data obtained using the questionnaire was tallied, assessed, analysed, and interpreted. The following statistical tools were employed for data analysis:

Frequency and Percentage. These were used to present the respondents distribution in terms of age and number of years as a radiologic technologist.

Average Weighted Mean. This was used to describe the respondents' level of commitment to produce quality image and their knowledge on digital X-ray.

Chapter 3

RESULTS AND DISCUSSION

This part of the study shows the results and discussion of the findings of the study within the existing literature. Included in this chapter are the following:

Respondents' Profile

Respondents' Level of Commitment to Produce Quality Image

Respondents' Knowledge on Digital X

Respondents' Profile

Table 1 shows the respondents' profile in term of age and the number of years' experience as Radiologic Technologists.

Age. It is shown that most of the respondents are 20-30 years old with 9 respondents (60%) followed by 30-35 years old with 3 respondents (20%), while 25-30 years old have 2 respondents (13.3%), and 35-40 years old with 1 respondent (6.67%). This reveals that most of the radiographers who used digital x-ray belongs to the generation of young adult. The majority of them are able to comprehend and make decisions for themselves.

Years of experience. The table shows that most of the respondents has 5-10 years of experience with 8 respondents (53.3%), 1-5 years has 4 respondents (26.6%), and 15-20 years has 3 respondents (20%).

Table 1

Profile	Frequency	Percentage
Age		
20-30 years old	9	60.0 %
25-30 years old	2	13.3 %
30-35 years old	3	20 %
35-40 years old	1	6.67 %
Years of experience		
1-5 years	4	26.6%
5-10 years	8	53.3%
15-20 years	3	20%

Respondents' Level of Commitment to Produce Quality Image

Table 2 shows that most respondents check the functionality of digital x-ray during night shift; 8 respondents are committed, followed by 7 respondents that are very committed. Regularly clean the digital x-ray during night shifts; 10 respondents are very committed, followed by 3 respondents are very committed, and 2 respondents are less committed. Regularly warm up the digital x-ray machine during shift; 8 respondents are committed, followed by 6 respondents are very committed, and 1 respondent are less committed. Regularly calibrate and test the digital x-ray equipment to ensure accurate and reliable image quality; 5 respondents are committed, followed by 4 respondents are very committed and less committed, and lastly 2 respondents are not at all. Keep accurate records of equipment maintenance, repairs, and performance to ensure regulatory compliance; 9 respondents are very committed, 4 respondents are committed, and 2 respondents are less committed. Update software and firmware to maintain optimal performance and ensure compatibility with newer technology; 7 respondents are committed, 4 respondents are very committed, 3 respondents are less committed and 1 respondent are not at all. Regularly check the x-ray tubes, image receptors, detectors, cables and software to ensure that all components are functioning

properly; 7 respondents are very committed 5 respondents are committed, 2 respondents are less committed and 1 respondent are not at all. Store digital images securely and that the appropriate backup and retrieval protocols are in place; 8 respondents are very committed, 6 respondents are committed, and 1 respondent are less committed. Follow all relevant protocols and procedures when using digital x-ray, including those related to image acquisition, processing and storage; 12 respondents are very committed and 3 respondents are committed. Finally, regularly keeping-up-to date with the latest advances in digital x-ray; 12 respondents are very committed, 2 respondents are committed and 1 respondent are not at all.

Table 2
Respondents' Level of Commitment to Produce Quality Image

Statements	mean	QI
1. I regularly check the functionality of digital x-ray during shift?	3.47	Very high
2. I regularly clean the digital x-ray during shift?	3.07	High
3. I regularly warm up the digital x-ray machine during shift?	3.33	High
4. I regularly calibrate and test the digital x-ray equipment to ensure accurate and reliable image quality?	2.73	High
5. I keep accurate records of equipment maintenance, repairs, and performance to ensure regulatory compliance?	3.47	Very high
6. I update software and firmware to maintain optimal performance and ensure compatibility with newer technology.	2.93	High
7. I regularly check the X-ray tubes, image receptors, detectors, cables and software to ensure that all components are functioning properly.	3.20	High
8. I store digital images securely and that the appropriate backup and retrieval protocols are in place.	3.47	Very high
9. I follow all relevant protocols and procedures when using digital x-ray digital x-ray, including those related to image acquisition, processing and storage.	3.80	Very high
10. I regularly keeping-up-to-date with the latest advances in digital x-ray.	3.73	Very high
Weighted mean	3.32	High

Respondents' Knowledge on Digital X-ray

Table 3 showed the respondents' knowledge on digital X-ray. Updated and abreast with digital x-ray machine used in hospital; 8 respondents are very committed and 7 respondents are committed. Technical maintenance of digital x-ray. 7 respondents are committed and 6 respondents are very committed. Technical Factor in using digital x-ray; 11 respondents are very committed, 3 respondents are committed, 2 respondents are less committed, and 1 respondent are not at all. Handle troubleshoot issues that may rise during digital x-ray; 7 respondents are very committed and committed, 2 respondents are less committed and 1 respondent are not at all. Radiation safety principles related to digital x-ray; 10 respondents are very committed, 5 respondents are committed. Operation to digital x-ray modality; 11 respondents are very committed and 4 respondents are committed. Regular calibration of such digital x-ray for accuracy purposes; 6 respondents are very committed and committed, 2 respondents are less committed and 1 respondent are not at all. Observance of radiation protection for patients; 13 respondents are very committed and 2 respondents are committed. Observance of preventive maintenance of digital x-ray; 8 respondents are very committed, 6 respondents are committed, 2 respondents are less committed and 1 respondent are not at all. Availability of digital x-ray in radiology department; 11 respondents are very committed and 4 respondents are committed.

Table 3
Respondents Knowledge on Digital X-ray

Statements	mean	QI
I am updated and abreast with…		
1. Digital x-ray machine used in our hospital.	3.53	Very high
2. Technical maintenance of digital x-ray.	3.20	High
3. Technical factor in using digital x-ray.	3.60	Very high
4. Handle troubleshoot issues that may arise during digital x-ray.	3.40	High
5. Radiation safety principles related to digital x-ray.	3.67	Very high
6. Operation of digital x-ray modality.	3.73	Very high
7. Regular calibration of such digital x-ray for accuracy purposes.	3.13	High
8. Observance of radiation protection for patients.	3.87	Very high
9. Observance of preventive maintenance of digital the x-ray.	3.40	High
10. Availability of digital x-ray in radiology department.	3.73	Very high
Weighed mean	3.50	Very high

Respondents' Level Perception on their Ability to Attain Quality Image

Table 4 presents the respondents' level of perception on their ability to attain quality image. Attaining image quality using kVp and mAs; 9 respondents are very committed and 6 respondents are committed. Attain good selection of technical factors in producing archival image quality; 8 respondents are very committed and 7 respondents are committed. Attain image quality by adjusting image brightness and contrast to optimize image quality; 9 respondents are very committed and 6 respondents are committed. Attain image quality to be sufficiently sharp and clear; 8 respondents are very committed and 7 respondents are committed. Attain image quality that is consistent with diagnostic requirements; 10 respondents are very committed and 5 respondents are committed. Attain proper collimation of the part irradiated in every exposure made; 14 respondents are very committed and 1 respondent is committed. Attain utilization of calliper in the measurement of the part understudy; 11 respondents are very committed and 3 respondents are committed. Attain kVp and mAs to be optimum depending on the structures; 13 respondents are very committed and 2 respondents are committed. Attain SID during examination; 13 respondents are very committed and 2 respondents are committed. Attain proper use of the size cassette and files during examination; 11 respondents are very committed and 4 respondents are committed.

Table 4
Respondents' Level of Perception on their Ability to Attain Quality Image

Statements	mean	QI
1. Can you attain image quality using kVp and mAs?	3.60	Highly attained
2. Can you attain good selection of technical factors in producing archival image quality?	3.53	Highly attained
3. Can you attain image quality by adjusting image brightness and contrast to optimize image quality?	3.53	Highly attained
4. Can you attain image quality to be sufficiently sharp and clear?	3.60	Highly attained
5. Can you attain image quality that is consistent with diagnostic requirements?	3.67	Highly attained
6. Can you attain proper collimation of the part irradiated in every exposures made?	3.93	Highly attained
7. Can you attain utilization of calliper in the measurement of the part understudy?	3.67	Highly attained
8. Can you attain kVp and mAs to be optimum depending on the structures?	3.87	Highly attained
9. Can you attain SID during examination?	3.87	Highly attained
10. Can you attain proper use of the size of cassette and files during examination?	3.87	Highly attained
Weighted men	3.90	Highly attained

Chapter 4

CONCLUSION AND RECOMMENDATIONS

Conclusion

Radiographers in selected Ozamis City hospitals demonstrated high commitment, very high knowledge, and high self-rated ability to produce quality digital X-ray images. Anchored in Social Cognitive Theory, the findings suggest that strong procedural discipline (protocol adherence, record-keeping), robust technical knowledge (radiation safety, modality operation), and self-efficacy co-occur with perceived image quality performance. Notable opportunities include strengthening routine calibration, software/firmware updating, and troubleshooting areas that trailed other commitment items. Organizational supports (maintenance schedules, access to training) likely amplify individual capability, reinforcing the interplay of personal, behavioural, and environmental factors. Overall, enhancing QA/QI systems alongside continuous education can sustain high image quality, optimize dose, and improve patient care

Recommendation

To sustain and elevate digital radiography image quality, the department should institutionalize a standardized QA/QI program with clear daily, weekly, and monthly schedules for equipment warm-up, cleaning, calibration, detector integrity checks, and documentation audits. Service-level agreements must require timely software/firmware updates and preventive maintenance, with compliance tracked on a simple dashboard. Concurrently, targeted continuing education should deepen radiographers' competence in digital detector physics, image processing, troubleshooting, and informatics (PACS, archival, data security), complemented by simulation-based refreshers on collimation, SID, and exposure parameter selection linked to structured image-critique sessions.

Policies need to codify data privacy and access controls, standardized protocol adherence, and archival/retention procedures aligned with national standards, while multidisciplinary case reviews and tumor boards should include routine image-quality and dose discussions to reinforce shared accountability.

Measurement should pair self-assessments with objective indicators repeat/reject rates, exposure index conformity, blinded image-quality scoring, and patient dose metrics to identify gaps, guide coaching, and recognize exemplary practice. Finally, the department should pursue applied research to test how self-efficacy, workload, and years of experience predict objective image quality, and to evaluate the impact of QA bundles and continuing education on dose optimization, turnaround time, and diagnostic confidence. Together, these practice, education, policy, and measurement strategies will consolidate current strengths, address weaker areas (notably calibration and software updating), and translate high commitment and knowledge into consistently superior patient outcomes.

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QUESTIONNAIRES

Level of Commitment and Knowledge of Radiographers in Digital X-Ray to Produce Quality Image in Selected Hospitals in Ozamis City

Age: _____

20-30 ☐

25-30 ☐

30-35 ☐

35-40 ☐

Years of experience: _____

1-5 years ☐

5-10 years ☐

15-20 years ☐

20-30 years ☐

Part 1.

A Level of commitment questionnaire.

Directions: Please indicate by checking each statement below that corresponds to your perception. Your honest response is sought for with objectivity and confidentiality. Please use the following scale:

4	- Very committed	3	- Committed
2	- Less committed	1	- Not at all

Statements	4	3	2	1
1. I regularly check the functionality of digital x-ray during shift?				
2) I regularly clean the digital x-ray during shift?				
3) I regularly warm up the digital x-ray machine during shift?				
4) I regularly calibrate and test the digital x-ray equipment to ensure accurate and reliable image quality?				

5) I keep accurate records of equipment maintenance, repairs, and performance to ensure regulatory compliance?				
6.) I update software and firmware to maintain optimal performance and ensure compatibility with newer technology.				
7.) I regularly check the X-ray tubes, image receptors, detectors, cables and software to ensure that all components are functioning properly.				
8. I store digital images securely and that the appropriate backup and retrieval protocols are in place.				
9.) I follow all relevant protocols and procedures when using digital x-ray digital x-ray, including those related to image acquisition, processing and storage.				
10.) I regularly keeping-up-to-date with the latest advances in digital x-ray.				

Part 2.

Knowledge in digital x-ray questionnaire.

Directions: Please indicate by checking each statement below that corresponds to your level of knowledge on digital X-ray. Your honest response is sought for with objectivity and confidentiality. Please use the following scale:

4 - Very knowledgeable 3 - Knowledgeable

2 - Less knowledgeable 1 - Not at all

Statements	4	3	2	1
I am updated and abreast with… 11. Digital x-ray machine used in our hospital.				
12. Technical maintenance of digital x-ray.				
3) Technical factor in using digital x-ray.				
4) Handle troubleshoot issues that may arise during digital x-ray.				
5) Radiation safety principles related to digital x-ray.				
6) Operation of digital x-ray modality				

7) Regular calibration of such digital x-ray for accuracy purposes.				
8) Observance of radiation protection for patients				
9) Observance of preventive maintenance of digital the x-ray				
10) Availability of digital x-ray in radiology department				

Part 3.

Attaining image quality in digital x-ray questionnaire.

Directions: Please indicate by checking each statement below that corresponds to your perception. Your honest response is sought for with objectivity and confidentiality. Please use the following scale:

4 - Very attainable 3 - attainable

2 - Less attainable 1 - Not at all

Statements	**4**	**3**	**2**	**1**
1) Can you attain image quality using kVp and mAs?				
2) Can you attain good selection of technical factors in producing archival image quality?				
3) Can you attain image quality by adjusting image brightness and contrast to optimize image quality?				

4) Can you attain image quality to be sufficiently sharp and clear?				
5) Can you attain image quality that is consistent with diagnostic requirements?				
6) Can you attain proper collimation of the part irradiated in every exposures made?				
7) Can you attain utilization of calliper in the measurement of the part understudy?				
8) Can you attain kVp and mAs to be optimum depending on the structures?				
9) Can you attain SID during examination?				
10) Can you attain proper use of the size of cassette and files during examination?				

Appendix “A”

LETTER OF REQUEST

March, 2023

DR. SAMMY B. TAGHOY

Dean, College of Nursing, Midwifery, and Radiologic Technology
Ozamiz City

Dear **Mr. Taghoy,**

Greetings!

We are college students taking Bachelor of Science in Radiologic Technology and presently pursuing our undersigned research study entitled “Level of Commitment and Knowledge of Radiographers in Digital X-ray to Produce Quality Image in selected Hospitals of Ozamis City” in this relation, we are asking for your permission to allow the undersigned to distribute our research questionnaires in selected hospitals of Ozamis City. Guaranteed that all the data gathered are confidential and will not be used for any purposes.

Your support will be very much appreciated!

Respectfully yours,

AIKO G. PEPITO
MIZZAH BETH Q. TAYCO
E.G MARIE L. PADULLON
AGUSTIN GONZALES
College Student
Misamis University

Noted by:

MR: ALLEN ANTHONY PANTALLANO — Adviser

DR. SAMMY B. TAGHOY — Dean

MISAMIS UNIVERSITY Ozamiz City College of Nursing, Midwifery and Radiologic Technology

RESEARCH INFORMED CONSENT FORM

Title

This study is titled "Level of Commitment and Knowledge of Radiographers in Digital X-ray to Produce Quality Image in Selected Hospitals of Ozamis City" in partial fulfilment of the requirements for the degree of Bachelor of Science in Radiologic Technology.

Researcher

This study is to be conducted by Mizzah Beth Q. Tayco, E.G Marie L. Padullon, Aiko G. Pepito and Agustin Gonzales who is pursuing the degree in Bachelor of Science in Radiologic Technology at Misamis University College of Radiologic Technology with Merasol O. Duyag as the adviser. The researcher can be contacted through this mobile number +63948xxxxxxx or email address mizzahbethtayco28@gmail.com

Purpose of the Research

This study aims to determine the level of commitment and knowledge of Radiographers when handling Digital X-ray to produce quality image.

Description of the Research

This study is a descriptive correlational type of research, and the data will be gathered through a researcher made questionnaire within nine (9) months.

Potential Benefits

This study will benefit the BSRT students for this will be their insight to the digital x-ray for them to have knowledge in their future careers; professors which could serve as a guide in planning for activities or strategies that would help the students to easily produce quality image using digital x-ray; Administrators since it would be used as a justification to persuade them to support and approve educational initiatives that will improve the wellbeing of the students;

Future Researchers to serve as a key to broaden their knowledge regarding digital x-ray. They could also use this as a source of information to learn about previously unexplored concepts.

Confidentiality

Throughout the execution of the study, complete confidentiality will be upheld. Unless you directly consent to it and only in the case that it is necessary, no information that discloses your identity will be disclosed or published. The materials that contain the raw data collected from you will be deleted after data processing within a predetermined time range.

Publication

The findings of this study may be disseminated in any format for general and academic consumption or applied to classroom training to enhance learning and produce new data for subsequent studies.

Participation

Your participation in this study must be voluntary and you have the right to withdraw if you feel uncomfortable in the process of gathering information from you.

Informed Consent

I thus confirm that I have been adequately informed of the potential risks, advantages, and alternatives. I have read and understand this consent form, and I understand that I have the right to refuse to participate in the study at any moment I think appropriate or to ask questions about any phases in the research process that are unclear. My willingness to take part in the study is indicated by my signature.

_____

_____

Printed Name and Signature of the Research Respondent Date

CURRICULUM VITAE

Personal Backgound

Name:	E.G Marie L. Padullon
Address:	Centro Napu Purok 3 Tudela Misamis Occidental
Date of Birth:	October 28, 2002
Mother's Name:	Genalyn L. Padullon
Sex:	Female
Civil Status:	Single
Age:	21

Educational Attainment

College:	Misamis University HT Feliciano Aguada, Ozamis City Philippines

CURRICULUM VITAE

Personal Backgound

Name:	Aiko G. Pepito
Address:	Esperanza Ramon Magsaysay Zamboanga Del Sur
Date of Birth:	February 25, 2001
Mother's Name:	Alice G. Pepito
Sex:	Female
Civil Status:	Single
Age:	22

Educational Attainment

College:	Misamis University HT Feliciano Aguada, Ozamis City

Philippines

CURRICULUM VITAE

Personal Backgound

Name:	Agustin Gonzales
Address:	Gango, Ozamis City
Date of Birth:	September 8, 2001
Mother's Name:	Maria Vilma M. Gonzales
Sex:	Male
Civil Status:	Single
Age:	21

Educational Attainment

College:	Misamis University
	HT Feliciano Aguada, Ozamis City

Philippines

CURRICULUM VITAE

Personal Backgound

Name:	Mizzah Beth Q. Tayco
Address:	Upper Langcangan, Oroquieta City
Date of Birth:	April 28, 2002
Mother's Name:	Arlene Tayco
Sex:	Female
Civil Status:	Single
Age:	20

Educational Attainment

College: Misamis University

HT Feliciano Aguada, Ozamis City

Philippines