



UNVEILING THE INSIGHTS OF RADIOLOGISTS IN THE TECHNOLOGICAL ADVANCEMENT OF ARTIFICIAL INTELLIGENCE: A QUALITATIVE INQUIRY

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Abstract: This study aimed to unveil the insights of radiologists in the technological advancement of artificial intelligence (AI) in general radiography and utilized a descriptive phenomenological qualitative inquiry as the research design, it described the lived experiences of the radiologists. A convenience sampling method was used due participants' nature of job and availability. An In-Depth Interview (IDI) was conducted to gather data to be analyzed collaboratively by the researcher and a data analyst employing Colaizzi's Method to identify emergent themes and clustered themes from categorized statements. Eight (8) themes emerged and revealed two major ideas. First four themes under major idea (1) considerations on technological advancement namely; predictions on performance, long-term effects in image interpretation, advantages and disadvantages in image interpretation, and its impact affecting radiologists' judgment. The last four themes under major idea (2) management of technological advancement namely: taking responsibility, taking responsibility in case threatened to be replaced, clinicians' dependency on for image interpretation, and how it will disrupt work routine and schedule. Six (6) themes were generated to summarize the study. Future researchers should delve deeper into radiologist perspectives on artificial intelligence (AI), particularly for complex modalities. Both qualitative and quantitative methods are recommended for a well-rounded understanding.

Keywords: Technological Advancement, Artificial Intelligence, Radiology, Phenomenology, Negros Island

INTRODUCTION

Artificial intelligence (AI) in radiology brought immense and drastic changes and improvement (Coleman, 2023) in its diagnosing landscape (Neri et al, 2019) especially in the trying times of healthcare, COVID-19 cases detection. However, the immense effect of this application does not mean replacement but and aid (Spieler, 2019) for radiologists. This provides ample amount of time for focus on more complex studies (Goyen, 2022; Cellini, 2022) and leverage their critical thinking skills (Humanitas University, 2022) for diagnosis.

Radiologists around the world expressed mixed emotions (Huisman et al, 2021) when it comes to this application contributing immense changes in the radiology landscape. In countries like Singapore, Australia, and South Korea, accuracy and productivity are their view on this technological advancement (Royal Philips, 2021).

In the Philippines, as one of the third-world countries, is still exploring this application (Hani, 2021; Royal Phillips, 2021). In order to identify the level of possibility in the full adoption of this application, radiologists' insights must be sought first of all. These concerns include data privacy, expertise, transparency, potential biases, cost (Gonzales, 2020), and how radiology departments will be managed with artificial intelligence (AI).

Experts delve into the potential of artificial intelligence (AI) in radiology, acknowledging both its benefits and challenges, addressing data bias and ensuring human oversight remain crucial (Kallianos et al., 2019). Studies also explore artificial intelligence's (AI's) role in improving patient care while reassuring radiologists about their job security (Kahn, 2019; Daye et al., 2022).

The research gap of this study was the lack of existing research on this topic in the Philippines. The current understanding of artificial intelligence (AI) in radiology in the Philippines was limited due to a scarcity of research conducted within the Philippine context. While there may be broader studies available in neighboring countries, the nuances of the Philippine socio-economic landscape, cultural practices, and policy environment are likely not fully addressed. This lack of Philippine-specific data hinders the development of targeted interventions, effective policy formulation, and a comprehensive understanding of the phenomenon within the country.

II. NEED OF THE STUDY.

The current understanding of artificial intelligence (AI) in radiology in the Philippines was limited due to a scarcity of research conducted within the Philippine context. While there may be broader studies available in neighboring countries, the nuances of the Philippine socio-economic landscape, cultural practices, and policy environment are likely not fully addressed. This lack of Philippine-specific data hinders the development of targeted interventions, effective policy formulation, and a comprehensive understanding of the phenomenon within the country. The purpose of this study explores how radiologists in Negros Island Region perceive artificial intelligence (AI) in general radiography. Specifically, it investigates their openness to and willingness to adopt this technology.

III. RESEARCH METHODOLOGY

3.1 Population and Sample

This study explored the insights of radiologists on artificial intelligence (AI) applications in general radiography in Negros Island Region. Radiologists in this study was either a diplomate or a fellow member. Diplomates were radiologists that passed the specialty board examinations and fulfilled additional requirements, while fellows were those diplomates that undergone sub-specialization and had fulfilled additional requirements. In this study, participants were gathered using the availability or opportunity sampling technique. This was considered a non-probability sampling method where the researcher had easy access (Nikolopoulou, 2022) to the participants during the gathering of information due to geographical proximity, availability, convenience, and willingness to participate but may not provide the targeted sample size, thus a possibility of bias might happen (McLeod, 2023). It was considered a favorable course to assemble respondents with homogenous training, education, or experiences to deliberate on a specified topic. The ideal group size was usually between five (5) and eight (8) participants (Guest et al., 2019). The total number of participants was adequate for data gathering and was interpreted using Colaizzi's Method of Data Analysis.

3.2 Data and Sources of Data

This study was conducted in Negros Island Region, both in government and private institutions offering radiology services with computed and/or digital radiography. Negros Island is situated in Visayas and is currently separated into Negros Occidental in the north and Negros Oriental in the South. The city center in the north is Bacolod City, while in the south, is Dumaguete City. The city center of the Negros Island is Kabankalan City or also called "The Rising City of the South" before the convergence of the two provinces. The limited number of radiologists in one province prompted the researcher to extend the area of coverage to include another province. Negros Occidental has six (6) private hospitals, eight (8) district hospitals, seven (7) memorial hospitals including the regional hospital, one (1) provincial hospital, and three (3) city hospitals. Negros Oriental has seven (7) community hospitals, seven (7) district hospitals, one (1) provincial hospital, and four (4) private hospitals. Despite the numerous hospitals, only selected ones offered radiology services, and not all providing these services had resident radiologists. Therefore, the number of hospitals mentioned above does not correspond with the number of radiologists present

3.3 Theoretical framework

From the researcher's point of view, radiologists must familiarize themselves more with manipulating technologies. The advent of technology in radiology poses a threat to radiologists by replacing them with machine-injected-with-human-intelligence (Banja, 2020), and suggested the cessation of the training of radiologists as artificial intelligence will displace them (Hinton, 2020). In the history of medicine, artificial intelligence (AI) applications in healthcare services were likely to be the most extensive development in the field, radiologists were on the frontline to face this impact (Brady and Neri, 2020). This study utilized a research paradigm, specifically constructivism, as a philosophical approach in qualitative research. In constructivism, individuals actively seek their understanding of the world (Garcia, 2020). This approach to learning encourages the continuous construction of knowledge based on one's lived experiences, personal perspectives, and cultural background (McLeod, 2023). Questions were broad and general to allow participants to construct their perspectives through discussions or interactions (Garcia, 2020). Open-ended questions open many doors for the researcher to explore on different views of the participants. Constructivists opt to understand one's perception by gathering data from the participants' experiences. Instead of using theory, they rather provide broad, openended questions to gather as much data as possible to make one. Social, cultural, and personal differences often led to misinterpretation of the researcher and hesitation of participants to disclose information. It was advised that these should be anticipated and acknowledged as part of the report. In addition, they do not claim that their research 4 assumes the general truth as perception varies depending on the situation or issue (Norman, 2019).

IV. RESULTS AND DISCUSSION

4.1 DATA ANALYSIS

The discussions below were divided into two sections based on the research questions. Each portion was provided with an outline of the coded and themed data. The first section was focused on the participants' considerations about technological advancement in general radiography, which was further divided into four subsections: predictions, long-term effects, advantages and disadvantages, and impacts of technological advancement. Within each subsection, emergent themes were identified. The second portion was focused on the insights into how participants manage technological advancement in general radiography which was divided into four subsections namely: managing or taking responsibility, accountability on their supposed-to-be tasks, clinicians' dependency, and work routine and schedule disruption. Under each subsection were the emergent themes lies. At the end of this discussion was a summarized table for the emergent themes of this major idea.

Emergent Theme 1. Positive Attitude towards Technological Advancement

Radiology was considered one of the most adaptive in the medical field for integrating new technologies (Walach, 2023) into its machines. The exponential growth of these technologies set the bar high on image diagnosis and interpretation. As it provides almost real-time processing of images and result generation. Radiologists are open and willing to adopt artificial intelligence (AI)

in their workplace as they all believe that no one can stop the advancement of technology especially in the field of radiology. However, this technological advancement was only considered as a tool to aide radiologists in image interpretation and analysis.

Cluster theme 1. Relentless technological advancements

IDI (1) ...fast phasing or fast-growing advancement in technology today... (Participant 1, transcript 1, line 4)

IDI (5) ...cannot stop the advances in technology... (Participant 5, transcript 5, line 4)

IDI (7) ...there is no letup in the advancement in technology... continue to improve and evolve... (Participant 7, transcript 7, line 6)

IDI (8) ... adapted in the field. ... it will soon be embraced in radiology. (Participant 8, transcript 8, line 6)

IDI (3) ... it will be adapted in the field, ... (Participant 3, transcript 3, line 6)

Cluster theme 2. Welcoming technological advancement in the field

IDI (4) ... it is possible for AI (artificial intelligence) to be incorporated into our machine. (Participant 4, transcript 7, lines 2-3).

IDI (6) with this, I think it is going to help. In 10 years', time, I think this application will significantly improve our ability to diagnose problems in radiology and ultrasound. (Participant 6, transcript 5, line 6-7).

To remain on trend and relevant to the future, it is of great importance to learn and adapt faster (Foroux, 2021) on handling and managing of technologies in order not to be left behind. It is of great emphasis that technologies were created to help humans to elevate the level of services provided.

Emergent Theme 2. Efficacy and Productivity

This emergent theme of the first major idea talked about the long-term effects of this technological advancement in the field of radiology especially in image interpretation. The participant's responses varied from reaching the desired outcome, being productive, skill development and learning. Some highlighted ease and fast organization of workflow IDI (1), IDI (3), IDI (7), IDI (8), a decrease in the workload IDI (4) as it augments workforce and interprets normal and simple diagnosis IDI (5), especially when handling multiple facilities. And for some, an improved image analysis IDI (2), IDI (6), and an opportunity to continuously learn IDI (8) through various and new data inputs.

Cluster theme 1. Organized workflow in the field reduce stress

IDI (1) ...is it will make our job easier and faster. (Participant 1, transcript 7, lines 7-9).

IDI (3) So, when it comes to image interpretation, I think a faster image interpretation will be made possible. (Participant 3, transcript 7, lines 1-2)

IDI (7) it will make the work of the radiologists much easier and the interpretation and the workflow, faster... with just a click of the hand we can access it and we don't need people to do it for you (us). (Participant 7, transcript 7, lines 9-13).

IDI (8) ... it will make the work of radiologists much easier. I will be able to learn through the data being downloaded (input) in the application. (Participant 8, transcript 7, lines 2-4).

IDI (4) ... would be faster imaging and a decrease in my workload so as to cater to more patients. (Participant 4, transcript 9, lines 1-2).

IDI (5) ... as an augmentation of our workforce to help us even in the interpretation of the normal findings and the simpler findings. (Participant 5, transcript 5, lines 23-25).

Cluster theme 2. Skill Development and Learning

IDI (8) ... it will make the work of radiologists much easier. I will be able to learn through the data being downloaded (input) in the application. (Participant 8, transcript 7, lines 2-4).

IDI (2) ... will improve image interpretation... (Participant 2, transcript 19, lines 4-7)

IDI (6) ... improve our ability to diagnose ... analyzing images. Once AI will enter the market, it be of great help. (Participant 6, transcript 5, lines 7-9; 15-16)

Emergent theme 3. Enhanced Diagnostic Precision and Accuracy

The act of how well (Varsha-Parthasarathy, 2022) radiographic images were examined and interpreted was a skill honed and perfected by seasoned radiologists. A precise and accurate diagnosis led to better patient management IDI (1), and IDI (6) enabling clinicians to prioritize patients IDI (7). Developed a keen sense of pathologic detection IDI (2), improved pathologic detection IDI (8), and diagnosis IDI (3) were some of the advantages highlighted by the radiologists. Other participants shed light on the part where it reduced their workload IDI (4), IDI (8). Reduction in the workload led to a less burned-out IDI (5) radiologists, thus increasing their engagement and productivity in the field.

Cluster theme 1. Effective diagnosis for better patient management.

IDI (1) ...faster diagnosis in far-flung areas for better patient management and quicker referrals (Participant 1, Transcript 11, lines 2-3)

IDI (6) will minimize error...uphold patient's welfare for better diagnosis and less error (Participant 6, transcript 11, lines 5-7)

Cluster theme 2. Faster image interpretation to prioritize emergency cases.

IDI (1) ...faster diagnosis in far-flung areas for better patient management and quicker referrals (Participant 1, Transcript 11, lines 2-3)

IDI (3) ... the speed of image interpretation, and improvement of diagnosis... (Participant 3, transcript 11, lines 1-2)

IDI (5) ... it will help in our turnaround time as it will lift a burden (reaching out for the quality goal). (Participant 5, transcript 9, lines 1-2). So, your reading time is shorter and faster – these are major advantages. (Participant 5, transcript 9, lines 6-7)

IDI (7) ...interpret faster, and help in triaging or prioritizing. In cases of stroke, or emergency... (Participant 7, transcript 9, lines 10-13).

Cluster theme 3. Accurate diagnosis and analysis in image interpretation.

IDI (2) I think the advantage(s) for me is an improvement, a keen sense of detecting pathology (ies). (Participant 2, transcript 28, lines 1-2)

IDI (3) ... the speed of image interpretation, and improvement of diagnosis... (Participant 3, transcript 11, lines 1-2)

IDI (8) ... it will lessen our workload and have enough time to focus on pathologic examinations or radiographs. (Participant 8, transcript 11, lines 1-2)

Enhanced diagnostic precision and accuracy in image interpretation are some of the advantages the participant perceived regarding artificial intelligence (AI) in radiology. According to their lived experiences and insights, this application help improved their image interpretation skills with a fraction of a time, thus giving them spare time to focus on a more complex examinations and procedures. In addition, this application notified them which patient to prioritize based on the application's auto-generated reports. However, it was stressed out that all radiographic images are subject for re-reading and will only be considered final if confirmed and signed by the radiologists.

Emergent theme 4. Skepticism and uncertainty

The disadvantages of this technological advancement also surfaced and was viewed as a threat to their profession IDI (1), IDI (4), IDI (6) foreseeing the possibility of clinicians' reliance IDI (6), IDI (7) on technology. The possibility of neglecting IDI (1) rather than seeking IDI (6) them for diagnosis limits their field IDI (4) of practice. Some considered this technological advancement a spoon-feeding application IDI (5) that could lessen the interest of specialists and residents to conduct research and improve critical thinking. One participant stated the inevitable machine downtime IDI (7) and the possibility of error IDI (8). It was also stated that all diagnostic examinations should be clinically correlated IDI (8) avoid misdiagnosis or misinterpretation. Some mentioned that this will not impact them as of the moment IDI (1), IDI (6). One described it as a technology that lengthened her time to come up with a result as compared to reading it instantly IDI (2) due to double-checking. Pathologic detection improved radiologists' diagnosis but was advised, not to be complacent IDI (3) on focusing only on the detected area and forgetting to explore remaining areas. Some chose to rely on their experience IDI (4), IDI (6), and critical thinking IDI (4) for improved IDI (6) image evaluation and analysis. For accurate radiographic interpretation, reconfirmation IDI (8) and re-checking IDI (7) on image interpretation must be performed.

Cluster theme 1. Dependency on technological advancement is a threat.

IDI (1) ...replacing radiologists in the sense of not needing the radiologist... (Participant 1, transcript 10 lines 4-5).

IDI (6) ... threat for us to lose our job if non-radiologists will rely heavily on AI (artificial intelligence), rather than to seek us. (Participant 6, transcript 11, lines 1-4)

IDI (4) ...a threat to some neophyte radiologists... their field of specialization will become limited... (Participant 4, transcript 13, lines 4-6).

IDI (5) ... a spoon-feeding type of software... option to do research and to think critically, lessen ... (Participant 5, transcript 11, lines 5-8)

IDI (7) ... it is a machine...there is still downtime...possibility of clinicians' dependency on the machine. (Participant 7, transcript 15, lines 8-10)

IDI (8) ...possibility of error ... still needs to be clinically correlated... (Participant 8, transcript 11, lines 4-6)

IDI (2) maybe it will take longer for me to interpret than usual by reading it out off the bat.... In general, sometimes will make you wonder, Sometimes, you don't see anything and then AI (artificial intelligence) will detect it. (Participant2, transcript 37, lines 1-2)

IDI (7) ...the possibility of clinicians' dependency on the machine. AI (artificial intelligence) provides impression and/or diagnosis with just a click of the hand and there is no need for (specialists) to read. (Participant 7, transcript 14, lines 8-10)

Cluster theme 2. Doubts on technological advancement's capability.

IDI (8) ...for me, is the possibility of error as it still needs to be clinically correlated through the relevant and intensive gathering of patient history. (Participant 8, transcript 11, lines 4-6)

IDI (1) ...for now, this won't give any impact on my routine as this is viewed to be adopted a few years from now. (Participant 1, transcript 12, lines 1-4).

IDI (2) ...maybe it will take longer for me to interpret than usual by reading it out off the bat.... (Participant 2, transcript 31, lines 1-2) Sometimes, you don't see anything and then AI (artificial intelligence) will detect it. (Participant 2, transcript 32, lines 2-4).

Emergent theme 5. Versatility and accountability in the field.

The alignment and regulation of tasks as indicated by Herrity (2023), best define the management carried out by leaders. Maturity and professionalism in dealing with various situations and committing to comply with certain rules (Calvella, 2022) are some of the characteristics a dependable leader should possess. The finding of this study, in response to this query, was narrowed down on the concept that the versatility and accountability of leaders in the field make management easy. Radiologists were considered the head of the radiology department and must show versatility and accountability in finality IDI (1) of every decision made. In image interpretation, they had the discernment IDI (7) and confirm IDI (6) the initial diagnosis given by the application, but the finality IDI (6) was still theirs. A delineation or streamlining of management system IDI (4) by the radiologists commenced from established and implemented policies IDI (2), standards IDI (4), and set limitations IDI (5) in every equipment or application. Open-mindedness and willingness to adapt IDI (3) to this technological advancement were the keys to exploring the benefits of this technology.

Cluster theme 1. Responsibility over the judgment of the finality of the diagnosis.

IDI (1) ...you are the leader or the owner responsible to make the final judgment... acceptance of the diagnosis... (Participant 1, transcript 17, lines 1-3). still depends on your assessment... In the end, it is we (radiologists) who are responsible for the patient and not the machine (Participant 1, transcript 17, lines 6-7).

IDI (6) ...final diagnosis still relies on us... final judgment will still be mine... may choose to confirm it... (Participant 6, transcript 21, lines 1-5).

IDI (7) ... still your decision whether to follow recommendation or not... (Participant 7, transcript 27, lines 2-5).

IDI (8) ... only take responsibility for what I have signed and doubled checked... (Participant 8, transcript 21, lines 1-2).

Cluster theme 2. Resiliency and awareness of criteria established.

IDI (2) ... make policies or rules on how much you can do or how will you use it... (Participant 2, transcript 39, lines 1-2) educate the people and also make a disclaimer (Participant 2, transcript 40, lines 1-4).

IDI (4) ... have a standard... (Participant 4, transcript 40, lines 1-2) we could streamline our management system... (Participant 4, transcript 40, lines 3-5)

IDI (5) ... must be a policy or instruction that will tell them their limitation/s... (Participant 5, transcript 20, lines 4-12)

IDI (3) ... need to adapt to the changes... must be flexible, especially in technology (Participant 3, transcript 30 lines, 1-2).

Emergent theme 6. Overruling technology by taking responsibility.

Radiologists considered artificial intelligence (AI) to overrule them if policies that restrict the scope of this application will not be implemented (Bocas, 2022). In this study, it was of a strong conviction that radiologists do not allow this technological advancement to do their tasks IDI (1). Instead, they viewed it only to help them with their tasks IDI (6) and not to the point of taking their place IDI (5) in doing the tasks. Some pointed out the limitations IDI (2), IDI (7), IDI (8) encountered and to-be-encountered in the application. They suggested giving more attention and time to difficult IDI (2) cases, as not all task IDI (7) will be covered and emphasized its dependence on data input IDI (8). Radiologists reflected this application as part or junk IDI (1) of their routine and as a lending hand in image interpretation IDI (3), IDI (6). Radiology was heavily reliant on technology; thus, it was advised that continuous education to update their knowledge IDI (4) is a must.

Cluster 1. Machine limitations, human obligations.

IDI (1) ...will not allow artificial intelligence (AI) to take over my job... only consider it as junk or part of my daily routine...still, be the one in charge

IDI (2) ...focus on the difficult ones since not all radiographs will be viewed... (Participant 2, transcript 41, lines 1-4).

IDI (3) ... radiologists and AI (artificial intelligence) should work hand in hand...will never and will not take responsibility. (Participant 3, transcript 33, lines 1-3).

IDI (5) ...don't think that it will come to a point where...it will take our place... (Participant 5, transcript 23, lines 1-8).

IDI (6) ...actually happening (right) now...will not allow it to replace us...Help us do our task, not to do our task. (Participant 6, transcript 25, lines, 1-4).

IDI (7) ...not something, 100% that they will completely take the task because it has limitation... (Participant 7, transcript 29, lines, 1-7).

IDI (8) ...not think it will totally do my task as they have also limitations and they are dependent on data inputs. (Participant 8, transcript 23, lines 1-3).

Cluster 2. Collaboration and education about technological advancement.

IDI (4) ...be very careful and we have to keep ourselves updated with the new trends and new techniques... (Participant 4, transcript 43, lines 2-4).

IDI (6) ...actually happening (right) now...will not allow it to replace us...Help us do our task, not to do our task. (Participant 6, transcript 25, lines, 1-4).

IDI (7) ...not something, 100% that they will completely take the task because it has limitation... (Participant 7, transcript 29, lines, 1-7).

Emergent theme 7. The finality of the decision is based on experience and education.

Clinicians must understand and know how to balance their trust and doubts (Gaube, et al., 2021) on technology to appreciate the benefits of artificial intelligence and the expertise of humans in image interpretation. In this study, radiologists suggested collaboration and open discussion IDI (1) on the patient's condition rather than relying on information generated by artificial intelligence (AI) applications. In this study, radiologists were directly affected by this technological advancement. To educate clinicians IDI (2) on how this technology works, radiologists were also advised to update their knowledge and trust their experiences IDI (4) in diagnosing patients.

To avoid clinicians' dependency on artificial intelligence (AI) reports in managing their patients, radiologists must be a step ahead of them. One of the participants clearly stated and admitted that they were not the only professionals who has all the knowledge IDI (5) in image interpretation. Artificial intelligence (AI) can provide initial diagnosis IDI (6), IDI (7), but highlighted the fact that the finality IDI (5), IDI (6), IDI (8) and accountability IDI (2), IDI (4), IDI (3) of the results were from them alone.

Cluster them 1. Openness for collaboration and education.

IDI (1) ...clinicians should be aware and should possess a curious mind...collaboration and discussion... Participant 1, transcript 20, line 1 -2).

IDI (2) ...it has to do with the policy system...not be AI all the way... ...have also to confirm AI's (artificial intelligence's) interpretation...explain and educate them... the radiologist, who will be responsible for the interpretation... (Participant 2, transcript 46, lines 3-4;7-8)

IDI (4) ... be updated...(be) better than just artificial intelligence through your experience...you still be the one responsible for it... (Participant 4, transcript 49, lines 1-3)

IDI (5) ...accept that people are also specialized in their field...we do not have a monopoly (of) on knowledge...the finality of the reading, and still be based on us. (Participant 5, transcript 28, lines 11-14)

Cluster theme 2. Radiologists' expertise and accountability.

IDI (3) ...stress the importance of accountability... still on the radiologist... (Participant 3, transcript 39; 41, line 1;2)

IDI (6) ...ask permission from us and ask for initial reading... ..still need the confirmation from human (Participant 6, transcript 27, lines 3;11-12)

IDI (7) ... machine... is just the initial diagnosis...official result will be signed by the radiologist... (Participant 7, transcript 31, lines 1-3)

IDI (8) ...make sure that... ..true and final result or diagnosis will come from us, and only us... (Participant 8, transcript 25, lines 2-3)

Emergent theme 8. Regulation amidst the disruption.

The speed of digitalization in the field of radiology has exponentially increased. Adaptation of technological advancement in the field significantly breaks existing and traditional (Charlton, 2022) ways to execute tasks. In this study, radiologists clearly stated that if artificial intelligence (AI) was of great help, they would not mind adjusting IDI (2) to it. On the contrary, one radiologist stated that with or without the aid of technology, one must continue to work efficiently and effectively IDI (1). Some radiologists do not find this technological advancement disruptive as long as protocols IDI (4), maintenance IDI (8), and clear delineation of job IDI (3) were established and followed. Some viewed this as disruptive but only during the initial or trial period IDI (5), IDI (6), IDI (7) and were willing to adjust IDI (7) to the changes, but generally not affected by it.

Cluster theme 1. Competence with proper implementation of maintenance and protocols.

IDI (1) ...it will be of great help on our end, it is highly encouraged that radiologists should work efficiently and effectively as much as possible... (Participant 1, transcript 24, lines 2-3)

IDI (3) ...have implemented the workflow properly; it will make the job easier. Thus, it will not disrupt your routine and schedule. (Participant 3, transcript 45, lines 2-3)

IDI (4) ...as long as this artificial intelligence follows the protocol...there is no problem on my part... (Participant 4, transcript 62, lines 1-2)

IDI (8) ...will not mess up my work routine as long as it is properly maintained... (Participant 8, transcript 31, lines 1-2)

Cluster theme 2. Open-mindedness in adapting to unnoticeable changes in the work routine or schedule.

IDI (2) ...don't think it will disrupt my work (routine)... if it is really helpful, then I will have to adjust (Participant 2, transcript 53;55, lines 1;1)

IDI (7) ...There are always changes and we should always be open to the advancement of technology...open our minds and learn from it...I don't think it is disruptive. Initially, for the adjustment phase... (Participant 5, transcript 37, lines 2-4).

IDI (5) ...just be an initial stage. It will disrupt our work...we need to adapt to it because it will be there whether we like it or not. (Participant 5, transcript 32, lines 1-2)

IDI (6) Initially, the work schedule will be disrupted...I will adjust my work routine to utilize it....it is just a matter of adjustment. (Participant 6, transcript 29, lines 1;3)

The findings of this descriptive phenomenological qualitative inquiry convey important implications for the practice of radiology, particularly about the adoption of artificial intelligence (AI) technology in general radiography. The study aimed to uncover the insights of radiologists regarding their open-mindedness and willingness to embrace artificial intelligence (AI) technology. An in-depth interview was conducted with eight (8) radiologists, including either a diplomate of the Philippine Board of Radiology (DPBR) or a fellow of the Philippine College of Radiology (FPCR). The researcher sought to address the gap in understanding the radiologists' considerations and management of technological advancements in general radiography. The Colaizzi's method of analysis of essential or emergent themes was utilized. These themes were carefully examined to ensure their relevance in addressing the gap of this study. The study revealed a total of eight (8) emergent themes which shed light on the radiologists' perspectives on what factors to consider and how to manage the integration of artificial intelligence (AI) technology. With the rapid advancement of technology, radiologists are faced with the responsibility of considering the potential benefits of artificial intelligence (AI) technology for end users, institutions, and patients. The workflow and decision-making processes in radiology heavily rely on the radiologists' approval and understanding of these technological advancements

4.2 IMPLICATION TO PRACTICE

These implications provide valuable insights for researchers, professionals, and readers in the field of radiology. By remaining vigilant and staying informed about technological advancements, stakeholders can actively contribute to the successful integration of artificial intelligence (AI) technology into general radiography. Understanding the emergent themes identified in this study enables professionals to anticipate challenges, address concerns, and maximize the potential benefits of artificial intelligence (AI) in improving patient outcomes and advancing the field of radiology. This study is important for radiologists, healthcare professionals such as Radiologic Technologists, and patients. To start with, radiologists need to be aware of the potential benefits and risks of artificial intelligence (AI) technology. They must be willing to adapt to changes in radiological platforms as artificial intelligence (AI) evolves. Moreover, healthcare professionals need to be aware of the potential benefits and usage of artificial intelligence (AI) to improve accuracy and efficiency of diagnosis. They must be prepared to support their radiologists as they adopt artificial intelligence (AI). Lastly, patients need to be aware of the potential benefits and risks of artificial intelligence (AI) as they are considered recipients of the technology in various healthcare facilities.

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