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Citation: Arkoh, S., Akudjedu, T. N., Amedu, C., Antwi, W. K., Elshami, W. & Ohene-Botwe, B. (2025). Current Radiology workforce perspective on the integration of artificial intelligence in clinical practice: A systematic review. *Journal of Medical Imaging and Radiation Sciences*, 56(1), 101769. doi: 10.1016/j.jmir.2024.101769

This is the supplemental version of the paper.

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Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/33896/>

Link to published version: <https://doi.org/10.1016/j.jmir.2024.101769>

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Table B: Systematic table of studies							
Paper No.	Study Reference & Journal	Methods				Study Outcomes	
		Country/Continent of study	Sample/Study Site Characteristics	Study Design & Analysis approach	Study Aim (s)	Key findings	Key Conclusions
1	Botwe et al., 2021 <i>Radiography</i>	Africa	1020 Diagnostic Radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This survey assessed the perspectives of African radiographers on the integration of AI in medical imaging in order to offer unique recommendations to support the training of the radiography workforce.	Of the respondents, 84.9% ($n = 866$) indicated that AI technology would improve radiography practice and quality assurance for efficient diagnosis and improved clinical care. Fear of job losses following the implementation of AI was a key concern of most radiographers ($n = 625$, 61.3%).	Generally, radiographers were delighted about the integration of AI into medical imaging, however; there were concerns about job security and lack of knowledge. There is an urgent need for stakeholders in medical imaging infrastructure development and practices in Africa to start empowering radiographers through training programmes, funding, and motivational support, and create clear roadmaps to guide the adoption and integration of AI in medical imaging in Africa.
2	Botwe et al., 2021 <i>Journal of Medical radiation sciences</i>	Ghana,	151 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential data Analysis approach	This study explored Ghanaian radiographers' perspectives on the integration of AI into medical imaging.	Most of the respondents agreed that AI technology is the future of medical imaging. 68.8% also indicated that AI will reduce radiation dose levels while maintaining optimal image quality. However, some expressed fears about AI-related errors while others expressed concerns relating to job security ($n = 35$, 23.2%). High equipment costs, lack of knowledge, and fear of cyber threats were identified as some factors hindering AI implementation in Ghana. As to who makes decisions in the use of AI tools, the majority (73.4%) of the respondents agreed that diagnostic decision-making should be a shared responsibility between the AI algorithm and practitioners (73.4%). When respondents were asked about who should be held responsible in the event of misdiagnosis due to an error attributed to the AI tools, some believed that machine manufacturers (53%), radiological staff including radiographers-in-charge (23.2%), and the supervising radiologist (9.9%) should be held accountable.	The radiographers who responded to this survey demonstrated a positive attitude toward the integration of AI into medical imaging. However, there were concerns about AI-related errors, job displacement, and salary reduction which need to be addressed. Lack of knowledge, high equipment cost, and cyber threats could impede the implementation of AI in medical imaging in Ghana. These findings are likely comparable to most low-resourced countries, and we suggest more education to promote the credibility of AI in practice.
3	Antwi et al., 2021 <i>Insights to Imaging</i>	Africa	475 radiographers	Online survey Exploratory cross-sectional study (one time-point) with qualitative data with Thematic analysis approach	This study aimed to qualitatively explore the perception of radiographers relating to the integration of AI in medical imaging practice in Africa.	- Despite the lack of AI technology in Africa, many participants remain optimistic about it, with some expressing a knowledge gap about conventional radiographs. - Some participants expressed concern about inadequate equipment safeguarding in Africa, data security issues, and software exploitation. - Participants discussed how AI could enhance practice efficiency, competent diagnosis, and clinical decision support by aiding physicians in selecting patients for the most suitable imaging modality. - AI is a very important tool in medical imaging, as it is in other fields, it's the way forward to aid accurate diagnosis as well as reducing the cost of expensive manpower. (Rad 82) - Participants feared AI would lead to job losses and revise radiographers and radiologists' roles, urging prioritization of AI research before adopting the technology.	Participants expressed concerns about cyber insecurity which could be addressed if the healthcare industry antedates any potential surprises and meets professional requirements for AI technology. It must be emphasised also that the role of the radiologist will not change totally in the era of AI. The radiologist will be the responsible 'validator' of the radiological report, whatever additional AI-based tools are used. If end-user concerns like issues of probable job losses, equipment maintenance culture, training, and education of personnel are not addressed particularly in the African context, AI could do more harm than good and have no positive impact on patients and the professionals who would use it.

						6. Some felt the urgent need to improve users' responsiveness to the new technology through education, and training.	
4	Wong et al., 2020 <i>Journal of Medical Imaging and Radiation Sciences</i>	Canada	159 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	The purpose of this study was to investigate the perception of these four Canadian professional groups about AI and how AI will affect radiation oncology as a specialty.	Knowledge about AI was moderate with an average of 5/10, but 91% responded interested in learning more about it. The negative implications of AI were related to fear of losing jobs and shift of practice. Most participants agreed AI would positively impact patient treatment.	Medical imaging professionals believe AI will be an important part of patient treatment in their future practices. The fear about AI may be mitigated with further education programs about AI, which can gain more confidence in the acceptance of AI.
5	Abuzaid et al, 2021 <i>Health and Technology</i>	Multinational ^a	549 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	The study aimed to assess radiographers' willingness to accept AI in radiology work practice and the impact of AI in work performance	The study found that AI plays a significant role in radiology, with 86% of participants agreeing. However, age groups differed in their perception of AI's potential disruption. Only 12.2% were comfortable working with AI, and 9.3% did not know about it. 51.0% were self-taught, and 22.4% attended courses to understand AI. Thirty-nine percent were unsure about AI responsibility and organization strategies. Participants aged 30-50 agreed that AI should be taught at the undergraduate level, with a significant difference between groups for those aged 40-49. The biggest challenges for AI implementation in the workplace were the development of skills and knowledge about AI. The highest AI application identified was dose management, followed by quality control and image evaluation.	Radiographers face challenges in acquiring AI-related education due to faculty resistance, complexity of use, quality of evidence, and costs. The study suggests AI education should be included in undergraduate and continuing education courses. The limited exposure to AI has led to a split between excitement and fear. The COVID-19 pandemic has delayed research and redirected resources, further affecting the radiology workforce.
6	Abuzaid et al, 2021 <i>Radiography</i>	United Arab Emirates	120 MRI technologists . 9 MRI Technologists partook in Focus group discussions	Online Survey (one-point). A descriptive cross-section that uses a survey and Focus group. A purposive snowball sampling technique was used to identify MRI technologists. Both Quantitative and Qualitative data with both Descriptive and Inferential Analysis data approach.	The current study aimed to investigate the knowledge, willingness, and challenges facing the Magnetic Resonance Imaging (MRI) technologists in the integration of Artificial Intelligence (AI) into MRI practice.	The study revealed that AI could significantly impact MRI applications and image production, with 78.5% of participants agreeing. However, only 72% of participants believed that AI integration in MRI does not alter their work practice. Most participants were familiar with AI basic concepts, with 70.4% identifying AI applications. However, only 45.9% had prior AI education and 72.4% lacked AI education in their continuing medical education. AI was believed to improve MRI protocol selection, reduce scan time, and enhance image post-processing. The main challenges faced by MRI technologists were education and training, with 29.6% attending AI-related education. Further exploration of these challenges was noted in the focus group discussion.	MRI technologists are confident that AI will significantly impact MRI practice. MRI technologists believe that AI machines would not be able to perform tasks related to patient care. They possess basic technical knowledge and are better equipped than radiographers. AI can achieve high signal-to-noise ratios, resolutions, and avoid imaging artefacts, improving patient safety and reducing incidences. However, only 6.2% of participants have the necessary education to advance AI, suggesting that an MSc or PhD could be an educational path for AI advancement. Overall, AI is expected to play a significant role in MRI practice.
7	Ryan et al., 2021 <i>Radiography</i>	Ireland	395 diagnostic radiographer (318) and radiation therapist (77)	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	The research aimed to develop a comprehensive understanding of Irish DR and RTT perspectives on AI in medical imaging, namely focussing on key areas that the ISRRT and the EFRS address-training, AI tool	• AI development is favored by Diagnostic Radiographers (DRs) for automated quality assurance on equipment. • RTTs favor AI development for optimization of algorithms for treatment planning. • AI development areas include referrer alerts, patient-specific alert systems, automated clinical indication selection, automated anatomy labeling, training, image quality analysis, and improving administrative processes.	A thought-provoking point was the correlation between responses from both professions in most areas, which confirms a collective approach may be possible from the Irish professional body and education providers. Work is required to ensure medical imaging professionals are supportive of AI's role in image interpretation going forward.

					development, and impact on professional practice.	• Other AI development areas include 3D printing, training, improved administrative processes, quantifying post-treatment parameters, and automated treatment summary plans. • Diagnostic radiographers find AI development inappropriate for image interpretation for final patient results (48.4%). • RTTs find AI applications for patient consent (47.2%). • AI is currently used in DR examples like voice recognition, radiation dose tracking, and automated protocol selection. RTT examples included auto-contouring, dose optimization in treatment, automatic image registration software for image guided radiation therapy (IGRT), motion management during treatment delivery, radiomics, etc. • Some believe AI would reduce staffing levels or require less staff. Most respondents believe AI would be beneficial for patients, with no choice over whether their examination or procedure is fully or partly machine controlled. • Professionals are crucial in AI application development. National legislation, local/hospital policy, and professional body regulation are suggested for AI use. AI education should be incorporated into undergraduate education.	
8	American Society of Radiologic Technology (ASRT), 2019. ASRT	United States of America	416 Imaging technologists	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	The study surveyed the perspectives of radiologic technologists of ASRT about the integration of AI in medical imaging.	Most respondents (95.9%) described themselves as tech enthusiasts. Most respondents are familiar with the definitions of AI and ML. A significant percentage (54.8%) use automated post-processing for images before sending them to PACS. 22.7% indicated that their department does not use automated post-processing and 22.5% are unsure. 1. The study reveals that isocentre alignment/detector alignment assistance is the most used AI/ML feature in conventional radiography, while procedure guidance is the least commonly used. The most used AI/ML feature in CT is procedure guidance. The least commonly used AI/ML feature is C-view mapping. 2. Interventional radiography employs AI/ML features for vessel measurement and gating, with 70% of participants using these tools, while 25% use gating for cardiac procedures. 3. The most used AI/ML feature in radiation therapy is online 4D cone-beam CT, used by 56.9% of active participants, while intervention guidance is the least used feature at 10.2%. 4. The most used AI/ML feature in MRI is automated image reconstruction, used by 63.5% of active participants, while disorders of consciousness brainwave activity analysis algorithm is used by only 2%. Most respondents (54.8%) believe that AI/ML features will not significantly change the scope of their role in healthcare, with the youngest age cohort (18 to 24) seeing possibilities for an expanding scope. However, they are cautiously trusting AI features at work. Radiation exposure, Data privacy and data security, and Algorithmic bias and decision are the most significant factors affecting the adoption of AI in healthcare. Most respondents (90.5%) say that patients are not asking whether their exams are machine controlled.	Most respondents were familiar with AI and machine learning concepts but were mixed in their familiarity with AI features on their equipment. They were confident that AI functions correctly and provides trustworthy results. However, they noted a lack of standardized processes for resolving discrepancies between machine-recommended procedures and technologist judgment. Respondents saw AI as beneficial for safety and quality, but worried about its negative impact on human aspects like patient interaction and creativity. No consensus was found that AI would adversely affect their professional prospects.
9	Rainey et al,	United	415 All	Online survey	The study was aimed to determine the perceived	78.7% of diagnostic radiography respondents understand AI, but lack knowledge of AI principles, terminology, skills, and confidence. 57% of	The UK radiography workforce, despite understanding AI, lacks the necessary knowledge and skills for its full integration into clinical settings. The study suggests addressing the

	2021 <i>Front Digit Health,</i>	Kingdom	radiographers (student and trainees, practising and retired, academic, and researchers) across all sub-specialisation areas, (including sonographers).	cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	knowledge, skills, and confidence in AI amongst UK radiographers and highlight priorities for educational provisions to support a digital healthcare ecosystem.	diagnostic radiotherapy respondents feel inadequately trained to implement AI in clinical settings. • 52% and 64% of radiotherapy respondents have not developed AI skills. 62% and 55% of radiotherapists feel there's insufficient AI training. The majority of respondents feel there's an urgent need for further education in AI. Confidence in working with AI correlates with age and qualification. Most respondents are interested in learning about AI applications and technology.	needs of learners based on age, gender, and qualifications to ensure optimal integration of AI in practice, despite most respondents understanding AI in general.
10	Currie et al, 2022 <i>Journal of Medical Imaging and Radiation Sciences</i>	Australia	102 Nuclear medicine and radiography professionals	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	This survey aimed to understand the attitudes, applications, and concerns among nuclear medicine and radiography professionals in Australia about the rapidly emerging applications of AI.	AI is increasingly being used in medical imaging for pre-imaging patient management and treatment, but concerns remain regarding its implementation in imaging. 72.6% of respondents suggest guidelines for AI implementation in medical imaging practice, with most indicating shared responsibility among professional bodies. Integrating AI algorithms with existing software applications and image display is the most supported way for implementation in clinical practice. However, less than 15% of respondents are confident about their departments' readiness for AI implementation, with 58.4% expressing confidence that their department is not prepared for AI implementation.	Australian radiographers are increasingly utilizing AI in medical imaging to streamline repetitive tasks and improve output quality. However, ethical concerns remain regarding algorithm development and implementation. Despite not being fully prepared for AI roll-out, there is a growing interest in developing the necessary knowledge and skills to ensure the best possible outcomes for Australian radiographers and their clinical departments.
11	Rainey et al, 2022 <i>Journal of Medical Imaging and Radiation Sciences</i>	United Kingdom	411 diagnostic (332) and therapeutic (77=20%) radiographers	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	This study aims to explore the perceptions of AI in the UK radiography workforce and to investigate its current AI applications and future technological expectations of radiographers.	AI is expected to significantly enhance radiography, with CT being the most promising area for AI solutions in the DR field, followed by reporting, MRI, and mammography. In the TR field, treatment planning, optimization, adaptive planning, contouring, and image acquisition/matching are the top priorities. AI is expected to enhance patient safety standards in radiography and patient care pathways, according to most respondents (68.3%, 73.0%, DR, TR resp.), with a similar agreement in DR and TR. 75.7% of DR agreed that 'AI will improve and standardise image quality during data acquisition in diagnostic radiography. 88.9% and 81% of TR agreed that AI will improve and standardise treatment planning and treatment delivery in radiotherapy. The respondents in a study on the potential impact of AI on radiography (DR) and training (TR) were presented with three main choices: creating specialist roles, supporting role development, and altering work types. The least popular choice was "deskilling my profession." Most radiographers were unsure if AI would reduce career opportunities, with the 'neutral' response selected most frequently by respondents from both professions (29.6% and 25.4%, diagnostic and therapeutic	AI is increasingly being used in radiography, with a survey revealing that respondents are unaware of its use in clinical settings. AI applications are prevalent in MRI (29%), CT (28%), and x-ray (17%), indicating confusion regarding its definition in radiology. UK radiographers are optimistic about the future of the profession using AI, believing it will change daily clinical practice and decrease workload. However, they are unsure about how AI might impact recruitment and the appeal of the profession to prospective professionals. Respondents believe AI will create specialist roles and support role development, with job security not identified as a concern. This uncertainty is reflected in the ongoing debate about the future service delivery and needs of healthcare during the COVID-19 pandemic.

						radiography respectively)	
12	Coakley et al., 2022 <i>Radiography</i>	Europe ^b	96 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This study aimed to investigate perceptions, knowledge, and expectations towards integrating AI into medical imaging amongst a sample of radiographers and determine the current state of AI education within the community.	Most radiographers (85/96) believe that AI should be adopted and embraced, with only 28 apprehensive and 55 concerned about ethical issues. Most radiographers believe AI will affect the interpretation of images, radiographic quality assessment, exposure factor selection, and patient scheduling aspects of their role. However, 53 participants believe AI will not affect communication and patient care aspects. Most participants received no formal AI education in their undergraduate studies or workplace. Most were interested in further continuous professional development (CPD) accredited courses in AI. Familiarity with AI correlated with opinions, effects, and educational exposure within radiography training and post-graduate studies. Previous AI education also correlated with radiographers' opinions on AI. The study revealed that 86% of participants expressed interest in AI CPD courses, and 88% agreed that AI fundamentals should be taught to prospective radiographers.	AI technologies are generally accepted positively, but there are differences in technical understanding and awareness among radiographers' subgroups. A 20% drop in participants' understanding of machine learning and algorithms was observed when questioned about these technical components. AI is expected to significantly enhance patient scheduling, image interpretation, exposure factor selection, and radiographic quality assessment, according to a study involving 14 countries. However, 75% of respondents had not received AI teaching during their primary degree, and 28% were unaware of its integration into everyday radiographer practice.
13	(Aldhafari, 2022) <i>Insights to Imaging</i>	Saudi Arabia	562 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This study aimed to gain insight into radiographers' views on the application of artificial intelligence (AI) in Saudi Arabia by conducting a qualitative investigation designed to provide recommendations to assist radiographic workforce improvement.	AI is expected to significantly impact radiographers' roles, with most believing it should be adopted and adapted. However, ethical concerns remain, with only 28 apprehensive about its integration. Most radiographers believe AI will impact image interpretation, radiographic quality assessment, exposure factor selection, and patient scheduling. However, 53 participants believe AI will not impact communication and patient care. Familiarity with AI correlated with radiographers' opinions on AI's effects on the radiographer and educational exposure within radiography training and post-graduate. High installation costs, lack of expertise, and perceived cyber threats are identified as obstacles to the implementation of AI in Saudi Arabia. Respondents' educational level was positively correlated with the general attitudinal perspective and AI's positive and negative impact. A post hoc multiple comparison revealed a statistically significant difference between groups for respondents who hold Ph.D. qualifications and believed that AI is the future of radiology. The use of AI in diagnostic imaging facilitates increased research output in radiology, but there are concerns about potential machine errors related to using AI-integrated equipment in radiography practice. Most patients would be delighted by AI in healthcare, and the use of AI in diagnostic imaging might improve patient care access in areas where radiologists are unreachable. However, there are also concerns about the potential loss of income due to AI as an assistive tool, the possibility of machine mistakes in the radiology unit due to AI-induced equipment, and the adverse impact on most radiologists. Additionally, the application of AI techniques may lead to unauthorized commercial exploitation of patient data, and the	Saudi radiographers are open to the use of artificial intelligence (AI) but are concerned about their future employment prospects and lack of knowledge. To ensure successful implementation, intensive training programs and implementation are necessary. AI could reduce workload, improve image acquisition, and enhance quality assurance in radiology. However, there is no evidence to support the hypothesis that AI will replace human jobs. Some respondents, like 37.8%, believe AI integration would reduce their salary. Additionally, 28.7% are concerned about the illegal use of patient data for inappropriate commercial purposes, highlighting the need for AI governance regulations before deployment in Saudi Arabia. Further studies should consider international perspectives from radiographers from multiple countries.

						application of AI is vulnerable to cyber danger.	
14	Ng et al., 2022 <i>Journal of Medical Imaging and Radiation Sciences</i>	Singapore	22 radiographers	Online focus group discussion. Exploratory cross-sectional study (one time-point) with qualitative design. Thematic analysis approach.	Studies have been conducted recently to understand radiographers' opinions on AI adoption. This study extends that work by using a qualitative approach to further explore radiographers' knowledge, perceptions, and expectations of AI.	Radiographers are increasingly recognizing the potential of AI in various fields, including healthcare. Some radiographers can identify AI concepts such as machine learning, deep learning, neural networks, and data analytics. However, some radiographers have misconceptions about AI, such as digital radiography, automatic exposure control (AEC), and post-processing. AI-driven innovations may increase efficiency in workflows by optimizing decision-making processes and reducing administrative tasks. However, AI may face limitations in radiography, particularly in providing patient-centric care. Patients may react positively to AI adoption if the standard of care remains consistent, but they could react negatively if they distrust AI for more invasive care or are unsure of its implications on their personal data. In terms of pre-procedural planning, AI could help with administrative matters like vetting orders, scheduling appointments, and clinical documentation. It could also aid in patient preparation and examination planning, such as physical assessment of the patient's habitus and ability to stand. AI could also assist in post-procedural image processing, such as removing artefacts or standardizing images for reproducibility. While some radiographers are concerned that AI integration might reduce job opportunities in radiography, others are optimistic that AI implementation might expand career opportunities. They propose creating a new "AI specialization" to offer more jobs in radiography, equipped with computer science knowledge to govern, create, and audit AI processes.	Four themes emerged from the data: (1) knowledge of AI and its applications, (2) perceptions on the use of AI in radiographic practice, (3) patients' perceptions as viewed by radiographers, and (4) prospective applications and expectations of AI. The study reveals that radiographers in Singapore have limited knowledge of AI concepts and their current applications in medical imaging. While AI innovations could potentially allow them to care for a larger number of patients with the same workforce, the credibility and validity of AI systems are highly dependent on the algorithms' context and could be biased. To prepare for AI adoption, radiographers should actively participate in the development of AI models for radiography applications, starting with data collection and cleaning. With increased knowledge and interest, radiographers should be involved in judiciously evaluating the performance of potential algorithms before their use in clinical practice. They can also shape accountability and medicolegal frameworks for the use of AI in radiography applications. Creating an AI specialization could be an avenue for radiographers interested in AI technology, but more information on their interest level should be obtained.
15	Akudjedu et al., 2023 <i>Journal of Medical Imaging and Radiation Sciences</i>	Multinational	314 Radiographers	Online Survey Exploratory cross-sectional (one-time point) study designed to recruit participants globally through a snowball sampling approach. Both Quantitative and Qualitative data were obtained, Descriptive and Inferential analysis methods approach.	This study is aimed at exploring a worldwide view on AI technologies concerning knowledge, perceptions, and expectations of radiography professionals.	Most respondents (n = 120, 41.4%) agree or somewhat agree that they feel well prepared to implement new AI technologies and innovations in daily practice. Most respondents strongly agree that the teaching of AI technologies should be included in the radiography teaching curriculum. Most respondents support the idea that AI will change daily clinical radiography practice, with most respondents somewhat agreeing that AI will reduce the workload of the radiography workforce. 40% of respondents believe AI will make the profession more attractive, but there is uncertainty in the future and professional de-skilling due to over-reliance on AI-enhanced technologies. Participants acknowledged the perceived benefits of AI, such as increased speed and throughput, streamlining of services, and simplified workloads. They also highlighted the increased opportunity to focus on the patient, such as engagement, contact, and management, which could increase patient satisfaction.	AI is being increasingly used in radiography, but there is a lack of understanding of AI-specific language used in clinical practice. This mismatch between theory and practice could lead to erroneous use of AI tools, affecting patient outcomes. Customized formal training for radiographers in AI is urgently needed. Respondents suggest AI should be included in the radiography training curriculum at universities, as there are currently not enough AI training opportunities available. Training is essential for radiographers to think on their feet and facilitate patient safety, care, and service efficiency using AI tools. Almost The workforce believes AI could have beneficial effects in clinical practice, especially for student radiographers and newly qualified professionals. Job security in AI-enabled radiography could impact the future recruitment of students and new professionals. Factors such as AI awareness, digital literacy, years of experience, the constitutional position of radiography within healthcare, and cultural contexts about healthcare priorities may influence job security. Lack of understanding may lead to uncertainty in AI's relevance to radiography practice,

						However, some participants felt that the introduction of AI could encourage the loss of basic radiography principles and capabilities. Concerns were raised regarding job security, threats to career development opportunities, and reduced job demand. Finally, opposing views were evident regarding patient contact, with some participants acknowledging the increased focus on the patient but also feeling that AI could be unfavourable, as it could reduce human involvement, interaction, and connection, leading to a loss of patient-centred care and decreased quality of work.	necessitating education and research to understand radiographers' role in AI technology development, deployment, and implementation
16	Pedersen et al., 2024 Radiography	Multinational ^d	586 radiographers and student radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	The overall aim of this study was to investigate the perspectives, engagement, understanding, and views of Nordic radiographers on AI.	Overall, there was a low level of concern regarding AI and the radiography profession. Approximately 65% of the respondents in this study stated that they agreed or strongly agreed that AI will influence radiology more than radiography. AI has already been implemented in many medical imaging departments, with 50% (n ¼ 285) reporting current active utilization of AI in their workplace. Furthermore, 92% were aware of the presence of AI in their work setting (n ¼ 485). These findings show the growing integration of AI into the daily work of radiography. Ethical Nordic guidelines with focus on patient safety, data privacy and responsibility could be formulated. Continuous Professional Development is currently not implemented in any Nordic countries, but with a program with focus on AI and education this may be an opportunity to introduce CPD in clinical practice	Overall, this study found that Nordic radiographers have a positive attitude toward AI. Very limited training or education has been provided to the radiographers. Especially since 82.8% reports on plans to implement AI in clinical practice. In general, awareness of AI applications is high, but the educational level is low for Nordic radiographers. This study emphasises the favourable view of AI held by students and Nordic radiographers. However, there is a need for continuous professional development to facilitate the implementation and effective utilization of AI tools within the field of radiography
17	Chivandire et al. 2022 Medical Journal of Zimbabwe	Zimbabwe	10 radiographers	Exploratory cross-sectional study (one time-point) with qualitative design. Thematic analysis approach.	The aim of the study was to explore Zimbabwean radiographers' perspectives on the impact of AI use on their future roles.	Four themes emerged from the review: Reduction of roles of radiographers, elimination of human errors, expansion of knowledge and AI promotion of radiography. The participants thought that since this is a new technology, AI will review and change the tasks of radiographers and more investigations and knowledge into AI should be the main concern before accommodating the technology. Respondents thought that AI would advance the efficiency of clinical practice by eliminating errors. Radiographers believed that there is a pressing need to increase user literacy through education and training. Radiographers believed AI would improve clinical practice and patient care.	Radiographers must be trained and have underpinning knowledge of AI. The study recommends that AI use should be included in the curriculum of radiography students.
18	Rainey et al. 2022 Radiography	United Kingdom and the Channel	411 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This survey aims to provide insight into the current use of AI in image interpretation by reporting radiographers in the UK and to identify how they currently interact, or expect they will interact, with this technology, in the future	Respondents were confident in how an AI reached its decision. Less than a third of respondents would be confident communicating the AI decision to stakeholders. Affirmation from AI would improve confidence (n ¼ 49, 57%) and disagreement would make respondents seek a second opinion (n ¼ 60, 70%). There is a moderate trust level in AI for image interpretation. System performance data and AI visual explanations would increase trust	Responses indicate that AI will have a strong impact on reporting radiographers' decision making in the future. Respondents are confident in how an AI makes decisions but less confident explaining this to others. Trust levels could be improved with explainable AI solutions.

		Islands					
19	Stogiannos et al., 2024 Radiography	United Kingdom	88 radiographers (diagnostic, therapeutic, sonographers)	Online Survey Exploratory cross-sectional (one-time point) study designed with purposive sampling approach. Both Quantitative and Qualitative data were obtained, Descriptive and Inferential, and content analysis approach.	This study aims to a) assess the AI implementation landscape in medical imaging and radiotherapy in the UK, b) to explore any AI governance frameworks and policies currently used in clinical practice by radiographers, c) to evaluate their level of AI governance knowledge, d) to identify challenges and opportunities around AI adoption e) to indicate priority areas requiring further support for successful AI implementation.	Most radiographers (56.6 %) had not received any AI related training. Radiographers requested clearer guidance on AI governance, ample time to implement AI in their practice safely, adequate funding, effective leadership, and targeted support from AI champions. AI training, robust governance frameworks, and patient and public involvement were seen as priorities for the successful implementation of AI by radiographers.	AI implementation is progressing within radiography, but without customised training, clearer governance, key stakeholder engagement and suitable new roles created, it will be hard to harness its benefits and minimise related risks. Implications for practice: The results of this study highlight some of the priorities and challenges for radiographers in relation to AI adoption, namely the need for developing robust AI governance frameworks and providing optimal AI training
20	Rawashdeh et al., 2024 International Journal of Biomedical Imaging	United Arab Emirates	100 radiographers	Online survey cross-sectional study (one time-point) with purposive snow ball sampling. Quantitative data with both Descriptive and Inferential Analysis data approach	The aim is to investigate radiographers' perceptions and attitudes towards AI implementation in the medical sector and radiology.	The study's findings reveal that nearly all participants (98%) endorsed the integration of AI into university education. Moreover, 87% of respondents expressed a preference for receiving AI training, with some already possessing prior knowledge of AI applications in technologies. Approximately one-third of participants (32%) reported having prior knowledge of the technologies employed in AI. Specifically, 50% of the participants think that AI could be used to aid in some cases, 36% of the respondents believe that it could form the basis of evidence-based medical care. A minority of the participants (18%) believed that AI would not positively impact the health industry and would be of no help in diagnosis or treatment. Although most participants deemed AI's capabilities to be at par with or better than a radiographer's experience, only a few would choose AI's judgment (13%) or seek out other AI judgments (6%) in case of a disagreement.	Despite some participants expressing concerns about AI adaptation threatening their jobs, the study demonstrated a high level of motivation among participants to learn and incorporate AI concepts into their clinical practice with proper education and training programs. The study highlights the need for increased accessibility and information on AI in medical and university education.

21	Sharip et al., 2023 Environment-Behaviour Proceedings	Malaysia	29 radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	Study aimed to assess radiographers' knowledge, attitudes, and job security concerning AI integration into medical imaging practice. Radiographers must comprehend AI fundamentals and how AI-based solutions can enhance patient outcomes. Successful AI implementation requires addressing these challenges and preparing radiographers to collaborate effectively with AI technologies.	The study also stated that female radiographers have less confidence in using technology than male radiographers since females tend to overestimate their competence and have lower expectations about their capacity for scientific reasoning. Since radiographers with 4-5 years of working experience were familiar with their current job, they might fear that the new implementation of AI could alter their roles, leading to extra practices for AI adaptation.	The study found that level of knowledge and attitude towards AI integration is high among radiographers, as well as their job security concern. Radiographers need to upgrade their level of knowledge and awareness in the integration of AI in medical imaging, and they should also be concerned that AI will not replace their duties.
22	Ampofo et al., 2023 Radiology research and Practice	Ghana	181 radiography students	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	(1) To determine the level of knowledge and understanding of diagnostic imaging students in Ghana, impact of training in AI for students, recommendations in educational programs, and willingness to learn about AI in the field of medical imaging	133 (73.5%) knew that AI had been incorporated into current imaging modalities, and 143 (79.0%) were aware of AI's emergence in medical imaging. However, only 97 (53.6%) were aware of the gradual emergence of AI in the radiography industry in Ghana. Furthermore, 160 people (88.4%) expressed an interest in learning more about AI and its applications in medical imaging. Less than one-third (32%) knew about the general basic application of AI in patient positioning and protocol selection. And nearly two-thirds (65%) either felt threatened or unsure about their job security due to the incorporation of AI technology in medical imaging equipment. Less than half (38% and 43%) of the participants acknowledged that current clinical internships helped them appreciate the role of AI in medical imaging or increase their level of knowledge in AI, respectively.	Generally, the findings indicate that medical imaging students have fair knowledge about AI and its prospects in medical imaging but lack in-depth knowledge. However, they lacked the requisite awareness of AI's emergence in radiography practice in Ghana. They also showed a lack of knowledge of some general basic applications of AI in modern imaging equipment. Additionally, they showed some level of misconception about the role AI plays in the job of the radiographer.
23	Coppola et al., 2020 <i>Italian Society of Medical Radiology</i>	Italy	1032 radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	To report the results of a nationwide online survey on artificial intelligence (AI) among radiologist members of the Italian Society of Medical and Interventional Radiology (SIRM).	AI is expected to significantly impact radiologists' work, with most respondents stating that AI will likely handle image interpretation in the future. This is due to the potential to enrich radiological reports with quantitative data and perform simpler tasks, improving diagnostic accuracy and turnaround time. However, the biggest perceived issue is the risk of a poorer professional reputation, reduced learning opportunities, lower salaries, and fear that computers will replace radiologists for reporting imaging examinations. Most respondents denied any ethical concerns or fear of job loss, but most believed that the implementation of AI in radiology should be regulated by specific policies. Overall, AI's potential impact on radiology is significant and requires careful consideration and regulation.	AI algorithms are expected to provide radiologists with quantitative data, potentially improving diagnostic accuracy and treatment individualization. The main advantages of AI include lower error rates and optimization of work, allowing more time for clinical patient management. However, a minority of respondents (39.0%) mentioned higher workloads and costs due to maintenance and data analysis as potential drawbacks of workplace AI implementation.
24	Ooi et al., 2021 <i>Singapore Med J.</i>	Singapore	125 (70 residents, 55 faculty radiologists)	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential	We aimed to assess the attitudes and learner needs of radiology residents and faculty radiologists regarding artificial intelligence (AI) and machine learning (ML) in radiology.	The study reveals that most respondents in radiology are interested in AI/ML research, with a small percentage having read one to five journal articles on AI/ML in the last six months. The tech-savvy group is more likely to have attended at least one course compared to the non-tech-savvy group. Nearly all respondents agree that AI/ML advances will drastically change radiology practice, but most disagreed that AI/ML would replace human radiologists. Most respondents would still choose to specialize in radiology if given a choice today, with only a small	As AI augmented radiology emerges, the field will attract the most technologically inclined doctors, positioning it as the tech unicorn in hospitals. However, the evolution of AI/ML in radiology may discourage women from pursuing this specialization. Most radiologists will still choose to specialize in radiology if given another chance, but only a small proportion would choose an intervention-inclined subspecialty. The AI/ML curriculum should aim for literacy rather than proficiency, allowing radiologists to understand the concepts behind algorithms in practice, collaborate with data scientists to uncover clinical usage, and appreciate its limitations, pitfalls, and safety issues. Female respondents were more likely

				Analysis approach	data	proportion choosing an interventional radiology subspecialty. Over three-quarters of respondents agreed that AI/ML makes radiology more exciting for them. Most respondents believe AI/ML or data science knowledge should be introduced during residency, and 72.8% agree that AI/ML training is as important as the clinical skills and knowledge curriculum. The challenge in any residency program is maximizing training within a limited timeframe through an ever-changing landscape with unlimited content to learn. Most respondents view themselves as novices in their understanding of AI/ML, with female respondents more likely to see themselves as novices than males. Most respondents reported using or were aware of the implementation of some form of AI/ML in their radiology practices. A large majority planned to further advance their knowledge in AI/ML to improve their performance as radiologists. Most respondents agreed that AI/ML and data science training were as important as clinical skills and knowledge and imaging physics curricula.	to perceive themselves as non-tech-savvy (74.4%) and novices in AI (79.5%). Residency programs should be more deliberate in engaging female residents in AI initiatives and understanding their unique needs amid traditional cultural biases. Objective questions, such as ability to code or assessments on understanding convoluted neural networks, are easier to interpret but would be at the expense of increased survey length.
25	Huisman et al., 2021 <i>European Radiology</i>	Intercontinental ^e	1041 radiologists and residents	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	In this study, we sought to explore the expectations regarding the implementation of AI in radiological practice, including the anticipated hurdles, as well as the opinion of the radiological community concerning the incorporation of AI education in residency programs	Most respondents believe that Artificial Intelligence (AI) will improve diagnostic radiology, with 82% expecting AI to change the field within 10 years. Factors predicting short-term change include female gender, only hearing of AI, and advanced AI-specific knowledge. The long-term AI role is most likely to be as the second reader, with advanced AI-specific knowledge being more likely. Workflow optimization by AI is expected by 77% of respondents. Hurdles to clinical implementation of AI include ethical and legal issues, limitations in digital infrastructure, and lack of knowledge among stakeholders. Lack of trust in AI by stakeholders is reported by 376/1024 respondents, and this is more common in those working outside of Europe. A lack of high-quality image data is reported by 159/1024 respondents, and non-existence of generalizability of the software is reported by 410/1024 respondents. Ethical and legal issues are mentioned by 62% of respondents, particularly in those working outside of Europe, those with intermediate or advanced AI-specific knowledge, and musculoskeletal radiologists. Most respondents (819) believe AI education should be incorporated into residency programs, with subspecialists in paediatric radiology reporting less often. A minority (23%) suggests imaging informatics and AI should become a radiology subspecialty, while some disagree. The only positive predictor for favouring imaging informatics and AI as a subspecialty is professional social media use.	A study revealed that 82% of participants expect AI to significantly change the radiology profession within 10 years. The most common roles for AI in the future include co-pilot settings with AI as a second reader and workflow optimization tasks. However, respondents with higher AI-specific knowledge levels often identified the lack of labelled and well-organized datasets as a potential issue. Digital infrastructure limitations were mentioned by 35% of respondents, but seamless workflow integration is crucial for success. Younger respondents and those with intermediate to advanced AI-specific knowledge are more motivated to use self-study mediums, such as scientific literature and conferences/specialty courses. The survey was conducted in the pre-COVID-19 era, and online mediums may have gained popularity, affecting future outcomes.
26	Collado-Mesa et al., 2018 <i>J Am</i>	United States of America	66 participants radiology residents (34) and	Online survey cross-sectional study (one time-point) Quantitative data	A survey was conducted among trainees and attending radiologists at a single residency programme to establishing a baseline upon which to	Only 12 respondents (29%) reported using AI applications during their daily work. Only one participant (a trainee) reported having had some form of formal training in AI and big data analysis fields. Most participants 44 (63.8%) did not consider changing their decision to pursue the radiology profession.	Despite the ongoing developments in AI and ML in DR and the predicted changes such developments will produce in the practice of this medical specialty, there is a lack of awareness among both attending radiologists and trainees regarding specific AI tools they already use. The study found that none of the attending radiologists and a small percentage of trainees

	<i>Coll Radiol.</i>		attending radiologists (35)	with both Descriptive and Inferential data analysis approach	build educational activities on AI.	Trainees were more likely than attending radiologists to express doubts on whether they would have pursued DR as a career had they known of the potential impact AI is predicted to have on their medical specialty of choice.	believe their jobs will be obsolete due to AI and ML, and most are willing to contribute to AI and ML application development. However, the results are limited to a single residency program, making it difficult to generalize.
27	van Hoek et al., 2019. <i>European Journal of Radiology</i>	Switzerland	170 radiologists, medical students and surgeons.	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential data analysis approach	To evaluate the opinion and assessment of radiologists, surgeons and medical students on several important topics regarding the future of radiology, such as artificial intelligence (AI), teleradiology and 3D-printing.	The study found that radiologists are more likely to use AI in radiology than surgeons, with a preference for AI for image evaluation after high diagnostic accuracy. However, they were less confident about the future of radiologists, with a shift from diagnostic radiology to interventional radiology. Most radiologists expected an acceleration of their work using AI, while students and surgeons were less confident. 91% of radiologists would choose radiology as a specialization again, with 79% citing interest in future technologies like AI as a reason. Only 15% of students considered radiology as a possible specialization, with 26% citing AI as a reason not to choose radiology. Teleradiology development could lead to many radiologists working from home. All three groups believed that 3D printing would play a significant role in the future of medicine.	The integration of AI into radiological imaging diagnostics is agreed upon by all three groups, with radiologists supporting AI more than surgeons. However, students find themselves in a middle ground, suggesting that the future of radiology should be discussed more. AI could attract tech-savvy students to radiology, benefit radiologists by allowing flexibility in working hours, and potentially benefit surgeons in smaller hospitals. Further research should focus on interventional radiology.
28	Waymel et al., 2019. <i>Diagnostic and Interventional Imaging</i>	France	617 radiologists (93 radiology residents and 524 senior radiologists)	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential data analysis approach	The purpose of this study was to assess the perception, knowledge, wishes and expectations of a sample of French radiologists towards the rise of artificial intelligence (AI) in radiology.	The study surveyed 270 radiologists to understand their perceptions of the potential impact of AI on their practice. The majority (70.0%) reported daily use of AI-based tools, while 24.4% would consider using one within the next year. The majority (63.5%) did not use AI software in their daily practice or foresee any change in the following year. The most important expected AI features were automatic detection of lesions (72.9%), automatic measurement of lesions with validation by the radiologist (172.9%), and improvement in image post-processing (64.4%). AI is expected to lower the risk of imaging-related medical errors (219/270; 81.1%), lower the interpretation time of each exam (74.4%), and increase the time spent with patients (52.2%). Many (79.3%) believe AI will have a positive impact on their future practice, with 60.0% believing that the radiologist should remain fully responsible in case of error. However, a few (26.3%) estimated the need for radiologists in the next 10 years will be lower. Respondents disagreed that AI would replace radiologists and had mixed opinions about AI shifting their activity from diagnostic to interventional radiology. They agreed that the fundamentals of AI should be taught in medical school and would choose radiology as a medical specialty again.	The survey revealed that radiologists have a positive outlook on AI and its potential to improve their daily work. This sentiment was particularly evident among those with prior knowledge of AI. Most respondents would attend dedicated AI training, and even consider advanced courses like programming and neural network training. However, the study has limitations, as the respondents may have been those with a specific interest in AI.
29	Edzie et al 2023 <i>Heliyon</i>	Ghana	77 radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential data analysis approach	To determine the level of awareness and usage of AI amongst radiologists in Ghana. To evaluate the impact of AI on practicing radiologists now and determine future implications of AI on radiologists and their practices. To assess the existing challenges facing the application of AI in radiology To determine any possible	A survey of radiologists revealed that over half (54.5%) do not use AI in their practices, despite its potential to automate disease recognition. Despite this, the majority believe AI should be integrated into the training of radiologists. However, they disagree that AI will replace radiologists, including interventional radiologists, soon. They also believe that AI applications can have adverse effects on radiological practices and patient outcomes. The top two challenges reported by respondents were lack of knowledge and expertise on AI use (31.2%) and low availability of AI equipment and infrastructure (20.8%). The least reported challenge was no lay-down principle on AI rollout (2.6%). To mitigate these challenges, respondents recommended providing training on AI to radiology residents and radiologists (42.9%), providing AI equipment and infrastructure (19.5%), government cost subsidization and investment (14.3%), and ensuring stable internet connectivity with	The Ghanaian radiology residency program lacks AI courses, highlighting the need for AI knowledge and skills in medical schools and residency curricula. Radiology experts predict that AI will not replace radiologists due to difficulties in integrating it into clinical practice, high costs, training labour, and stringent regulatory processes. This supports the belief that radiologists in Africa and low-resource countries cannot be replaced by AI. Respondents view AI as a complementary tool rather than a de-skilling tool, indicating that AI will never replace radiologists in healthcare.

					associations between gender and the radiologists' perspectives on AI.	strengthened IT infrastructure (13.5%). All respondents expressed interest in learning AI applications related to radiology and designing AI software to perform radiologists' duties.	
30	Abdulrahman Tajaldeen and Salem Alghamdi, 2023 <i>Acta Radiologica</i>	Saudi Arabia	93 (Resident radiologists, fellows, consultants).	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	To assess radiologists' knowledge about AI's role and establish a baseline to help in providing educational activities on AI in diagnostic radiology in Saudi Arabia.	Overall, the trainees, radiologists, and consultants were familiar with the term AI, with responses of 72%, 74%, and 82%, respectively. The responses to the question related to the use of AI daily illustrated that 76 (82%) of the participants were not using any AI software at all during the daily interpretation of diagnostic images. A total of 63% of the participants had no intention to change their specialty based on their knowledge about AI. Overall, 23 (25%) participants reported having read more than four articles on the topic of AI in diagnostic radiology during the past 12 months.	Radiologists have a limited understanding of Artificial Intelligence (AI) due to a lack of exposure to recent scientific articles, most of which have not been published in major radiology journals. Additionally, there is no subject related to AI in radiology taught in residency programs. Studies predict that radiology faces three major threats: payment reform, care moving out of hospitals, and machine learning. The ultimate threat is the ultimate threat, with computers predicted to replace radiologists within the next five years.
31	Hashmi et al., 2023 <i>Clinical radiology</i>	United Kingdom	149 trainee radiologists	Online survey cross-sectional study (one time-point) Quantitative data with Descriptive Analysis data approach	To understand the attitudes of UK radiology trainees towards artificial intelligence (AI) in Radiology assessing the demand for AI education.	The study reveals that 83.9% of respondents are interested in AI use in radiology, with 71.1% having no experience working with AI in their practice. Most trainees would like to be involved in AI-based research or audits. Most trainees preferred AI teaching to be delivered at a deanery level, which is an NHS regional organization that coordinates postgraduate medical education and training within a given region. 98.7% of respondents believe AI should be taught during their training, with 79.2% indicating it should be taught during the ST1 to ST3 years. Most trainees expect AI to be used in regular radiology practice in the next 5-10 years. Most (70.1%) believe AI with high diagnostic accuracy should not evaluate and report radiological images independently without human input. A little under half of respondents (47.6%) expressed concern about the possibility of replacing the job of radiologists. Only one trainee reported that their training program had definitively implemented AI teaching. A curriculum and plan could be discussed among trainee representatives, RCR tutors, training programme directors, and the heads of the Schools of Radiology to decide on the volume of teaching required and ensure it does not negatively impact other important areas of the radiology curriculum.	The present survey highlighted three areas that trainees think teaching should focus on: basic understanding, implementation, and critical appraisal of AI software. The top 2 concerns around AI were implementation and ethics as opposed to the replacement of jobs.
32	Alghamdi & Alashban, 2023 Journ. of Radiation Research and Applied Sciences	Saudi Arabia	129 radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	The aim is to develop a baseline understanding of radiologists' expertise on the topic and highlight areas where instructional efforts on AI in diagnostic radiology may be required.	Comparing the male and female respondents, the male respondents had received more AI education than the female respondents. It was found that gender was a significant factor affecting knowledge about AI in respondents who stated that they enjoy technology. There is a statistically insignificant association between gender and being able to explain algorithms ($p = .209 > 0.05$). There is a statistically insignificant association between gender and knowledge about the need for radiologists to embrace, adopt and adapt technology ($p = .123 > 0.05$). Most of the postgraduate respondents disagreed that they thought AI is going to replace radiologists ($n = 18, 14.0\%$).	The results suggest that radiologists have a basic knowledge of AI and are eager to incorporate it into their field; however, there is a need for further training to increase radiologists' applications in the field. In addition, addressing the concerns about the reliability and accuracy of AI systems will be essential in promoting wider adoption of AI in radiology.

33	Chen et al., 2023 Journal of Medical Internet Research	China	3666 radiology residents	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	The aim is to investigate the perception and acceptance of AI among participants, including perceived AI replacement, AI usefulness. Also, to estimate the impact of factors such as demography, working status, psychosocial aspects, personal experience, and contextual factors. Finally, to examines the association between AI perception and acceptance.	77% had heard about AI, and 71.99% had used AI at work. Importantly, participants experiencing more eye strain tend to view AI positively and support its adoption in the field. Our survey also reveals that radiologists anticipate AI integration to not only improve work efficiency and accuracy but also enhance their health and overall well-being. This study empirically supports the association between burnout and AI adoption, demonstrating that burnout is differentially related to various aspects of AI attitudes. Individuals with burnout symptoms were more likely to disagree with the usefulness of AI in health care, show less interest in its adoption, and express concerns about being replaced by AI. Residents who perceive strong support from SRT are more inclined to see AI as useful, express a desire to adopt it, and have confidence that radiologists will not be replaced by AI.	First, considering AI's potential to reduce radiologist workload], integrating AI tools into daily clinical practice could enhance their well-being, especially for those experiencing digital eye symptoms and working longer weekly hours. Educators can integrate AI teaching into undergraduate medical education and radiology residency curricula to educate students about AI's benefits and risks, enhancing their theoretical and practical knowledge
34	Salastekar et al., 2023 Academic Radiology	United States of America	209 Resident radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	Aim is to evaluate radiology residents' perspectives regarding inclusion of artificial intelligence/ machine learning (AI/ML) education in the residency curriculum.	Most of the residents agreed or strongly agreed (83%) that AI/ML education should be a part of the radiology residency curriculum and that such education should equip them with the knowledge to troubleshoot an AI tool in practice / determine whether a tool is working as intended (82%). Among the residency programs that offer AI/ML education, the most common resources were lecture series (43%), national informatics courses (28%), and in-house/institutional courses (26%). About 24% of the residents reported no AI/ML educational offerings in their residency curriculum. Hands on AI/ML laboratory (67%) and lecture series (61%) were reported as the most beneficial or effective. Most of the residents preferred AI/ML education offered as a continuous course spanning the radiology residency (R1 to R4) (76%), followed by mini fellowship during R4 (32%) and as a course during PGY1 (21%).	Residents largely favour the inclusion of formal AI/ML education in the radiology residency curriculum, prefer hands-on learning and lectures as learning tools, and prefer a continuous AI/ML course spanning R1-R4.
35	Alelyani et al., 2021 Healthcare	Saudi Arabia	714 (Radiologists, radiology technologists, technicians, and radiological sciences students)	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This study aims to assess the radiology community's attitude in Saudi Arabia toward the applications of AI.	Most participants (61.2%) have heard or read about AI's role in radiology, with male participants having higher odds of reading about it than females. Radiologists tend to read more about AI than other professions. However, CT/MRI specialists were more eager to attend conferences than radiologists. This indicates that most participants are aware of AI's potential in radiology. The study found that while most participants believed AI could improve image quality and archiving, only half felt their jobs were threatened by AI. 60% of participants felt AI results were unreliable, and 60% agreed that AI could cause stress and anxiety to patients. Most participants believed that radiologists should not bear the responsibility for AI-generated results, but that it should be shared between AI companies and organizations. 88% agreed to having results verified before approval. 65% of participants agreed that patients should be aware of AI and their consent should be obtained. Most participants (71.3%) agreed that AI contributed to high-quality image capture. Most participants believed that AI should be included in	The study found that radiology staff have differing attitudes toward patient approval before using AI, with 84% agreeing that patients should be informed. The transition to AI can reduce healthcare provider workload and improve image acquisition and evaluation. The media plays a significant role in shaping public perception. Most participants (74%) did not think AI would replace radiologists. Most participants were not interested in attending conferences or participating in research projects on AI applications. The interaction between man and machine is crucial in the future, as research by Davenport and Kalakota suggests that only those who refuse to work alongside AI will lose their jobs.

						medical and allied health college curriculums, and 86% agreed that AI would be essential in the future.	
36	Kamal Alsultan Sr., 2023 <i>Cureus</i>	Saudi Arabia, Sudan, and Yemen.	210I radiologic technologists and radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	The purpose of this study is to assess the awareness (knowledge, attitudes, and practices) of radiologists and radiologic technologists regarding AI in medical imaging.	It has been noted that radiologists and radiologic technologists needed stronger knowledge scores on average. Regarding the awareness of IA, there is still a knowledge gap. A proportionate amount of training for radiologists and radiologic technologists should accompany the development of AI technologies and their applications. There was a significant difference in practice awareness based on gender, with females performing better than males, while B.Sc. holders performed better than diploma holders. These results supported that education and gender differences are influencing factors for the practice awareness of AI.	The study concluded that most radiologists and radiologic technologists have a fundamental knowledge and positive attitude about AI in medical imaging. Still, only half of them are aware of its practice awareness. The findings also revealed a significant knowledge gap, with radiologists having more knowledge than radiologic technologists and females being more knowledgeable than males.
37	Qurashi et al. (2021). <i>Journ. of Multidisciplinary Healthcare.</i>	Saudi Arabia	224 radiologists and radiographers	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	The purpose of this study was to evaluate and contrast the current level of knowledge and perceptions among different categories of radiology staff in Saudi Arabia regarding the current and future AI applications and to describe future requirements for successful implementation.	The study found that 83% of participants were familiar with machine learning and AI, with radiologists having the most familiarity. However, 82.1% had never used AI in their departments. On average, 70% agreed or strongly agreed about the usefulness of AI-based applications in clinical decision making, scanning protocols, patient care improvement, and time savings. However, radiologists' trust in machine learning for data analysis is limited. The benefits of AI-based interpretation may diminish if radiologists need to check each interpretation, especially with the surge in images they need to read. This situation could worsen even with AI support, as the volume and complexity of reports increase with more data.	A study found that only one-third of participants believe AI will replace jobs in the future, while almost half feel threatened by AI applications. This may be due to the lack of AI subjects in radiography undergraduate programs, which may misunderstand the basic functions of AI applications. Despite this, 95% of participants showed interest in AI education, with only 26.8% having received education on AI technology, indicating that AI education is still in its early stages.
38	Abuzaid et al.,2020 <i>Academic radiology</i>	United Arab Emirates	153 radiographers and radiologists	Online survey cross-sectional study (one time-point) Quantitative data with both Descriptive and Inferential Analysis data approach	This study aimed to investigate radiologists' and radiographers' knowledge, perception, readiness, and challenges regarding Artificial Intelligence (AI) integration into radiology practice.	The study surveyed 131 participants on the role of AI in radiology, with 85.6% disagreeing and 94.8% opposing its use in various applications and image production. 16.3% agreed that AI would threaten or disrupt radiology practice, while 64.1% thought it would not. 15.7% were comfortable with AI but had no technical information, while 14.4% were very satisfied and working with AI in their current practice. 74.5% had not studied AI during their educational degree, and 68.6% indicated that radiology workers lack a basic understanding of AI. Most participants were self-taught, while 17.0% did not have AI knowledge. AI strategy was internally developed in their organization for future implementation, with 13.1% working on developing AI and 58.9% having no strategy or no idea. The highest interest was concentrated in image post-processing, image evaluation, and dose management, while there was relatively low interest in image interpretation.	The awareness of AI's potential in radiology is often mismatched with expectations, possibly due to the lack of understanding of its role in local radiology practices and the lack of proper implementation knowledge. A survey found that 62% of institutions had no dedicated AI implementation officer, indicating that most product information came from vendors or was self-taught. This suggests that radiographers and radiologists lack knowledge of AI fundamentals and aspects of AI integration into radiology, resulting in a mismatch between the perception of AI's potential and the actual use of AI in radiology.

39	Champe ndal et al. 2024 Preprint. org	Switz erland	242 (radiographer s, students and radiologists, nuclear medicine specialists and radiation oncologists)	Online Survey Exploratory cross- sectional (one-time point) study designed to recruit participants through a purposive snowball sampling approach. Both Quantitative and Qualitative data were obtained. Descriptive and Thematic analysis methods approach.	This study aimed to explore the possible impact AI on radiographers' practice and profession in Switzerland based on perspectives from clinical radiographers, teaching staff, students and physicians (radiology, nuclear medicine and radiation oncology), to better adapt radiographers' training for the market needs.	Participants predominantly view AI as an opportunity (57.2%) but also as a threat (18.5%), with concerns about job reduction (22.6%) and automation bias (16.4%). A significant majority (68.3%) feel unprepared for AI implementation due to the absence of specific training (87.6%), and 93% believe AI education should be integrated into undergraduate programs. Radiographers as well as physicians, believed that the technical part of their job, such as image reconstruction, post- processing, and protocol optimisation, would be the main areas impacted by this technology. Regarding education, participants considered that it should be mainly delivered through the bachelor's program, 69% of radiographers indicated that their employers should offer them a specific training program, and 15% of physicians agree to this. The fear that less qualified people will be hired was highlighted, devaluing the level of radiographers' profession, for both technical and human competences and skills.	The study highlights the need for comprehensive AI training to be integrated into radiography/medical radiation science education, collaboration between stakeholders to adapt to the roles that are changing, and proactive measures to address concerns around job stability, competences and skills retention.
40	Al Mohamm ad et al. 2024 British Journal of Radiolog y	Jorda n	258 radiographer s and radiologists	Online survey cross-sectional study (one time- point) Quantitative data with both Descriptive and Inferential Analysis data approach	The objective of this study was to evaluate radiologists' and radiographers' opinions and perspectives on artificial intelligence (AI) and its integration into the radiology department. Additionally, the study investigated the most common challenges and barriers that radiologists and radiographers face when learning about AI.	A quarter of the radiologists (25.7%) believed that AI might replace their jobs, compared to 40.8% of the radiographers. The subspecialty predicted to be least influenced by AI in the next 5-10 years was musculoskeletal imaging by radiographers (1.9%) and interventional imaging by radiologists (2.0%). The most significant challenge faced by both radiologists (70%) and radiographers (81.5%) when learning about AI and its applications was the lack of mentorship, guidance, and support from experts in the AI field.	Radiologists and radiographers reported several barriers to AI learning, with the most significant being the lack of mentorship and guidance from experts. Addressing this challenge requires a strong emphasis on AI education and training for medical imaging staff, coupled with ensuring their access to relevant resources to support their learning journey. Future research in this area should focus on the development of tailored AI training programmes, the establishment of mentorship initiatives, and the creation of accessible resources specifically designed to meet the needs of medical imaging professionals.
41	Alyami et al., 2023 Current Medical Imaging	Saudi Arabi a	173 radiographer s and radiologists	Online survey cross-sectional study (one time- point) Quantitative data with Descriptive and Inferential Analysis data approach	This study aimed to explore the Saudi Arabian radiologists and radiographers' perspectives on integrating AI into Medical Imaging practice to support policy development and enhance the AI implementation strategy for Saudi Arabia.	63% of the participants indicated that AI would decrease radiation doses while maintaining optimal image quality. most participants (nearly 60%) expressed fears of the possibility of machine errors while using AI- integrated equipment in radiography practice (n = 102). There was a significant negative correlation between participants' perspectives on the positive impact of AI implementation and education or qualification level. There was a statistically significant difference between radiographers and radiologists regarding their perspectives on the negative impact of AI (p = 0.048).	Radiographers and radiologists in Saudi Arabia revealed a positive attitude toward integrating AI into MI. However, concerns regarding AI-related errors, data protection, cyber security, and decision-making issues were recognized.

Key/Legend

- a. Abuzaid et al. (2021) was conducted in Egypt, Sudan, Jordan, Saudi Arabia, United Arab Emirates, Bahrain, Oman, Turkey, and India.
- b. Coakley et al. (2022) was mainly conducted in UK, Ireland, Portugal, Italy, Malta, and Spain.
- c. Akudjedu et al. (2023) was conducted in Africa, Australia, Asia, Europe, North America, and South America.
- d. Pedersen et al. (2024) was conducted in Denmark, Norway, Sweden, Iceland, Greenland, and the Faroe Islands
- e. Huisman et al. (2021) was conducted in Africa, Asia, Australia, Europe, North Africa, South America.