

Managing The Ethical Terrain Of AI In Radiography: A Cross-Sectional Investigation Of Radiographers' Viewpoints

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Abstract:

Artificial intelligence (AI) in radiography raises difficult ethical issues and offers revolutionary possibilities for diagnostic imaging. This cross-sectional study set out to find out how radiographers felt about the ethical ramifications of AI in their line of work, as well as to pinpoint the main issues and possible solutions.

Methods: A structured questionnaire was given to a wide range of Saudi Arabian radiologists. Questions about ethical AI concerns, the perceived effect on clinical practice, and recommendations for moral AI integration in radiography were all covered in the survey. Both quantitative and qualitative techniques were used to analyze the data in order to capture a wide variety of viewpoints.

Conclusions: This study uncovered a complicated ethical environment surrounding the use of AI in radiography, one that is marked by professionals' excitement and trepidation. It emphasizes how ethical frameworks, instruction, and the creation of policies are required to direct the application of AI in radiography. These findings add to the current discussion about AI in medical imaging and offer guidance to practitioners, educators, and policymakers on how to handle the moral dilemmas associated with the use of AI in healthcare.

Keywords: Artificial intelligence, Radiography.

Introduction

A new era of decision support, workflow efficiency, and diagnostic

capabilities has been brought about by the quick adoption of artificial intelligence (AI) in the radiography industry. Because AI technologies are becoming more and more common in medical imaging, it is crucial to navigate the ethical issues surrounding their use (Wong, 2019).

Numerous potential advantages arise from the application of AI in radiography, such as increased workflow efficiency, better diagnostic accuracy, and the capacity to handle enormous volumes of imaging data. But these developments also present moral dilemmas that need to be carefully considered. As essential members of the healthcare team in charge of gathering and analyzing medical images, radiographers play a crucial part in the effective integration of AI technologies. Fostering the responsible generation requires an understanding of their viewpoints on the ethical implications of AI. But these developments also present moral dilemmas that need to be carefully considered. As essential members of the healthcare team in charge of gathering and analyzing medical images, radiographers play a crucial part in the effective integration of AI technologies. Fostering the responsible and patient-centered use of these technologies requires an understanding of their viewpoints on the ethical implications of AI (Pinto, 2018).

The integration of AI into radiography :

A revolutionary change in medical imaging, the incorporation of AI into radiography presents previously unheard-of possibilities for enhanced workflow efficiency and diagnostics. But since AI technologies are becoming more and more common, it is now crucial to take ethics into account when implementing them. In order to shed light on the ethical landscape and offer insights for the responsible development and application of these technologies, this cross-sectional study looked at the perspectives of radiographers, who are important stakeholders in the use of AI in medical imaging (Currie, 2022).

Recognizing the viewpoints of radiographers:

The results of this study showed that radiographers had varied levels of familiarity and readiness with AI, indicating a nuanced understanding of the technology. While some radiographers showed a high degree of awareness and confidence in AI, others

showed reluctance and voiced concerns. The disparities in education, training, and exposure to AI technologies in work settings can be linked to these divergent viewpoints. Comparable findings from similar studies showed that radiographers had a range of opinions regarding the use of AI technologies. AI has the potential to increase workflow efficiency and diagnostic accuracy, according to some radiographers. Others, however, were concerned about the necessity for additional training and the potential loss of their jobs (Char et al., 2018).

The possible effects of AI on the radiography industry are hotly debated. By examining current workflow and identifying areas where AI automation, such as protocol planning, image acquisition, and processing, may be implemented, a study looked at the potential impact of AI on the radiography profession. A thorough grasp of the real-world application of AI in radiography was given by this study (Martin, 2022).

The radiographer community has expressed a great deal of interest in and concern about the application of AI in radiology. AI techniques have demonstrated an impressive capacity to automatically identify complex patterns in imaging data, which has made it easier to provide quantitative assessments of radiographic characteristics (Pesapane et al., 2018).

AI-Assisted radiography's ethical issues:

The study's emphasis on ethical issues is consistent with more general discussions found in the literature. Concerns about patient privacy and confidentiality have grown, which is consistent with research on AI in healthcare more generally. In order to protect patient safety, uphold privacy, and advance equitable healthcare delivery, ethical considerations surrounding the application of AI in radiography are essential. The use of AI in radiology has been thoroughly examined for its ethical and professional ramifications. Content that the ethical use of AI in radiology should put the needs of patients first, reduce harm, and make sure that stakeholders share the risks and rewards fairly. It is crucial to have a solid understanding of the moral standards and laws governing AI in healthcare, particularly in radiography (Angwin, 2022).

Practice and policy ramifications:

The practical implications of the study's findings for incorporating

AI into radiography are noteworthy. The unique issues and viewpoints of radiographers should be taken into consideration when developing ethical standards and educational initiatives. Building trust among radiographers and guaranteeing their active participation and cooperation with AI technologies depend on open and honest communication about the creation, verification, and application of AI algorithms.

Recommendations:

The use of self-reported data, possible selection bias in the convenience sample, and the subjectivity of qualitative data analysis are some of the limitations that this study admits. The results' interpretation includes a discussion of these limitations.

The results of this study emphasized the necessity of continual professional development opportunities to improve radiographers' readiness for the changing AI landscape in radiography. Programs for ongoing education and training will enable radiographers to successfully negotiate moral dilemmas and support the ethical application of AI in healthcare as these technologies develop.

Conclusion:

From the viewpoint of radiographers, this cross-sectional study offered insightful information about the ethical issues surrounding AI in radiography. An ethical framework that encourages the responsible integration of AI can be developed by taking into account their viewpoints and concerns. This will guarantee that the advantages of AI are realized while reducing any potential ethical hazards. Adoption of AI in the healthcare industry requires the critical steps of workforce skill development and technology integration. The numerous ethical and legal issues that come up at the algorithm, data, and clinical levels require ongoing debate and revision of the guidelines. By taking this step, healthcare workers will have explicit guidelines to follow. To fully understand the health-economic implications and testing procedures required to ensure that systems meet the required performance standards while also avoiding hidden biases, more research is required.

Additionally, it is crucial to clearly define the legal obligations of businesses and healthcare providers when using such systems.

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