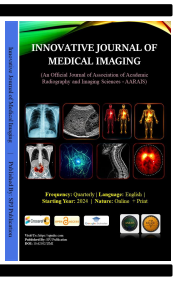
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Short Communication

Student Perceptions of Artificial Intelligence in Radiology: Opportunities, Concerns, and Educational Implications

[1]Kamlesh Kumar*

Program of Radiology, Jharkhand Rai University, Jharkhand, India

***Corresponding Author:** Kamlesh Kumar, Program of Radiology, Jharkhand Rai University, Jharkhand, India

Email: kamlesh.123@gmail.com

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ABSTRACT

Artificial intelligence (AI) is increasingly transforming radiology through advancements in image analysis, workflow optimization, and clinical decision support. As future healthcare professionals, radiology students are expected to work alongside AI-enabled technologies in clinical practice. Understanding their perceptions toward AI is therefore essential for curriculum development and workforce preparedness. This short communication explores current student perspectives regarding AI in radiology, highlighting perceived benefits, concerns, and educational needs. Most students recognize AI as a valuable tool for improving diagnostic efficiency, reducing workload, and enhancing image interpretation. However, concerns regarding job displacement, ethical issues, data privacy, and overreliance on technology remain prevalent. The findings emphasize the importance of integrating AI education into radiology curricula to ensure that graduates possess the knowledge and skills necessary to effectively collaborate with AI systems in future clinical environments.

Keywords: Artificial Intelligence, Radiology Education, Radiography Students, Medical Imaging, Student Perception

INTRODUCTION

Artificial intelligence (AI) has emerged as a transformative technology in healthcare, with radiology being one of its most rapidly evolving applications. Recent advancements in machine learning and deep learning algorithms have enabled AI systems to assist in image acquisition, interpretation, workflow optimization, quality assurance, and clinical decision-making. [1-3] These developments have the potential to improve diagnostic accuracy, reduce reporting times, and enhance overall healthcare efficiency. As healthcare institutions increasingly adopt AI-powered tools, future radiology professionals will be required to understand and effectively utilize these technologies in clinical practice. [4-6] Radiology students represent the next generation of imaging professionals who will work in environments where AI is likely to be integrated into routine diagnostic workflows. Their perceptions, expectations, and concerns regarding AI are therefore important factors influencing the future adoption and implementation of these technologies. Positive attitudes toward AI may facilitate its acceptance and effective utilization, whereas misconceptions and concerns may

Understanding student perspectives can provide valuable insights for educators, curriculum developers, and healthcare policymakers. Although awareness of AI has increased substantially among healthcare students, formal education on AI concepts remains limited in many radiology programs. Consequently, students often develop their understanding through media reports, online resources, and informal discussions, which may not always provide accurate or comprehensive information. Exploring student perceptions of AI in radiology can help identify knowledge gaps and educational needs while supporting the development of curricula that prepare graduates for a technology-driven healthcare environment. [7-9]

DISCUSSION

The growing presence of AI in radiology has generated considerable interest among students pursuing careers in medical imaging. Existing literature suggests that most students view AI positively and recognize its potential to enhance diagnostic performance, improve workflow efficiency, and support clinical decision-making. Many students perceive AI as a complementary technology that can assist healthcare professionals in managing increasing imaging workloads while maintaining high standards of patient care. Despite these positive perceptions, concerns regarding the impact of AI on future employment opportunities remain common. Some students fear that increasing automation may reduce the demand for radiologists or radiographers, leading to uncertainty about career prospects. However, current evidence indicates that AI is more likely to augment rather than replace healthcare professionals. Human expertise remains essential for clinical judgment, patient communication, ethical decision-making, and the interpretation of complex clinical scenarios. Consequently, the future radiology workforce is expected to work alongside AI systems rather than be replaced by them. [10-12]

Ethical and legal considerations also influence student attitudes toward AI. Concerns related to patient privacy, data security, algorithm transparency, and accountability in cases of diagnostic errors have been frequently reported. Students recognize that while AI can improve efficiency, its implementation must be accompanied by appropriate regulatory frameworks and professional oversight. These concerns highlight the need for educational programs to address not only technical aspects of AI but also ethical and legal implications. [13-15] A significant finding across many studies is the discrepancy between student interest in AI and their actual level of knowledge. Although students acknowledge the importance of AI in future practice, many report limited exposure to AI-related education during their training. This educational gap may contribute to uncertainty and misconceptions regarding the capabilities and limitations of AI systems. Integrating AI-focused content into radiology curricula, including foundational principles, clinical applications, and practical demonstrations, may improve student confidence and preparedness for future professional roles. [16-20]

CONCLUSION

Artificial intelligence is expected to play an increasingly important role in radiology practice, making it essential for future imaging professionals to develop an understanding of its applications and limitations. Current evidence suggests that radiology students generally view AI as a beneficial technology capable of enhancing diagnostic accuracy, workflow efficiency, and patient care. Nevertheless, concerns regarding job security, ethical challenges, and insufficient educational exposure remain prevalent. Educational institutions should proactively incorporate AI-related training into radiology curricula to equip students with the knowledge and competencies required in modern healthcare environments. By fostering AI literacy and promoting a balanced understanding of both opportunities and limitations, educators can help prepare a workforce capable of effectively collaborating with AI technologies while maintaining high standards of patient-centered care.

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