

Title: Exploring the Ethical Dimensions of Artificial Intelligence and Robotics in Dental Education

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Abstract: Artificial intelligence (AI) and robotics have revolutionized healthcare, particularly dentistry. Their integration in dental education offers opportunities to enhance learning, diagnostics, treatment planning, and patient care. However, ethical implications must be addressed to ensure responsible and ethical integration of these technologies. This review explores AI and robotics in dental education and highlights the associated ethical considerations. These technologies provide improved learning experiences and simulations. Intelligent tutoring systems offer personalized feedback, virtual reality simulations enable practice in a safe environment, and AI algorithms aid in analysing radiographic images. Despite their potential, ethical challenges arise, including data privacy, autonomy, equity, and professional integrity. Addressing these challenges requires transparency, informed consent, bias detection, and accountability. Dental curricula should incorporate ethics, fostering collaborations between educators and AI/robotics experts. Professional development programs should prioritize ethics training, considering emerging technologies such as AI-powered learning and diagnostic assistance. By embracing ethical considerations, AI and robotics can be integrated in dental education guided by transparency, accountability, privacy, and patient-centric care. A comprehensive understanding of the ethical dimensions is essential to harness the transformative potential of AI and robotics while upholding ethical standards in dental education.

Keywords: Artificial intelligence; Ethics; Dental education; Dentistry; Health profession; Informatics; Machine Learning; Patient care

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