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AI-Driven Insights into End-of-Life Decision-Making: Ethical, Legal, and Clinical Perspectives on Leveraging Machine Learning to Improve Patient Autonomy and Palliative Care Outcomes

Zakera Yasmeen

Data engineering lead, Microsoft Corporation, Charlotte NC, USA

The integration of Artificial Intelligence (AI) and Machine Learning (ML) into end-of-life decision-making is reshaping ethical, legal, and clinical frameworks in palliative care. Traditional approaches to end-of-life care often face challenges in balancing patient autonomy, medical ethics, and clinical decision-making. AI-driven insights offer the potential to enhance predictive analytics for disease progression, optimize pain management strategies, and support personalized care planning. By analyzing patient data, ML models can assist healthcare providers in identifying optimal palliative interventions, forecasting life expectancy, and facilitating shared decision-making between patients, families, and medical teams. However, the deployment of AI in this sensitive domain raises critical ethical and legal concerns, including data privacy, informed consent, and potential biases in algorithmic recommendations. This study examines the opportunities and challenges of leveraging AI to improve end-of-life care, emphasizing the need for a patient-centred approach that upholds dignity, autonomy, and compassionate decision-making. The findings suggest that responsible AI integration can enhance palliative care outcomes, streamline clinical workflows, and empower patients in making informed end-of-life choices.