

A.I. & Healthcare – Spring 2025



Figure 1 NHS Lanarkshire Logo

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AI and Critical Care

1. Matias, Emelyn and Joseph Varon. [The use of artificial intelligence in critical care medicine in 2025: A global perspective](#). CRIT CARE SHOCK. 2025. 02. Vol.28(1), pp31–34. In the year 2025, artificial intelligence (AI) has firmly established itself as a transformative force in critical care medicine, influencing patient care, diagnostics, decision-making, and resource management. The integration of AI into critical care settings has shown substantial promise, particularly in optimizing patient outcomes, streamlining healthcare workflows, and reducing the burden on healthcare

professionals. This article . explores the multifaceted applications of AI in critical care medicine, focusing on its role in patient monitoring, clinical decision support, predictive analytics, personalized treatment, and telemedicine. We analyzed current trends, technological advancements, global disparities, challenges, and ethical considerations associated with AI in critical care. We present an optimistic yet cautious outlook for its future trajectory in diverse healthcare systems worldwide.

AI and Dementia

2. Yu, Ping. **Generative Artificial Intelligence Reshapes Dementia Care**. Australian Journal of Dementia Care. 2025. Jan. Vol.14(1), pp28. [ORDER](#)

AI and Diabetes

3. Garg, Shilpa, Robert Kitchen, Ramneek Gupta and Ewan Pearson. [Applications of AI in Predicting Drug Responses for Type 2 Diabetes](#). JMIR Diabetes. 2025. Mar 27. Vol.10 ppe66831. Unlabelled: Type 2 diabetes mellitus has seen a continuous rise in prevalence in recent years, and a similar trend has been observed in the increased availability of glucose-lowering drugs. There is a need to understand the variation in treatment response to these drugs to be able to predict people who will respond well or poorly to a drug. Electronic health records, clinical trials, and observational studies provide a huge amount of data to explore predictors of drug response. The use of artificial intelligence (AI), which includes machine learning and deep learning techniques, has the capacity to improve the prediction of treatment response in patients. AI can assist in the analysis of vast datasets to identify patterns and may provide valuable information on selecting an effective drug. Predicting an individual's response to a drug can aid in treatment selection, optimizing therapy, exploring new therapeutic options, and personalized medicine. This viewpoint highlights the growing evidence supporting the potential of AI-based methods to predict drug response with accuracy. Furthermore, the methods highlight a trend toward using ensemble methods as preferred models in drug response prediction studies. Copyright © Shilpa Garg, Robert Kitchen, Ramneek Gupta, Ewan Pearson. Originally published in JMIR Diabetes
4. Jenkins, Alicia J., Noriko Kodani, Ranjit Mohan Anjana, et al. [Towards equitable access of innovative technologies such as continuous glucose monitoring and artificial intelligence for diabetes management](#). Diabetes Research & Clinical Practice. 2025. Mar 30. Vol.223 pp112157.
5. Sarma, Arnabjyoti Deva and Moitrayee Devi. [Artificial intelligence in diabetes management: transformative potential, challenges, and opportunities in healthcare](#). Hormones. 2025. **BACKGROUND:** Diabetes, a chronic metabolic disorder characterized by ineffective blood sugar regulation, affects millions of people worldwide, with its prevalence projected to more than double in the next 30 years. Diabetes-related complications are severe and sometimes life-threatening, including cardiovascular disease, kidney failure, and blindness, this posing a significant challenge, especially in low- and middle-income countries. This study explored the integration of artificial intelligence (AI) into diabetes management, emphasizing its transformative potential in healthcare. **OBJECTIVES:** To evaluate the role of AI in

enhancing diabetes management and to identify the challenges and opportunities associated with its implementation. **CONCLUSIONS:** AI has significant potential to revolutionize diabetes management and healthcare delivery. Combining AI's analytical processes with clinical expertise can substantially improve the quality of care. Addressing data, technology, and ethical challenges is crucial for fully harnessing AI's potential, thereby enhancing patient well-being and healthcare outcomes. Copyright © 2025. The Author(s), under exclusive licence to Hellenic Endocrine Society.

6. Sobhi, Navid, Yasin Sadeghi-Bazargani, Majid Mirzaei, et al. [Artificial intelligence for early detection of diabetes mellitus complications via retinal imaging](#). Journal of Diabetes & Metabolic Disorders. 2025. Jun. Vol.24(1), pp104. **Background:** Diabetes mellitus (DM) increases the risk of vascular complications, and retinal vasculature imaging serves as a valuable indicator of both microvascular and macrovascular health. Moreover, artificial intelligence (AI)-enabled systems developed for high-throughput detection of diabetic retinopathy (DR) using digitized retinal images have become clinically adopted. This study reviews AI applications using retinal images for DM-related complications, highlighting advancements beyond DR screening, diagnosis, and prognosis, and addresses implementation challenges, such as ethics, data privacy, equitable access, and explainability. **Conclusion:** With the ability to evaluate the patient's health status in relation to DM complications as well as risk prognostication of future cardiovascular complications, AI-assisted retinal image analysis has the potential to become a central tool for modern personalized medicine in patients with DM.

AI and Education

7. Lee, Qin Yuan, Michelle Chen, Chi Wei Ong and Cyrus Su Hui Ho. [The role of generative artificial intelligence in psychiatric education- a scoping review](#). BMC Medical Education. 2025. Mar 25. Vol.25(1), pp438. 10.1186/s12909-025-07026-9

AI and Emergency Care

8. Yi, Nayeon, Dain Baik and Gumhee Baek. [The effects of applying artificial intelligence to triage in the emergency department: A systematic review of prospective studies](#). J.Nurs.Scholarsh. 2025. 01. Vol.57(1), pp105–118. Introduction: Accurate and rapid triage can reduce undertriage and overtriage, which may improve emergency department flow. This study aimed to identify the effects of a prospective study applying artificial intelligence-based triage in the clinical field. Design: Systematic review of prospective studies. Methods: CINAHL, Cochrane, Embase, PubMed, ProQuest, KISS, and RISS were searched from March 9 to April 18, 2023. All the data were screened independently by three researchers. The review included prospective studies that measured outcomes related to AI-based triage. Three researchers extracted data and independently assessed the study's quality using the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) protocol. Results: Of 1633 studies, seven met the inclusion criteria for this review. Most studies applied machine learning to triage, and only one was based on fuzzy logic. All studies, except one, utilized a five-level triage classification system. Regarding model performance, the feed-forward neural network achieved a

precision of 33% in the level 1 classification, whereas the fuzzy clip model achieved a specificity and sensitivity of 99%. The accuracy of the model's triage prediction ranged from 80.5% to 99.1%. Other outcomes included time reduction, overtriage and undertriage checks, mistriage factors, and patient care and prognosis outcomes. Conclusion: Triage nurses in the emergency department can use artificial intelligence as a supportive means for triage. Ultimately, we hope to be a resource that can reduce undertriage and positively affect patient health. Protocol Registration: We have registered our review in PROSPERO (registration number: CRD 42023415232). 10.1111/jnu.13024

AI and Ethics

9. Bartlett, Benjamin. [Towards Accountable, Legitimate and Trustworthy AI in Healthcare: Enhancing AI Ethics with Effective Data Stewardship.](#) The New Bioethics (2025): 1-25.
10. Bentzen, Søren M. [AI in healthcare: a rallying cry for critical clinical research and ethical thinking.](#) Clin.Oncol.(R.Coll.Radiol.). 2025. pp103798.
11. Fisher, Carl E. [The real ethical issues with AI for clinical psychiatry.](#) International Review of Psychiatry. 2025. Feb. Vol.37(1), pp14–20.
12. Goktas, Polat and Andrzej Grzybowski. [Shaping the Future of Healthcare: Ethical Clinical Challenges and Pathways to Trustworthy AI.](#) Journal of clinical medicine. 2025.Vol.14(5), pp1605. : Artificial intelligence (AI) is transforming healthcare, enabling advances in diagnostics, treatment optimization, and patient care. Yet, its integration raises ethical, regulatory, and societal challenges. Key concerns include data privacy risks, algorithmic bias, and regulatory gaps that struggle to keep pace with AI advancements. This study aims to synthesize a multidisciplinary framework for trustworthy AI in healthcare, focusing on transparency, accountability, fairness, sustainability, and global collaboration. It moves beyond high-level ethical discussions to provide actionable strategies for implementing trustworthy AI in clinical contexts. : A structured literature review was conducted using PubMed, Scopus, and Web of Science. Studies were selected based on relevance to AI ethics, governance, and policy in healthcare, prioritizing peer-reviewed articles, policy analyses, case studies, and ethical guidelines from authoritative sources published within the last decade. The conceptual approach integrates perspectives from clinicians, ethicists, policymakers, and technologists, offering a holistic " " view of AI. No clinical trials or patient-level interventions were conducted. : The analysis identifies key gaps in current AI governance and introduces the -an adaptive AI oversight framework aligned with global policy trends and Sustainable Development Goals. It introduces quantifiable trustworthiness metrics, a comparative analysis of AI categories for clinical applications, and bias mitigation strategies. Additionally, it presents interdisciplinary policy recommendations for aligning AI deployment with ethical, regulatory, and environmental sustainability goals. This study emphasizes measurable standards, multi-stakeholder engagement strategies, and global partnerships to ensure that future AI innovations meet ethical and practical healthcare needs. : Trustworthy AI in healthcare requires more than technical

advancements-it demands robust ethical safeguards, proactive regulation, and continuous collaboration. By adopting the recommended roadmap, stakeholders can foster responsible innovation, improve patient outcomes, and maintain public trust in AI-driven healthcare.

13. Gozum, Ivan Efreaim A. [How can the principle of justice as fairness help address the digital divide in AI and healthcare?](#). Journal of public health (Oxford, England). 2025.Vol.47(1), ppe187–e188
14. Mohsin Khan, Muhammad, Noman Shah, Nissar Shaikh, Abdalnasser Thabet, Talal alrabayah and Sirajeddin Belkhair. [Towards secure and trusted AI in healthcare: A systematic review of emerging innovations and ethical challenges](#). International journal of medical informatics (Shannon, Ireland). 2025.Vol.195 pp105780. •Provides a systematic review of cutting-edge AI innovations addressing trust, ethics, and security in healthcare. •Explores the potential of Explainable AI (XAI) and federated learning to enhance transparency and protect patient privacy. •Analyzes key challenges like algorithmic bias, adversarial attacks, and the lack of standardized regulations. •Proposes actionable recommendations for practitioners, policymakers, and researchers to foster safe and reliable AI adoption. •Emphasizes the critical role of ethical design and interdisciplinary collaboration in shaping the future of healthcare AI. Artificial Intelligence is in the phase of health care, with transformative innovations in diagnostics, personalized treatment, and operational efficiency. While having potential, critical challenges are apparent in areas of safety, trust, security, and ethical governance. The development of these challenges is important for promoting the responsible adoption of AI technologies into healthcare systems. This systematic review of studies published between 2010 and 2023 addressed the applications of AI in healthcare and their implications for safety, transparency, and ethics. A comprehensive search was performed in PubMed, IEEE Xplore, Scopus, and Google Scholar. Those studies that met the inclusion criteria provided empirical evidence, theoretical insights, or systematic evaluations addressing trust, security, and ethical considerations. The analysis brought out both the innovative technologies and the continued challenges. Explainable AI (XAI) emerged as one of the significant developments. It made it possible for healthcare professionals to understand AI-driven recommendations, by this means increasing transparency and trust. Still, challenges in adversarial attacks, algorithmic bias, and variable regulatory frameworks remain strong. According to several studies, more than 60 % of healthcare professionals have expressed their hesitation in adopting AI systems due to a lack of transparency and fear of data insecurity. Moreover, the 2024 WotNot data breach uncovered weaknesses in AI technologies and highlighted the dire requirement for robust cybersecurity. Full understanding of the potential of AI will be possible only with putting into practice of ethical and technical maintains in healthcare systems. Effective strategies would include integrating bias mitigation methods, strengthening cybersecurity protocols to prevent breaches. Also by adopting interdisciplinary collaboration with the goal of forming transparent regulatory guidelines. These are very important steps toward earning trust and ensuring that AI systems are safe, reliable, and fair. AI can bring transformative opportunities to improve healthcare outcomes, but successful implementation will

depend on overcoming the challenges of trust, security, and ethics. Future research should focus on testing these technologies in multiple real-world settings, enhance their scalability, and fine-tune regulations to facilitate accountability. Only by combining technological innovations with ethical principles and strong governance can AI reshape healthcare, ensuring at the same time safety and trustworthiness.

AI and Healthcare

15. Babic B, Gerke S. [Notice and Explanation in Healthcare AI: Lessons from California's Proposition 65 Experience](#). The American Journal of Bioethics. 2025 Mar 4;25(3):115-8.
16. Bhuyan, Soumitra S., Vidyoth Sateesh, Naya Mukul, et al. [Generative Artificial Intelligence Use in Healthcare: Opportunities for Clinical Excellence and Administrative Efficiency](#). J.Med.Syst. 2025. 01/16. Vol.49(1), pp1–11. Generative Artificial Intelligence (Gen AI) has transformative potential in healthcare to enhance patient care, personalize treatment options, train healthcare professionals, and advance medical research. This paper examines various clinical and non-clinical applications of Gen AI. In clinical settings, Gen AI supports the creation of customized treatment plans, generation of synthetic data, analysis of medical images, nursing workflow management, risk prediction, pandemic preparedness, and population health management. By automating administrative tasks such as medical documentations, Gen AI has the potential to reduce clinician burnout, freeing more time for direct patient care. Furthermore, application of Gen AI may enhance surgical outcomes by providing real-time feedback and automation of certain tasks in operating rooms. The generation of synthetic data opens new avenues for model training for diseases and simulation, enhancing research capabilities and improving predictive accuracy. In non-clinical contexts, Gen AI improves medical education, public relations, revenue cycle management, healthcare marketing etc. Its capacity for continuous learning and adaptation enables it to drive ongoing improvements in clinical and operational efficiencies, making healthcare delivery more proactive, predictive, and precise.
17. Bock, Lotte A., Sanne Vaassen, Walther van Mook N.K.A. and Cindy Y. G. Noben. [Understanding healthcare efficiency-an AI-supported narrative review of diverse terminologies used](#). BMC medical education. 2025.Vol.25(1), pp408–12. Physicians have become more responsible for pursuing healthcare efficiency. However, contemporary literature uses multiple terminologies to describe healthcare efficiency. To identify which term is best suitable for medical education to equip physicians to contribute to healthcare efficiency delivery in clinical practice, we performed a narrative review to elucidate these terms' meanings, commonalities, and differences. The PubMed-database was searched for articles published in 2019-2024 describing healthcare efficiency terminology. Eligible articles conceptually described and applied relevant terminologies for physicians, while empirical studies and practice-specific articles were excluded. The screening was supported by an open-source artificial intelligence tool (ASReview), which prioritizes articles through machine learning. Two reviewers independently screened the resulting articles, resolving disagreements by consensus. Final eligibility was

determined through predefined inclusion criteria. Out of 3,655 articles identified, 26 met the inclusion criteria. Key terminologies: cost-effectiveness, high-value care, low-value care, and value-based healthcare, were identified, and explored into more depth. 'Value' is central in all terms, but our findings reveal that the perspectives herein differ on what constitutes value. Within cost-effectiveness, resource allocation to the population's needs drives decision-making-maximizing value at population-level. Within value-based healthcare, patient-centricity guides decision-making-maximizing value at individual patient-level. High-value and low-value care are somewhat ambiguous, depending solely on cost-effectiveness results or patient preferences to determine whether care is considered as low or high value. Cost-effectiveness may be too rigid for patient-physician interactions, while value-based healthcare might not ensure sustainable care. As physicians are both stewards of finite societal resources and advocates of individual patients, integrating cost-effectiveness (resource allocation for population needs) and value-based healthcare (individualized care plans) seems necessary. Both terms emphasize delivering high-value care and avoiding low-value care. We suggest that medical education: (1) train (future) physicians to apply healthcare efficiency principles through case-based discussion, (2) use the cost-effectiveness plane to evaluate treatments, (3) deepen knowledge of diagnostic and treatment procedures' costs within evidence-based guidelines, and (4) enhance communication skills supporting a healthcare efficiency-driven open shared decision-making with patients.

18. Ferede, Dereje. [Artificial Intelligence \(AI\) and Healthcare Capabilities: A Systematic Literature Review](#). F1000 research. 2025.Vol.14 pp20. Artificial Intelligence (AI) has the potential to transform the healthcare ecosystem, but further research is needed to understand how it can enhance healthcare capabilities. This study analyzes the literature on AI and healthcare capability using the PRISMA approach, applying specific search keywords and inclusion/exclusion criteria. The findings indicate that AI benefits the healthcare ecosystem, significantly influences health outcomes, and transforms medical practices. However, there is limited literature and a lack of understanding regarding how AI enhances healthcare capabilities. Most studies date from 2019, suggesting that COVID-19 has accelerated the adoption of AI systems in healthcare. This research contributes theoretically by developing a framework that clarifies AI's role in enhancing healthcare capabilities, serving as a foundational model for future studies. It identifies critical gaps in the literature, especially in the Global South, and encourages exploration in under-researched areas where healthcare professionals can benefit from AI. Additionally, it bridges the gap between AI and healthcare, enriching interdisciplinary dialogue relevant to emerging economies facing financial constraints. Practically, the study provides actionable insights for healthcare practitioners and policymakers in the Global South on leveraging AI to improve service delivery. It sets the stage for empirical research, promoting the testing and refinement of the proposed framework in resource-limited contexts, while raising awareness among healthcare staff, managers, and technology developers about AI's role in healthcare.
19. Li, Anson Kwok Choi, Ijaz A. Rauf and Karim Keshavjee. [Knowledge is not all you need for comfort in use of AI in healthcare](#). Public health (London). 2025.Vol.238

pp254–259. The adoption of artificial intelligence (AI) in healthcare is rapidly expanding, transforming areas such as diagnostics, drug discovery, and patient monitoring. Despite these advances, public perceptions of AI in healthcare, particularly in Canada, remain underexplored. This study investigates the relationship between Canadians' knowledge, comfort, and trust in AI, focusing on key sociodemographic factors like age, gender, education, and income. Cross-sectional study. Using data from the 2021 Canadian Digital Health Survey of 12,052 respondents, we employed ordinal logistic and multivariate polynomial regression analyses to uncover trends and disparities. Findings reveal that women and older adults consistently report lower levels of knowledge and comfort with AI, with middle-aged women expressing the most significant discomfort. Comfort levels are closely tied to concerns over data privacy, especially regarding the use of identifiable personal health data. Healthcare professionals exhibited heightened discomfort with AI, indicating potential issues with trust in AI's reliability and ethical governance. Our results underscore that increasing knowledge alone does not necessarily lead to greater comfort with AI in healthcare. Addressing public concerns through robust data governance, transparency, and inclusive AI design is essential to fostering trust and successful integration of AI in healthcare systems.

20. Pflanzner, Michael. [Balancing Transparency and Trust: Reevaluating AI Disclosure in Healthcare](#). AM J BIOETHICS. 2025. 03. Vol.25(3), pp153–156.
21. Schneider-Kamp, Anna and Alessandro Godono. [The AI-extended professional self: user-centric AI integration into professional practice with exemplars from healthcare](#). AI & society. 2025. AI technologies are rapidly advancing and have shown potential for providing significant value across a variety of sectors, including healthcare. Much of research has focused on the technologies' capabilities and pushing their boundaries, with many envisioning AI and AI-enabled robots replacing human labor and humans in the near future. However, in critical domains of professional practice such as healthcare, full replacement is neither realistic nor aimed for, and collaboration between AI and humans is a given for the foreseeable future. This article argues for a shift away from a sole focus on the efficiency and effectiveness of technology, proposing instead that AI-enabled technologies increasingly should learn to adapt to human users considering that healthcare professionals already are overburdened. Rather than contributing to this burden, AI might extend the professional self by anticipating and supporting human needs and intentions. Drawing on a selective meta-synthesis of recent reviews and studies, this article introduces the concept of the AI-extended professional self . This concept suggests a temporary, dynamic integration of human professionals with AI that extends their capabilities with minimal additional burdens regarding training and application. Through three exemplars from healthcare—healthcare consultations, breast cancer screening, and robotic surgery—this article explores how a perspective rooted in the AI-extended professional self might unlock the potential for deeper AI integration into professional practice. Beyond these exemplars, this article calls for interdisciplinary research into the associated potential and challenges, advocating that the burden of AI integration needs to shift from humans to AI-enabled technologies.

22. You, Zhenwei, Yahui Wang and Yineng Xiao. [Analyzing the Suitability of Artificial Intelligence in Healthcare and the Role of AI Governance](#). Health care analysis. 2025. In recent years, artificial intelligence (AI) has become more important in healthcare. It has the ability to completely change how patients are diagnosed, treated, and cared for. To make sure AI is properly supervised in healthcare, many problems need to be solved. This calls for a broad approach that includes policy, technology, and involving important people. This study investigates the governance of AI within healthcare, highlighting the importance of policy, technology, and stakeholder engagement. Adopting a mixed-methods research design, the study encompasses surveys, interviews, and document analysis to comprehensively explore diverse perspectives on AI governance. Purposive sampling techniques were employed to gather 897 valid samples, ensuring diversity across stakeholder groups. Surveys gathered quantitative data on demographic characteristics and attitudes toward AI governance, while interviews provided deeper insights into stakeholders' experiences and recommendations. Document analysis supplemented data collection by reviewing policy documents, guidelines, and academic literature related to AI governance. This study merges quantitative and qualitative data to thoroughly investigate AI governance, enabling the identification of policy implications and actionable recommendations. This study contributes novel insights by adopting a comprehensive approach to AI governance in healthcare, integrating policy, technology, and stakeholder engagement perspectives. Unlike previous studies focusing solely on individual aspects of AI governance, this research provides a holistic understanding of the complex dynamics involved. This research offers important insights into AI governance by investigating the impact of stakeholder engagement, ethical considerations, digital health disparities, governance structures, and health communication strategies on AI integration in healthcare, ultimately aiding in policy development and implementation.

AI and Mental Health

23. Fiasche, Federica, Andrea Steven Barbetti, Lorenzo Di Natale, Salvatore Cappello, Giulia Sarnataro and Giuseppe Ducci. [Virtual reality and artificial intelligence: the future of mental health. A narrative review](#). Recent Prog.Med. 2025.Vol.116(3), pp150–155.

AI and Nursing

24. Akca Sumengen, Aylin, Damla Ozcevik Subasi and Gokce Naz Cakir. [Nursing students' attitudes and literacy toward artificial intelligence: a cross-sectional study](#). TEACH LEARN NURS. 2025. 01. Vol.20(1), ppe250–e257. • It is essential to comprehend the attitudes and AI literacy levels of nursing students for future integration into nursing. • The positive attitudes toward AI were associated with awareness, usage, evaluation, and overall AI literacy scores. • There is still some confusion about the ethical perspectives of AI in healthcare despite AI-related education. • Strengthening AI literacy can foster positive attitudes while increasing awareness and use reduces negative attitudes. Artificial intelligence (AI) is becoming increasingly important in healthcare. New nurses need to develop digital literacy skills to adapt to high-tech healthcare environments. AI is transforming nursing practice, improving decision-

making, patient outcomes, and workflows. It's important to assess nursing students' skills and attitudes towards AI before they take patient care responsibilities. This study aims to evaluate nursing students' attitudes and literacy levels related to AI. With AI becoming more prevalent in healthcare, it's important to understand how prepared nursing students are to use AI technologies effectively in clinical practice. A descriptive, correlational, and cross-sectional research design was used. This study was conducted with 205 undergraduate nursing students studying at a private foundational university in Turkey. The data collection process started on 4 May 2024 and ended on 4 June 2024. Data for this study was collected through the Participant Introduction Form, the Artificial Intelligence Literacy Scale (AILS), and the General Attitudes Towards Artificial Intelligence Scale (GAAIS). We used Student's t-test and ANOVA. Pearson correlation analysis was used to assess the relationship between age, GAAIS, and AILS. Out of the 205 undergraduate nursing students who participated in the study, 87.8% were female. Male students had significantly higher Positive GAAIS scores compared to female students. Students who had previous education about AI scored higher in AI awareness, usage, and evaluation as well as the total AILS scale scores ($p < 0.05$). There was a positive correlation between positive GAAIS and the subdimensions of awareness ($p < 0.001$), AI usage ($p < 0.001$), AI evaluation ($p < 0.001$), and total AILS ($p < 0.001$) scores. In addition, as the total AILS score increased, negative GAAIS scores decreased ($p < 0.05$). This study suggests that enhancing AI literacy among nursing students fosters more positive attitudes toward AI while increasing AI awareness and usage reduces negative attitudes. These findings highlight the need for integrating AI education into nursing curricula to better prepare students for the evolving healthcare landscape.

25. ALKAN, Seval A. GÄÇD. İK. E. N., KIRMACI, Neslihan D. U. M. A. N. and Zeliha KOÇ. [Is artificial intelligence an opportunity or a threat in nursing care?: An in-depth phenomenological study](#). Arch.Psychiatr.Nurs. 2025. 02. Vol.54 pp54–62. In the contemporary landscape, the use of artificial intelligence (AI) in nursing care has sparked ongoing debates regarding its merits and drawbacks. This study endeavored to elucidate the perceptions of nurses regarding whether AI should be construed as an opportunity or a threat in the context of patient care delivery. A qualitative, descriptive, phenomenological design was used. The study was conducted at a university hospital from December 15, 2023, to January 1, 2024. Employing a purposive sampling method, the study achieved data saturation after interviews with 13 nurses. Qualitative data were gathered using a semi-structured interview form, and content analysis was conducted following the procedural steps outlined in Colaizzi's phenomenological data analysis. In the course of the study, four distinct categories emerged: "Nursing Care Practices", "Diagnosis and Treatment Processes", "Management in Nursing", and "Nursing Education and Research". Within the category of "Nursing Care Practices", a detailed examination revealed three overarching themes, each encompassing 15 sub-themes. These themes were "ethical and legal dimensions", "positive thoughts", and "negative thoughts". This study reveals that the nurses believed that "AI can support, facilitate, and enhance nursing care when implemented within defined parameters and under appropriate oversight." The same participants conceptualized AI as a positive tool that augments clinical decision-making processes. These findings suggest that the integration of AI,

when guided by ethical considerations and patient safety protocols, is a promising avenue for advancing the delivery of nursing care. • Artificial intelligence may support clinical decision making of newly graduated novice nurses. • Artificial intelligence may cause ethical and legal problems. • Misuse of artificial intelligence could hinder the protection of patient privacy. • Artificial intelligence could hinder the individualized care delivery. • Use of artificial intelligence may lead to non-humanistic care delivery to patients.

26. Choi, Jeeyae, Seoyoon Woo and Anastasiya Ferrell. [Artificial intelligence assisted telehealth for nursing: A scoping review](#). J.Telemed.Telecare. 2025.Vol.31(1), pp140–149. Background Due to the COVID-19 pandemic, telehealth resurfaced as a convenient efficient healthcare delivery method. Researchers indicate that Artificial Intelligence (AI) could further facilitate delivering quality care in telehealth. It is essential to find supporting evidence to use AI-assisted telehealth interventions in nursing. Objectives This scoping review focuses on finding users' satisfaction and perception of AI-assisted telehealth intervention, performances of AI algorithms, and the types of AI technology used. Methods A structured search was performed in six databases, PubMed, CINAHL, Web of Science, OVID, PsycINFO, and ProQuest, following the guidance of the Preferred Reporting Items for Systematic Review and Meta-Analysis Extension for Scoping Reviews. The quality of the final reviewed studies was assessed using the Medical Education Research Study Quality Instrument. Results Eight of the 41 studies published between 2017 and 2022 were included in the final review. Six studies were conducted in the United States, one in Japan, and one in South Korea. Four studies collected data from participants (n = 3014). Two studies used image data (n = 1986), and two used sensor data from smart homes to detect patients' health events for nurses (n = 35). The quality of studies implied moderate to high-quality study (mean = 10.1, range = 7.7–13.7). Two studies reported high user satisfaction, three assessed user perception of AI in telehealth, and only one showed high AI acceptability. Two studies revealed the high performance of AI algorithms. Five studies used machine learning algorithms. Conclusions AI-assisted telehealth interventions were efficient and promising and could be an effective care delivery method in nursing.
27. El Arab, Rabie Adel, Omayma Abdulaziz Al Moosa, Fuad H. Abuadas and Joel Somerville. [The Role of Artificial Intelligence in Nursing Education, and Practice: An Umbrella Review \(Preprint\)](#). Journal of medical Internet research. 2025.Artificial intelligence (AI) is rapidly transforming healthcare, offering significant advancements in patient care, clinical workflows, and nursing education. While AI has the potential to enhance health outcomes and operational efficiency, its integration into nursing practice and education raises critical ethical, social, and educational challenges that must be addressed to ensure responsible and equitable adoption. BACKGROUND Artificial intelligence (AI) is rapidly transforming healthcare, offering significant advancements in patient care, clinical workflows, and nursing education. While AI has the potential to enhance health outcomes and operational efficiency, its integration into nursing practice and education raises critical ethical, social, and educational challenges that must be addressed to ensure responsible and equitable adoption. This umbrella review aims to evaluate the integration of AI into nursing

practice and education, with a focus on ethical and social implications, and to propose evidence-based recommendations to support the responsible and effective adoption of AI technologies in nursing. **OBJECTIVE** This umbrella review aims to evaluate the integration of AI into nursing practice and education, with a focus on ethical and social implications, and to propose evidence-based recommendations to support the responsible and effective adoption of AI technologies in nursing. A comprehensive literature search was conducted in PubMed, CINAHL, Web of Science, Embase, and IEEE Xplore to identify relevant review articles (systematic, scoping, narrative, etc.) on AI integration in nursing, published up to October 2024 (with an updated search in January 2025). Eligibility was determined using the SPIDER framework to include reviews addressing AI in any nursing context (practice or education). Two reviewers independently screened studies, extracted data, and assessed the quality of each review using ROBIS and an adapted AMSTAR 2 tool. The findings were synthesized using thematic analysis to identify key recurring themes across the included studies. **CONCLUSIONS** AI offers significant promise to transform nursing practice and education, but realizing these benefits requires proactive strategies to address the identified challenges. This review recommends implementing robust ethical AI governance frameworks and regulatory guidelines, integrating AI literacy and ethics into nursing curricula, and encouraging interdisciplinary collaboration between healthcare and technology professionals. Such measures will help ensure that AI technologies are adopted in nursing practice in an ethical and equitable manner. Further research is needed to develop standardized implementation strategies and to evaluate the long-term impacts of AI integration on patient care and professional nursing practice.

28. Ghimire, Animesh and Yunjing Qiu. [Redefining pedagogy with artificial intelligence: How nursing students are shaping the future of learning.](#) NURSE EDUC PRACT. 2025. 03. Vol.84 ppN.PAG. This study aimed to explore the factors influencing undergraduate nursing students' use of artificial intelligence (AI) tools in their studies, examining how this usage shapes their learning experiences and perceptions of traditional pedagogical approaches. The integration of AI into healthcare is rapidly transforming clinical practice, which in turn necessitates a corresponding shift in nursing education. While AI's potential benefits and challenges in education are widely discussed, limited research has focused on how nursing students specifically use these tools in their nursing studies and how this impacts their learning processes. A qualitative study employing exploratory and descriptive designs. Participants were recruited from an undergraduate nursing program at a tertiary university. Thematic analysis was used to analyze interview data. Key findings revealed that nursing students use AI for personalized learning, bridging the theory-practice gap and managing time constraints. International students particularly found AI valuable for cultural adaptation and language support. A significant finding was the "open secret" of AI use, with students actively using tools despite institutional discouragement, highlighting a disconnect between student needs and institutional practices. Ethical concerns, such as bias, data privacy and accountability, were also prominent. This study provides novel insights into the student-driven demand for AI integration in nursing education. It highlights the need for institutional responsiveness, transparency and the development of ethical AI

frameworks. By acknowledging student agency and fostering collaborative dialogue, nursing education can leverage AI's benefits effectively while upholding the profession's core values: compassion, empathy and human-centered care. • Explored the impact of AI usage by nursing students on their learning experiences. • Revealed the "open secret" of students using AI tools despite institutional discouragement. • Highlighted the diverse experiences of domestic and international students with AI. • Advocated for institutional transparency and the development of ethical AI frameworks. • Emphasized the role of student agency in driving AI integration within nursing education.

29. Gleasman-DeSimone, Sara. [Your artificial intelligence will see you now: Why nurse practitioners remain irreplaceable.](#) J AM ASSOC NURSE PRACT. 2025. 02. Vol.37(2), pp77–81. Artificial intelligence (AI) has transformed health care. Artificial intelligence technologies, such as advanced imaging algorithms, diagnostic tools, and mental health chatbots, have revolutionized patient care by enhancing diagnostic accuracy, personalizing treatment plans, and streamlining administrative tasks. However, despite these advancements, AI falls short in areas where nurse practitioners (NPs) excel. Nurse practitioners possess essential human attributes such as empathy, nuanced understanding, and ethical reasoning that AI cannot currently replicate. They excel at recognizing subtle mood changes, understanding social determinants of health, and navigating complex ethical dilemmas. I argue that although AI can support and enhance health care delivery, it cannot replace the indispensable human touch provided by NPs. The irreplaceable role of NPs in offering holistic, compassionate care underscores the need for a balanced integration of AI, to ensure it complements rather than replaces the human elements crucial to effective patient care.
30. Han, ShinHi, Hee Sun Kang, Philip Gimber and Sunghyun Lim. [Nursing Students' Perceptions and Use of Generative Artificial Intelligence in Nursing Education.](#) NURS REP. 2025. 02. Vol.15(2), pp68. Background/Objectives: Artificial intelligence (AI) is transforming nursing, with generative AI (GenAI) tools such as ChatGPT offering opportunities to enhance education through personalized learning pathways. This study aimed to explore nursing students' use of generative artificial intelligence (GenAI) and their perceptions of its use in nursing education, including its advantages, disadvantages, and perceived support needs. Methods: This study employed an online survey. The participants were 99 undergraduate nursing students in New York City. Data was collected online through self-report measures using semi-structured, open-ended questions. The data was analyzed using content analysis. Results: Most participants (92%) used GenAI tools to access accurate information, clarify nursing concepts, and support clinical tasks such as diagnoses and health assessments, as well as schoolwork, grammar checks, and health promotion. They valued GenAI as a quick, accessible resource that simplified complex information and supported learning through definitions, practice questions, and writing improvements. However, the participants noted drawbacks, such as subscription costs, over-reliance, information overload, and accuracy issues, leading to trust concerns. The participants suggested financial support, early guidance, and instructional modules to better integrate AI into nursing education. Conclusions: The

results indicate that GenAI positively impacts nursing education and highlight the need for guidelines on critical evaluation. To integrate GenAI effectively, educators should consider introductory sessions, support programs, and a GenAI-friendly environment, promoting responsible AI use and preparing students for its application in nursing education.

31. Hassanein, Salwa, Rabie Adel El Arab, Amany Abdrbo, et al. [Artificial intelligence in nursing: an integrative review of clinical and operational impacts](#). *Frontiers in digital health*. 2025.Vol.7 pp1552372. Advances in digital technologies and artificial intelligence (AI) are reshaping healthcare delivery, with AI increasingly integrated into nursing practice. These innovations promise enhanced diagnostic precision, improved operational workflows, and more personalized patient care. However, the direct impact of AI on clinical outcomes, workflow efficiency, and nursing staff well-being requires further elucidation. This integrative review synthesized findings from 18 studies published through November 2024 across diverse healthcare settings. Using the PRISMA 2020 and SPIDER frameworks alongside rigorous quality appraisal tools (MMAT and ROBINS-I), the review examined the multifaceted effects of AI integration in nursing. Our analysis focused on three principal domains: clinical advancements and patient monitoring, operational efficiency and workload management, and ethical implications. The review demonstrates that AI integration in nursing has yielded substantial clinical and operational benefits. AI-powered monitoring systems, including wearable sensors and real-time alert platforms, have enabled nurses to detect subtle physiological changes-such as early fever onset or pain indicators-well before traditional methods, resulting in timely interventions that reduce complications, shorten hospital stays, and lower readmission rates. For example, several studies reported that early-warning algorithms facilitated faster clinical responses, thereby improving patient safety and outcomes. Operationally, AI-based automation of routine tasks (e.g., scheduling, administrative documentation, and predictive workload classification) has streamlined resource allocation. These efficiencies have led to a measurable reduction in nurse burnout and improved job satisfaction, as nurses can devote more time to direct patient care. However, despite these benefits, ethical challenges remain prominent. Key concerns include data privacy risks, algorithmic bias, and the potential erosion of clinical judgment due to overreliance on technology. These issues underscore the need for robust ethical frameworks and targeted AI literacy training within nursing curricula. This review demonstrates that AI integration holds transformative potential for nursing practice by enhancing both clinical outcomes and operational efficiency. However, to realize these benefits fully, it is imperative to develop robust ethical frameworks, incorporate comprehensive AI literacy training into nursing education, and foster interdisciplinary collaboration. Future longitudinal studies across varied clinical contexts are essential to validate these findings and support the sustainable, equitable implementation of AI technologies in nursing. Policymakers and healthcare leaders must prioritize investments in AI solutions that complement the expertise of nursing professionals while addressing ethical risks.
32. Hoelscher, Stephanie H. [The good, the bad, and the binary: Ethical impact of AI on nursing practice](#). *Nursing*. 2025. 04. Vol.55(4), pp26–32. Artificial intelligence (AI)

promises significant advancements in patient care, burden reduction, and nursing efficiency. This article examines the multifaceted impact of AI on nursing practice; its benefits and potential ethical issues; and ways for nurses to get involved in AI development, implementation, and evaluation. This article examines the multifaceted impact of AI on nursing practice, its benefits and potential ethical issues, and ways for nurses to get involved in AI development, implementation, and evaluation.

33. Kotp, Mohamed Hashem, Hossam Ali Ismail, Hassan Ahmed Awad Basyouny, et al. [Empowering nurse leaders: readiness for AI integration and the perceived benefits of predictive analytics](#). BMC NURS. 2025. 01/16. Vol.24(1), pp1–13.
Introduction: Artificial Intelligence (AI) is increasingly being integrated into healthcare, particularly through predictive analytics that can enhance patient care and operational efficiency. Nursing leaders play a crucial role in the successful adoption of these technologies. Aim: This study aims to assess the readiness of nursing leaders for AI integration and evaluate their perceptions of the benefits of AI-driven predictive analytics in healthcare. Methods: A descriptive cross-sectional study was conducted among 187 nurse leaders across nine private hospitals in Cairo. The sample was selected using a combination of simple random sampling and non-probability convenience sampling methods to ensure a diverse representation of nursing leadership. Data collection took place from March to May 2024, utilizing a structured questionnaire specifically designed to assess nurse leaders' readiness for AI integration and their perceptions of AI-driven predictive analytics. The data were analyzed using IBM SPSS Statistics, version 26.0. Exploratory Factor Analysis (EFA) was employed to identify underlying factors related to readiness and perceived benefits. Confirmatory Factor Analysis (CFA) was subsequently performed to validate the factor structure. Multiple linear regression analysis was conducted to identify significant predictors of AI readiness and perceived benefits. Results: The study revealed that over one-third of nurse leaders exhibited high readiness for AI integration. Significant predictors of readiness included age, educational attainment, and employment status. Positive correlations were found between readiness and perceived benefits of AI, particularly in areas such as care planning and decision-making. Conclusion: The findings suggest that nursing leaders are generally prepared to integrate AI into their workflows, especially those with advanced education and experience. However, further training and policy development are necessary to fully realize the benefits of AI in nursing practice.
34. Ma, Jiatian, Jiamin Wen, Ying Qiu, et al. [The role of artificial intelligence in shaping nursing education: A comprehensive systematic review](#). NURSE EDUC PRACT. 2025. 03. Vol.84 ppN.PAG. This systematic review assesses AI's application, effectiveness and impact on nursing education, while identifying research limitations. AI integration in nursing education is transforming traditional teaching and learning paradigms. A systematic review. Following PRISMA 2020 guidelines, a search was conducted in PubMed, Web of Science, Embase, Cochrane Library and CINAHL from the inception of the databases to November 1, 2024, focusing on "Artificial Intelligence" and "nursing education." Two reviewers independently screened and assessed the literature. The quality was assessed using the Cochrane Risk of Bias 2.0

(RoB-2) tool for randomized controlled trials (RCTs), the Agency for Healthcare Research and Quality (AHRQ) tools evaluation for observational studies and the JBI Critical Appraisal Checklist for quasi-experimental studies. Fifteen studies involving 1464 nursing students and professionals were included. The application scenarios of AI technology in nursing education are diverse and varied and it has shown significant potential in many areas of nursing education, but conflicting results have also been observed. Evaluation of literature quality showed that there were seven high-quality studies and eight medium-quality studies. Artificial intelligence was found to have a positive impact on students at three levels: learning attitude and psychological effects, learning effectiveness and comprehensive clinical nursing competencies. Key research gaps were identified, including the lack of longitudinal studies, uneven study populations and the lack of measurement instrument validity and objectivity. AI positively impacts nursing education but requires further research to address gaps and ensure long-term effectiveness and privacy protection.

35. McGrow, Kathleen. [Artificial intelligence in nursing: A journey from data to wisdom](#). Nursing. 2025. 04. Vol.55(4), pp16–24. Artificial intelligence (AI) can enhance nursing practice by assisting in clinical decisions, patient outcomes, and operational efficiencies. This article explores the role of AI in decision-making, data management, and task automation within the Data, Information, Knowledge, Wisdom Framework. It also addresses data quality, ethical considerations, and the need for continuous AI system improvement, emphasizing AI as a valuable healthcare partner. This article explores the role of artificial intelligence (AI) in decision-making, data management, and task automation within the Data, Information, Knowledge, Wisdom Framework. It also addresses data quality, ethical considerations, and the need for continuous AI system improvement.
36. Nashwan, Abdulqadir J., JC A. Cabrega, Mutaz I. Othman, et al. [The evolving role of nursing informatics in the era of artificial intelligence](#). Int.Nurs.Rev. 2025.Vol.72(1), ppe13084–n/a. Aim This narrative review explores the integration of artificial intelligence (AI) into nursing informatics and examines its impact on nursing practice, healthcare delivery, education, and policy. Background Nursing informatics, which merges nursing science with information management and communication technologies, is crucial in modern healthcare. The emergence of AI presents opportunities to improve diagnostics, treatment, and healthcare resource management. However, integrating AI into nursing practice also brings challenges, including ethical concerns and the need for specialized training. Sources of evidence A comprehensive literature search was conducted from January 2013 to December 2023 using databases like PubMed, Google Scholar, and Scopus. Articles were selected based on their relevance to AI's role in nursing informatics, particularly in enhancing patient care and healthcare efficiency. Discussion AI significantly enhances nursing practice by improving diagnostic accuracy, optimizing care plans, and supporting resource allocation. However, its adoption raises ethical issues, such as data privacy concerns and biases within AI algorithms. Ensuring that nurses are adequately trained in AI technologies is essential for safe and effective integration. Implications for nursing practice and policy Policymakers should promote AI literacy programs for healthcare professionals and develop ethical guidelines to govern the

use of AI in healthcare. This will ensure that AI tools are implemented responsibly, protecting patient rights and enhancing healthcare outcomes. Conclusion AI offers promising advancements in nursing informatics, leading to more efficient patient care and improved decision-making. Nonetheless, overcoming ethical challenges and ensuring AI literacy among nurses are critical steps for successful implementation.

37. Park, Claire Su-Yeon and Sirwan Khalid Ahmed. [Ethical Artificial Intelligence in Nursing Workforce Management and Policymaking: Bridging Philosophy and Practice](#). J NURS MANAGE. 2025. 04/09. Vol.2025 pp1–16. Background: Despite artificial intelligence's (AI) transformative potential in healthcare, nursing workforce scholarship lacks a cohesive theoretical foundation and well-established philosophical stances to guide safe yet ethical, effective yet efficient, and sustainable AI integration into nursing workforce management and policymaking. This gap poses significant challenges in leveraging AI's benefits while mitigating potential risks and inequities. Aim: This paper aims to (1) present a philosophical discourse centered on Park's optimized nurse staffing (Sweet Spot) theory and (2) propose a novel theoretical framework with specific methodologies for ethical AI-equipped nursing workforce management and policymaking while providing its philosophical underpinnings. Method: A rigorous philosophical discourse was performed through theoretical triangulation, grounded in Park's Optimized Nursing Staffing (Sweet Spot) Estimation Theory. This approach synthesizes diverse philosophical perspectives to create a robust foundation for ethical AI integration in nursing workforce management and policymaking. Discussion: The novel theoretical framework introduces its well-established philosophical underpinnings, bridging moderate realism with post-positivism and contextualism, for ethical AI-equipped nursing workforce management and policymaking. The framework also provides practical solutions for ethical AI integration while ensuring equity and fairness in nursing workforce practices. This approach consequently offers a groundbreaking pathway toward sustainable AI-equipped nursing workforce management and policymaking that balances safety, ethics, effectiveness, and efficiency.
38. Ronan, Isabel, Sabin Tabirca, David Murphy, Nicola Cornally, Mohamad M. Saab and Patrice Crowley. [Artificially intelligent nursing homes: a scoping review of palliative care interventions](#). Frontiers in Digital Health. 2025. 02/25. pp1–17.
39. Simms, Rachel C. [Generative artificial intelligence \(AI\) literacy in nursing education: A crucial call to action](#). Nurse Educ.Today. 2025.Vol.146 pp106544. Generative artificial intelligence (AI) is revolutionizing healthcare, necessitating corresponding advancements in nursing education to ensure that future nurses are equipped for a technologically driven environment. This article explores the imperative integration of generative AI literacy in nursing education. The article delves into the practical challenges and opportunities presented by generative AI in nursing. It underscores the need for educators to adapt curricula and teaching methods to effectively incorporate generative AI learning, ensuring students are proficient in generative AI technologies and aware of their ethical implications. Defined as a core educational requirement, this section highlights the skills and knowledge that nurse educators must impart. It encompasses the ability to critically assess AI-generated content,

understand the underlying technologies, and responsibly apply this knowledge in clinical settings. The article concludes by emphasizing the urgency of integrating generative AI literacy into nursing education. It advocates for a proactive approach to curriculum development and calls for global collaboration and standardization in AI education to address the diverse and evolving needs of healthcare. •Defines generative AI literacy for nurse educators•Explores generative AI's integration into nursing curricula•Identifies key barriers to generative AI literacy in nursing education•Suggests global collaboration to enhance AI use.

40. Sloss, Elizabeth, Robin Austin, Rosemary Kennedy and Heather Carter-Templeton.

[ANI Emerging Leader Project: Engaging Nurses to Drive the Implementation of Artificial Intelligence in Nursing Practice](#). CIN COMPUT INFORM NURS. 2025. 03. Vol.43. 3. 1. 10.1097

41. Yasin, Yasin M., Areej Al-Hamad, Kateryna Metersky and Vahe

Kehyayan. [Incorporation of artificial intelligence into nursing research: A scoping review](#). Int.Nurs.Rev. 2025. 03. Vol.72(1), pp1–10. Background: The integration of artificial intelligence (AI) across different sectors, notably healthcare, is on the rise. However, a thorough exploration of AI's incorporation into nursing research, as well as its advantages and obstacles, is still lacking. Objective: The aim of this scoping review was to map the roles, benefits, challenges, and potentials for the future development and use of AI in the context of nursing research. Methods: An exhaustive search was conducted across seven databases: MEDLINE, PsycINFO, SCOPUS, Web of Science, CINAHL, Google Scholar, and ProQuest. Articles were additionally identified through manual examination of reference lists of the articles that were included in the study. The search criteria were restricted to articles published in English between 2010 and 2023. The Joanna Briggs Institute (JBI) approach for scoping reviews and the PRISMA-ScR guidelines guided the processes of source selection, data extraction, and data presentation. Results: Twenty articles met the inclusion criteria, covering topics from ethical considerations to methodological issues and AI's capabilities in data analysis and predictive modeling. Conclusion: The review identified both the potentials and complexities of integrating AI into nursing research. Ethical and legal considerations warrant a coordinated approach from multiple stakeholders. Implication: The findings emphasized AI's potential to revolutionize nursing research, underscoring the need for ethical guidelines, equitable access, and AI literacy training to ensure its responsible and inclusive use.

AI and Nutrition

42. Wu, Xizhi, David Oniani, Zejia Shao, et al. [A Scoping Review of Artificial Intelligence for Precision Nutrition](#). Advances in Nutrition. 2025. Feb 28. Vol.16(4), pp100398.

With the role of artificial intelligence (AI) in precision nutrition rapidly expanding, a scoping review on recent studies and potential future directions is needed. This scoping review examines: 1) the current landscape, including publication venues, targeted diseases, AI applications, methods, evaluation metrics, and considerations

of minority and cultural factors; 2) common patterns in AI-driven precision nutrition studies; and 3) gaps, challenges, and future research directions. Following the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) process, we extracted 198 articles from major databases using search keywords in 3 categories: precision nutrition, AI, and natural language processing. The extracted literature reveals a surge in AI-driven precision nutrition research, with ~75% (n = 148) published since 2020. It also showcases a diverse publication landscape, with the majority of studies focusing on diet-related diseases, such as diabetes and cardiovascular conditions, while emphasizing health optimization, disease prevention, and management. We highlight diverse datasets used in the literature and summarize methodologies and evaluation metrics to guide future studies. We also emphasize the importance of minority and cultural perspectives in promoting equity for precision nutrition using AI. Future research should further integrate these factors to fully harness AI's potential in precision nutrition.

AI and Ophthalmology

43. David, Daniel, Ofira Zloto, Gabriel Katz, et al. [The use of artificial intelligence based chat bots in ophthalmology triage](#). Eye. 2025. Mar. Vol.39(4), pp785–789. **PURPOSE:** To evaluate AI-based chat bots ability to accurately answer common patient's questions in the field of ophthalmology. **METHODS:** An experienced ophthalmologist curated a set of 20 representative questions and responses were sought from two AI generative models: OpenAI's ChatGPT and Google's Bard (Gemini Pro). Eight expert ophthalmologists from different sub-specialties assessed each response, blinded to the source, and ranked them by three metrics-accuracy, comprehensiveness, and clarity, on a 1-5 scale. **CONCLUSION:** AI-based chat bots can provide relatively accurate and clear responses for addressing common ophthalmological inquiries. ChatGPT surpassed Bard in all measured metrics. While these AI models exhibit promise, further research is indicated to improve their performance and allow them to be used as a reliable medical tool.
44. Huang, Wenqiao, Yating Liang, Xianghui Wei and Yi Du. [Ophthalmology Journals' Guidelines on Generative Artificial Intelligence: A Comprehensive Analysis](#). Am.J.Ophthalmol. 2025. Mar. Vol.271 pp445–454. **PURPOSE:** The integration of generative artificial intelligence (GAI) into scientific research and academic writing has generated considerable controversy. Currently, standards for using GAI in academic medicine remain undefined. This study aims to conduct a comprehensive analysis of the guidance provided for authors regarding the use of GAI in ophthalmology scientific journals. **DESIGN:** Cross-sectional bibliometric analysis. **PARTICIPANTS:** A total of 140 ophthalmology journals listed in the Scimago Journal and Country Rankings, regardless of language or origin. **CONCLUSION:** Although there is considerable ethical consensus among ophthalmology journals regarding the use of GAI, notable variations exist in terms of permissible use and disclosure practices. Establishing standardized guidelines is essential to safeguard the originality and integrity of scientific research. Researchers must uphold high standards of academic ethics and integrity when using GAI

45. Kurapati, Sai S., Derek J. Barnett, Antonio Yaghy, et al. [Eyes on the Text: Assessing Readability of Artificial Intelligence and Ophthalmologist Responses to Patient Surgery Queries](#). *Ophthalmologica*. 2025. Mar 10. Vol.1-11 **INTRODUCTION:** Generative artificial intelligence (AI) technologies like GPT-4 can instantaneously provide health information to patients; however, the readability of these outputs compared to ophthalmologist-written responses is unknown. This study aimed to evaluate the readability of GPT-4-generated and ophthalmologist-written responses to patient queries about ophthalmic surgery. **CONCLUSION:** The National Institutes of Health advises health information to be written at a 6th- to 7th-grade level. Both GPT-4- and ophthalmologist-written answers exceeded this recommendation, with GPT-4 showing a greater gap. Information accessibility is vital when designing patient resources, particularly with the rise of AI as an educational tool.
46. Wang, Meng, Xiao Zhang, Donghui Li, et al. [The potential of artificial intelligence reading label system on the training of ophthalmologists in retinal diseases, a multicenter bimodal multi-disease study](#). *BMC Medical Education*. 2025. Apr 08. Vol.25(1), pp503. **OBJECTIVE:** To assess the potential of artificial intelligence reading label system on the training of ophthalmologists in a multicenter bimodal multi-disease study. **CONCLUSION:** The implementation of an artificial intelligence reading label system enhances the diagnostic accuracy of retinal diseases among ophthalmologists and holds potential for integration into future medical education.

AI and Patient Care

47. Ghinea, Narcyz. [Why Stop at a Right to Notice for AI Systems Used in Patient Care? The Need for Greater Specificity](#). *AM J BIOETHICS*. 2025. 03. Vol.25(3), pp140–142.
48. Sharko, Marianne and Curtis L. Cole. [Integrating Artificial Intelligence Support in Patient Care While Respecting Ethical Principles](#). *JAMA Network Open*. 2025. 03/11. Vol.8(3), ppe250462.
49. Stroud, Austin M., Jennifer E. Miller and Barbara A. Barry. [Cultivating Patient-Centered Healthcare Artificial Intelligence Transparency: Considerations for AI Documentation](#). *AM J BIOETHICS*. 2025. 03. Vol.25(3), pp129–131.
50. Wang, Henrietta, Katherine Masselos, Janelle Tong, et al. **ChatGPT for Addressing Patient-centered Frequently Asked Questions in Glaucoma Clinical Practice**. *Ophthalmology.Glaucoma*. 2025.Vol.8(2), pp157–166. **PURPOSE:** Large language models such as ChatGPT-3.5 are often used by the public to answer questions related to daily life, including health advice. This study evaluated the responses of ChatGPT-3.5 in answering patient-centered frequently asked questions (FAQs) relevant in glaucoma clinical practice. **DESIGN:** Prospective cross-sectional survey. **PARTICIPANTS:** Expert graders. **CONCLUSIONS:** ChatGPT-3.5 responses to FAQs in glaucoma were generally agreeable in terms of coherency, factuality, comprehensiveness, and safety. However, areas of weakness were identified, precluding recommendations for routine use to provide patients with tailored counseling in glaucoma, especially with respect to development of glaucoma and its management.

AI and Pharmacy

51. Smoke, Steven. [The two dimensions of pharmacy artificial intelligence tools](#). AM J HEALTH SYST PHARM AJHP. 2025. 02. Vol.82(3), ppe113–e116.

AI and Psychotherapy

52. Campbell, Christopher. [Artificial Intelligence and the Future of Psychotherapy: A Medical Student Perspective](#). Psychodynamic Psychiatry. 2025. Mar. Vol.53(1), pp33–38.
53. Stroud, Austin M., Susan H. Curtis, Isabel B. Weir, et al. [Physician Perspectives on the Potential Benefits and Risks of Applying Artificial Intelligence in Psychiatric Medicine: Qualitative Study](#). JMIR Mental Health. 2025. Feb 10. Vol.12 ppe64414.

AI and Surgery

54. Dai, Bin, Xinyu Liang, Yan Dai and Xintian Ding. [Artificial Intelligence Medical Image-aided Diagnosis System for Risk Assessment of Adjacent Segment Degeneration after Lumbar Fusion Surgery](#). SLAS Technology. 2025. Apr 09. Vol.100283The existing assessment of adjacent segment degeneration (ASD) risk after lumbar fusion surgery focuses on a single type of clinical information or imaging manifestations. In the early stages, it is difficult to show obvious degeneration characteristics, and the patients' true risks cannot be fully revealed. The evaluation results based on imaging ignore the clinical symptoms and changes in quality of life of patients, limiting the understanding of the natural process of ASD and the comprehensive assessment of its risk factors, and hindering the development of effective prevention strategies. To improve the quality of postoperative management and effectively identify the characteristics of ASD, this paper studies the risk assessment of ASD after lumbar fusion surgery by combining the artificial intelligence (AI) medical image-aided diagnosis system. First, the collaborative attention mechanism is adopted to start with the extraction of single-modal features and fuse the multi-modal features of computed tomography (CT) and magnetic resonance imaging (MRI) images. Then, the similarity matrix is weighted to achieve the complementarity of multi-modal information, and the stability of feature extraction is improved through the residual network structure. Finally, the fully connected network (FCN) is combined with the multi-task learning framework to provide a more comprehensive assessment of the risk of ASD. The experimental analysis results show that compared with three advanced models, three dimensional-convolutional neural networks (3D-CNN), U-Net++, and deep residual networks (DRN), the accuracy of the model in this paper is 3.82%, 6.17%, and 6.68% higher respectively; the precision is 0.56%, 1.09%, and 4.01% higher respectively; the recall is 3.41%, 4.85%, and 5.79% higher respectively. The conclusion shows that the AI medical image-aided diagnosis system can help to accurately identify the characteristics of ASD and effectively assess the risks after lumbar fusion surgery.
55. Feridooni, Tiam, Andrew Dueck and David Szalay. [Advancing Artificial Intelligence in Vascular Surgery: The Promise of VASC.AI in Enhancing Accuracy and Reliability](#). European Journal of Vascular & Endovascular Surgery. 2025.

56. Lavoie-Gagne, Ophelie Z., Oscar Y. Shen, Neal C. Chen and Abhiram R. Bhashyam. **Assessing the Usability of ChatGPT Responses Compared to Other Online Information in Hand Surgery.** *Hand*. 2025. Apr 12. Vol.15589447251329584 **BACKGROUND:** ChatGPT is a natural language processing tool with potential to increase accessibility of health information. This study aimed to: (1) assess usability of online medical information for hand surgery topics; and (2) evaluate the influence of medical consensus. **CONCLUSIONS:** Compared to Google, ChatGPT does not provide readable responses when providing reliable medical information. While patients can modulate ChatGPT readability with prompt engineering, this requires insight into their health literacy and is an additional barrier to accessing medical information. Medical consensus influences usability of online medical information for both Google and ChatGPT. Providers should remain aware of ChatGPT limitations in distributing medical information. [ORDER](#)
57. Maroufi, Shahnam Sedigh, Maryam Sarkhosh, Maryam Soleimani Movahed, Ali Behmanesh and Azar Ejmalian. [Revolutionizing Post Anesthesia Care Unit with Artificial Intelligence: A Narrative Review](#). *Archives of Anesthesiology & Critical Care*. 2025. Spring2025. Vol.11(2), pp218–223.
58. Mehmet, Saylan, Mohamed Nabil Elmarawany, Ian Harding, et al. [AI versus the spinal surgeons in the management of controversial spinal surgery scenarios](#). *European Spine Journal*. 2025. **AIMS:** The use of artificial intelligence (AI) in spinal surgery is expanding, yet its ability to match the diagnostic and treatment planning accuracy of human surgeons remains unclear. This study aims to compare the performance of AI models-ChatGPT-3.5, ChatGPT-4, and Google Bard-with that of experienced spinal surgeons in controversial spinal scenarios **CONCLUSIONS:** AI large language models are not yet suitable for complex spinal surgery decisions but hold potential for preliminary information gathering and emergency triage. Legal, ethical, and accuracy issues must be addressed before AI can be reliably integrated into clinical practice.
59. Ozmen, Berk B., Ibrahim Berber and Graham S. Schwarz. [Initial Proof-of-Concept Study for a Plastic Surgery Specific Artificial Intelligence Large Language Model: PlasticSurgeryGPT](#). *Aesthetic Surgery Journal*. 2025. **BACKGROUND:** The advent of general-purpose large language models (LLMs) like ChatGPT (OpenAI, San Francisco, CA) has revolutionized natural language processing, but their applicability in specialized medical fields like plastic surgery remains limited due to a lack of domain-specific knowledge. **OBJECTIVES:** This study aims to develop and evaluate PlasticSurgeryGPT, a dedicated LLM fine-tuned on plastic surgery literature, to enhance performance in clinical decision support, surgical education, and research within the field. **METHODS:** A comprehensive dataset of 25,389 plastic surgery research abstracts published between January 1, 2010, and January 1, 2024, was retrieved from PubMed. The abstracts underwent rigorous preprocessing, including text cleaning and tokenization. We fine-tuned the pre-trained GPT-2 model on this dataset using the PyTorch and HuggingFace frameworks. The performance of PlasticSurgeryGPT was evaluated against the default GPT-2 model using BLEU,

METEOR, and ROUGE-1 metrics. **CONCLUSIONS:** PlasticSurgeryGPT represents the first plastic surgery-specific LLM, demonstrating enhanced performance in generating relevant and accurate content compared to a general-purpose model. This work underscores the potential of domain-specific LLMs in improving clinical practice, surgical education, and research in plastic surgery. Future studies should focus on incorporating full-text articles, multimodal data, and larger models to further enhance performance and applicability.