

Review Article

Open Access

Integrating Technology into Nursing Education and Clinical Practice: The Role of E-Learning, Artificial Intelligence, and Virtual Reality

Alagwu Scholarstica Chinwe*, Ibebuike Julia Enang, Vincent Chinelo Claire, Nwagwu Solomon Justina Adanma, Emesowum Anthonia Chiwendu and Onyekwu Festa Chinonye

Department of Nursing Science, Faculty of Health Sciences, Imo State University, Owerri, Nigeria

SUMMARY

The world-wide use of digital technologies has dramatically changed nursing education and the delivery of health care. As health care systems become increasingly complicated and technology dependent, nursing education must develop to educate graduates with the competences needed to perform effectively in today's clinical settings. This review covers the integration of three emerging technologies such as e-learning, Artificial Intelligence (AI), and virtual reality (VR) in nursing education and clinical practice. E-learning has widened access to education by offering flexible, learner-centred, technology-enabled instructional methods supporting both synchronous and asynchronous learning. Artificial intelligence has brought about intelligent tutoring systems, adaptive learning platforms, predictive analytics, automated assessment and clinical decision-support systems that help in personalised learning and evidence-based patient care. Virtual reality has evolved as an effective simulation tool providing immersive and risk-free learning environments for nursing students to acquire psychomotor skills, clinical reasoning, communication and decision-making competences prior to interaction with real patients. These technologies collectively enhance learner engagement, knowledge retention, clinical competence, accessibility, and patient safety and promote lifelong learning among nurses. However, the broad adoption of e-Health and m-Health solutions is still hindered by constraints such as the lack of suitable digital infrastructure, costs of implementation, poor technology literacy, ethical issues, cybersecurity risks, and uneven access, especially in low- and middle-income countries. Based on recent literature, this review highlights the educational and clinical use of these technologies, addresses barriers to implementation, and offers solutions for their sustainable integration into nursing education and health care practice. The paper concludes that digital transformation is needed for the development of a competent nursing workforce to meet the needs of twenty-first-century healthcare systems.

*Corresponding author

Alagwu Scholarstica Chinwe, Department of Nursing Science, Faculty of Health Sciences, Imo State University, Owerri, Nigeria.

Received: July 24, 2026; **Accepted:** July 29, 2026; **Published:** August 10, 2026

Keywords: Nursing Education, E-Learning, Artificial Intelligence, Virtual Reality, Digital Health, Nursing Informatics, Clinical Simulation, Healthcare Technology

Introduction

Technological advances are rapidly changing the way health care is delivered and health professionals are educated worldwide. The digital revolution has expedited the adoption of new technology in nursing education and has provided new options for teaching, learning, clinical simulation and patient care. Technology-enhanced learning approaches that encourage active participation, critical thinking, collaborative learning and lifelong professional development are increasingly augmenting or replacing traditional lecture-based instructional methods [1]. These developments are especially significant for nursing as the profession is increasingly relying on evidence-based practice, digital health systems and technology-assisted clinical decision-making. The COVID-19 pandemic further boosted the integration of digital technologies in nursing education. Institutions around the world quickly pivoted from traditional classroom instruction to online learning platforms to uphold public health measures and assure educational continuity. This shift showed the great potential

of digital learning tools, but also revealed serious issues around infrastructure, faculty readiness, digital literacy, and equal access to educational resources [2]. Consequently, technology has been increasingly recognised by nursing educators as not just an adjunct to the teaching, but as an integral part of contemporary nursing education. Technological innovations have also led to a significant transformation in healthcare delivery. Now AI is helping clinicians with disease prediction, clinical documentation, pharmaceutical safety, diagnostic imaging interpretation and personalised patient care. Electronic health records, telemedicine services, wearable monitoring gadgets and sophisticated clinical decision support systems are becoming fundamental parts of healthcare systems worldwide [3]. These developments require nurses to have not only clinical competence but also digital literacy, informatics skills and the ability to use emerging technologies ethically and effectively. E-learning, artificial intelligence (AI), and Virtual Reality (VR) are among the technologies that are transforming nursing education and practice. These technologies have received considerable attention for their proven effectiveness in improving learning outcomes, enhancing clinical competency, and promoting patient safety. The inclusion of these elements in nursing curricula aligns with global recommendations to prepare a digitally competent

healthcare workforce to respond to changing healthcare needs [4].

The Concept of Technology Integration in Nursing Education and the Clinical Setting Technology integration is the deliberate process of embedding digital tools, information technologies, and innovative instructional resources into educational and clinical activities to enhance learning, professional competence, and health outcomes. The incorporation of technology into nursing education is not just about replacing traditional teaching approaches with digital platforms but also about re-designing educational experiences to promote interactive, student-centred, competency-based, and evidence-informed learning. E-learning is one of the earliest kinds of technology integration for education. It allows for knowledge acquisition irrespective of location through internet-based platforms, learning management systems, multimedia resources, webinars, virtual classrooms, and mobile applications. The flexibility of e-learning provides opportunities for continued professional growth and lifelong learning among nursing students and practicing nurses. Artificial Intelligence is the future of EdTech. AI-enabled systems can evaluate learner performance, detect knowledge gaps, individualise instructional content, automate grading and provide intelligent feedback, and aid clinical decision-making through predictive algorithms and data analytics. More recently, the advent of generative AI applications such as conversational big language models has provided useful educational assistants which can be utilised responsibly to assist with literature searches, clinical reasoning exercises, reflective learning and academic writing. These advancements are complemented by virtual reality, which offers immersive, simulation-based learning settings in which students can repeatedly practise clinical procedures without risking patient safety. High-fidelity VR simulations immerse learners in realistic clinical scenarios that enhance psychomotor skills, teamwork, communication, emergency response, and critical thinking prior to entering real healthcare environments. In combination, these tools form digitally-enabled learning ecosystems that bridge the gap between theoretical knowledge and clinical practice, supporting competency-based nursing education [6].

The incorporation of digital technologies in nursing education is supported by several educational and innovation philosophies. The most influential are the Technology Acceptance Model (TAM) and Constructivist Learning Theory. The Technology Acceptance Model (TAM) describes the user's intention to accept new technologies based on two key constructs: perceived ease of use and perceived utility. The more students and educators believe that e-learning platforms, artificial intelligence applications and virtual reality simulations make learning efficient, clinically competent and professionally performing while being user-friendly, the more likely they are to accept these technologies in nursing education. TAM has been widely applied in studies to assess nurses' acceptance of electronic health records, telehealth systems, mobile learning, and AI-assisted educational tools. Constructivist Learning Theory developed by Piaget and later expanded by Vygotsky, postulates that learners actively construct knowledge through interaction, collaboration, reflection and authentic experiences instead of passively receiving information [7]. This hypothesis provides a good foundation for simulation-based nursing education. Experiential opportunities to motivate learners to merge theoretical knowledge with clinical practice in the context of virtual reality, high fidelity simulation, problembased learning and AI supported adaptive learning environments promote critical thinking, clinical reasoning and reflective practice. Taken together, these theoretical views provide a sound basis

for understanding how technology promotes nursing education. While TAM outlines the factors that influence the adoption of technology by educators and learners, Constructivist Learning Theory emphasises how technology enables meaningful learning through active engagement, collaboration, experiential practice, and continual feedback. Their combined application enables the effective design, implementation and evaluation of technology-enhanced nursing education and ultimately leads to improved patient care outcomes [8].

E-learning and Artificial Intelligence in Nursing Education

E-learning has become one of the most influential technological innovations in contemporary nursing education. It refers to the delivery of educational content through internet-enabled technologies that facilitate learning beyond the traditional classroom. E-learning encompasses web-based instruction, learning management systems (LMSs), virtual classrooms, mobile learning applications, webinars, video conferencing, digital libraries, and massive open online courses (MOOCs). These platforms support both synchronous learning, where students and instructors interact in real time, and asynchronous learning, which allows learners to access educational materials at their own pace. This flexibility has made e-learning an indispensable component of undergraduate nursing education, postgraduate training, and continuing professional development. The integration of e-learning into nursing curricula has transformed teaching from a predominantly teacher-centred approach to a learner-centred model. Students can access multimedia lectures, interactive quizzes, virtual laboratories, discussion forums, electronic portfolios, and evidence-based resources from any location, thereby promoting self-directed learning and lifelong professional development. Learning management systems such as Moodle, Blackboard, and Canvas enable educators to organize course materials, monitor student progress, administer assessments, and provide timely feedback. These digital platforms encourage collaborative learning through online discussions, peer interaction, and group projects while accommodating diverse learning styles and individual learning speeds [9]. The COVID-19 pandemic demonstrated the critical importance of e-learning in maintaining continuity of nursing education. As clinical placements and face-to-face teaching were disrupted worldwide, nursing schools rapidly adopted online instructional strategies to ensure uninterrupted learning. This transition accelerated digital transformation within nursing education and highlighted the need for educators to develop competencies in instructional design, digital pedagogy, and educational technology. Although many institutions initially faced challenges related to internet connectivity, faculty preparedness, and student engagement, the experience established e-learning as a permanent component of nursing education rather than a temporary alternative. Research has consistently demonstrated that well-designed e-learning improves knowledge acquisition, learner satisfaction, academic performance, and clinical preparedness. Interactive multimedia, case-based learning, virtual simulations, and immediate formative feedback promote deeper understanding and improve knowledge retention compared with passive instructional methods. Furthermore, online learning enables nurses in remote and underserved areas to participate in continuing education without geographical constraints, thereby contributing to workforce development and equitable access to professional education. Despite these advantages, e-learning presents several challenges. Limited internet connectivity, unreliable electricity supply, inadequate digital infrastructure, insufficient faculty training, and varying levels of digital literacy remain significant barriers, particularly in low- and middle-income countries. Student

isolation, reduced opportunities for hands-on clinical practice, diminished interpersonal interaction, and concerns regarding academic integrity are additional limitations that require careful instructional planning. Consequently, many nursing educators advocate blended learning approaches that combine face-to-face instruction with digital learning experiences to maximize educational effectiveness while preserving essential clinical training [10].

Artificial Intelligence in Nursing Education Artificial intelligence (AI) represents one of the most transformative developments in healthcare education. AI refers to computer systems capable of performing tasks that normally require human intelligence, including learning, reasoning, language processing, pattern recognition, problem-solving, and decision-making. In nursing education, AI is increasingly used to personalize instruction, enhance learning efficiency, support clinical reasoning, automate administrative tasks, and prepare students for technology-enabled healthcare environments. Recent evidence indicates that AI has considerable potential to improve educational outcomes when implemented alongside sound pedagogical principles. One of the most valuable applications of AI in nursing education is adaptive learning. AI-driven educational platforms analyse students' learning behaviours, assessment performance, and knowledge gaps to generate individualized learning pathways. Students who demonstrate difficulty with particular concepts receive additional explanations, practice questions, or remediation, whereas high-performing learners are presented with more advanced content. This personalized approach improves learning efficiency, enhances student engagement, and supports competency-based education. AI also powers intelligent tutoring systems that provide continuous academic support beyond conventional classroom hours [11]. These systems respond to students' questions, explain complex concepts, generate practice exercises, and offer immediate formative feedback. More recently, generative AI tools, including large language models such as ChatGPT, have emerged as valuable educational assistants capable of facilitating literature searches, summarizing scientific evidence, generating clinical case scenarios, supporting reflective writing, and stimulating clinical reasoning exercises. When used responsibly under faculty supervision, these tools can enhance independent learning and encourage critical inquiry rather than replace professional judgement. Artificial intelligence is increasingly integrated into simulation-based education. AI-powered virtual patients can respond dynamically to students' clinical decisions, creating realistic scenarios that strengthen diagnostic reasoning, communication skills, and evidence-based decision-making. These intelligent simulations expose learners to diverse clinical situations that may be difficult to encounter consistently during clinical placements, thereby improving preparedness for real-world practice. Another important application is automated assessment. AI systems can efficiently grade objective examinations, analyse written assignments, provide personalized feedback, and identify areas requiring additional study [12]. Predictive learning analytics further enable educators to identify students at risk of poor academic performance, allowing timely interventions that improve retention and educational success. Such data-driven educational management supports continuous quality improvement within nursing programmes. Beyond education, AI prepares future nurses for technology-enabled clinical environments. Clinical decision-support systems, predictive analytics, natural language processing, electronic health records, and intelligent monitoring technologies are becoming increasingly common in healthcare institutions. Familiarity with AI during undergraduate education equips nursing graduates with the competencies needed to interpret

AI-generated recommendations critically, integrate evidence into patient care, and collaborate effectively within multidisciplinary digital health teams. Notwithstanding its considerable promise, AI adoption raises important ethical, legal, and educational concerns. Issues relating to algorithmic bias, transparency, patient privacy, data security, academic integrity, and overreliance on automated systems require careful attention. Students must understand that AI should complement not replace clinical reasoning, ethical judgement, empathy, and professional accountability. Nursing educators therefore have a responsibility to establish institutional guidelines governing responsible AI use, redesign assessment methods to emphasize higher-order thinking, and promote AI literacy as an essential professional competency. Current literature recommends integrating AI education throughout nursing curricula while maintaining strong emphasis on evidence appraisal, ethics, patient-centred care, and humanistic nursing values [13].

Virtual Reality (VR) has emerged as one of the most innovative educational technologies in nursing, offering immersive, computer-generated environments that simulate real-life clinical settings. By using head-mounted displays, motion sensors, and interactive software, VR enables nursing students to engage in realistic patient care scenarios within a safe, controlled, and risk-free environment. Unlike conventional simulation methods, VR provides a high level of immersion, allowing learners to interact with virtual patients, perform clinical procedures, and make decisions that closely resemble real-world healthcare situations. Consequently, VR has become an essential component of simulation-based nursing education, particularly in developing psychomotor skills, clinical reasoning, communication, and critical thinking [14]. Virtual reality supports experiential learning by allowing students to repeatedly practice complex procedures without compromising patient safety. Learners can manage emergency situations, administer medications, perform patient assessments, respond to deteriorating patient conditions, and participate in multidisciplinary team scenarios before entering actual clinical practice. Repeated exposure to these simulated experiences enhances confidence, competence, and preparedness while reducing anxiety associated with first-time clinical encounters. Moreover, VR facilitates standardized learning experiences, ensuring that all students are exposed to comparable clinical scenarios irrespective of the availability of clinical placement opportunities. Recent advances in VR technology have integrated artificial intelligence to create intelligent virtual patients capable of responding dynamically to learners' actions. These adaptive simulations provide individualized feedback, allowing students to reflect on their clinical decisions and improve subsequent performance. As healthcare education increasingly embraces competency-based training, VR offers an effective strategy for assessing clinical competence in a standardized and objective manner [15].

Clinical Applications of Digital Technologies The integration of e-learning, artificial intelligence, and virtual reality extends beyond nursing education into contemporary clinical practice. Nurses increasingly utilize electronic health records (EHRs), clinical decision-support systems, telehealth platforms, wearable monitoring devices, and AI-assisted diagnostic tools to improve patient care and healthcare efficiency. AI algorithms support early identification of patient deterioration, predict disease progression, optimize medication management, and facilitate evidence-based clinical decision-making. Similarly, telehealth technologies enable nurses to provide remote consultations, chronic disease monitoring, health education, and follow-up care, thereby improving healthcare accessibility for rural and underserved

populations. Virtual reality is also being applied therapeutically in healthcare. It has demonstrated effectiveness in pain management, rehabilitation, mental health interventions, distraction therapy during painful procedures, and patient education. Within clinical training, VR enables healthcare professionals to rehearse complex surgical procedures, emergency responses, infection prevention protocols, and disaster preparedness without exposing patients to unnecessary risks. These applications contribute significantly to improved patient safety, enhanced clinical competence, and better healthcare outcomes [16].

The integration of digital technologies into nursing education and clinical practice offers numerous educational and professional benefits. Technology-enhanced learning improves student engagement by promoting interactive, learner-centred educational experiences that accommodate different learning styles. Personalized learning supported by AI enables students to progress according to their individual learning needs while receiving timely feedback and targeted remediation. Simulation technologies such as VR strengthen clinical competence by bridging the gap between theoretical knowledge and practical application. Students develop psychomotor skills, clinical judgement, teamwork, communication, and confidence before caring for real patients. Furthermore, digital learning platforms facilitate lifelong learning and continuing professional development by providing flexible access to current scientific evidence and educational resources. In clinical practice, technological innovations enhance patient safety through improved documentation accuracy, evidence-based decision support, early recognition of patient deterioration, and reduced medication errors. Telehealth and remote monitoring improve continuity of care, particularly for patients with chronic illnesses, while digital communication systems strengthen collaboration among multidisciplinary healthcare teams. Collectively, these technologies contribute to improved quality of care, increased healthcare efficiency, and better patient outcomes [17].

Challenges of Technology Integration Despite its substantial benefits, the integration of technology into nursing education and practice faces several significant challenges. One of the major barriers is inadequate technological infrastructure, particularly in low- and middle-income countries where unreliable electricity supply, poor internet connectivity, and insufficient digital equipment limit effective implementation. High acquisition and maintenance costs associated with sophisticated technologies such as AI-powered systems and virtual reality laboratories also pose financial constraints for many educational institutions and healthcare organizations. Another important challenge is the digital competency of both educators and learners. Many faculty members require additional training to effectively incorporate emerging technologies into teaching, while some students experience difficulties adapting to technology-enhanced learning environments. Resistance to organizational change and limited institutional support may further slow technology adoption. Ethical and legal concerns have also become increasingly important with the widespread use of AI and digital health technologies. Issues related to patient privacy, cybersecurity, data confidentiality, algorithmic bias, transparency of AI decision-making, and responsible use of generative AI require robust regulatory frameworks and institutional policies. Additionally, excessive reliance on technology may inadvertently reduce opportunities for interpersonal communication and compassionate patient care if not carefully balanced with human-centred nursing practice. Addressing these challenges requires sustained investment in digital infrastructure, continuous faculty development, curriculum redesign, equitable access to technological resources, and

comprehensive policies that promote ethical, safe, and effective use of emerging technologies. By overcoming these barriers, nursing education and healthcare systems can fully harness the transformative potential of digital innovation while preserving the core values of professional nursing [18].

Strategies for Effective Technology Integration

The successful integration of digital technologies into nursing education and clinical practice requires a comprehensive and collaborative approach involving educational institutions, healthcare organizations, policymakers, and technology developers. First, sustained investment in digital infrastructure is essential to ensure reliable internet connectivity, adequate power supply, simulation laboratories, virtual reality facilities, and access to modern learning management systems. Institutions should also prioritize faculty development through continuous professional training in digital pedagogy, artificial intelligence (AI), simulation-based education, and virtual learning technologies to enhance educators' competence and confidence. Curriculum redesign is equally important to embed digital health competencies, nursing informatics, AI literacy, cybersecurity, and ethical use of emerging technologies throughout undergraduate and postgraduate nursing programmes. Blended learning approaches that combine face-to-face instruction with e-learning and simulation-based education should be adopted to maximize both theoretical knowledge and clinical competence. Furthermore, healthcare institutions should establish clear policies and governance frameworks addressing data privacy, cybersecurity, academic integrity, algorithm transparency, and responsible AI use. Collaboration between nursing schools, healthcare organizations, government agencies, and technology companies can facilitate resource sharing, research, innovation, and the development of context-specific technological solutions. Finally, continuous programme evaluation and quality assurance should be implemented to monitor educational outcomes, learner satisfaction, and clinical effectiveness, ensuring that technological innovations consistently contribute to improved nursing education and patient care [19].

The future of nursing education will increasingly be shaped by intelligent and immersive digital technologies. Artificial intelligence is expected to become more sophisticated through predictive learning analytics, intelligent clinical simulation, automated competency assessment, and personalized educational support. Emerging technologies such as augmented reality (AR), mixed reality (MR), digital twins, robotics, and extended reality (XR) are likely to complement virtual reality by providing increasingly realistic clinical learning experiences. Advances in wearable technologies, Internet of Medical Things (IoMT) devices, and telehealth will further strengthen remote patient monitoring and community-based nursing practice. Future research should focus on evaluating the long-term effectiveness, cost-effectiveness, ethical implications, and educational outcomes of these technologies across diverse healthcare settings, particularly in low- and middle-income countries. Policymakers should also promote equitable access to digital resources to reduce disparities in nursing education and healthcare delivery. ## Implications for Nursing Education, Clinical Practice, Research, and Policy The integration of e-learning, artificial intelligence, and virtual reality has significant implications for the nursing profession. In nursing education, educators must transition from traditional instructional approaches to technology-enhanced, competency-based learning that promotes critical thinking, clinical reasoning, and lifelong professional development. Curriculum developers should incorporate digital literacy, nursing informatics, AI competency, and simulation-based learning as core components

of nursing programmes. For clinical practice, nurses must develop competencies in utilizing electronic health records, clinical decision-support systems, telehealth platforms, and AI-assisted technologies while maintaining patient-centred care, ethical standards, and professional accountability. Researchers should continue investigating the educational effectiveness, clinical impact, usability, and ethical considerations of emerging technologies using robust methodological approaches. Policymakers and regulatory bodies should establish evidence-based standards governing the implementation, regulation, accreditation, and ethical use of digital technologies in nursing education and healthcare systems. Such coordinated efforts will ensure that technological innovation strengthens rather than replaces the humanistic values that underpin professional nursing practice [20].

Conclusion

Digital technologies have fundamentally transformed nursing education and clinical practice by creating innovative opportunities for teaching, learning, simulation, and patient care. E-learning has expanded access to flexible and learner-centred education, artificial intelligence has enhanced personalized learning and clinical decision support, while virtual reality has strengthened experiential learning through immersive simulation. Together, these technologies improve learner engagement, clinical competence, evidence-based practice, patient safety, and healthcare quality. Despite challenges related to infrastructure, implementation costs, digital literacy, ethical concerns, and unequal access, their benefits substantially outweigh the limitations when supported by appropriate institutional investment and policy frameworks. Preparing future nurses for increasingly technology-driven healthcare environments requires continuous curriculum innovation, faculty development, interdisciplinary collaboration, and responsible digital governance. By strategically integrating emerging technologies into nursing education and clinical practice, educational institutions and healthcare organizations can develop a digitally competent nursing workforce capable of delivering safe, efficient, patient-centred, and evidence-based healthcare in an increasingly complex global health landscape

References

- Alayidi MA (2026) Effectiveness of the middle learning management system in Health Sciences Education: An analytical evaluation of the AI-Rayan National Colleges experience. *Medicine and Biohealth journal* 2: 45-56.
- Ronquillo CE, Peltonen LM, Pruinelli L, Chu CH, Bakken S, et al. (2021) Artificial intelligence in nursing: Priorities and opportunities from an international invitational think-tank of the Nursing and Artificial Intelligence Leadership Collaborative. *Journal of Advanced Nursing* 77: 3707-3717.
- Sharifi M, Akbari Farmad S, Sohrabi MR, Ghods R, et al. (2021) A scoping review of the application of virtual reality in nursing education. *Journal of Nursing Education* 60: 569-577.
- World Health Organization (2025) Ethics and governance of artificial intelligence for health: Guidance on large multi-modal models. <https://www.who.int/publications/I/item/97892400847>.
- Kiegaldie D, Shaw L (2023) Virtual reality simulation for nursing education: Effectiveness and feasibility. *BMC Nursing* 22, Article 488.
- Lee D, Kim H (2023) Artificial intelligence-based clinical decision support in nursing practice. *Computers, Informatics, Nursing* 41: 305-312.
- Chen FQ, Leng YF, Ge JF, Wang DW, Li C, et al. (2020) Effectiveness of virtual reality in nursing education: Meta-analysis. *Journal of Medical Internet Research* 22: e18290.
- Amankwaa I, Boateng D, Quansah DY, Akuoko CP, Desu APB, et. (2022) Innovations in nursing education in response to the COVID-19 pandemic: A scoping review. *Nursing Praxis in Aotearoa New Zealand* 38: 1-16.
- Dhiman N, Arora N, Dogra N, Gupta A (2023) Exploring challenges and opportunities involved in adopting e-learning by health care sector during COVID-19 and beyond: A systematic review. *International Journal of Environmental Research and Public Health* 20: 2349.
- Lin MY, Huang MZ, Lai PC (2024) Effect of virtual reality training on clinical skills of nursing students: A systematic review and meta-analysis of randomized controlled trials. *Nurse Education in Practice*, 81 Article 104182.
- Marawa'a A (2024) E-learning experiences among nursing students: A scoping review. *Advances in Medical Education and Practice* 15: 369-379.
- Al-Asfour A, Ahmad S (2022) Nursing students' perceptions of e-learning during the COVID-19 pandemic: A systematic review and thematic synthesis. *Nurse Education in Practice* 63: 103381.
- Jin S, Kim JH (2024) Effectiveness of synchronous e-learning in nursing education: A meta-analysis and subgroup analysis. *Nurse Education in Practice* 78: 104029.
- Buchanan C, Howitt ML, Wilson R, Booth RG, Risling T, et al. (2024) Predicted influences of artificial intelligence on the domains of nursing: Scoping review. *JMIR Nursing* 7: e51501
- Khan A, Podlasek A, Somaa F (2023) Virtual reality in post-stroke neuro rehabilitation: A systematic review and meta-analysis. *Topics in Stroke Rehabilitation* 30: 53-72.
- McCutcheon K, Lohan M, Traynor M, Martin D (2018) Evaluating online and blended learning in undergraduate nursing education A systematic review. *Journal of Advanced Nursing*, 74: 497-516.
- Al-Bukhari S, Alqarni A, Almutairi F (2023) The impact of e-learning on nursing education during the COVID-19 pandemic: A systematic review. *BMC Nursing* 22: 45.
- Bohr, A., &Memarzadeh, K (2020) The rise of artificial intelligence in healthcare applications. In *Artificial Intelligence in Healthcare* 25-60.
- Cant R, Cooper S (2023). Simulation-based learning in nursing: A systematic review. *Nurse Education Today* 121: 105679.
- Padilha JM, Machado PP, Ribeiro A, Ramos J, Costa P (2019) Clinical virtual simulation in nursing education: Randomized controlled trial. *Journal of Medical Internet Research* 21: e11529.

Copyright: ©2026 Alagwu Scholarstica Chinwe, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.