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The Challenges and Development of Artificial Intelligence in the Nursing Ethics Curriculum: Ethical Reconstruction in the Technological Revolution

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ABSTRACT

The deep integration of artificial intelligence (AI) into nursing is reshaping nursing practices and ethical decision-making frameworks. This paper systematically examines the core challenges posed by AI to the Nursing Ethics curriculum, including ambiguities in accountability, privacy and security risks, algorithmic bias amplification, alienation in human-machine relationships, and educational lag. Concurrently, it proposes developmental pathways through the expansion of ethical frameworks, innovation in teaching tools, cultivation of practical competencies, and international collaboration. By analyzing global governance practices and Classic documentation, the study advocates for dynamic curriculum updates and interdisciplinary integration to construct a nursing ethics education system suited to the era of "human-machine collaborative care."

Introduction

The explosive adoption of ChatGPT in 2023 marked the entry of generative AI into healthcare and nursing. AI-driven nursing robots, intelligent diagnostic systems, and health monitoring devices now permeate all stages of care, from basic nursing to critical care management. Statistics indicate that 60% of global tertiary hospitals have deployed AI-assisted decision-making tools, improving nursing efficiency by 35%. However, technological empowerment harbors ethical risks: a 2024 lawsuit in a U.S. hospital, where AI misdiagnosis led to erroneous chemotherapy for a patient, exposed the complexity of accountability in technological applications. Against this backdrop, the Nursing Ethics curriculum must address three core questions: How to define the boundaries of nursing responsibility in the AI era? How to balance technological

efficiency with humanistic care? How to cultivate a new generation of nursing professionals equipped to identify ethical risks?

I. Five Challenges of AI for the Nursing Ethics Curriculum

Ambiguity in Accountability and Legal Dilemmas

AI's autonomous decision-making challenges the traditional principle of "clear accountability" in nursing ethics. Notable cases include:

Surgical Robot Mishap: In 2024, a Da Vinci robot in a German hospital malfunctioned due to algorithmic errors, causing postoperative infections. The court ruled that liability was shared among the manufacturer (60%), hospital (30%), and operating nurse (10%), sparking debates over accountability in "black-box"

technologies.

Generative AI Misguidance: A nursing education platform using ChatGPT generated erroneous medication advice due to model "hallucinations," leading students to apply unverified recommendations in practice. Such cases highlight fractured accountability chains among developers, users, and regulators, rendering traditional "nurse-patient" binary accountability models obsolete.

Privacy Security and Dual Data Ethics Crises

AI's reliance on vast patient data entrenches risks of misuse:

Wearable Device Leaks: A 2024 breach of smart wristbands in a Canadian nursing home exposed 300 elderly residents' health data to targeted fraud, revealing flaws in anonymization techniques^[1].

Algorithmic Privacy Inferences: AI deduces sensitive information (e.g., family dynamics, sexual orientation) from fragmented nursing records (e.g., medication times, visit frequencies), violating the EU General Data Protection Regulation (GDPR).

Research shows that AI systems collect data beyond the scope of traditional medical consent forms, necessitating curriculum integration of data ethics and regulations such as China's Interim Measures for the Management of Generative Artificial Intelligence Services^[2].

Algorithmic Bias and Systemic Inequity

Biased training data exacerbates discrimination in care:

Racial Disparities: A U.S. AI triage system underestimated pain levels in Black patients due to historical underrepresentation in datasets, leading to inadequate analgesic use.

Resource Allocation Inequity: An AI bed management system in a Chinese tertiary hospital prioritized ICU beds for younger patients based on survival rate models over-reliant on age parameters. Such issues demand curriculum integration of algorithmic auditing tools (e.g., NIST's AI Risk Management Framework) to train students in identifying "data poisoning" and model bias^[3].

Emotional Alienation in Reconfigured Human-Machine Relationships

AI's anthropomorphic designs risk eroding nurse-patient bonds:

Ethics of Emotional Companion Robots: Japan's PARO seal robots, widely used in dementia care, triggered concerns over "dehumanized care" when patients developed emotional dependence, rejecting human nurses.

AI End-of-Life Care Controversy: A 2024 Swiss institution's use of AI-generated virtual deceased personas for bereavement dialogues faced criticism for violating dignity and emotional authenticity. These phenomena compel the curriculum to redefine "human-centered care" and preserve nursing's humanistic core amid technological interventions.

Educational Content and Model Lag

Current curricula focus on traditional ethical principles (autonomy, non-maleficence, beneficence, justice) but lack AI-specific content. Outdated case studies (e.g., "ventilator withdrawal" or "informed consent") fail to address emerging scenarios like AI misdiagnosis accountability or algorithmic transparency. Interdisciplinary gaps persist: only 12% of nursing schools offer courses blending "AI Technology and Ethics," leaving students ill-equipped to link neural networks with ethical risks.

II. Four Developmental Pathways for AI-Driven Nursing Ethics Education

Expanding Ethical Frameworks: From Principles to Practical Tools

Risk-Tiered Governance: Adopt the EU AI Act's classification of nursing AI into "unacceptable risk" (e.g., autonomous surgical robots), "high risk" (e.g., diagnostic systems), and "low risk" (e.g., health monitors) to design differentiated ethical evaluation processes^[4].

Explainability Tools: Integrate LIME (Local Interpretable Model-agnostic Explanations) to visualize AI decision-making (e.g., simulating "why AI prioritizes palliative care for a patient").

Innovating Teaching Tools: Generative AI's Dual Empowerment

Virtual Scenarios: Use DALL-E 3 to generate ethical dilemmas (e.g., AI recommending withholding diagnoses) for role-play debates.

Critical Thinking Exercises: Compare ChatGPT-4.0's outputs with ethics committee decisions to analyze limitations (e.g., over-reliance on statistical probabilities over individual contexts)^[5].

Cultivating Practical Competencies: From Theory to Scenario-Based Training

Ethical Audit Workshops: Train students to evaluate AI privacy mechanisms (e.g., detecting unauthorized facial data storage in nursing robots) using ISO/IEC 24028 standards.

Regulatory Sandbox Simulations: Test AI nursing protocols in controlled environments (e.g., simulating post-bias-correction resource redistribution)^[6].

Global Collaboration and Local Adaptation

Transnational Case Libraries: Compare privacy-technology trade-offs across cultures by integrating frameworks like the U.S. NIST standards, China's generative AI regulations, and the EU AI Act^[7].

Ethical Consensus Mechanisms: Leverage WHO guidelines and UNESCO's Recommendation on the Ethics of AI to establish global minimum standards (e.g., banning AI for coercive psychiatric interventions)^[8].

III. Future Directions and Recommendations

Dynamic Curriculum Updates: Establish an AI Ethics Observatory to track emerging issues (e.g., "brain-computer interface nursing" or "metaverse rehabilitation"), updating cases each semester.

Interdisciplinary Faculty Teams: Collaborate with computer science, law, and philosophy experts to develop modules on "algorithmic fairness" and "digital human rights."

Ethical-Technical Competency Certification: Introduce AI Ethics Auditor credentials and integrate technical risk assessment into nursing licensure exams.

IV. Conclusion

AI is not an ethical disruptor but a reconstructor of nursing ethics. Confronting blurred accountability, privacy crises, and dehumanization risks, the Nursing Ethics curriculum must transition from "defensive ethics" to "proactive ethics." By fostering a tripartite competency framework—"technological

literacy, risk identification, and ethical intervention"—nursing education can cultivate professionals adept at leveraging AI while upholding the humanistic essence of Nightingale's legacy.

References

1. Tian Yujie. "Improving Personal Information Protection in Chinese Government Data Openness from the EU Legal Perspective." *Journal of Yibin University*, 2025, 25(02):50-56+65.
2. Interim Measures for the Management of Generative Artificial Intelligence Services. *Gazette of the Ministry of Public Security of the PRC*, 2023, (05):2-5.
3. Kong Yong, Li Meitao, Wang Wei, et al. "Interpretation of the U.S. AI Risk Management Framework." *China Informatization*, 2023, (03):39-44.
4. Yuan Feng, Wang Zihao. "Risk-Based AI Regulation: Insights from the EU AI Act." *Journal of Political Science and Law*, 2024, 41(06):116-125.
5. Yang Fan, Xia Juntao. "AI Strategies in the EU AI Act." *Intelligent IoT Technologies*, 2024, 56(06):9-13.
6. Li Yibin, Li Haoyang. "Comparative Study of AI Regulations in the EU, U.S., and China." *Contemporary World and Socialism*, 2024, (05):161-169.
7. Zhang Xuebo. "Exploring China's AI Legal Regulatory Framework." *Theoretical Horizon*, 2024, (10):60-65.
8. Wang Xuxu, Liu Yali. "Advances in Ethical Risks of AI in Nursing." *Nursing Research*, 2024, 38(14):2567-2569