

Evidence-Based Proposal and Annotated Bibliography on Technology in Nursing

Student's Name

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Assessment 3: Evidence-Based Proposal and Annotated Bibliography on Technology in
Nursing

Introduction Artificial Intelligence Technology

I chose "Artificial Intelligence Technology in Nursing" due to its transformative potential in healthcare, where AI's ability to analyze complex data sets, assist in diagnosis, predict patient deterioration, and suggest treatment options can significantly enhance nursing practices. The integration of AI is crucial for improving patient outcomes, streamlining workflows, and fostering interdisciplinary collaboration. AI technology can revolutionize the nursing field by providing tools that support decision-making, reduce errors, and improve efficiency. This technology's capacity to process large volumes of data quickly and accurately makes it indispensable for modern healthcare systems aiming to enhance quality and safety standards.

To thoroughly investigate AI in nursing, I employed a systematic research process. I began by identifying and accessing reputable databases known for their comprehensive coverage of medical and technological advancements. These included PubMed, CINAHL, and IEEE Xplore. These databases were chosen for their extensive repositories of peer-reviewed articles and studies that ensure credibility and depth in the research. I used specific search terms to focus my inquiry and retrieve relevant literature. The search terms included "Artificial Intelligence in Nursing," "AI healthcare applications," "AI patient care," and "AI clinical decision support." These terms were selected to cover various aspects of AI's application in nursing, from theoretical frameworks and technological implementations to practical outcomes and case studies.

By focusing on peer-reviewed articles, I ensured that the sources were credible and provided substantial evidence on the impact of AI in nursing. This structured approach allowed

me to gather a diverse range of studies, reviews, and clinical trials that highlight AI's benefits, challenges, and prospects in the nursing profession. Through this research, I aimed to present a comprehensive overview of how AI can be leveraged to advance nursing practice, improve patient care outcomes, and support the evolving roles of nurses in the healthcare system.

Annotated Bibliography

Buchanan, C., Howitt, M. L., Wilson, R., Booth, R. G., Risling, T., & Bamford, M. (2020). Predicted Influences of Artificial Intelligence on the Domains of Nursing: Scoping Review. *JMIR Nursing*, 3(1), e23939. <https://doi.org/10.2196/23939>

This scoping review by Buchanan et al. explores the anticipated impacts of artificial intelligence (AI) on various domains within nursing practice. The article provides an extensive overview of AI technologies and their potential to transform patient care, enhance safety, and improve the quality of healthcare services. The publication delves into the ways AI can support clinical decision-making, streamline administrative tasks, and offer predictive analytics to prevent adverse events, thereby significantly boosting patient safety and care quality.

The relevance of AI to nursing practice is highlighted through its capacity to augment nursing workflows, reduce burnout by handling repetitive tasks, and facilitate more effective interdisciplinary collaboration. This publication was selected for its comprehensive analysis and forward-looking perspective, making it a crucial read for healthcare practitioners interested in understanding and integrating AI technologies to advance nursing practice and improve patient outcomes.

Buchanan, C., Howitt, M. L., Wilson, R., Booth, R. G., Risling, T., & Bamford, M. (2021). Predicted Influences of Artificial Intelligence on Nursing Education: Scoping Review. *JMIR Nursing*, 4(1), e23933. <https://doi.org/10.2196/23933>

This scoping review by Buchanan et al. investigates the potential impacts of artificial intelligence (AI) on nursing education. The article aims to provide an overview of how AI technologies can enhance nursing training programs, improve educational outcomes, and better prepare nurses for modern healthcare environments. The review highlights various AI applications, including adaptive learning systems, virtual simulations, and AI-driven assessment tools, which contribute to more personalized and efficient education experiences.

AI's influence on patient safety and care quality is evident through its role in training nurses to handle complex clinical scenarios with higher accuracy and confidence. For nursing practice and interdisciplinary teams, AI-enhanced education ensures that nurses are better equipped with up-to-date knowledge and skills, fostering improved collaboration and patient care standards. This publication was selected for its forward-thinking approach, offering valuable insights for healthcare educators and practitioners aiming to leverage AI in advancing nursing education and practice.

Ng, Z. Q. P., Ling, L. Y. J., Chew, H. S. J., & Lau, Y. (2022). The role of artificial intelligence in enhancing clinical nursing care: A scoping review. *Journal of Nursing Management*, 30(8), 3654–3674. <https://doi.org/10.1111/jonm.13425>

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This scoping review by Ng et al. examines how artificial intelligence (AI) can enhance clinical nursing care. The article focuses on the integration of AI technologies in nursing practice, aiming to identify their benefits and challenges. It provides an overview of AI

applications such as predictive analytics, decision support systems, and robotic assistance, emphasizing their potential to improve patient care outcomes and streamline nursing workflows.

According to this source, AI significantly impacts patient safety and quality of care by enabling early detection of complications, optimizing resource allocation, and supporting evidence-based decision-making. For nursing practice and interdisciplinary teams, AI fosters enhanced collaboration, reduces administrative burdens, and allows nurses to focus more on direct patient care. This publication was chosen for its comprehensive analysis and practical insights, making it essential for healthcare practitioners interested in leveraging AI to advance clinical nursing care and improve patient outcomes.

von Gerich, H., Moen, H., Block, L. J., Chu, C. H., DeForest, H., Hobensack, M., Michalowski, M., Mitchell, J., Nibber, R., Olalia, M. A., Pruinelli, L., Ronquillo, C. E., Topaz, M., & Peltonen, L.-M. (2022). Artificial Intelligence -based technologies in nursing: A scoping literature review of the evidence. *International Journal of Nursing Studies*, 127, 104153.

<https://doi.org/10.1016/j.ijnurstu.2021.104153>

This scoping review by von Gerich et al. investigates the existing evidence on artificial intelligence (AI)-based technologies in nursing. The focus of the article is to explore how AI is being implemented in nursing and its effects on nursing practice. The review covers a broad range of AI applications, including predictive analytics, automated documentation, and personalized patient care.

The impact of AI on patient safety and quality of care is profound, as it enhances diagnostic accuracy, reduces human error, and facilitates timely interventions. For nursing practice and the interdisciplinary healthcare team, AI promotes efficiency, supports decision-making, and enables better patient management. This publication was selected for its thorough

examination of AI technologies, providing critical insights that are essential for healthcare practitioners looking to integrate AI into clinical settings to enhance patient outcomes and streamline nursing workflows.

Summary and Recommendations

The key learnings from the reviewed publications emphasize the transformative impact of artificial intelligence (AI) on nursing practice, education, and patient care. Buchanan et al. (2020) she highlighted AI's potential to enhance clinical decision-making and patient safety, while Buchanan et al. (2021) underscored AI's role in revolutionizing nursing education through adaptive learning systems. Ng et al. (2022) Von Gerich et al. explored AI's benefits in clinical settings, focusing on predictive analytics and decision-support systems that improve patient outcomes. (2022) we have provided comprehensive evidence of AI's efficacy in enhancing diagnostic accuracy and reducing errors.

Organizational factors influencing technology adoption in healthcare include policies that support innovation, availability of resources, and a culture that embraces technological advancements. Commitment from leadership, comprehensive training programs, and employee empowerment are crucial for successful implementation. Training programs ensure that staff are competent in using new technologies, while policies and resources guarantee sustained support and integration into clinical practice.

The implementation of AI technologies in healthcare is justified by substantial evidence of improved patient care and safety. AI can also predict complications and optimize resource allocation, as noted by Ng et al. (2022) and von Gerich et al. (2022), which supports its integration. Furthermore, AI enhances nursing education, preparing nurses for complex clinical scenarios, as described by Buchanan et al. (2021). The positive impact on interdisciplinary

teamwork, productivity, and staff satisfaction underscores the value of technology in healthcare settings. Implementing AI fosters a more efficient, error-reduced environment, enhancing patient satisfaction and staff retention, thereby proving its appropriateness and necessity in modern healthcare.

References

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