



Article Review On “Exploring Applications Of Artificial Intelligence In Critical Care Nursing”: A Systematic Review

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Abstract: This article review summaries the finding of the systematic review entitled Exploring applications of Artificial intelligence in Critical Care Nursing by Gunasekaran et al. (2025). This review explores how artificial intelligence is applied in critical care nursing practice. Focusing on its goal in enhancing clinical decision making, improving patient monitoring, reducing nurses work load and supporting clinical education. Through an analysis of 12 elected studies published between 2018 and 2023, the author discussed the benefits and limitations of AI technologies used in critical care units. The review concludes that while AI has transformative potential, its ethical concerns, lack of training and insufficient nurse involvement in AI development remain key challenges. The study emphasizes the importance of structured training, nurse participation and ethical considerations for effective AI integration in nursing.

Index Terms – Artificial intelligence, Critical care, Nursing.

I. INTRODUCTION

Artificial intelligence has become an emerging force in health care offering innovative solutions to enhance diagnostic accuracy, patient monitoring and clinical decision making. Critical care nursing in particular present a high-pressure environment where swift and informed clinical judgement are essential. Nurses working in intensive care units are responsible for continuous assessment and rapid intervention, often managing vast amount of patient data. AI technologies such as machine learning, Clinical Decision Support Systems (CDSS), and predictive algorithm have the potential to ease these burden and improve patient outcomes, however while AI research has rapidly expanded in medicine and general health care there remains a gap in understanding its specific applications within nursing especially in critical care. The reviewed article by Gunashekaran et. al (2025) seeks to bridge this gap by systematically analyzing the literature on AI applications in critical care nursing.

Aim of the study

The primary aim of the study was to explore the applications of artificial intelligence in critical care nursing and evaluates its effectiveness, benefits and limitations in supporting nurses and improving patient care in ICU settings

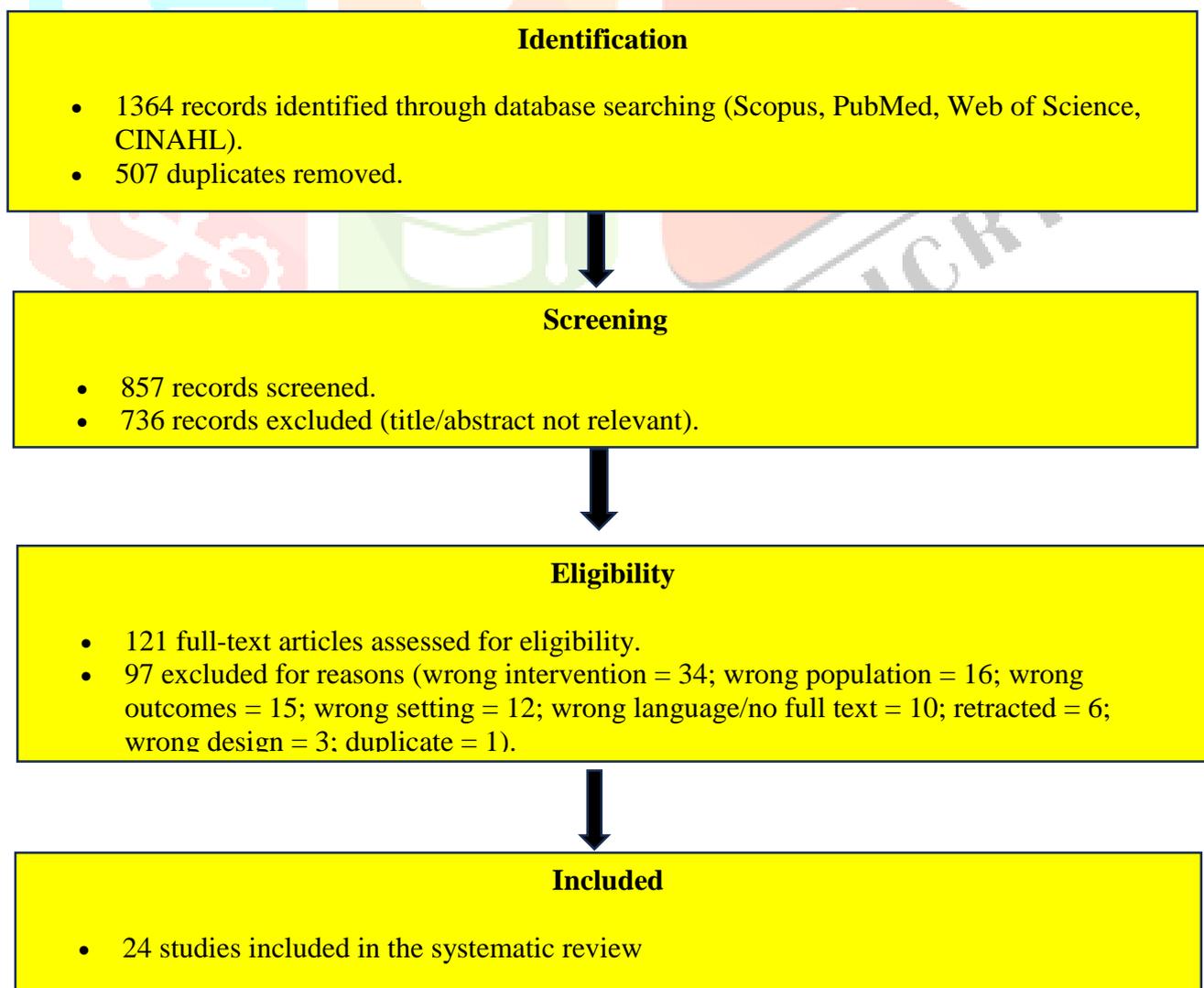
Background of the study

Critical care units are dynamic and demanding environment that requires nurses to make rapid evidence-based decisions. The increasing complexity of care combined with large volume of data creates a need for technological support systems. Artificial intelligence has emerged as a valuable tool in health care, offering predictive capabilities continuous monitoring and assistance in decision making. How ever the specific impact of AI in nursing roles remain underrepresented in research. This study seeks to fill that gap by reviewing current literature focused in AI applications in critical care nursing.

Methodology

It was a systematic review conducted according to the PRISMA (Preferred Reporting Items for Systematic reviews and Meta Analysis) guidelines. The authors performed a comprehensive literature search in four data bases: PubMed, Scopus, web of science and CINAHL. studies included were published between 2018 and 2023 and focused on AI applications in critical care nursing. Key words such as Artificial Intelligence, critical care and nursing were used. From an initial pool of 1475 records, after removing duplicates and irrelevant studies 12 peer reviewed articles meet the inclusion criteria and were included in the final review

PRISMA Flow of study selection



Summary of finding

The review identified 5 major areas where AI applied in critical care nursing

- Clinical Decision Support Systems (CDSS): these tools help in early detection of critical conditions like sepsis, respiratory failure and cardiac arrest.
- Predictive analytics: AI algorithms are used to predict patient outcomes such as ICU mortality, readmission risk and length of stay.
- Monitoring systems: AI enabled monitoring systems support real time tracking of vital signs, reduce false alarms and assist in prioritizing care.
- Natural Language Processing (NLP): NLP technologies extract meaningful data from electronic health records and clinical documentation improving data management and workflow.
- Simulation based training tools: AI based simulators are used in nurse education and training to replicate critical care scenarios and improve response skill

Interpretation and discussion

The review highlights that AI technologies significantly contribute to enhancing nursing efficiency, decision making and patient safety in ICUs. However the authors caution that AI could not replace clinical judgement. One key issue identified is the lack of nurse involvement in the development and customization of AI tools which can result in systems that are difficult for the nurses to use effectively. Ethical challenges particularly during data security, patient concerns and algorithm transparency are also discussed. The authors stress the need for nurse specific training in AI use, as many nurse lack confidence applying these technologies in practice.

Conclusion

The review concludes that Artificial Intelligence hold great promise in transforming critical care nursing. It supports timely clinical decisions, enhances patient monitoring and reduce nurse workload. However the successful integration of AI depends on ethical frameworks, training and inclusion of nurses in AI development. Institution must create an environment that promotes the responsible and collaborative use of AI in health care.

Implications for nursing practice

curriculum development

- AI literacy should be integrated in to nursing education and professional development programs

Ethical policies

- Institutions must establish clear ethical guidelines for AI usage in patient care.

Nurse involvement

- Nurses should be actively involved in the development and evaluation of AI systems to ensure usability and relevance

Training and support

- Regular hand on training and access to digital tools should be provides to frontline nurses

Interdisciplinary collaboration

- Health care organizations should encourage partnership between nurses, data scientist and software developers.

Strength of the study

This study was conducted by using a structured and transparent method (PRISMA). It specially addresses AI applications from nursing perspective. Which is often overlooked in AI related health care research. Articles cover multiple types of AI tools and provides practical implications for nursing practice. It raises awareness about ethical and educational gap that need attention in AI integration.

Weakness of the study

The number of included studies is small (12), which may limit the generalizability of the findings. The review includes only the English language articles excluding studies published in another languages. Most studies from developed countries, making it less applicable to low resource or rural health care setting. The study lacks qualitative data such as direct feedback from nurses using AI tools in clinical practice.

Personal critique

The systematic review is both relevant and timely, as AI technologies are rapidly entering in to the clinical practice. It thoughtfully explores the potential benefits of AI in nursing but also addressing the limitations and ethical concerns that accompany its use. A notable strength is its focus on nursing specific roles and responsibilities making the findings practical and applicable to nursing educators, managers and policy makers. How ever the review would g

have been more comprehensive with the inclusion of studies that explores lived experience of nurses who are using AI in their workplace. Future research should also focus on assessing AI use in low resource setting

References

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