Available online at www.scientiaresearchlibrary.com

Scientia Research Library

ISSN 2348-0416
USA CODEN: JASRHB

Journal of Applied Science And Research, 2025, 13 (1):32-35

(*http://www.scientiaresearchlibrary.com/arhcive.php*)

THE FUTURE OF ARTIFICIAL INTELLIGENCE IN PAEDIATRIC NURSING

ARUN SURENDRAN

ASSOCIATE PROFESSOR,T JOHN COLLEGE OF NURSING,BANGALORE

ABSTRACT

This study aims to explore the integration of AI technologies, such as machine learning, natural language processing, and predictive analytics, in paediatric healthcare settings. The emergence of artificial intelligence (AI) in healthcare has been groundbreaking, reshaping the way we diagnose, treat and monitor patients. AI-powered technologies such as predictive analytics, clinical decision support systems, and virtual nursing assistants are enhancing patient care, improving outcomes, and optimizing workflow efficiency. This journal explores the current applications of AI in paediatric nursing, the potential future advancements, and the challenges associated with its integration. The article highlights how AI can contribute to personalized care, early diagnosis, and improved patient safety while emphasizing the importance of ethical considerations and the need for ongoing nursing education.

INTRODUCTION

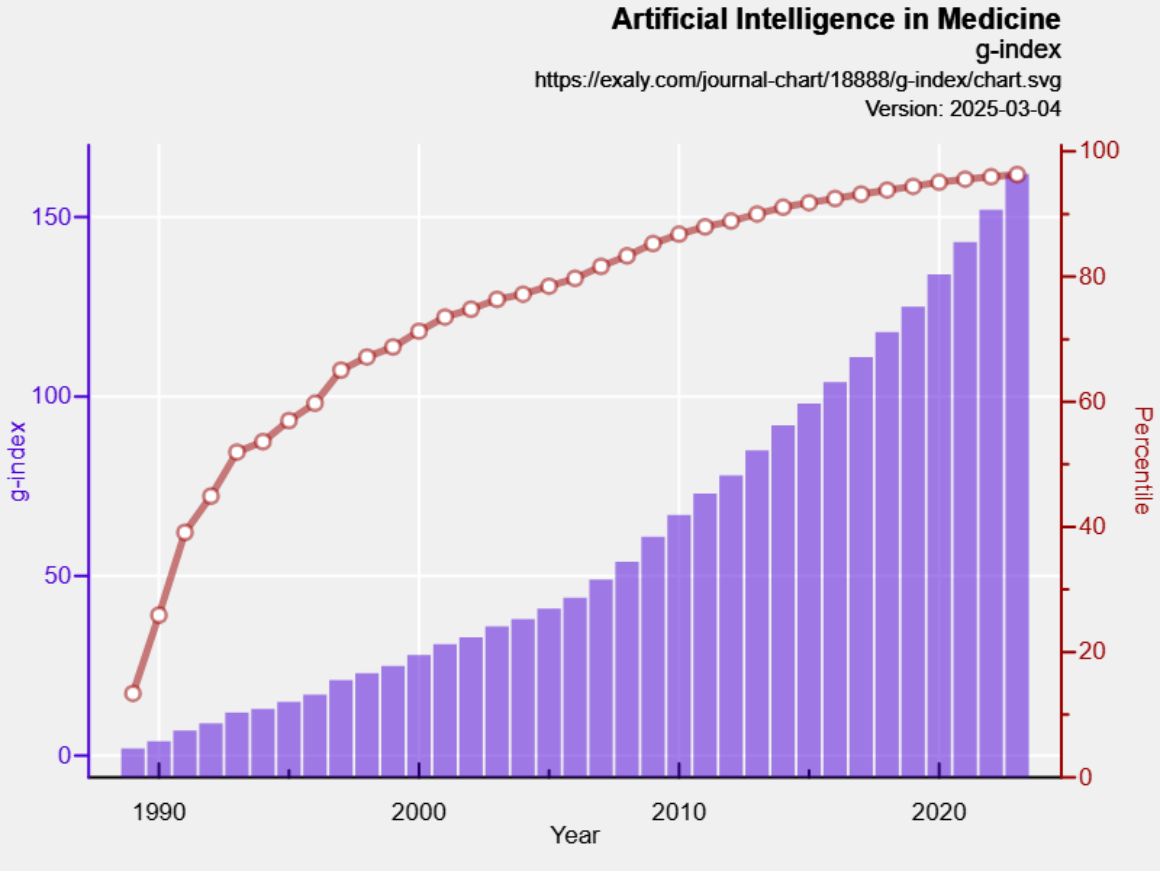
In recent years, artificial intelligence (AI) has emerged as a transformative force in healthcare, offering innovative solutions to enhance patient care, improve clinical outcomes, and optimize nursing practices. The rapid advancement of AI has transformed various sectors of healthcare, including paediatrics nursing. AI encompasses machine learning (ML), natural language processing (NLP), and robotic process automation (RPA), which are being utilized to streamline nursing processes, enhance patient care, and support clinical decision-making. Integrating AI in paediatric nursing can streamline administrative tasks, allowing nurses to dedicate more time to direct patient care. This journal explores the future potential of AI in paediatrics nursing, focusing on its applications, benefits, challenges, and ethical considerations. Current Applications of AI in Paediatric Nursing.AI is already making an impact in paediatric nursing through the following applications:

1. Clinical Decision Support Systems (CDSS):

AI-powered CDSS assists nurses in identifying potential complications, predicting patient deterioration, and providing evidence-based recommendations. In paediatrics settings, these systems can alert nurses to subtle changes in vital signs, enabling early intervention.

2. Remote Monitoring and Telehealth:

AI-integrated telehealth platforms allow continuous monitoring of paediatric patients with chronic conditions. Predictive algorithms can identify early warning signs, reducing hospital readmissions.



The graph shows the changes in the g-index of Artificial Intelligence in Medicine and the corresponding percentile for the sake of comparison with the entire literature. g-index is a scientometric index similar to g-index but put a more weight on the sum of citations. The g-index of a journal is g if the journal has published at least g papers with total citations of g2.

3. Chatbots and Virtual Nursing Assistants:

AI-powered chatbots provide instant responses to patient inquiries, reducing nurses' administrative workload. Virtual assistants help with medication reminders and symptom assessment, enhancing patient engagement.

FUTURE POTENTIAL OF AI IN PEDIATRIC NURSING

1. Personalized and Predictive Care:

AI will enable more personalized paediatric care by analysing individual patient data to predict disease progression and recommend tailored interventions. Predictive analytics can identify high-risk patients and optimize care plans.

2. AI-Powered Diagnostics:

In the future, AI models will play a larger role in diagnosing paediatric conditions such as sepsis, respiratory infections, and neurological disorders. Image recognition algorithms will enhance the

accuracy of radiology and pathology in children.

3. Robotic Assistance in Nursing:

AI-driven robots may assist nurses with routine tasks such as transporting medications, collecting vitals, or delivering supplies. This automation will allow nurses to focus on direct patient care.

4. Enhanced Patient Safety and Error Reduction:

AI will help detect potential medication errors and adverse drug interactions, improving patient safety. Real-time monitoring will enhance the early detection of clinical deterioration in paediatric patients challenges and Ethical Considerations

While AI holds great promise, several challenges and ethical concerns must be addressed:

1. Data Privacy and Security:

Paediatric patient data must be protected from breaches and unauthorized access.

Ensuring compliance with regulations such as HIPAA and GDPR will be crucial.

2. Bias and Fairness:

AI models trained on biased data could lead to disparities in care. Developers and healthcare professionals must work together to ensure fairness and accuracy.

3. Nursing Workforce Adaptation:

Nurses will require continuous training to effectively use and interpret AI-driven insights. Resistance to AI adoption and workflow changes may hinder its implementation.

CONCLUSION

The future of AI in paediatrics nursing holds immense potential for improving patient care, optimizing workflow efficiency, and enhancing clinical outcomes. However, its successful integration requires addressing challenges related to data privacy, bias, and workforce training. As AI technology continues to evolve, paediatric nurses must embrace ongoing education and collaboration with technology experts to maximize the benefits of AI while maintaining the human-centred care that is fundamental to nursing practice.

REFERENCE

[1] https://onlinelibrary.wiley.com/doi/full/10.1002/ctd2.272#:~:text=The%20impact%20of%20AI%20on,reduce%20adverse%20events%20by%2040%25.

[2] https://pmc.ncbi.nlm.nih.gov/articles/PMC11059951/

[3] https://www.foreseemed.com/artificial-intelligence-in-healthcare

[4] Artificial Intelligence: A Modern Approach- Stuart Russell

[5] Fundamentals of Artificial Intelligence- R.K.Chowdhary

[6] ARTIFICIAL INTELLIGENCE Third Edition- Elaine Rich, Kevin ,Shivashankar B Nair

[7] Artificial Intelligence The New Machine Learning-Dr. Dattary.G.Takale, Dr.Shakir Khan, Dr.Subash K.Shinde, Ms.Rakhi D Akhare.

[8] https://exaly.com/journal/18888/artificial-intelligence-in-medicine/g-index