Evaluating Algorithm Bias in AI-Driven Clinical Decision Tools: Implications for Nursing Judgment and Patient Safety in Low-Resource Hospitals Student Name Institution Instructor Course Number Date   Evaluating Algorithm Bias in AI-Driven Clinical Decision Tools: Implications for Nursing Judgment and Patient Safety in Low-Resource Hospitals The incorporation of artificial intelligence (AI) into the medical field has been of potential interest in the last few years, and this has been in the form of AI-based clinical decision support systems (AI-CDSS) which have been touted to enhance diagnostic accuracy, workflow optimization, and staffing issues. However, even with these potential advantages, it has been demonstrated that the bias of algorithms installed in these tools can compromise the judgment of nurses and put the lives of patients in danger. The issue is especially intense in the hospitals with limited resources because structural inequities, insufficient personnel, and resource constraints increase risks. Prejudice during AI-CDSS may be demonstrated via data collection, feature selection, model training, and deployment and may result in disparate results between patient subgroups. The patients represented in training data insufficiently (such as ethnic minorities or low-income groups) may be either underdiagnosed or misidentified, which can raise the likelihood of receiving delayed or inadequate treatment (Zink et al., 2024). These differences are especially acute in low-resource hospitals where nurses can turn to the AI advice significantly because specialists are inaccessible. Nursing care plans generated by AI can also have an algorithmic bias. Recent simulation studies have discovered that care plans generated by a large language AI model depend on patient demographics and clinical quality, where care plans generated by socially advantaged groups receive lower safety ratings than care plans generated by disadvantaged groups (Baig et al., 2024). This illustrates the fact that AI tools can unknowingly introduce a few
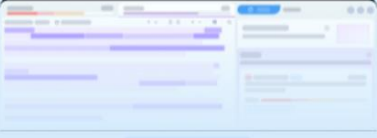
No AI Content Found ⓘ
Percentage of text that may be AI-generated.

0%

All Clear — Nothing Flagged
Zero concerns this time, but our detection logic is ready for what comes next. Explore how it works when content is flagged.
See AI Logic In Action

Try Another Text

Clear Text   Scan

Resources

---

involvement of clinicians in the design of models, and transparency and explainability of AI outputs can be mentioned (Markus, Kors, & Rijnbeek, 2021). These measures can help AI to support, and not to substitute nursing judgment without the risk of serious injuries being limited. In conclusion, AI-based clinical decision-making tools are a major threat to nursing decision-making and patient safety, particularly in low-resource hospitals due to the algorithmic bias thereof. Such bias, in its unmitigated form, may increase health disparities, lower the quality of care, and cause mistrust in AI-assisted clinical decisions. Nevertheless, AI-CDSS can empower nurses to provide safe and fair care with the appropriate precautions such as representative datasets, on-going observation, the participation of clinicians, and clear reporting. Finally, AI must support, rather than substitute, human judgment so that technological innovation can be useful to every patient irrespective of their background and context.   References Baig, M. I., & Yadegaridehkordi, E. (2024). ChatGPT in higher education: A systematic literature review and research challenges. International Journal of Educational Research, 127, 102411. https://doi.org/10.1016/j.ijer.2024.102411 Baig, M. M., Hobson, C., GholamHosseini, H., Ullah, E., & Afifi, S. (2024). Generative AI in improving personalized patient care plans: Opportunities and barriers towards its wider adoption. Applied Sciences, 14(23), 10899. https://doi.org/10.3390/app142310899 d'Elia, A., Gabbay, M., Rodgers, S., Kierans, C., Jones, E., Durrani, I., ... & Frith, L. (2022). Artificial intelligence and health inequities in primary care: A systematic scoping review and framework. Family Medicine and Community Health, 10(Suppl 1), e001670. https://doi.org/10.1136/fmch-2022-001670 Markus, A. F., Kors, J. A., & Rijnbeek, P. R. (2021). The role of explainability in creating trustworthy artificial intelligence for health care: A comprehensive survey of the terminology, design choices, and evaluation strategies. Journal of Biomedical Informatics, 113, 103655. https://doi.org/10.1016/j.jbi.2020.103655
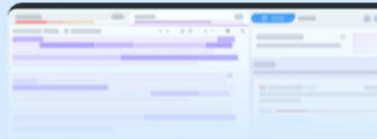
No AI Content Found ⓘ
Percentage of text that may be AI-generated.

0%

All Clear — Nothing Flagged
Zero concerns this time, but our detection logic is ready for what comes next. Explore how it works when content is flagged.
See AI Logic In Action

Try Another Text

Clear Text   Scan

Resources