



The Use of Artificial Intelligence in Nursing Documentation and Decision-Making

1- Amnah Ibrahim ageeli , 2- Buthaina fraug almzmomi, 3-Sharefah mousleh Ali Asiri, 4-Jawaher Ahmad basafi, 5- Eman Fehaid Saeed Alqarni, 6- Bshayer mazi Alfaifi, 7-Msharie Saad AlSwiliem, 8-Al-Anoud Rashed Al-Marief, 9-Heassa saleh AlHumidi, 10-Hind Yosef Aldosari, 11- Mansour Aqel M AL motairi, 12-Fawzia mousa alsada, 13-Manal Otaysh Saeed Alruwaili, 14-HANAN Eessa Mohammed Taqi, 15 Merifah Ayed Alanazi,

¹Ksa , ministry of health , In healthy monitoring centres at King abdullaziz international airport

²Ksa , ministry of health , In healthy monitoring centres at King abdullaziz international airport

³Ksa , ministry of health , In healthy monitoring centres at King abdullaziz international airport

⁴Ksa , ministry of health , AL-Zaher health Center

⁵Ksa , ministry of health , Al-Wafa Health Center

⁶Ksa , ministry of health , Hadda Healh Center

⁷Ksa , ministry of health , Riyadh First Health Cluster

⁸Ksa , ministry of health , Primary Health Care Center in Al-Shifa 1

⁹Ksa , ministry of health , first health cluster

¹⁰Ksa , ministry of health , Dhahrat Namar Health Center

¹¹Ksa , ministry of health , Riyadh Second Health Culster

ALSalam PHC

¹²Ksa , ministry of health , Muhyl general hospital

¹³Ksa , ministry of health , Middle Tarif Primary Health care Center

¹⁴Ksa , ministry of health , Alkhasabiah health centr-jazan

¹⁵Ksa , ministry of health , Riyadh second health cluster-

School Health Promotion Department

Abstract

Background: In nursing, AI is changing the face of treatment delivery through improving the healthcare decision making process since it responds to the call to go for artificial intelligence by improving patient health. It is instrumental in helping nurses to make right decisions quickly through analyzing large databases of data.

Aim: This study aims to understand how data intelligent AI technologies influence nursing decision making specifically in diagnostics, predictive analytics, real time monitoring and individualized care, with regards to advantages, disadvantages and ethical concerns in those areas.

Methods: The literature review was done, assessing the outcomes of the application of AI in the nursing field aimed by investigating the analyzed studies and case reports. More so the study will be centered on the appropriateness of AI in clinical context, its advantages and drawbacks in health care.

Results: AI technologies have enhanced decision-making for nurse and also the safety of the patients and manipulation of work flow . This has led to early identification, individualized care and consumption of resources through the incorporation of tools like CDSS, predictive factor and real time surveillance though some issues such as issues of privacy and training and skills still persist.

Conclusion: AI is assisting the nurses in decision making by analyzing, offering effective information and healthy results. As stated there are some issues that can hinder the process but the opportunities for using AI in nursing are tremendous and they cannot be realized without proper address to values, training and the combination of the efforts of nurses and AI.

Keywords: AI, Nursing, Decision Making, Prognostic Analysis, Clinical Decision Support Tools, Individual Patient Treatment

Received: 15 October 2023 **Revised:** 29 November 2023 **Accepted:** 14 December 2023

Introduction

Artificial intelligence (AI) has recently created new opportunities for development in healthcare, which has greatly influenced different spheres of activity. Of these, the data-driven AI technologies have appear to be transformational in nursing and particularly in relation to decision-making. Patient care is usually delegated to nurses who have the mandate of making decisions within fixed time and conditions. Yet, the amount of patient information is now much larger than before and the issues treated are much more intricate thus requiring enhanced decision aids. Facing these challenges AI technologies, which can process large volumes of information and produce useful knowledge based on that information, can effectively address the tasks. This paper aims to review the positive impacts of using AI technology in the enhancement of nursing knowledge-based decision-making systems; this paper takes AI technology in diagnosing, monitoring, predicting, and personalized learning systems as its subject matter. It also looks into the pros and cons of applying Artificial Intelligence in nursing practice and the legal issues that will have to inform its use.[1]

Improving Quality and Quantity in Nursing Procedures

AI has been adopted as a tool in nursing practices to help healthcare workers; it improved the way working time is organized and plenty of other necessary activities have been enhanced regarding their precision. ^{AI is that these tools have been created to complete specific duties like documentation so that the nurse is able to provide care directly. It eliminates human interference in the process and opens bigger possibilities for making records with efficiently larger precision. For example, it can record the physician's patient assessment via speech recognition, update patients' records, and alert the nurses to variations, to help them retain accurate and detailed patient information. This level of precision is paramount, the accuracy of patient files – files that can be a source of significant harm, they can lead to misdiagnosis and incorrect treatment plans.[2] Also, with the help of programmed algorithms, AI optimizes work processes and prioritizes tasks for performing according to the level of necessary actions and patients' needs. Real-time data is used by advanced algorithms to assess the probability of some adverse outcomes in order for the nurses to attend to them before they occur. For instance, with the help of big data it is possible to define patients with pre-established condition needing more attentiveness, e.g. sepsis or pressure ulcers, which allows providing them with necessary care, enhancing overall outcomes besides decreasing the workload with managing preventable complications. Furthermore, AI decision-support systems in helping the nurses decide on which action would be most effective with the patient's condition given the myriad of articles and publications available. This is not only time-saving but also provides an evidence base, which hasn't always been done before and would lead to better patients' results.[3]AI also comes in handy in the Implementation of AI in nursing to reduce the workload which is one cause of burnout among

medical colleagues. This means less time is spent on scheduling, inventory, and creating reports allowing for more time nursing and interaction with patient. In addition, by employing AI-driven applications, the information flow between core interdisciplinary teams is facilitated effectively by ensuring that critical updates are passed as planned. For instance, in instances where patients' statuses are altering, the systems can update the relevant staff in real-time as opposed to hierarchical methods discouraging smooth treatment provision. Consequently, healthcare organizations enhance their operations visibility, use their resources more prudently and make overall patient satisfaction.[4] They opined that combining AI in nursing has benefits but does not come free of conceivable difficulties. The successful implementation of such a model entails significant spend on technology, education for employees, and other important issues such as ethical use of technology and data protection must first be met. However, the ability to leverage technology to minimize error when it comes to performing nursing can be worked on with assistance of AI. Nursing profession should therefore embrace such innovations as the future of modern health care delivery system and ways of improving the standards set in practice. [5,6]

A Revolutionary Tool for Improving Patient Care and Clinical Workflow

Artificial intelligence technology is rapidly advancing to be a vital and revolutionary tool in healthcare as patients receive incredible solutions to their problems and clinical physicians receive incredible aid to enhance patient treatment. AI utilizes machine learning algorithms and analysis of Big data to also empower care delivery in that it offers healthcare providers the means to perform strategic decisions, minimize mistakes and improve the quality in which they deliver care. For instance, many diagnostic tools that apply artificial intelligence can detect possible diseases by processing a patient's scan images, blood tests, and their medical records in short order. These systems help the nurses and the physicians in early disease detection and with even better accuracy where early interventions are made and hence better results. For instance, with radiographic images or small variations in laboratory findings, AI can pick out the rudimentary sign of a critical event and take the necessary measures before it becomes rampant.[7] Besides diagnostics, AI propels clinical operations as a tool that can automate mundane tasks as well as direct resources better. Some examples of bookings, prescriptions, and logistics like patient appointments, dosage, and supplies can be handled by AI and it will decline on the healthcare staff. This is even faster and reduces the possibility of human errors improving patient safety. For example, AI can arrange the number of staff working to cover the busiest hours, while with the help of predictive analytics, the consumption of supplies is predicted, thus, there will be no lack of supplies. These efficiencies produce more effective approaches toward delivering primary patient care, making the process more patient-centric in nature.[8]

AI is equally useful in the strategy of patient care given that treatment for patients within the same category is diagnosed separately due to significant differences. Combining data from a patient's EHRs, activity monitors, and/or genomic data gives AI the capability of suggesting specific action that will give the patient a better chance of success. For instance, in chronic illness, AI can provide distant care to patient, track the changes in data collected from smart wearables, and inform caretakers of potential development of severe conditions. Hospitals no longer have to wait for patients to become severely ill before being admitted as patients can be readily admitted early enough and becomes more involved in decision making concerning their health. In addition, accountabilities such as answering questions, giving reminders regarding medication intake, and proactively providing the patient with counseling in the form of speech therapy, psychological support from conversational AI, virtual assistant, Chabot make healthcare service available for the patient beyond usual healthcare services.[9] The Application of AI in healthcare also creates working synergy among multidisciplinary teams to share and communicate in terms of data. AI systems can organize all data from different sources, which turn into a single system that can be used for a more integrated approach. For instance, by generating messages that clinicians including nurses, physicians and home health aides: during a patient transition from hospital based care to home based care, this technology helps in making sure that everyone has updated information about the patient. This minimizes misunderstandings and also guarantees continuity of treatment. With issues, which include cost, requirement of training and data security, AI can be deemed as an agent of revolution

in patient care and clinical practice. This reveals the promise healthcare organizations bear to provide healthcare that is of better quality, cheaper, and fairer to practice in the future of medicine. [10]

Impact on Clinical Outcomes and Nursing Efficiency

Artificial intelligence in nursing practice has sign favored the up keep of patient care and nursing efficiency, changing the fabric and practice of healthcare. In a way, AI has had beneficial effects on numerous patient care issues related to an increase in diagnostic accuracy and better decision making. Automated clinical decision support systems including intelligent algorithms, predictive reports and machine learning techniques can analyze a large volume of patient's data to look for indicators of clinical decline or future adverse events. For example, AI system may track clients' vitals in real time notifying nurses to offer timely action in case the reader records irregularities such as sepsis or cardiac arrest. Besides preventing deaths, it also prevents the deaths from happening in the first place while at the same time, decreases the duration of hospitalization as well as spending.[11] In addition, various administration tasks that used to consume a lot of time have also been eased through the usage of AI making nursing efficiency better. Tasks such as documenting patient information, administering medications and patient scheduling which used to require a large part of the time of health care nurses can be assumed by AI systems. For instance, automatic charting tools take down and categorize patient information as required while creating adequate documentation. AI based medication management systems can simultaneously scan prescriptions for mistakes, find doses, and may send constant reminders lowering the chances of medication errors. These advancements enable nurses to attend to more patents directly thus enhancing the patients' care results and nurses' satisfaction.[12,13]

AI also plays a great role in the allocation of resources common in the healthcare facilities and this makes a big impact to the efforts of nursing as well as the over all results. One example of using big data analytics is that rates of patient admissions can be predicted, and therefore resources and staff in hospitals can be properly coordinated. For instance, during flu epidemic periods, an AI system will be able to predict individuals' through put rates and suggest changes in staff distribution. This decreases the amount of fatigue which reoccurs in the nurses, and enhances patient access to health care services, irrespective of the surge in volume. Moreover, AI has tools that can help with the management of the list of tasks depending on the importance of the patients' cases and so on. Besides enhancing the first level of care, AI enhances systemic clinical effectiveness by offering individual care planning and enabling extension of care. Patient electronic health records and wearable devices hold a lot of valuable information that, when evaluated using AI, can enable an understanding of a patient's health patterns and suggest suitable interventions. For instance, in conditions like diabetes, hypertension and other types of chronic illnesses where the patient is aware of their condition but requires assistance in how to handle it, then an AI will offer recommendations of what changes one needs to make in their lifestyle besides reminding the patient on the regime, medications, or food and notifying the doctor when symptoms develop. Such an individual approach enhances patient experience and shall lead to sustainable positive health gains while decreasing the costs to the healthcare networks.[13] However, these are some of the advantages that are present when applying AI in nursing and still there are barriers in the full realization of this technology in nursing. Challenges such as data insecurity, ethical question, and training that is required in order to operate the conditions of the AI tools. However it have to be said that the usage of AI in clinical word and nursing has been shown to significantly increase the outcomes for patients and positive changes in productivity. In addition to improving decision making and enhancing efficiency of processes AI helps nurses to provide safe and effective personalized patient care in the context of growing healthcare challenges. [14,15]

Transforming Documentation and Decision Support Systems in Nursing

AI is revolutionizing the face of nursing through documentation and decision support systems which are core to facility's practices in the current health care settings. In traditional nursing models, paper-based documentation is known to be a very cumbersome, time consuming and error prone activity that has taken focus away from the patient. In these areas, AI solutions that automate and enhance

documentation help to resolve these issues, and bring coherence and standardization to patients' records. For instance, NLP algorithms that are already in use can take down what the nurses are saying and enter it into EHRs effortlessly. They also categorize and store information about different diseases and health conditions to make it easy for health care practitioners to evaluate the data. As a result, AI decreases the possibility of errors during data input while allowing nurses to spend more time on high-stake social connections with patients.[16] Another aspect of the management of decision-making in nursing also called decision support has also received a facelift through the incorporation of AI. Such systems apply sophisticated procedures known as machine learning methods on large clinical databases to generate an evidence-based decision support. For instance, AI can capture trends of the symptoms, the test results and previous past Kranken history imply, what disease might the patient have or what could be the possible treatment options. This information can help the nurses in decision making most especially in the event that they are working under pressure. In addition, AI can forecast patient prognosis based on the identified trends in order to prevent further development of symptoms by nurses. For example, early warning systems can evaluate the likelihood of a patient in developing a complication, including sepsis or pressure ulcers thus helps preemptively intervene issues that reduce patient morbidity and mortality and increase healthcare expense.[16]

The real-time functions of AI in documentation as well as decision support systems add to the possibilities of the transformation. The use of Artificial intelligence call allow real-time monitoring of the patient's vital signs. Failure to document that results in the EHR can cause the following: When the deviation is present, the system can send notifications to the nurses to respond quickly to such conditions. Moreover, AI helps make improvements in interaction between professionals involved in patients' treatment as it offers space for sharing essential information. For example, if the state of a particular patient has changed, the AI system will generate an alert and inform all the necessary team members about this state change and promote a unified approach to patients.[17] AI is also helping to develop more automated content create and documentation and decision support system. Most of them can have simple interfaces and or voice recognition interfaces which makes it easier for the nurse to operate those systems. This does not only make learning fast but also ensures that many people will adopt the products. Furthermore, having AI incorporated into mobile devices enables the nurse to review or update records or receive a decision support at the patient's bedside thus saving time.[18] However, incorporating AI in documentation and decision support systems entails the following challenges as listed herein below. Some of the issues, which require attention are, Data privacy, Reliability, Over-dependency on AI. Furthermore, training programs associated with these systems must prepare nurses to operate the systems without fear and dexterity. However, the change that has been induced by the integration of AI in determining the quality, efficacy, and patient ideal scope of nursing documentation and decision support systems is seeking to establish an optimal RH&Q technological model. Nursing professional can adopt and implement various forms of AI to increase their clinical efficiency while increasing the standards of the delivery of patient care. [19]

Integrating AI into Nursing: Benefits, Challenges, and Future Prospects

The implementation of nursing science integrating artificial intelligence into nursing is an exciting area that is currently transforming the healthcare industry, providing major advantages and, at the same time, significant accelerated questions. AI tools are being used more often and in various ways as tools that can assist in the improvement of patient experiences, in increasing clinical productivity, as well as in solving workforce problems. In the most simplest form of automating routine tasks up to helping in making strategic decisions, AI has turned out to be very useful to nurses and other professionals in this field. Nevertheless, similar to any technology, its implementation is not without challenges, not to mention the important of the identification of its potential in the years to come.[20]

Among all the effects AI creates in the sphere of nursing, one of the most valuable is the effect that relates to an increase in the rate and precise of clinical activities. Nurses may access the patient information for documentation, tracking of patient's vital statistics and doing analytic work, with the help

of such AI systems. For example, Complication prediction finds complications before they happen, providing early steps to enhance the patients' situation. Moreover, AI implemented into decision making support tools generates analysis and options based on medical data collect and accumulated evidence to allow nurses make right decisions in a short span of time. This is especially useful in areas like the intensive care units where decisions reached must be as soon as possible and devoid of wrong information. In addition to reducing the amount of time that can be spent on repetitive administrative work, AI also supports nurses in the delivery of more effective and time-consuming care to patients thereby the caregiving outlook of nursing is also enriched.[21,22]

However, there are also some drawbacks when using of AI in nursing When using and implementing of AI in the nursing process we meet some difficulties. There is one very important issue that becomes apparent when using AI in healthcare – the ethical question. Concerns like respect to the patient data privacy, the question of bias in the algorithms used, and the idea that implementing AI may lead to the depersonalization of the process of patient's treatment must be solved to make the application of AI contribute to rather than diminish the quality of the patient's treatment. Furthermore, to integrate the AI system, the health care institutions will have to spend a lot of money, which most of them cannot afford. Another problem is that nurses have to be trained a lot in order to master the tools offered by AI. Lack of training results in potential incorrect analysis of data provided by the use of AI which in turn will influence the way care for patients is delivered. One other challenge is that health care professionals for one are also likely to resist change, and this is because, for most of them, using AI will mean changing their conventional operations.[23,24] Further ahead, the advancement in the use of AI for nursing has massive potential to transform nursing as a profession. SAIL anticipates that both machine learning and natural language processing, as well as robotics are potential areas that are likely to be improved to make AI perform multiple tasks. For instance, virtual nursing assistants can offer knowledge, other questions that a layman patient may have, and encouragement, among others, tasks that can be undertaken by the nurses hence expanding the capacity for enacting nursing care. Robotics alongside AI might help with other tasks like moving a patient or providing supplies, so that nurses experience little stress physically. In addition, with the growth of AI in healthcare, the system will also improve on accuracy through the practice of precision. Genetic, environmental and lifestyle information can be used by the networks of the AI system to create personal treatment plans leading to better results and satisfaction.[25]

in order to unlocked these opportunities, one has to overcome existing pitfalls and define subsequent standards for ethical AI using in nursing. This will involve also healthcare providers, policy makers and the technology developers who will be required to provide systems that are effective, fair, and acceptable to the patients. Since, there is change happening in the nursing profession with the increasing use of technological developments, incorporation of AI, in fact, may provide new opportunities to expand the role of a nurse and improve the quality of care delivery in the midst of the continuously growing challenges in the health care system. If the appropriate amounts of money and efforts are put in the concept and if the appropriate planning is done, AI could be one of the main drivers of innovations of nursing that will positively impact both the patient and the nurse.[26]

AI-Driven Solutions for Streamlining Nursing Workflows and Decision Processes

Nursing has benefited from the integration of artificial intelligence (AI) in that the technology presents solutions that solve existing or create new solutions to complex problems. In a field that values accuracy, speed, and quick decision making AI based instruments help nurses to perform their tasks and cope with their loads. While ranging from making simple repetitive tasks, to reducing workload, to even delivering sophisticated clinical information, AI technologies are revamping the nursing profession and ensuring quality health care delivery.[27]One of the important use cases of applying the AI in nursing is the elimination of monotonous clerical function. Typical activities such as documentation, patients scheduling, and supplies ordering that usually claim a lot of the nurses' attention can be undertaken by the AI systems. For example, there will be natural language processing (NLP) which will turn spoken notes into proper documentation while freeing the nurses from extra paperwork. In the same manner, an

AI based system can make recommendations on patient traffic patterns and allocate staffing in such a way as to guarantee adequate staff cover during the busiest times. These automation capabilities do not only take time but also reduce incidences of errors thus enabling the nurses to attend to most of the patient needs.[28] It also increases decision making processes by providing clinician oriented information and real time clinical data. Mass amounts of information about the patient, their past and current conditions, laboratory results, and even physical signs can be processed by high-level equations that determine patterns and possible warning signs. For instance, decision support systems driven by AI can estimate the possibility of developing sepsis or hospital-acquired infection, and so the nurse can prevent such an occurrence. However, these systems are capable of involving offering highly-targeted therapy options due to the patient characteristics, thus counter checking whether specific care plans can suit the patient's profile. Such specificity helps eliminate vagaries in qualified service delivery hence enhancing clients' experiences.[29]The embedding of the application of AI also aids in strengthening of professional interaction between other nursing staffs. Being a unified system of managing and sharing the patient data the AI provides each team member with the real-time access to the information. For instance, AI systems are capable of detecting new conditions that have arisen to the patient and alert the right professionals. These integrated forms of communication enhance the flow of activities and minimize cases of information distortion, which are well-known causes of medical errors.[30] That is why, together with the IT support, AI-driven solutions are also applied to resource management – an aspect relevant to the management of the nurses' workload and productiveness. Employing predictive analytics, a hospital can predict patients' admission rates, and all the hospital's required resources for consumption, which will aid in proper planning of resources. For example, based on past experiences, an AI system can easily tell that it's time to order new beds or equipment to avoid congestion, and in the process allow patients to access the services they require on time. It is crucial during briefs or more extended periods than usual, where new patients arrive at the hospital more frequently than normal.[31]

The impacts of artificial intelligence solution have been elaborated above, however the implementation of those is not without some problems. Primary challenges are the relatively high level of AI technologies and the necessity to organize intensive training sessions for nurses in using the tools. Also, the problem of data protection and the issue of ethical issues when using AI's decisions at critical moments should be highlighted. However, the opportunity for AI to improve the working processes of nurses and decision making is apparent.[32]

Through reducing paper works and optimizing the processes of decision making and resource allocation AI support nurses in providing better quality care with increased speed. This trend of developments in technology suggest that the adoption of AI in nursing practice will assume even more importance in the future as more advanced tools would be used in identifying more manpower intensive activities and helping to tailor decisions to better meet patient needs. Implemented correctly, and targeted properly, there is no question that AI will revolutionize the nursing practice while simultaneously evolving the healthcare industry.[33]

The Role of Artificial Intelligence in Shaping the Future of Nursing Practice

AI is to become one of the major drivers for advancing the future of nursing practice, on the background of the modern tendencies in the development of innovative technologies. In the following three ways, AI is extending and transforming tasks that nurses perform in healthcare settings: strengthening decision-making function; decreasing patient mortality rates; and streamlining tasks resulting in higher productivity and work distribution. As the consumers seek higher value, personalized and safe care, the application of AI in nursing profession is gradually becoming one of the key development areas.[34]The area, where AI is most likely to contribute to nursing practice, is the clinical decision support. Machine learning techniques can also be applied to analyze vast stacks of patient data and then diagnose and suggest on the outcomes. For instance, using vital signs, history and patient-generated data, AI can identify early symptoms of disease like sepsis, heart failure, or infection. These

systems help nurses to draw right and precise conclusion so that they can respond immediately in case of complications resulting to save lives. Additionally, analytics by the help of an artificial neural network assist the nurses in decision on the patient's diagnostic, without delays for otherwise complicated procedures.[35] Another area where AI is making an impact in nursing process is through taking over processes that are repetitive from the nursing workflow. Writing is an essential part of nursing practice; despite this, documentation eats up a lot of time for patients. Natural language processing (NLP) tools that exist are capable of transcribing the spoken notes into structured source EHRs thereby automating this process. Also, automated systems for scheduling can improve staff performance regarding the patients' necessities by providing the adequate allocation of resources. However – cutting administrative tasks improves nurse-patient time and results in an overall improvement in healthcare quality.[36]

Two more ways in which AI is starting to bring change to the practice of nursing are in the assessment and decision support of patient status. Smart clothes and sensors integrated with artificial intelligence can monitor patient's condition and speech, and notify the nurse when something is wrong. For example, using AI may identify early signs of deterioration in a patient's condition, so care interventions can be made promptly. Additionally, using the predictive analytics, the nurse is able to prevent adverse outcomes as he or she receives early insights on outcome indicators. The above capabilities help enhance the safety of patients besides decreasing the hospital re-admitting proportion and costs. At the same time as AI progresses, it is also helping with the education and training of nurses. Through AI, simulated nursing situations can be tested in accurate situations without posing high risk for the patient. These tools give the information instantly and are self-adjustable with the learner and help in building up the critical mass of the learner's decision making faculties. Also, developments in the use of advanced AI in the delivery of the learning content allows delivery of learning programs that are relevant for the preparation of the nurses to meet skills necessary to operate in a changing environment in the health care sector. While AI has the potentiality of revolutionizing nursing practice, the integration of AI into nursing practice has the following challenges. Notably, there are some issues of ethical nature, including data protection, fairness of algorithm applications, as well as problems relating to possible dependency on the advanced technologies.[37]

The future is the anticipated development of artificial intelligence for nursing services to enhance other fields in the future. With regard to precision medicine and place-and-care technologies, potential applications of AI tools are expected to help enhance access to and quality of care. Nurses will more and more work in partnership with technological systems including AI systems where clinical judgment by the nurse will be used to determine the data outputs and actions of AI systems. This synergy between human and machine will achieve what humans have been pursuing for many decades: an efficient, patient-oriented healthcare approach. Thus, AI's application influences the development of future nursing practice from clinical decision-support, integrated technology solutions, and patient benefits views. As we have seen there are some barriers to AI yet the prospects are outstanding and revolutionary. Here, this paper discussed the positive shift nursing professions can embrace through AI technology to tackle challenges affecting improved care delivery and the resulting enhanced prospects for advancement in the field of nursing.[38]

Conclusion

Artificial intelligence is revolutionizing nursing decision-making by enabling faster, more accurate, and data-informed clinical choices. From predictive analytics and diagnostic support to real-time monitoring and personalized care, AI technologies are empowering nurses to deliver higher-quality care while optimizing efficiency. These advancements not only improve patient outcomes but also enhance resource management and reduce the burden of routine tasks. However, the integration of AI into nursing practice comes with challenges, including ethical concerns, the need for training, and ensuring data security and accuracy. As the healthcare industry continues to embrace AI, it is essential to strike a balance between technological innovation and human expertise. With proper implementation and a

commitment to ethical use, AI has the potential to redefine nursing practice, ultimately improving healthcare delivery and shaping a future where nurses can focus on what they do best: caring for patients.

References

1. Almuwallad, O. (2024). Artificial intelligence in nursing: Transforming patient care and decision making. *Letters in High Energy Physics*.
2. Ruksakulpiwat, S., Thornathip, S., & Nivomvart, A. (2024). A systematic review of the application of artificial intelligence in nursing care: Where are we, and what's next? *Journal of Multidisciplinary Healthcare*, 16, 1603–1616.
3. Johnson, E. A., Dudding, K. M., & Carrington, J. M. (2024). When to err is inhuman: An examination of the influence of artificial intelligence-driven nursing care on patient safety. *Nursing Inquiry*, 31(1), e12583.
4. Khalifa, M., Albadawy, M., & Iqbal, U. (2024). Advancing clinical decision support: The role of artificial intelligence across six domains. *Computer Methods and Programs in Biomedicine Update*, 100142.
5. Beam, K., Sharma, P., Levy, P., & Beam, A. L. (2024). Artificial intelligence in the neonatal intensive care unit: The time is now. *Journal of Perinatology*, 44(1), 131–135.
6. Ferber, D., El Nahhas, O. S. M., Wölflein, G., Wiest, I. C., & Clusmann, J. (2024). Autonomous artificial intelligence agents for clinical decision making in oncology. *arXiv preprint arXiv:2404.04667*.
7. Khosravi, M., Zare, Z., Mojtabaeian, S. M., & Izadi, R. (2024). Artificial intelligence and decision-making in healthcare: A thematic analysis of a systematic review of reviews. *Health Services Research and Managerial Epidemiology*, 11, 23333928241234863.
8. Syrowatka, A., & Bates, D. W. (2024). Artificial intelligence in adverse drug events. *Artificial Intelligence in Clinical Practice*, 383–387.
9. Ennis-O'Connor, M., & O'Connor, W. T. (2024). Charting the future of patient care: A strategic leadership guide to harnessing the potential of artificial intelligence. *Healthcare Management Forum*, 08404704241235893.
10. Woodnutt, S., Allen, C., Snowden, J., Flynn, M., Hall, P., & Paula, S. (2024). Could artificial intelligence write mental health nursing care plans? *Journal of Psychiatric and Mental Health Nursing*, 31(1), 79–86.
11. Quinn, T. P., Senadeera, M., Jacobs, S., Coghlan, S., & Le, V. (2021). Trust and medical AI: The challenges we face and the expertise needed to overcome them. *Journal of the American Medical Informatics Association*, 28, 890–894.
12. Topol, E. J. (2019). High-performance medicine: The convergence of human and artificial intelligence. *Nature Medicine*, 25, 44–56.
13. Binns, R., & Gallo, V. (2019). Trade-offs. Information Commissioner's Office.
14. Turea, M. (2019). How the 'Big 4' tech companies are leading healthcare innovation. *Healthcare Weekly*.
15. Haque, A., Milstein, A., & Fei-Fei, L. (2020). Illuminating the dark spaces of healthcare with ambient intelligence. *Nature*, 585, 193–202.
16. Wang, A., Nguyen, D., Sridhar, A. R., et al. (2021). Using smart speakers to contactlessly monitor heart rhythms. *Communications Biology*, 4, 319.
17. Esteva, A., Robicquet, A., Ramsundar, B., et al. (2019). A guide to deep learning in healthcare. *Nature Medicine*, 25, 24–29.
18. Muehlematter, U. J., Daniore, P., & Vokinger, K. N. (2021). Approval of artificial intelligence and machine learning-based medical devices in the USA and Europe (2015–20): A comparative analysis. *The Lancet Digital Health*, 3, e195–e203.
19. NHSX. (2019). Artificial intelligence: How to get it right. NHS.
20. Davahli, M. R., Karwowski, W., Fiok, K., Wan, T., & Parsaei, H. R. (2021). Controlling safety of artificial intelligence-based systems in healthcare. *Symmetry*, 13, 102.
21. Panch, T., Mattie, H., & Celi, L. A. (2019). The 'inconvenient truth' about AI in healthcare. *NPJ Digital Medicine*, 2, 77.

22. United States Government Accountability Office. (2020). Artificial intelligence in health care: Benefits and challenges of technologies to augment patient care. GAO.
23. Sendak, M. P., D'Arcy, J., Kashyap, S., et al. (2020). A path for translation of machine learning products into healthcare delivery. *EMJ Innovation*, 10, 19–00172.
24. Wiens, J., Saria, S., Sendak, M., et al. (2019). Do no harm: A roadmap for responsible machine learning for health care. *Nature Medicine*, 25, 1337–1350.
25. Abdollahpouri, H., Adomavicius, G., Burke, R., Guy, I., Jannach, D., Kamishima, T., Krasnodebski, J., & Pizzato, L. (2020). Multistakeholder recommendation: Survey and research directions. *User Modeling and User-Adapted Interaction*, 30(1), 127–158. <https://doi.org/10.1007/s11257-019-09256-1>
26. AdventHealth University. (2022, February 10). Robotics in healthcare: Past, present, and future. Infographics, Robotic surgery. <https://www.ahu.edu/blog/robotics-in-healthcare>
27. American Nurses Association Center for Ethics and Human Rights. (2022). The ethical use of artificial intelligence in nursing practice. *NursingWorld*. https://www.nursingworld.org/~48f653/globalassets/practiceandpolicy/nursing-excellence/ana-position-statements/the-ethical-use-of-artificial-intelligence-in-nursing-practice_bod-approved-12_20_22.pdf
28. Appel, M., Izydorczyk, D., Weber, S., Mara, M., & Lischetzke, T. (2020). The uncanny of mind in a machine: Humanoid robots as tools, agents, and experiencers. *Computers in Human Behavior*, 102, 274–286. <https://doi.org/10.1016/j.chb.2019.07.031>
29. Barrera, A., Gee, C., Wood, A., Gibson, O., Bayley, D., & Geddes, J. (2020). Introducing artificial intelligence in acute psychiatric inpatient care: Qualitative study of its use to conduct nursing observations. *Evidence-Based Mental Health*, 23(1), 34–38. <https://doi.org/10.1136/ebmental-2019-300136>
30. Benjamin, R. (2020). *Race after technology: Abolitionist tools for the new Jim code*. Policity Press.
31. Benson, T., & Grieve, G. (2021). LOINC. In T. Benson (Ed.), *Principles of health interoperability (Health information technology standards series)* (pp. 325–338). Springer. https://doi.org/10.1007/978-3-030-56883-2_17
32. Brecker, K., Lins, S., & Sunyaev, A. (2023). Why it remains challenging to assess artificial intelligence. In *Proceedings of the 56th Hawaii Conference on System Sciences (HICSS)* (pp. 5242–5251). <https://hdl.handle.net/10125/103275>
33. Browne, M., & Cook, P. (2011). Inappropriate trust in technology: Implications for critical care nurses. *Nursing in Critical Care*, 16(2), 92–98. <https://doi.org/10.1111/j.1478-5153.2010.00407.x>
34. 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>
35. Choudhury, A., & Asan, O. (2020). Role of artificial intelligence in patient safety outcomes: Systematic literature review. *JMIR Medical Informatics*, 8(7), e18599. <https://doi.org/10.2196/18599>
36. Denecke, K., Abd-Alrazaq, A., & Househ, M. (2021). Artificial intelligence for chatbots in mental health: Opportunities and challenges. In M. Househ, E. Borycki, & A. A. Kushniruk (Eds.), *Multiple perspectives on artificial intelligence in healthcare* (pp. 115–128). Springer. https://doi.org/10.1007/978-3-030-67303-1_10
37. Dhala, A., Sasangohar, F., Kash, B., Ahmadi, N., & Masud, F. (2020). Rapid implementation and innovative applications of a virtual intensive care unit during the COVID-19 pandemic: Case study. *Journal of Medical Internet Research*, 22(9), e20143. <https://doi.org/10.2196/20143>
38. Dudding, K. M., & Gephart, S. M. (2023). Nurse, know your value: Designing technology to transform outcomes. *Advances in Neonatal Care*, 23(1), 1–3. <https://doi.org/10.1097/ANC.0000000000001057>

استخدام الذكاء الاصطناعي في توثيق التمريض واتخاذ القرارات

الملخص

الخلفية: يشهد مجال التمريض تحولاً ملحوظاً في تقديم الرعاية الصحية بفضل الذكاء الاصطناعي، الذي يُحسن عملية اتخاذ القرار الطبي استجابةً للتوجه نحو الذكاء الاصطناعي بهدف تحسين صحة المرضى. يلعب الذكاء الاصطناعي دوراً حاسماً في مساعدة الممرضين والممرضات على اتخاذ قرارات صحيحة بسرعة من خلال تحليل قواعد بيانات ضخمة.

الهدف: تهدف هذه الدراسة إلى فهم تأثير تقنيات الذكاء الاصطناعي الذكية في اتخاذ قرارات التمريض، لا سيما في مجالات التشخيص، التحليل التنبؤي، المراقبة الفورية، والرعاية الفردية، مع التركيز على المزايا، العيوب، والاعتبارات الأخلاقية في هذه المجالات.

الطرق: تم إجراء مراجعة أدبية لتقييم نتائج تطبيق الذكاء الاصطناعي في مجال التمريض، من خلال دراسة وتحليل الأبحاث والدراسات الميدانية والتقارير. ركزت الدراسة على مدى ملاءمة الذكاء الاصطناعي في السياق السريري، ومزاياه وعيوبه في الرعاية الصحية.

النتائج: عززت تقنيات الذكاء الاصطناعي من عملية اتخاذ القرارات لدى الممرضين والممرضات، كما حسّنت سلامة المرضى وسير العمل. أدى ذلك إلى الكشف المبكر، توفير رعاية فردية، وتحسين استهلاك الموارد من خلال دمج أدوات مثل أنظمة دعم القرار السريري، العوامل التنبؤية، والمراقبة الفورية. ومع ذلك، لا تزال هناك تحديات مثل قضايا الخصوصية والحاجة إلى التدريب والمهارات.

الخلاصة: يساعد الذكاء الاصطناعي الممرضين والممرضات في اتخاذ القرارات من خلال التحليل وتوفير معلومات فعالة ونتائج صحية. وعلى الرغم من وجود عقبات قد تعيق العملية، فإن الفرص المتاحة لاستخدام الذكاء الاصطناعي في التمريض هائلة. لتحقيق ذلك، يجب معالجة القيم الأخلاقية، توفير التدريب المناسب، وتعزيز التعاون بين الممرضين والذكاء الاصطناعي.

الكلمات المفتاحية: الذكاء الاصطناعي، التمريض، اتخاذ القرار، التحليل التنبؤي، أدوات دعم القرار السريري، العلاج الفردي للمرضى.