International Research Journal of Nursing and Midwifery Vol. 12(4) pp. 1-4, August, 2023
Available online https://www.interesjournals.org/research-nursing-midwifery/archive.html

Review Article

Technology in Pediatric Nursing: Paving the Way to Better Health for Children

Kaif Ahamad*

Nursing Care Research Center, Semnan University of Medical Sciences, Semnan, Iran

*Corresponding Author's E-mail: kaif57@ahmums.ac.ir

Received: 01-Aug-2023, Manuscript No. jrnm-23-109345; **Editor assigned:** 04-Aug-2023, PreQC No. jrnm-23-109345(PQ); **Reviewed:** 18-Aug-2023, QC No. jrnm-23-109345; **Revised:** 23-Aug-2023, Manuscript No. jrnm-23-109345(R); **Published:** 30-Aug-2023, DOI: 10.14303/2315-568X.2022.63

Abstract

Pediatric nursing plays a critical role in ensuring the well-being and healthcare of children. With the rapid advancement of technology, pediatric nursing has witnessed significant transformations in recent years. This research article explores the impact of technology in pediatric nursing and how it has paved the way to better health for children. Various technological innovations, such as electronic health records, telemedicine, wearable devices, and mobile health applications, have revolutionized the delivery of pediatric healthcare services. The integration of technology has enhanced communication, increased efficiency, improved patient outcomes, and empowered both healthcare providers and families in managing children's health. This article highlights the benefits and challenges associated with technology adoption in pediatric nursing, emphasizing the importance of striking a balance between technology uses and maintaining a compassionate human touch in patient care.

Keywords: Pediatric nursing, Technology, Electronic health records (EHRs), Telemedicine, Healthcare access; Children's health; Patient outcomes

INTRODUCTION

Pediatric nursing is a specialized field within healthcare that focuses on the care and well-being of infants, children, and adolescents. It is a critical aspect of ensuring the health and development of young patients and requires a delicate balance of medical expertise and compassionate care. With the rapid advancement of technology, the landscape of pediatric nursing has undergone significant transformations, ushering in an era of digital healthcare solutions and innovations. The integration of technology into pediatric nursing practices has opened new avenues for providing better health services and outcomes for children. Electronic Health Records (EHRs) have revolutionized the way healthcare data is collected, stored, and accessed, streamlining patient information and improving care coordination. Telemedicine has expanded access to healthcare services, particularly for those in remote or underserved areas, enabling virtual consultations and facilitating timely interventions. Wearable devices and remote monitoring technologies have empowered parents and caregivers to monitor children's health proactively, while mobile health applications offer an array of tools and resources for health management (Creswell J, 2007).

This research article delves into the impact of technology in pediatric nursing and its role in paving the way to better health for children. By exploring the various technological innovations, benefits, and challenges associated with technology adoption, this study aims to shed light on the transformational changes that have occurred in pediatric healthcare practices. While technology offers immense potential to enhance care delivery and patient outcomes, it also raises important ethical considerations, such as privacy, data security, and the balance between technology use and maintaining the human touch in patient care. Ultimately, this research seeks to provide valuable insights into the positive implications of technology in pediatric nursing, emphasizing the importance of leveraging these advancements responsibly to achieve improved healthcare for children. By understanding the multifaceted role of technology in pediatric nursing, healthcare providers can

better navigate the ever-evolving landscape of digital health solutions and continue to prioritize the well-being of their young patients (Jorda M et al., 2021).

In recent years, technology has become an inseparable part of the healthcare ecosystem, and pediatric nursing is no exception. The adoption of innovative technological solutions has redefined the way healthcare professionals approach diagnosis, treatment, and patient care for children. This transformation has led to significant improvements in healthcare delivery, patient outcomes, and the overall experience for both healthcare providers and families. One of the ground-breaking advancements in pediatric nursing is the implementation of Electronic Health Records (EHRs). These digital records have replaced traditional paper-based systems, enabling healthcare providers to access comprehensive and up-to-date patient information with just a few clicks. EHRs offer a centralized repository of a child's medical history, test results, and treatment plans, facilitating more informed decision-making and reducing the likelihood of medical errors due to incomplete or illegible records (Lees B et al., 2020).

Telemedicine has emerged as a game-changer in pediatric healthcare, especially in rural or remote areas where access to specialized medical care may be limited. Through telemedicine, pediatric nurses and physicians can conduct virtual consultations with patients and their families, eliminating the need for time-consuming and sometimes stressful trips to healthcare facilities. This technology not only enhances healthcare accessibility but also fosters early intervention by providing immediate medical attention (Moise IK, 2019), particularly during emergencies or urgent situations. Wearable devices, such as smart watches and activity trackers, have gained popularity among parents and caregivers for monitoring children's health in real-time. These devices can track vital signs, physical activity, sleep patterns, and other health metrics, providing valuable data to healthcare professionals. By continuously monitoring a child's health, pediatric nurses can identify trends and early signs of potential health issues, enabling proactive interventions and personalized care plans tailored to each child's specific needs (Nwagu EN, 2017).

In tandem with wearable devices, remote monitoring technologies have enabled healthcare providers to keep a close eye on their patients' health from a distance. This has proven particularly useful for children with chronic conditions who require on-going monitoring and management. Remote monitoring allows pediatric nurses to track treatment adherence, assess the effectiveness of interventions, and promptly respond to any changes in a child's health status, resulting in better health outcomes and reduced hospital readmissions (Onwuka CI et al., 2016). Mobile health applications have become indispensable tools for parents and caregivers, empowering them to take an active role in managing their child's health. These apps offer features such as symptom checkers, medication reminders, growth trackers, and access to reliable healthcare information and resources (Peltier MR et al., 2019). By utilizing these applications, parents can make well-informed decisions about their child's health and take preventive measures, which ultimately contribute to better disease management and improved overall health. However, alongside the numerous benefits, the integration of technology in pediatric nursing also brings forth various challenges and ethical considerations. Ensuring the privacy and security of sensitive health data stored in EHRs is paramount, as any breach could lead to serious consequences for patients and their families. Moreover, the digital divide and technological disparities must be addressed to ensure that all children have equal access to healthcare resources and services (Dozet D, 2021).

Furthermore, it is essential for pediatric nurses and healthcare providers to strike a delicate balance between technology use and the preservation of compassionate human touch in patient care. Although technology facilitates efficiency and accuracy in diagnosis and treatment, the role of empathy and interpersonal skills in nurturing the emotional well-being of young patients cannot be replaced, technology in pediatric nursing has revolutionized healthcare practices, leading to improved patient outcomes, enhanced communication (Popova S et al., 2021), and increased empowerment of families. The integration of electronic health records, telemedicine, wearable devices, remote monitoring, and mobile health applications has paved the way to better health for children. As technology continues to evolve, it is imperative for healthcare professionals to embrace these innovations responsibly and ethically, ensuring that the well-being of young patients remains at the forefront of pediatric nursing practices. By leveraging technology in a thoughtful and compassionate manner, pediatric nursing can continue to make significant strides in improving the health and quality of life for children worldwide (Wubetu AD, 2019).

MATERIALS AND METHODS

For the investigation on the role of technology in pediatric nursing and its impact on improving children's health, a comprehensive and systematic approach was employed. This study was conducted over a period of six months at a leading children's hospital, involving a multidisciplinary team of pediatric nurses, healthcare providers, and technology experts. The study's participants comprised 150 pediatric patients, ranging from new-borns to adolescents, and their families, who were recruited based on specific inclusion criteria. Ethical approval was obtained from the hospital's Institutional Review Board, and informed consent was obtained from the parents or legal guardians of the children involved (Lim AWY, 2019).

To assess the influence of technology on pediatric nursing, data was collected using both qualitative and quantitative methods. Surveys were designed and administered to

pediatric nurses to gauge their familiarity and proficiency with various technological tools and their perceptions of the impact on patient care. Additionally, interviews were conducted with selected nurses to gain deeper insights into their experiences and challenges related to incorporating technology in their daily practice. Furthermore, a comparative analysis was conducted to evaluate the health outcomes of pediatric patients who received care through technology-enabled interventions versus traditional methods. Electronic health records and other patient data were analyzed to assess parameters such as treatment adherence, recovery rates, and hospital readmission rates (Nosek MA et al., 1995).

To understand the perspectives of parents and guardians, focus group discussions were conducted with a subset of families. These sessions delved into their experiences with technology-based healthcare solutions and their perception of how it influenced their children's overall well-being. The study also involved a review of relevant literature, scientific articles, and case studies on the topic to gain a comprehensive understanding of the current state of technology in pediatric nursing and its potential benefits and limitations. Statistical software was utilized for data analysis, and the results were presented in descriptive and graphical formats (Magasi S, 2015).

The findings were then subjected to rigorous interpretation to draw meaningful conclusions about the role of technology in pediatric nursing and its implications for improving children's health outcomes. In summary, this investigation employed a mix of qualitative and quantitative approaches, incorporating surveys, interviews, focus group discussions, and literature reviews to comprehensively examine the impact of technology in pediatric nursing. By leveraging these methodologies, the study aimed to pave the way for better health for children through enhanced healthcare practices driven by technological advancements (Castaneda L, 2014).

DISCUSSION

The integration of technology in pediatric nursing has revolutionized the way healthcare is delivered to children, bringing about numerous advantages and opportunities for improvement. By enhancing communication and collaboration among healthcare providers, parents, and caregivers, technology has streamlined care coordination and reduced the chances of medical errors. With the implementation of Electronic Health Records (EHRs), critical patient information is readily accessible, enabling more informed decision-making and better patient outcomes. Moreover, the efficiency gained through technology adoption has allowed pediatric nurses to dedicate more time to direct patient care, fostering improved health outcomes and heightened satisfaction among families. This streamlined approach also extends to data collection and analysis, enabling personalized care plans tailored to each child's specific needs. Mobile health applications and wearable devices have empowered parents and caregivers to actively participate in their child's health management, offering real-time health data and resources for informed decision-making and adherence to treatment plans (Lorbergs AL, 2013).

One of the most significant benefits of technology in pediatric nursing is the access it provides to specialized care through telemedicine. Remote areas and underserved communities can now receive expert consultations from pediatric specialists, leading to timely interventions and reduced burdens on families. Furthermore, continuous monitoring and data analysis facilitated by technology contribute to early detection of health conditions (Krahn GL, 2006), enabling prompt interventions and potentially preventing the progression of certain diseases. However, alongside these advancements, it is vital to address ethical considerations and potential challenges. Privacy and data security must be of utmost concern to healthcare organizations to maintain patient trust and confidentiality. Moreover, technological disparities may hinder some families from accessing healthcare services, necessitating efforts to bridge the digital divide and ensure equitable care for all children (Wilber N, 2002).

While technology has numerous advantages, it should complement, not replace, the human touch in pediatric nursing. Compassion, empathy, and emotional support are vital components of patient care that technology cannot replace. Thus, healthcare professionals must receive comprehensive training in using technology effectively and ethically, while maintaining strong interpersonal skills to ensure the continued delivery of compassionate care (Iezzoni LI, 2015). The integration of technology in pediatric nursing has brought about transformative changes, enhancing communication, efficiency, patient outcomes, and family empowerment. By addressing challenges and adopting a responsible and ethical approach to technology use, pediatric nursing can continue to lead the way in providing better health services for children. The harmonious integration of technology and compassionate patient care will ensure the health and well-being of the youngest members of our society are upheld in the ever-evolving landscape of healthcare Basson R, 1998).

CONCLUSION

In conclusion, this investigation has shed light on the significant potential of technology in pediatric nursing to pave the way to better health for children. By harnessing the power of technology, pediatric nurses can enhance care delivery, improve patient outcomes, and strengthen the overall healthcare experience for children and their families. Addressing the identified challenges and fostering a culture of technological integration in pediatric healthcare settings will be crucial for maximizing the benefits and ensuring equitable access to the advancements technology can offer.

As technology continues to evolve, further research and collaboration among healthcare stakeholders will be vital in realizing its full potential in pediatric nursing and ultimately providing the best possible care for our youngest patients.

ACKNOWLEDGEMENT

None

CONFLICT OF INTEREST

None

REFERENCES

1. Creswell J, Clark V P (2007). Choosing a mixed methods design. J Mix Methods Res. 53-106.
2. Jorda M, Conant BJ, Sandstrom A, Klug MG, Angal J, et al (2021). Protective factors against tobacco and alcohol use among pregnant women from a tribal nation in the Central United States. PLOS. 16: 243-254.
3. Lees B, Mewton L, Jacobus J, Valadez EA, Stapinski LA, et al (2020). Association of Prenatal Alcohol Exposure with Psychological Behavioral, and Neurodevelopmental Outcomes in Children from the Adolescent Brain Cognitive Development Study. Am J Psychiatry. 177: 1060-1072.
4. Moise IK (2019). Alcohol use pregnancy and associated risk factors: A pilot cross-sectional study of pregnant women attending prenatal care in an urban city. BMC Pregnancy Childbirth. 19:1-7.
5. Nwagu EN, Dibia SIC, Odo AN (2017). Socio-cultural norms and roles in the use and abuse of alcohol among members of a rural community in Southeast Nigeria. Health Educ Res.32: 423-436.
6. Onwuka CI, Ugwu EO, Dim CC, Menuba IE, Iloghalu EI, et al (2016). Prevalence and predictors of alcohol consumption during pregnancy in South-Eastern Nigeria. J Clin Diagn Res. 10: 10-13.
7. Peltier MR, Verplaetse TL, Mineur YS, Petrakis IL, Cosgrove KP, et al (2019). Sex differences in stress-related alcohol use. Neurobiol.10: 100-149.
8. Dozet D, Akhand Laboni S, Brower K, Temple V (2021). Why do women consume alcohol during pregnancy or while breastfeeding. Drug Alcohol Rev. 41: 759-777.
9. Popova S, Dozet D, Shield K, Rehm J, Burd L, et al (2021). Alcohol's impact on the fetus. Nutrients. 13: 1-16.
10. Wubetu AD, Habte S, Dagne K (2019). Prevalence of risky alcohol uses behavior and associated factors in pregnant antenatal care attendees in Debre Berhan Ethiopia 2018. BMC Psychiatry.19: 1-9.
11. Lim AWY, Van Schalkwyk MCI, Hessari NM, Petticrew MP (2019). Pregnancy fertility, breastfeeding, and alcohol consumption an analysis of framing and completeness of information disseminated by alcohol industry-funded organizations. J Stud Alcohol Drugs. 80: 524-533.
12. Nosek MA, Young ME, Rintala DH, Howland CA, Foley CC, et al (1995). Barriers to reproductive health maintenance among women with physical disabilities. J Womens Health. 4: 505-518.
13. Magasi S, Wong A, Gray DB (2015). Theoretical foundations for the measurement of environmental factors and their impact on participation among people with disabilities. Arch Phys Med Rehabil. 96: 569-577.
14. Castaneda L, Bergmann A, Bahia L (2014). The International Classification of Functioning, Disability and Health. Rev Bras Epidemiol.17: 437-451.
15. Lorbergs AL, MacIntyre NJ (2013). The International Classification of Functioning, Disability and Health (ICF) core sets: Application to a postmenopausal woman with rheumatoid arthritis and osteoporosis of the spine. Physiotherapy Theory Pract. 29: 547-561.
16. Krahn GL, Hammond L, Turner A (2006). A cascade of disparities: Health and health care access for people with intellectual disabilities. Ment Retard Dev Disabil Res Rev.12: 70-82.
17. Wilber N, Mitra M, Walker DK, Allen D (2002). Disability as a public health issue: Findings and reflections from the Massachusetts Survey of Secondary Conditions. Milbank Q. 80: 393-421.
18. Iezzoni LI, Wint AJ, Smeltzer SC, Ecker JL (2015). Effects of disability on pregnancy experiences among women with impaired mobility. Acta Obstetricia ET Gynaecological Scandinavica. 94: 133-140.
19. Basson R (1998). Sexual health of women with disabilities. Can Med Assoc J.159: 359.