REVIEW ARTICLE

Optimizing Patient Care: Interdisciplinary Collaboration and Evidence-Based Practice in Nursing and Pharmaceutical Care

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Abstract

The goal of pharmaceutical care is to maximize therapeutic results and reduce any sort of medical errors by fostering interprofessional collaboration. Nurses play a very important role in medication safety and providing the best pharmaceutical care to patients because they are often the frontliners in the healthcare system. They help the patient adhere to their dosage regimen and usually are the first ones who report any signs of adverse drug responses. Moreover, using digital healthcare tools, such as electronic medication administration records (eMAR) or telemedicine can ease inter-professional collaboration. This review analyzed case studies and literature focusing on digital health tools, the WHO guidelines, and European Council recommendations to explore the possibilities of nurse-driven pharmaceutical care. Major aspects, such as interprofessional collaboration, evidence-based practices, and advanced technologies, such as artificial intelligence and wearables were considered for their impact on patient care. Interprofessional collaboration improved patients' compliance, reduced prescribing errors, and enhanced treatment outcomes. However, some relevant barriers were identified: deficient training, power imbalances, and communication failures. Some promising digital technologies include AI, wearables, and data analytics applied to address these issues to hasten the delivery of care. Medicine can be enhanced by removing obstacles to cooperation through mutual respect, training, and the incorporation of cutting-edge technologies. The use of digital tools and evidence-based procedures enables nurses to monitor and customize patient care better. Issues such as hierarchical dynamics and lack of interprofessional education need to be addressed to encourage productive teamwork and enhance patient outcomes. The inter-personnel collaboration has resulted in better therapeutic responses in patients and it has been reported to reduce medication errors and thereby improve patient adherence and therapeutic results. Nurses are better equipped to monitor and customize care because of advanced technologies, such as wearables and data analytics. Safe and efficient medication management requires nurse-driven pharmaceutical care backed by interprofessional teamwork and Evidence-Based Practice. Furthermore, investing in digital technologies and cooperative training will aid in smooth collaboration and optimized pharmaceutical care.

Key words: Collaboration, nurse, pharmaceutical care, practice, prospect

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INTRODUCTION

Prescribed medications and therapy is one of the significant parts of patient care. Optimizing the pharmacotherapy and patient medication regimen is one of the challenging parts of the pharmaceutical care system. Pharmaceutical care mainly focuses on providing optimized medication use to the patient, aiding faster patient health improvements.[1] Furthermore, this patient-centered approach necessitates momentous efforts from pharmacists, caregivers, doctors, and other healthcare professionals. Unlike traditional medication management, which focuses solely on distribution, pharmaceutical care comprises constant assessment, monitoring, and patient education to ensure that each medicine contributes efficiently to the patient's health.[2] The primary goal of pharmaceutical care is to optimize pharmacotherapy by maximizing the therapeutic outcomes and minimizing any potential medication error. This approach is based on a collaborative model, where healthcare providers work closely to address each patient's needs. In 2020, the European Council adopted a new resolution on pharmaceutical care, and they defined it as responsible and optimized pharmacotherapy, which aims to achieve specific outcomes that improve the patient's quality of life.[3]

The healthcare industry is a tapestry of woven professional threads, including healthcare professionals, such as nurses, pharmacists, doctors, and other stakeholders. Nurses play an essential role in pharmaceutical care.[4] They are the backbone of patient care as they are the primary point of contact between patients and the healthcare settings. They are often the frontline in patient care, bringing a wealth of clinical expertise and understanding of patients.[5] They are the ones who often keep track of patients and detect if there is any downfall in patients due to any therapy given to them. They are among the first ones to notice any early signs of adverse reactions or ineffective therapy, thereby helping to identify the loophole in the pharmacotherapy and fixing it in time. They, along with doctors and pharmacists, can help build tailor-made medication for patients to recover faster.[6]

From a bird's hybrid, the nurse's pharmaceutical care is quintessential to achieving the desired positive outcome and providing personalized, safe patient care. By fostering inter-professional collaboration, the healthcare system can not only avoid any unnecessary medical side effects due to medication errors but also improve the effectiveness of the treatment regimen.[7] It would also foster patients' trust in the healthcare system and encourage them to follow through with the prescribed therapies and cooperate during follow-ups.

NEED FOR INTERPROFESSIONAL COLLABORATION IN PHARMACEUTICAL CARE

Interprofessional collaboration plays a significant role in pharmaceutical care. It brings together the expertise from different professions amalgamated with patient care, ensuring quality, effective, and safe medication management.[8] It should be noted that inter-professional collaboration can only be successful if all the healthcare professionals have a common aim of providing a patient-centric healthcare facility and aims to provide better healthcare facilities to patients. Each member of the healthcare team brings unique expertise with them.[9] For instance, a pharmacist provides in-depth knowledge about the drug and its possible drug-drug interaction, drug-food interaction, and mechanism of action. On the other hand, nurses can act as a frontline in a caregiving setting and continuously monitor the patients' vitals to note any early signs of adverse reactions. They can also ensure the patient takes medication on time and per the directions. They are also advocates of patients and can convey their needs to other healthcare providers. They also counsel patients to cope with the disease and quicker recovery.[10] Therefore, when these professionals work closely together, they can address potential issues proactively, such as identifying adverse reactions early or making adjustments to improve medication efficacy.

ROLE OF NURSES IN PHARMACEUTICAL CARE

According to WHO, nurses' role in pharmaceutical care ranges a wide range, which includes educating the patient about the disease, educating the patient about possible preventive measures, and aiding in treatment and rehabilitation.[11] For instance, utilizing tools, such as Pharmanurse software, nurses have been able to identify adverse drug reactions, leading to prompt medication adjustments. Their close contact with patients positions them uniquely to observe, assess, and relay crucial health information, which directly supports the work of physicians and pharmacists.[12] This interprofessional collaboration enhances pharmaceutical care quality and ensures effective, patient-centered health interventions across care settings.

Acknowledging nurses' contributions to pharmaceutical care is essential for strengthening healthcare systems. Despite their critical roles, nurses' contributions are often undervalued, impacting their research, policymaking, and interprofessional training involvement.[13] To address this gap, nursing education programs must integrate comprehensive pharmaceutical care competencies, equipping nurses for their multifaceted responsibilities. Effective interprofessional collaboration frameworks should formally recognize the role of nurses, encouraging balanced delegation of responsibilities and enhancing patient outcomes.[14] Ultimately, recognition of nurses' roles fosters a more efficient, collaborative healthcare system, benefiting patients and optimizing resources. A healthy collaboration can optimize the therapeutic results, enhance patient satisfaction, and provide them with tailored pharmacotherapy.

Nurses can be trained early to boost inter-professional collaboration between nurses and other healthcare professionals. The nurses' undergraduate program in Europe offers students specific theoretical and practical training in inter-healthcare collaborations.[15] The teaching generally includes the simulation exercise and online learning modules followed by a test to ensure the students grasp all the necessary skills for fruitful inter-professional collaboration.[16] This educational background helps the nurses practice the same in their work area and avoid inter-professional confusion or superiority clashes.

EVIDENCE-BASED PRACTICE IN PHARMACEUTICAL CARE

In pharmaceutical care, evidence-based practice, often called EBP, is a methodical approach to clinical decision-making that integrates three essential components: the patient's values and preferences, clinical competence, and the best available research data.[17]

Evidence-based practice in pharmaceutical treatment involves utilizing the available high-quality, relevant research data to make informed decisions about patient care, including the best drug to use, dosage schedules, and monitoring techniques.[18] This technique is one of the best methods to maximize therapeutic results and improve patient safety by combining already available research findings with a pharmacist's clinical judgment and understanding of each patient's unique circumstances.[19] It comes down to "doing the right thing" based on sound data, which helps guarantee that patients receive therapies that clinical studies have shown to be safe and effective.

For nurses and pharmacists, evidence-based practice has been crucial to providing high-standard patient care, reducing variability in treatment, and making patient care safer and more effective. Evidence-based guidelines play a significant role in dosing practices, especially for patients with chronic disease or those taking multiple medications at once.[20] Often, nurses and pharmacists rely on EBP data to discover the early signs of adverse drug reactions and adjust the dosage regime accordingly to align with the patient's needs and according to the latest research findings. In addition, EBP strengthens patient education by providing nurses with accurate, up-to-date information. It allows them to better educate patients on medication use, possible side effects, and the importance of adherence, ultimately empowering patients to make informed decisions.[21]

Many examples support the evidence-based practice for pharmaceutical care. For instance, one typical example quoted on EBP is the adoption of protocols for reducing hospital-acquired infections through standardized antibiotic stewardship programs.[22] An antibiotic stewardship program is a structured plan drafted to ensure the correct use of antibiotics. It aims to administer antibiotics to the patients only when necessary, based on the evidence on which antibiotic works best against the infection; nurses play an essential role in these programs and ensure responsible use of antibiotics. They keep track of side effects and the effectiveness of the prescribed treatment.[23]

The second most common example can be the implementation of fall prevention protocols for patients on sedatives. Patients administered sedatives might feel drowsy, increasing the risk of falling and hurting themselves; hence, fall prevention protocols are followed in such wards to avoid accidents.[24] These fall prevention protocols are specific research-based guidelines that the healthcare team follows to ensure the safety of the patients. Nurses play an essential role by assessing the patient's unique risk factors, such as age, medical history, and mobility issues and then ensuring that necessary steps are taken to avoid complications. This example illustrates how EBP empowers nurses to use research-supported strategies to improve patient care and prevent avoidable harm.[25]

Furthermore, evidence-based pharmacy practice combines patient choices, professional competence, and the latest scientific findings to deliver safe and efficient medication therapy. The "best available evidence" is provided by pharmacy research, which examines drug safety, efficacy, dosage, and interactions through studies and trials. This evidence guides pharmacists in medication selection, dosing, administration, and monitoring, contributing to patient-centered care.[26] By utilizing these research findings, pharmacists can reduce risks, improve patient outcomes, and promote healthcare innovations, such as personalized medicine and patient safety programs.

NURSES' ROLE IN MEDICATION SAFETY AND ADHERENCE

Nurses play a significant role in promoting medication safety and adherence primarily by ensuring patients understands the importance of timely administration of drugs.[27] They taught the patient the prescribed medication plans and the importance of a consistent regimen. They also explain to the patients how skipping doses or taking the wrong amount can hamper their dosage regimen. Nurses respond to patients' queries by communicating clearly and simplifying complicated medical facts. Patients are more likely to follow their medication schedules when they receive this instructional support, which increases their motivation and comprehension.[28]

Nurses use various techniques to assist patients in overcoming typical obstacles to promote adherence further. For example, they could recommend reminder strategies, such as pill organizers or setting alarms, particularly for patients taking several prescriptions.[29] In addition, nurses help patients who suffer from adverse drug reactions by offering guidance on reducing discomfort or working with physicians to modify

prescriptions as necessary. To get the best possible health outcomes, patients must feel encouraged to manage their prescriptions and motivated to stick to their regimen, which this individualized counsel ensures.[30]

Monitoring for adverse drug responses is crucial to the nurse's role in medication safety. Nurses are sometimes the first to recognize symptoms of an adverse drug reaction because they spend much time with patients and keep a close eye on them. Nurses periodically measure the patients' vitals and ensure no negative impact of the drug on the patient's health.[31] They assist in preventing additional issues by rapidly documenting and reporting any possible side effects to the medical staff. In addition to improving patient safety, this proactive role enables healthcare providers to promptly modify therapy, adjusting care based on each patient's response.[32] Nurses make a substantial contribution to safer and more efficient drug usage through education, adherence assistance, and ADR monitoring.

CHALLENGES AND BARRIERS TO EFFECTIVE INTERPROFESSIONAL COLLABORATION

Various challenges, such as communication gaps, lack of collaborative training, power dynamics, and differences in knowledge often hinder effective interprofessional collaboration.[33] Communication gaps often result from ineffective knowledge exchange between team members, which often leads to confusion and misunderstandings. These misunderstandings and confusion reflect disruption in the ideal patient care experience.[34] In busy healthcare settings, the offices of nurses, pharmacists, doctors, and other healthcare providers must be strategically arranged, leading to miscommunication. Furthermore, it results in rushed communication and missing critical information, such as patient progress or medication regimen. This, at times, results in medication errors, which thereby affects the patient care system.[35]

The second most common barrier is the power dynamics. The power dynamics in healthcare teams often result in ego clashes between the healthcare professionals. Each thinks that they are above the other.[36] This further restricts smooth collaboration and discourages open communication between healthcare professionals. For smooth inter-professional collaboration, all healthcare professionals should have mutual respect and encourage open discussion about the patient's health.[37] Their common aim should be providing the best care system to the patient rather than fighting with the hierarchical dynamics. These dynamics reduce team cohesion and detract from the collaborative spirit essential for effective pharmaceutical care.[38]

The lack of interprofessional training is the root cause of all the chaos and barriers to smooth collaboration. All healthcare professionals should mandatorily undergo interprofessional education programs that teach them the ideal collaborative practices, the software that aids in smooth collaboration, and different collaborative models.[35] These education programs should be incorporated during the undergraduate level and after placement to allow students and practitioners from different fields to collaborate smoothly, foster mutual respect and understanding of each role, and develop communication and teamwork skills essential for effective collaboration. Collaborative practice models, where healthcare providers work as equals with shared responsibilities, also support a more unified approach to patient care.

FUTURE DIRECTIONS AND RECOMMENDATIONS

The future of nurse-driven pharmaceutical care would greatly benefit from advanced Technologies, such as digital health tools, digital prescriptions, telemedicine, and telemedicine would greatly benefit patients who live far away from healthcare facilities.[39] Nurses can provide the finest pharmaceutical care to remote patients, making monitoring patients, managing their dosage regimen, and keeping track of their regimens in real time easier. Furthermore, digital health tools, such as electronic medication administration records (eMARs) and mobile health applications allow nurses to access patient information instantly, track adherence, and quickly report adverse reactions.[40,41] All healthcare professionals have access to the software, so errors due to communication gaps can be reduced. These technologies make work easier for healthcare providers, and these technologies become particularly important to patients with chronic disorders or who have to take multiple medications simultaneously.[42,43]

Developing nurse-driven treatments that enhance medication management and patient outcomes requires ongoing Research. Evidence-based research aids in validating and improving novel practices in the quickly changing healthcare landscape, guaranteeing that they are safe and effective for a range of patient populations.

In addition, Research offers essential insights into the changing health trends and the unique challenges nurses face in providing medical care. For example, Research on polypharmacy in geriatric patients can help guide specific nurse-led strategies to prevent adverse drug interactions. Therefore, in a nutshell, Research helps to maintain nurse-driven pharmaceutical care relevant to patient needs and in line with best practices by continuously exploring and modifying innovative approaches.[44]

Furthermore, integrating data analytics, wearable devices, and artificial intelligence into the healthcare system enhances the pharmaceutical care system.[45] Data analytics, for instance, can help nurses gather valuable insights into

patient medication patterns and potential risks of the current therapy. This helps the nurse find any harmful intervention and thereby helps in drafting personalized medication for the patient.[46,47] On the other hand, the smart wearable device is now widely used to easily keep track of patient's vitals and allow early detection of unwanted interactions. Therefore, it can be concluded that these technological innovations can enhance the nurse's role in pharmaceutical care, allowing them to work more proactively in the healthcare team and provide the best healthcare facility to the patient.[48-50]

CONCLUSION

To sum up, nurse-driven pharmaceutical care is a revolutionary strategy to improve the patient's pharmaceutical care. The healthcare system can accomplish a safer route to medication safety and improve patient care by encouraging interpersonal collaboration wherein all healthcare professionals work together with a common aim of uplifting patient care. The future of pharmaceutical care can be shaped by evidence-based practices, cutting-edge technologies, such as telemedicine, and ongoing research, giving nurses the skills and information; they need to provide rapid, individualized interventions. Although there are still some barriers to smooth interdisciplinary collaboration, proper training, and technical channels can alleviate this collaboration.

CONFLICTS OF INTEREST

No conflict of interest is declared.

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ETHICAL DISCLOSURE

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