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Exploring the Role of Pharmacy in Modern Healthcare

[1]Mohammed Ali Mohammed Alqahtani, [2]Merai Awad Merai Alqahtani, [3]Misfer Nasser Misfer Alqhtani, [4]Hasan Jobran Hasan Ghazwani, [5]Abdulrahman Misfer Abdulrahman Alhammad, [6]Afaf Mohammed Ahmed Wasli, [7]Ahlam Fares Alsharari, [8]Eman Ahmad Ali Majrshi, [9]Mariam Saleh Albalawi

[1]Pharmacist, Khamis Mushayt Health Sector
[2]Pharmacy Assistant, Khamis Mushate General Hospital
[3]Pharmacy Technician, Khamis Mushate General Hospital
[4]Pharmacy Technician, Khamis Mushate General Hospital
[5]Pharmacist, Khamis Mushait General Hospital
[6]Pharmacist, King Fahad Specialist Hospital In Tabuk
[7]T-Pharmacy, King Fahad Specialist Hospital In Tabuk
[8]T.Pharmacy, King Fahad Specialist Hospital In Tabuk
[9]Pharmacist, King Fahad Specialist Hospital In Tabuk

Abstract

1. Introduction

Pharmacists play a key role in modern healthcare systems, with their primary responsibilities of preparing, compounding, and dispensing medical drugs, advising healthcare professionals and the public about the uses of drugs. The scope of pharmacy practice also includes more modern services and activities, which encapsulate advanced medical sciences, such as innovations, life support, and research. The Faculty of Pharmacy approved specific global missions to advance research, education, practice, and patient care, arouse curiosity about the subject, and provide pharmaceutical care knowledge to pharmacists about the population. In this sense, this course departs from the concern with the changing reality of health systems and the pharmaceutical industry.

Methods

Objective of the research: To find and interpret valid data for a gap analysis on pharmacy roles in modern healthcare, illustrate community pharmacy's unique characteristics, summarize the current literature, and identify new policies needed for pharmacy roles in 2023 and beyond. Methods: This review utilized four phases: a comprehensive literature review, business analysis of pharmacy roles, external validation by a stakeholder group, and synthesis of findings regarding pharmacy in 2023. Data sources included literature databases, reports, and websites to identify existing pharmacy roles, facilitators, and future policy paths. Data on

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disease profiles, demand for pharmacy services, and baseline information were analyzed to assess the relevance of roles. Quantitative and qualitative data were collected to predict future demand and resource use for chronic disease patients. Additionally, potential facilitators for pharmacy services were gathered, including monitoring and predictive models, and potential enablers for further research.

Conclusion

Over recent years, the role of pharmacy in modern healthcare has expanded from traditional roles to extended roles embracing clinical, patient orientated and public health perspectives. Such an expansion of roles and responsibilities has been accompanied by enhanced professional recognition and media portrayal. The aim of the current study was to provide a review of the published evidence regarding how pharmacists provide patient care in a variety of settings. The review demonstrated that overall, communities with expanded pharmacist roles gained value from those additional services. However, pharmacist provided services were not uniformly successful and adverse outcomes such as mismanagement of product distribution to patients with undiagnosed conditions, inappropriate management of non-responsive patients, antibiotic overuse and improper drug utilization, were reported.

2. Historical Evolution of Pharmacy

Humans have been cultivating, consuming, and using plants, minerals, and animal-derived parts for medical purposes for millennia. The healing properties of many substances were products of empirical observation, partly helped by trial and error and by the occurrence of chance. Over time, those substances and techniques that demonstrated utility were selected and disseminated. Pharmacy was practiced in the civilized communities of ancient Mesopotamia and Egypt, as well as in Indo-European, Chinese, Greek, Roman, Islamic societies, and pre-Columbian America. Relations of commerce and exchange among the Eastern and Western cultural sub-worlds played a vital role in the spread of the ideas and practices of medicine and pharmacy.

In the polytheistic religions and cultures recognizing the catalytic role of the gods in ensuring good health and welfare, an impressive spiritual and material infrastructure was institutionalized in temples, where healthcare, magic, religion, and commerce became intertwined. Expert priests and physicians, who frequently were the same people, performed as officiants, providing diagnoses and remedies. Sanctuaries were provided with botanical gardens, fish and poultry farms, vineyards, and warehouses where stockpiles of medicinal remedies and other offerings were prepared. In those places, patients and travelers were hosted, and scholars and artists undertook their intellectual and spiritual odyssey, preserving and increasing accumulated knowledge. The transmitted writings of that period frequently

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refer to medical and pharmacological material, denote remarkable diagnostic and therapeutic inventions, and mention prominent deities, physicians, and pharmacists.

3. Pharmacy Education and Training

Pharmacists are experts on medications and can be a valuable resource for information about medication and its use. Pharmacists are educated to become medication experts in an increasingly complex healthcare environment. The education and training required of pharmacists in the United States were established to ensure that the entire scope of pharmacy practice would enhance and fully support the goals of the use of medication. This part of the profession's essence is embodied in the advanced and applied knowledge and practices of the pharmacy curriculum. Aspects unique to pharmacy professionals are embedded within the curriculum, building on a foundation of scientific knowledge. This foundational base must continue to be taught using rigorous and challenging intellectual experiences that are centered on translating and personalizing knowledge for use in delivering professional services. The contemporary model of pharmacy education in the United States began with a shift from the five- or six-year baccalaureate to the current supply of new pharmacists from the nation's colleges and schools of pharmacy. The evolution to a pharmacist entering the profession with a baccalaureate, Doctor of Pharmacy degree, or both is well-documented and is an outgrowth of a complex interplay of influences in healthcare and higher education, including accreditation, certification, licensure, legislative, and stakeholder expectations. These influences in pharmacy education have facilitated the important architectural innovations in pharmacy and clinical practice, the importance of the use of medication in healthcare, the professional growth of pharmacists and related professions, the formation of partnerships and collaborations in linked healthcare systems, the design and evolution of related biomedical and healthcare support companies, and have generally advanced the goals of the profession as a whole.

4. Pharmacy Practice Settings

Pharmacies have been shown to be spread ubiquitously and are known as the most accessible places for the public to have health care services. This property provides strong support for pharmacies to be a promising destination for the public to receive healthcare services for low acute diseases. 54% of patients suffering from low acute diseases presented to community pharmacies first, while 46% of those went to a physician or other healthcare institution for further diagnosis or consultation. Additionally, 29% of these patients abstained from further consultation, and the symptoms remained uncontrolled. The situation is deteriorated by the fact that accessibility to primary care physicians seems to have become worse, leading to earlier problems in primary care. Based on available evidence, the first professional to give patients information about their medication was a pharmacist in 32% of cases, general practitioners in 30%, and the patients in 23%. Without a doubt, professionals in pharmacy

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have the aptitude to provide low-cost and easily accessible primary healthcare in most communities.

As community pharmacists play a very important role in pharmacovigilance, the establishment of relationships between the community pharmacist, patient, GP, and the hospital is therefore vital. Pharmacists' accessibility to patients, patients' freedom to report out-of-hospital serious adverse effects of medicines, proximity to advice or inform the patients, counseling, and greater teamwork with all healthcare professionals are advantages of using community pharmacists for the implementation of pharmacovigilance. Indeed, community pharmacists can bring a real advantage in improving pharmacovigilance by providing more rapid acknowledgment and management of safety issues. Information from community pharmacists should include elements specifically related to the nature of the patient's reaction and their medical history, the medicines taken by the patient, including OTC products and homeopathic preparations, and the circumstances of use and the rationale for the initiation of treatment.

4.1. Community Pharmacy

Since time immemorial, pharmacists have been considered more than just medicine experts, having compounded and dispensed medicine since ancient Egypt. Pharmacists have continued to play an important role throughout the ages, counseling patients, monitoring their progress, and ensuring their compliance with prescribed therapy. Modern-day community pharmacists provide an invaluable service, dispensing both prescription and non-prescription medications, much of which is done without the need for an appointment. In recent times, community pharmacists have increased their responsibilities and become more involved in direct patient care. As time moves closer to the next millennium, the role of the pharmacist who practices in a community setting is changing rapidly, demanding increased knowledge in a wider range of areas to competently provide patient care in the traditional areas of prescription processing and dispensing, as well as in several new areas where services are being offered, such as drug utilization review, disease state management, and drug utilization consultation. Some community pharmacists are incorporating the practice of screening services and establishing community education programs as an available in-store community health service. The pharmacist in the community store is an excellent resource who can respond to the inquiries of many customers, provide pertinent intervention at an early stage for those for whom drug therapy may be inappropriate, and also allow those with symptoms, for whom treatment is indicated, to benefit from professional care.

4.2. Hospital Pharmacy

Hospital pharmacy is a specialization that is integrated into the health system pharmacy. It is designed to operate within the hospital to provide comprehensive patient-centered

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pharmaceutical care in the most economically beneficial manner, based on current medical hospital supply. It involves the professional responsibilities of the pharmacist in patient care and includes all pharmacists practicing in hospital settings. Hospital pharmacists are acknowledged as key figures responsible for both multidisciplinary teamwork interactions and administrative tasks. Over the last few years, their role has been evolving; this is particularly the case in relation to the ever-greater complexity and safety of their practice. The increase in pharmaceutical activities carried out in hospital establishments has led to the implementation of a suitable framework for addressing the risks connected with patient safety.

The impact of hospital pharmacists' actions on the improvement of patient care is difficult to quantitatively assess due to a lack of data. Nevertheless, the most physically observable activities in the context of a healthcare establishment constitute medication reconciliation practices, which are increasingly mandatory, and are organized within a certain regulatory framework to flexibly take any medication discrepancies into account. At the same time, it is vitally important to establish an improved and documented communication log between hospital and private pharmacists. This could be applied to everyday coordination in terms of counsel, for example, as well as in more unexpected situations, such as drug stockouts.

4.3. Clinical Pharmacy

This was traditionally the first step in 'clinical' pharmacy and involved having a dedicated pharmacy and systems for the order and delivery of drug products to the clinical units. The function and personnel of the pharmacy shop were also critical. These inpatients are generally not ambulatory. Because a percentage of these people are generally dependent on state-operated healthcare and would not have a pharmacy plan or prescription drugs, the large pharmacy will provide them with therapy. Their inpatient pharmacy services, therefore, far surpass those provided to assist ambulatory patients; their needs are different, and there are costs incurred that place a financial strain on most hospitals. The emergence of modern pharmacy practice is closely associated with the recognition that for medicine to improve patient outcomes, it must not only be safe, efficacious, and cost-effective, but it must also be used by the patient. Additionally, in the current world population, life expectancy is at an all-time high, creating tremendous growth in the number of annual pharmacy prescriptions. In two important ways, the hospital pharmacy is significantly different today. These voids create a need for hospital pharmacy to expand its services to nontraditional areas, as opportunities are available and resources allow. First, providing products to fill prescriptions for hospital-bound inpatients is considerably different from the pharmacy that dispenses prescription drugs to outpatients. If a retail pharmacy were divided into three independent functions - the Professional Service, Pharmacy Store, and the Pharmaceutical Product Center - what remains is the Prescription Service Center, the billing function, and the receipt/warehousing functions.

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Second, the greater interest in clinical outcomes resulting from drug therapy has necessitated a more clinical presence in the hospital setting.

5. Technological Advancements in Pharmacy

In the last few decades, technological advancements have significantly impacted our lives. Even the healthcare system has seen major improvements. Advancements in pharmacy technology also add great value to pharmacists, healthcare professionals, patients, and society as a whole. It helps to improve patient care and drug safety, not only in community pharmacies but also in hospitals. The implementation of technology and automation devices allows pharmacists to have greater direct patient care and regulatory compliance. Bar code systems are available to provide correct medication identification and accurate dosing while reducing error rates. Pharmacy utilizes technology to securely protect patient information, although safeguard provisions vary. Patients can use online access to monitor their personal medication profiles. New medications and specialized drug treatments are continuously being developed to improve patients' healthcare outcomes. As a primary patient care provider, today's pharmacists use advanced diagnostic and therapeutic clinical patient care skills when communicating with healthcare professionals and patients. (Al-Worafi, 2023)(Trenfield et al.2022)(Awad et al.2021)(Pal et al.2021)(Chu & Traverso, 2022)(Raijada et al.2021)

The evaluation of the role of IT in the modernization of community pharmacy services shows how different community pharmacies stand on the issue of implementation of IT and the level of satisfaction of services provided to patients, as well as the perception of the quality of service provided to customers in urban and rural communities. This chapter provides novel insights to a reader in the area of the use of IT innovations to increase the efficiency of community pharmacies in terms of benefits and consequences. The purpose of the chapter is to show the results of different investment and usage patterns of IT to support the provision of health services within the community pharmacy channel. We used a qualitative method or case study. Findings reinforce the need for the creation of alternative marketing strategies for each segment of the study in order to guarantee patient de-hospitalization and satisfaction. Good IT service quality, coupled with the high quality of service, facilitates the provision of community pharmacy services, which is vital for community pharmacies to survive in the market.

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