Frontiers in Health Informatics
ISSN-Online: 2676-7104
www.healthinformaticsjournal.com
2024; Vol 13: Issue 3
Open Access

The Role of Community Pharmacists in Enhancing Patient-Centered Healthcare Delivery: A Literature Review.

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Cite this paper as: Heba Awadallah, Issa abuiram (2024) The Role of Community Pharmacists in Enhancing Patient-Centered Healthcare Delivery: A Literature Review. *Frontiers in Health Informatics, 13* (3), 1533-1544.

A B S T R A C T

Introduction: Community pharmacists play a vital role in healthcare by providing services such as prescription management, chronic disease support, and patient education. Despite their importance in promoting patient-centered care, they face challenges like underutilization and insufficient integration into health policies.

Objectives: This review systematically analyzes the evolving responsibilities of community pharmacists, their impact on healthcare delivery, and the challenges they encounter, particularly in chronic disease management, medication adherence, and patient education.

Methods: A comprehensive literature search was conducted across databases including PubMed and Google Scholar, focusing on peer-reviewed articles from January 2008 to December 2023 that examine community pharmacists' roles in primary healthcare and their effects on patient outcomes.

Results: The analysis shows that community pharmacists are well-positioned to enhance health outcomes, yet there is significant variability in their knowledge and practices. Findings reveal deficiencies in areas like inhaler technique for asthma patients and safe medication practices during pregnancy. Challenges in patient-centered communication and managing complex medication regimens persist, compounded by high workloads and limited recognition within the healthcare system.

Conclusions: Community pharmacists are crucial to improving public health, particularly in underserved areas. To maximize their effectiveness, it is essential to address educational and policy gaps by integrating pharmacists into multidisciplinary teams, expanding their scope of practice, and ensuring continuous professional development.

Keywords:community pharmacists, primary healthcare, patient education, healthcare policy.

Introduction

Community pharmacies play a significant role in primary care. Community pharmacies serve as a first point of contact for patients globally and offer a highly accessible way to manage illnesses and obtain information connected to medications (Aziz et al., 2018; Kowalczuk et al., 2022). A chance to achieve positive health outcomes is presented by community pharmacists, who are educated and proficient in providing primary healthcare. Community pharmacists are seen by the public as knowledgeable about medications and possessing strong communication abilities (Frazier et al., 2019).

The pharmacist serves as a connection between the doctor and the patient, offering medications and free medical

advice without an appointment. Although pharmacists can be the first point of contact for certain healthcare customers, they are a generally underutilized resource that has become nearly "invisible" in contemporary health care policy (Bell et al., 2016; Dolovich et al., 2019; Mossialos et al., 2015).

Community pharmacists' responsibilities have expanded in recent years beyond merely distributing medication to include managing illnesses, delivering patient-centered care, and advocating for evidence-based therapies (Blake & Madhavan, 2010). Moreover, they are able to offer customized and population-based primary healthcare services (Awad & Waheedi, 2012).

The pharmaceutical profession has evolved to include community pharmacy, hospital pharmacy, pharmaceutical industry due to advancements in science and technology, socio-economic and political changes, demographic growth and the emergence of clinical pharmacy and pharmaceutical care (Zebroski, 2015). Community pharmacists are considered "the first port of call" in the health sector due to their simple accessibility to the public (Agomo, 2012). They can also be described as “primary care pharmacists,” thus recognizing their contribution in delivering primary health care services, including management of chronic conditions (e.g., hypertension, treatment of minor ailments, administration of vaccinations) (Feehan et al., 2017; Hindi et al., 2019; Schindel et al., 2019).

To prevent, protect, and promote patient health, pharmacists must provide clear and understandable information on drug use and potential contraindications to ensure maximum benefit (problem-solving professional). For example, as medication experts trained to dispense opioid prescriptions, they can play an important role in promoting safe opioid use among patients (Compton et al., 2019) by educating them on the risks associated with opioid use (e.g., medication disposal, the consequences of sharing medications with others) (Compton et al., 2015). Community pharmacists may potentially play an essential role in improving drug adherence, hence reducing morbidity, mortality, and health-care costs (Patton et al., 2018).

As a result, pharmacists' involvement in raising public health awareness at the community level, educating the public on the prevention and monitoring of lifestyle diseases, and improving the quality of medicine use can play an important role in reducing morbidity and mortality from chronic diseases such as ischemic heart disease and diabetes mellitus (Shirdel et al., 2021).

The patient-centered communication idea is relevant in pharmaceutical treatment, where the pharmacist takes the lead. According to Wolters et al. (2017), pharmacist behavior is influenced by a variety of factors, including the pharmacist's personality, requisite skills, and empathy. Temperament includes response in provocative situations as well as self-control (Wolters et al., 2017). Chen et al. (2018) suggests that a pharmacist's temperament might be influenced by their personal and societal experiences (Chen, 2018). Adaptability during patient interactions is crucial for effective discussions and counseling(Sweeney, 2019). Pharmacists must possess communication skills, stress resistance, patient patience, self-confidence, positive thinking, and counseling skills (Higuchi et al., 2017; Svensberg, 2017). Empathy is vital for diagnosing and counseling patients' concerns (Higuchi et al., 2017; Svensberg, 2017; Wolters et al., 2017).

Nowadays, it may be difficult for pharmacists to adopt successful patient-centered communication due to individual, interpersonal, or organizational reasons. Inadequate motivation, clinical knowledge, or a pharmacist's attitude can hinder effective patient-centered communication (Svensberg, 2017). The "seven-star pharmacist" model, adopted into Good Pharmacy Education Practice by the Pharmaceutical Federation (FIP), includes the crucial job of communicator, in addition to the duties of caretaker, decision-maker, lifelong learner,

teacher, leader, and manager (Thamby & Subramani, 2014).

Objectives

This review of the literature's primary goal is to assess the responsibilities, attitudes, and expertise of community pharmacists in providing a range of patient-centred pharmaceutical care practices.

Methods

Several electronic databases, such as PubMed, and Google Scholar, were used to search the literature. Peer-reviewed literature and systematic reviews published in English between January 2008 and December 2023 were the search's primary objectives.

Results

The result of this literature Review was summarized in Table 1.

Table 1: General Characteristics of the Studies

Study	Study Design	Key Findings	Relevance to Practice
Adnan et al. (2015)	Cross-sectional	Majority of pharmacists had inadequate technique for using inhalers.	Indicates need for better training in device handling.
Khan & Azhar (2013)	Cross-sectional	Younger pharmacists and those with 3-4 years of experience showed better knowledge.	Suggests targeted educational programs could be effective.
Çakmak et al. (2024)	Cross-sectional	No significant knowledge difference between community and hospital pharmacists regarding asthma.	Supports the potential of community pharmacists in asthma management.
Alrabiah et al. (2017)	Cross-sectional	Inconsistent knowledge on medication safety during pregnancy among pharmacists.	Highlights need for enhanced training on pharmacotherapy during pregnancy.
Aljadhey et al. (2014)	Cross-sectional	56% correctly identified teratogenic risks with isotretinoin.	Points to the need for rigorous training on teratogenic medications.
Alkharfy et al. (2010)	Survey	Low awareness of potential herb-drug interactions.	Underscores the importance of education on alternative medicines.
Bin Abdulhak et al. (2011)	Cross-sectional	High rate of non-prescription antibiotic sales.	Emphasizes the necessity for strict antibiotic stewardship education.
Gillani et al. (2017)	Survey	Highlighted a high need for improvement in pharmacists' drug-dose adjustment techniques and other practices.	Indicates a substantial need for practice improvement.
Hadi et al. (2016)	Cross-sectional	Many pharmacists unaware that dispensing antibiotics without prescription is illegal.	Suggests the need for better regulatory awareness and training.
Alotaibi et al. (2016)	Cross-sectional	Positive impact on asthma management through pharmacist intervention.	Demonstrates the effectiveness of pharmacist-led patient education.

Study	Study Design	Key Findings	Relevance to Practice
Venkatesan et al. (2012)	Interventional study	Improvement in diabetes knowledge and management through pharmacist interventions.	Confirms the benefit of pharmacists in chronic disease management.

Table 1: General Characteristics of the Studies

According to two studies, community pharmacists are not well-versed in instructing asthmatic patients on how to use inhalers correctly (Adnan et al., 2015; Khan & Azhar, 2013). According to Khan et al. (2013), it was discovered that pharmacists did not recognize the measures to be taken when using an inhaler (mean score = 4.2 ± SD 2.08). Nonetheless, the pharmacists between the ages of 30 and 35 showed noticeably better knowledge differences (5.52 ± 2.14, t = 2.851, p = 0.009). Furthermore, it was discovered that having three to four years of work experience was substantially (p = 0.003) linked to having superior understanding on how to use an inhaler correctly. It was observed that the younger pharmacists employed by chain pharmacies possess a higher level of knowledge in comparison to other groups(Khan & Azhar, 2013). In another study done by Adnan et al.(2015), found that ninety-six community pharmacies were contacted across five cities in the Al Qassim governorate of Saudi Arabia. The survey revealed that a significant majority (93.7%) of community pharmacists did not exhibit adequate inhaling technique for pMDI inhalers (Adnan et al., 2015).

According to a national cross-sectional study in Türkiye conducted by Calmak et al.(2024), found that Of the 400 pharmacists who responded in the questionnaire, the majority were community pharmacists (297, 74.25%). Both community pharmacists and Hospital pharmacists exhibited satisfactory knowledge scores, 79.39 ± 12.32 and 80.66 ± 12.25, respectively. No statistically significant difference in asthma awareness levels was detected between community and hospital pharmacists. Both groups exhibited favorable attitudes and behaviors for asthma care, with community pharmacists achieving a score of 4.71 ± 0.446 and Hospital pharmacists attaining a score of 4.74 ± 0.330 on the questionnaire (Çakmak et al., 2024).

A study conducted by Alrabiah et al. (2017) revealed that merely 54% of community pharmacists inquire about the pregnant status of female patients prior to administering medications. It was A prospective cross-sectional survey was conducted among practicing community pharmacists in the capital of Saudi Arabia. Pharmacists were inquired regarding the safety of each medication during gestation. It encompassed both prescription-only drugs (POM) and over-the-counter (OTC) treatments. A majority of responders (69.6%) considered alprazolam to be unsafe, whereas 22% said its usage is determined by a risk-benefit analysis. Furthermore, the majority of clinical practitioners (65.2%) asserted that amoxicillin is safe, whereas a mere minority (11.7%) recognized that tetracycline should be administered alone when the possible advantages surpass the associated risks. Among non-prescription analgesics, the majority of clinical practitioners (92.6%) recognized that acetaminophen is safe. Regarding dietary supplements, 48.4% of clinical practitioners indicated that Vitamin A supplements are unsafe. A substantial difference was detected in knowledge test scores among age groups of CPs (P = 0.001) (Alrabiah et al., 2017).

Likewise, another study which was a cross-sectional study conducted in 2012 including community pharmacists from three cities in Saudi Arabia. Approximately 56% of the participants accurately identified the appropriate pregnancy risk assessment category for oral isotretinoin. Seventy-eight percent of participants accurately recognized teratogenicity as the most significant danger linked to oral isotretinoin usage. Only 6.2% of

pharmacists advocated for the use of two contraceptive methods. Nearly twenty percent of pharmacists administered isotretinoin without a prescription. Ultimately, 11% of pharmacists failed to inquire if the patient had conducted a pregnancy test before giving oral isotretinoin (Aljadhey, 2014).

A cross-sectional study of 115 community pharmacists in Riyadh, Saudi Arabia, was surveyed to gather information on their knowledge, attitudes, and practices about herbal treatments using a standardized questionnaire. All pharmacists confirmed the distribution of herbal products via their pharmacies. Ginseng was the most prevalent product at 47%, followed by ginkgo at 23%, valerian at 17%, and St. John's wort at 3.5%. Pharmacists generally shown inadequate awareness of potential herb-drug interactions. Fifty-six percent of participating pharmacists voiced apprehensions regarding the safety of herbal treatments, whereas thirty percent deemed them innocuous. Community pharmacists want enhanced knowledge on herbal products (Alkharfy, 2010).

A cross-sectional study of a quasi-random sample of pharmacies categorized by the five regions of Riyadh. Two investigators visited each pharmacy once, simulating the presence of a relative with a specific clinical condition (sore throat, acute bronchitis, otitis media, acute sinusitis, diarrheal, and urinary tract infection in women of reproductive age). A total of 327 pharmacies were surveyed. Antibiotics were distributed without a medical prescription in 244 (77.6%) of 327 instances, of which 231 (95%) were dispensed without a patient request. In simulated cases, antibiotics were prescribed in 90% of encounters for sore throat and diarrhoea, followed by 75% for urinary tract infections, 73% for acute bronchitis, 51% for otitis media, and 40% for acute sinusitis. Metronidazole (89%) and ciprofloxacin (86%) were frequently prescribed for diarrhoea and urinary tract infections, respectively, whereas amoxicillin/clavulanate was administered in 51% of the other simulated cases. None of the pharmacists inquired about the history of antibiotic allergies or offered advice regarding drug interactions. Only 23% inquired about pregnant status when administering medications for simulated UTI patients (Bin Abdulhak et al., 2011).

These studies collectively indicate that although pharmacists are integral to healthcare delivery, there exists considerable diversity in their knowledge and practices that could threaten patient health. Augmenting pharmacists' education, refining regulatory supervision, and instituting ongoing professional development initiatives are crucial measures for elevating the worldwide quality of pharmacy practice. This would improve healthcare delivery quality and guarantee pharmacists are adequately equipped to manage the intricacies of contemporary pharmacotherapy and patient counselling proficiently.

Pharmacist's attitude towards the patient-centred care:

Surveys by Gillani et al. (2017) were used to conduct an analysis among senior pharmacists working in Saudi Arabian community pharmacies between December 2015 and May 2016. In all, 1897 EPs, or 1007 community pharmacies, were contacted in four major Saudi cities: Madinah, Makkah, Jeddah, and Riyadh. The results showed that there are different patterns of relationships between drug-dose adjustment techniques, the identification of critical drug-related symptoms for referral, and the creation of pharmacoinformatic databases, among other things. Knowledge: Mean ± SD: 3.87 ± 1.172, Value: 4.12 ± 2.11, Need: 4.72 ± 1.788, Confidence: 3.25 ± 1.021 ($P < 0.001$, One-way ANOVA) indicates a substantially high need for practice. The study's conclusion highlights the importance of a pharmacist's expertise, need, value, and confidence in providing excellent clinical services. Foreign pharmacists possess the capacity to operate effectively; but, in order to revolutionize therapeutic services at the community level, they must arm themselves with the necessary capabilities (Gillani et al., 2017). In Contrast to another study was carried out at King Saud University's College

of Pharmacy in Riyadh, Saudi Arabia, between May and September of 2006. Despite their positive views on mental illness and treating mentally ill patients with medications, pharmacists found it difficult to counsel patients or to follow up with them to check for negative drug-related issues (Al-Arifi, 2008).

A cross-sectional survey was executed by Hadi et al. (2016) and found that over two-thirds (70.5%) of pharmacists were unaware that dispensing antibiotics without prescription (DAwP) constitutes an illegal activity. The predominant explanations for (DAwP) were the lack of patient willingness to visit a physician for a non-serious infection (69.9%) and the inability to finance a physician consultation (65.3%). A statistically significant correlation was identified between the quantity of antibiotics supplied and the education of patients regarding the necessity of adherence and completion of the entire antibiotic regimen ($p=0.007$). Community pharmacists generally exhibit a limited comprehension of the restrictions that restrict the over-the-counter sale of antibiotics in Saudi Arabia, which accounts for the elevated rate of DAwP in the nation. An integrated strategy involving educational initiatives and enhancing the accessibility and affordability of healthcare services for the populace is essential to effectively mitigate DAwP and its adverse effects on public health (Hadi et al., 2016).

These studies collectively highlight substantial deficiencies in contemporary pharmacy practice, including the necessity for improved pharmacoinformatic systems, more training in mental health, and greater compliance with prescription regulations. They advocate for extensive educational reforms and regulatory modifications to augment pharmacists' competencies, improve patient outcomes, and effectively tackle public health concerns. The results indicate that augmenting pharmacists' education, strengthening regulatory measures, and boosting patient-pharmacist interaction are essential actions for enhancing the quality of pharmacy services in the area.

Pharmacist's role in the patient-centred care:

A study conducted by Alotaibi et al. (2016) found that Pharmacists engaged in instructing patients about asthma and its etiologic. They offered advice on medication utilization and administration, ensuring that patients comprehended the proper use of their drugs and the lifestyle alterations that could assist in managing their disease. Pharmacists' participation in asthma management enhanced patient outcomes. Through counselling and teaching, pharmacists improved patients' comprehension and management of asthma, which is essential for decreasing morbidity and death linked to the condition. Pharmacists, despite their expertise and readiness to assist, encountered numerous obstacles, such as time limitations and heavy workloads, which occasionally restricted their capacity to offer comprehensive counselling (Alotaibi et al., 2016).

Another research assessed the efficacy of community pharmacists in improving knowledge and glycaemic regulation in patients with type 2 diabetes in Coimbatore district, Tamil Nadu. Both groups exhibited notable increases throughout the trial duration; however, the intervention group demonstrated a more pronounced increase in Diabetes Care Profile scores and knowledge regarding diabetes care. The intervention group's scores climbed from 1.8 ± 4.52 to 2.75 ± 6.62, and their knowledge test scores rose significantly from 8.53 ± 1.81 to 12.16 ± 1.34, demonstrating a considerable enhancement in their comprehension and management of their condition. The intervention group attained superior glucose control and demonstrated a deeper comprehension of diabetes care by the conclusion of the trial.

Participants in the intervention group exhibited a reduction in bouts of hyperglycaemia and hypoglycaemia, signifying good illness management by continuous pharmacist-led counselling and monitoring (Venkatesan et al., 2012).

These findings emphasize the essential role of community pharmacists in the management of chronic diseases.

Continuous education and counselling by pharmacists can substantially enhance patients' comprehension and treatment of diseases. This participation is especially beneficial in controlling chronic illnesses like asthma and diabetes, where instruction on medication usage and lifestyle modifications is essential. To enhance the efficacy of pharmacists in these positions, it is essential to tackle the issues posed by time restrictions and workload, possibly through regulatory reforms or the reconfiguration of pharmacy practice to facilitate greater patient-centred care.

Discussion

Community pharmacists are increasingly acknowledged as essential components of the primary healthcare system. The analysis underscores studies, like those by Alotaibi et al. (2016) and Venkatesan et al. (2012), which illustrate pharmacists' responsibilities extending beyond conventional dispensing to encompass illness care and patient education. The expanding duties are crucial, particularly in rural or underdeveloped regions where pharmacists may serve as the initial or most accessible health contact for the community. Examine how this accessibility uniquely equips pharmacists to meaningfully influence public health outcomes (Alotaibi et al., 2016; Venkatesan et al., 2012).

Nonetheless, despite these achievements, the profession encounters numerous problems, including as time limitations, substantial workloads, and insufficient representation in health care policy deliberations (Frenk et al., 2022).

This Research underscores the effectiveness of community pharmacists in controlling health issues relative to conventional treatment approaches. A comprehensive study by Tan et al. (2014) corroborates our findings, demonstrating enhanced patient outcomes in diabetes care when pharmacists take the lead in education and medication management (Tan et al., 2014). Pharmacists' interventions have been shown to be useful in asthma management, resulting in improved illness control and enhanced patient comprehension (Jia et al., 2020).

Considering the essential function of pharmacists in primary healthcare, policymakers should reevaluate the incorporation of pharmacists into the comprehensive healthcare team. Legislative modifications that acknowledge pharmacists as primary care practitioners could enhance the utilization of their expertise, as demonstrated in models from nations such as Canada, where pharmacists possess prescribing authority under specific conditions (Khaira et al., 2020).

The critical evaluation of research about pharmacists' practices and knowledge indicates a dependence on cross-sectional designs, which offer a general overview of present attitudes and behaviours but are constrained by potential biases from self-reporting and the incapacity to monitor changes over time. Although substantial sample sizes improve the dependability of findings across various geographic regions, the studies sometimes encounter challenges such as non-random sampling and regional specialization, which may restrict their generalizability. The statistical methods utilized are rigorous, revealing significant correlations and disparities; however, certain confounding variables may be neglected, and there is insufficient context in the interpretation of mean scores. The research underscores considerable deficiencies in pharmacists' knowledge and practices, especially on safe prescribing and patient counselling, urging for enhanced educational initiatives and regulatory supervision. Nevertheless, they frequently fail to offer concrete practical advice and do not sufficiently tackle overarching systemic concerns impacting pharmacy practice. Future research ought to address these methodological deficiencies and suggest comprehensive techniques for systemic enhancements to increase the effectiveness of pharmacists in patient care.

Future research should concentrate on longitudinal studies to evaluate the enduring effects of pharmacist-led treatments on chronic disease management. Comparative analyses across various healthcare environments could yield enhanced understanding of maximizing pharmacists' functions. Furthermore, examining the economic implications of a more thorough integration of pharmacists into primary care could strengthen the argument for legislative modifications.

Limitations:

The evaluation encompasses several study designs, resulting in variation in data quality and comparability. This heterogeneity may influence the consistency of the results and the overarching conclusions derived.

Recommendations:

- Healthcare systems ought to promote the incorporation of community pharmacists into primary care teams. This integration would facilitate a better coordinated approach to patient treatment, which is especially crucial for managing chronic diseases and polypharmacy in elderly populations.
- Promoting the utilization of digital technologies and pharmacy informatics systems can assist community pharmacists in managing pharmaceutical regimens more efficiently, monitoring patient adherence, and ensuring medication safety. This adoption encompasses tele pharmacy, which can broaden pharmacists' accessibility to remote or underserved areas.

Conclusion:

Community pharmacists are positioned at the vanguard of a prospective transformation in primary healthcare provision. Utilizing their accessibility and experience, they can profoundly influence patient outcomes, especially in the management of chronic diseases. To fully realize this potential, it is essential to tackle existing difficulties via focused education, supportive legislation, and integrated healthcare practices

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