Research Article

Integrating Community Pharmacy Services into Primary Healthcare: Assessing Medication Adherence, Patient Outcomes, and Healthcare Management Efficiency

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Abstract

Community pharmacists have an expanding role in primary health care as trusted health care professionals, providing pharmaceutical care, patient medication counselling, follow-up and patient-centred services. But to what extent these roles become part of regular practice will depend on the readiness of healthcare professionals, support within the organization and within healthcare systems. The secondary quantitative cross-sectional analysis was carried out based on the data of 120 community pharmacists. The study focused on four aspects related to pharmacists' professional roles, their awareness of pharmaceutical care, their preferences for advanced services, their practices that support adherence, patient-centred orientation and their perceived barriers and facilitators to integration. Where appropriate, descriptive statistics, chi-squares and Fisher's exact tests were used, as well as selected logistic regression approaches. Most respondents named counselling and cognitive services as the main role for the pharmacist (76.7%), and most respondents viewed patient satisfaction as the primary goal of the community pharmacy practice (85.0%). 57.5% of respondents acknowledged patient-centred and outcome-oriented pharmaceutical care. The most recommended were information services (47.5%), followed by medication review and follow-up (20.8%). The most common problems were limited continuous professional development, inadequate knowledge, patient perceptions, inappropriate structure of the pharmacy, insufficient information technology and no reimbursement. Key service orientations were not found to be associated with gender, age or professional experience.

Keywords: Community pharmacy; Primary healthcare; Pharmaceutical care; Medication adherence: Healthcare management; Pharmacist integration; Medication review

1. Introduction

Primary healthcare systems are being called on to deliver timely, ongoing, and patient-centred, affordable healthcare services to address the increasing burden of chronic diseases and complex medication use. In this context, community pharmacists are becoming significant health practitioners with the potential to go beyond the traditional role of dispensing medicine to also include medication review, advice, assisting with chronic diseases, health promotion and coordination with other health care professionals. In primary care, pharmacist interventions have been shown to have a positive impact on the management of chronic diseases, including medication optimisation and post-discharge care of patients with chronic illnesses like diabetes [1]. These are contributing to a wider move away from a product focus of the pharmacy profession towards integrated pharmaceutical care in which pharmacists play a more active role in enhancing the quality and continuity of primary healthcare.

Community pharmacies are especially suited to supporting adherence as they are often easily accessible, do not always require a prescription and have regular contact with patients taking long-term pharmacotherapy. Chronic diseases are plagued by poor adherence as patients may not take the medications as prescribed, fail to understand the therapy, or drop it, which all will reduce the effectiveness of the treatment. Patient-centred pharmaceutical care thus places greater attention on counselling, educating patients about their medications, monitoring their treatment, and ongoing communication with patients. Recent evidence also shows that community pharmacy services are being increasingly provided using virtual and digital means, which offer greater potential for remote follow-up and medication support and continuity of care [2]. Previous work also showed that there is great potential for telehealth and digital technologies that can be implemented by community pharmacists to provide public health and medication-related services outside of the traditional community pharmacy setting [3].

Patient experience and satisfaction also hold strong with the value of community pharmacy integration. Patients have come to expect pharmacists to be able to give them clear information about the medicines they take, personal counselling, easy access to health information and advice, and increasing involvement in the decision-making process about their care. Generally, positive patient perceptions of the services provided by pharmacists have been reported in community pharmacy studies, where access and the quality of the interaction with the pharmacist emerged as key factors for satisfaction with pharmaceutical care [4]. Further comparisons between private community pharmacies and pharmacies in primary healthcare centers indicate that the service setting, accessibility, communication, and responsiveness may have an impact on the level of patient satisfaction [5]. However, satisfaction alone may not be the best measure of quality of pharmacy services, and more focus is being paid to wider person-centred outcomes, patient engagement, patient experience, and meaningful involvement in care [6]. More recent reviews also suggest that patient experience is an important aspect to look at when assessing the quality and responsiveness of community pharmacy services [7].

Collaboration between the different professions is also vital to the effective integration of the community pharmacist into primary care. Medication safety, chronic disease management, referrals, preventive services, and follow-up can all be areas where pharmacists can play a role when the lines of communication are open and effective between pharmacists and other health care providers and physicians. The level of integration is, however, heterogeneous between health systems, from various perspectives, including from a professional boundary point of view, access to clinical information, referral pathways, and how professionals are recognised [8]. The scope of practice of community pharmacists is also evolving on a global scale, with some systems permitting community pharmacists to take on more advanced clinical roles, such as independent prescribing, and thus moving away from a primary care role to one more akin to that of a prescriber [9].

In low- and middle-income countries, these opportunities are particularly relevant, where community pharmacies can be one of the most readily available places of contact with healthcare. There is evidence that community pharmacists play a role in the supply of medicines, counselling, disease management, preventive health services, screening and other primary health services; however, the extent of their role is quite diverse, depending on the capacity and regulation of local health systems [10]. Factors that affect the uptake of public health and extended services from the pharmacy include professional competence, patient acceptance, readiness of the organization, infrastructure, policy support, and resource access [11]. The lack of adequate training, poor linkage with other healthcare providers, low reimbursement, insufficient information technology, regulatory limitations, and physical limitations in pharmacies are additional factors to strong integration of pharmacists in primary health care services, as found in the global evidence [12].

Many of these come into play in the Sudanese context. Community pharmacists might be interested in offering pharmaceutical care, but the constraints of infrastructure, professional resources, counselling facilities, training and organisational support may limit the delivery. Wad-Medani has shed light on the lack of pharmaceutical-care tools and disparities between pharmacists' positive attitudes and the actual conditions needed for delivering patient-focused services [4]. They highlight the importance of understanding how the professional role of a pharmacist is perceived, as well as the obstacles and enablers for successful integration, how the patient is viewed/treated, and organizational influences on successful integration. Community pharmacy's contribution to primary healthcare needs to be enhanced and be an integral part of the community healthcare landscape and an approach must be adopted to integrate the management of medicines, patient outcomes, interprofessional working and service organisation.

Objectives

1. 1.To evaluate the level of patient-oriented pharmaceutical-care orientation and provide/prioritize pharmaceutical-care services, as demonstrated by community pharmacists, that promote medication adherence.
2. 2.To assess advanced community pharmacy services, patient-focused outcomes and their role in primary health care delivery as perceived by pharmacists.
3. To recognise the challenges and opportunities, at both a professional and organisational level, for the integration of community pharmacy services into primary care.

2. Materials And Methods

2.1 Study Design

The study adopted a secondary quantitative cross-sectional analytical design with the data set “Pharmaceutical Care in Community Pharmacies: Pro–outcomes, Across-sectional Study, Wad-Medani, Sudan (2024)” [13]. The analysis was conducted on four aspects of the community pharmacy role: practices regarding the use of pharmaceuticals, adherence-supportive services, patient-centred orientation and healthcare management aspects.

2.2 Data Source and Study Setting

The data were collected from community pharmacists working in Wad-Medani, Gezira State, Sudan. A structured self-administered questionnaire was employed to capture information on the professional characteristics, pharmaceutical-care practices, recommendations for services, barriers, and recommendations for implementation of the role by pharmacists.

2.3 Study Population and Sample Size

There were initially 220 rows in the dataset uploaded. Excluding 100 completely blank records, a final analytical sample of 120 responses from community pharmacists was obtained. Respondents were from various age groups, qualifications, certifications and duration of certification, and experience in community pharmacy.

2.4 Study Variables

The variables were categorized in four domains: community pharmacy service integration, medication-adherence support, patient-outcome orientation and healthcare management factors. Demographic and professional characteristics were also used as explanatory variables.

2.5 Community Pharmacy Service Integration

The integration of community pharmacy was evaluated about the actual activities performed by pharmacists, their practice roles, knowledge about pharmaceutical care, preferred practice roles, facilitators, barriers and suggestions for enhancing the implementation of pharmaceutical care in primary healthcare.

2.6 Medication Adherence and Patient-Outcome Indicators

Patient adherence scores or clinically related outcomes were not included in the data set. Hence, medication adherence was measured indirectly using medication review, follow-up, counseling, and patient information services. Pharmacist-outcome orientation was measured by pharmacists' knowledge of patient centered pharmaceutical care and focus on patient satisfaction as a goal of practice.

2.7 Healthcare Management Efficiency Indicators

Organizational and system-level characteristics of healthcare management were assessed such as staffing of the pharmacy, professional training, time constraints, counselling space, information technology, reimbursement, regulatory support, and collaboration with other healthcare providers. These were seen as measures of service delivery and implementation efficiency, and not as measures of the economic efficiency of services.

2.8 Data Cleaning and Preparation

The data set was examined for completeness and consistency. The garbage rows were deleted, as were the empty columns, leaving 120 observations and 15 substantive variables. Categorical variables were coded numerically as needed, and selected variables were recoded into dichotomous categories for inferential analysis.

2.9 Statistical Analysis

The data were analyzed descriptively with frequencies and percentages. Pearson's chi-square test was used to test associations between demographic or professional characteristics and pharmaceutical-care indicators, and Fisher's exact test was used when the expected cell frequencies were low. When appropriate, binary logistic regression was used to find variables predicting selected pharmacy-service orientations. The level of significance was $p<0.05$, and 95% confidence intervals were given when appropriate.

2.10 Ethical Considerations and Methodological Scope

There was no recruitment of participants, and the data were analyzed as secondary analysis of an anonymized, publicly available dataset. None of the personal information was utilized. The data were not collected at a patient level, so findings were conceived as measures of medication-adherence support, patient-outcome orientation, and healthcare-management determinants, not as measures of medication-adherence or clinical outcomes or healthcare costs.

3. Results

3.1 Demographic and Professional Characteristics

120 community pharmacists were used in the final analysis, after 100 blank records were removed. Sixty-three-point three per cent (n = 76) of the respondents were female, and 36.7 per cent (n = 44) were male, as seen in Table 1. Most pharmacists were aged 21–30 years (60.0%), followed by 31–40 years (22.5%). Most of the respondents were degree holders (91.7%), while 7.5% had an M.Sc. and 0.8% had a PhD. Most respondents had one to 10 years of community pharmacy experience (74.2%).

Table 1. Demographic and professional characteristics of respondents (N = 120)

Characteristic	Category	n	%
Gender	Female	76	63.3
	Male	44	36.7
Age	21–30 years	72	60.0
	31–40 years	27	22.5
	41–50 years	14	11.7
	51–60 years	5	4.2
	61–70 years	2	1.7
Professional degree	Bachelor	110	91.7
	M.Sc.	9	7.5
	PhD	1	0.8

Community pharmacy experience	<1 year	6	5.0
	1–10 years	89	74.2
	11–20 years	17	14.2
	21–30 years	4	3.3
	31–40 years	4	3.3

3.2 Current Community Pharmacy Practice

The existing practice profile showed significant engagement of pharmacists in various operational tasks. According to the information presented in Table 2, 52.5% of the respondents were engaged in both cashier and dispensing and counselling tasks, while 45.0% were involved in both drug dispenser and counsellor and cashier tasks. A single pharmacist (0.8%) reported that they worked in a separate counselling area. Also, 95.0% of pharmacists worked mainly behind the counter, thereby restricting the provision of patient-oriented pharmaceutical care.

Table 2. Current activities and practice areas of community pharmacists

Variable	Category	n	%
Actual activity	Cashier, dispenser, counsellor and manager	63	52.5
	Drug dispenser, counsellor and cashier	54	45.0
	Manager within pharmacy office	2	1.7
	Counsellor in separate counselling area	1	0.8
Main practice area	Behind the counter	114	95.0
	Pharmacy laboratory	5	4.2
	Separate counselling area	1	0.8

3.3 Pharmaceutical-Care and Patient-Centered Orientation

Significant evidence of a patient-centred orientation was found among many respondents. Table 3 and Figure 1 show that 69 (57.5%) of the pharmacists recognized pharmaceutical care as patient-centered and outcome-oriented. 23.3% chose counselling, and 15.8% chose primarily dispensing practice as an area of their work in pharmaceutical care.

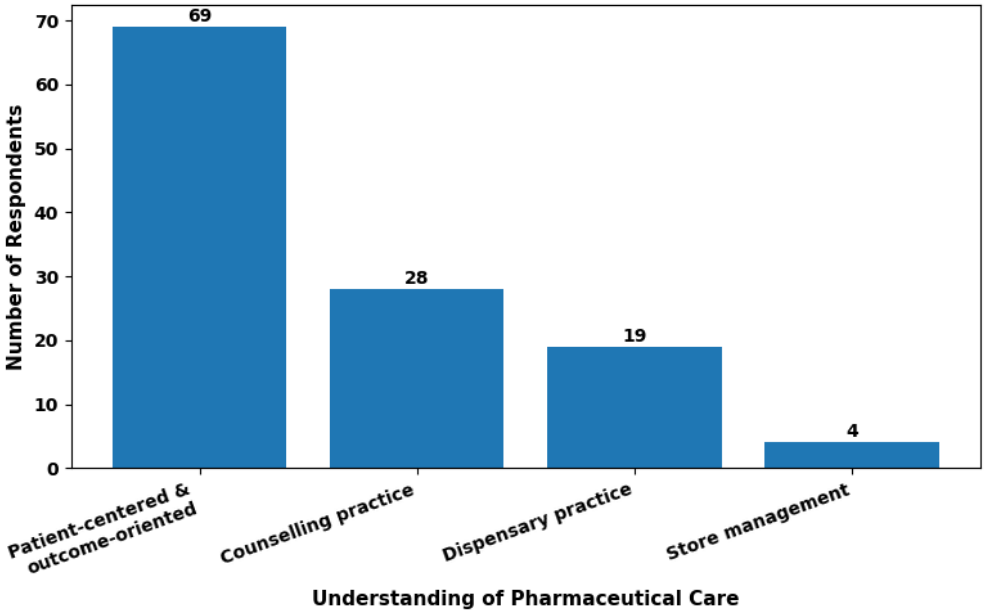

Figure 1. Distribution of pharmacists' understanding of pharmaceutical care showing a dominant patient-centered and outcome-oriented orientation

The patient-oriented role was even stronger for the perceived professional role. Overall, 76.7% stated that counselling and cognitive services were the most important function of a community pharmacist, and 15.8% chose drug dispensing. Furthermore, 102 respondents mentioned patient satisfaction from pharmaceutical care as the main goal of community pharmacy practice, representing 85.0% of the respondents. The results suggest that there was a strong conceptual change from a product-oriented dispensing approach to a patient centered approach to pharmaceutical care, but not consistently so across all the physical structures of pharmacy practice.

Table 3. Pharmaceutical-care orientation, pharmacist roles and advanced services

Domain	Response	n	%
Meaning of pharmaceutical care	Patient-centered and outcome-oriented practice	69	57.5
	Counselling practice	28	23.3
	Dispensary practice	19	15.8
	Store management practice	4	3.3
Main pharmacist role	Counselling and cognitive services	92	76.7
	Drug dispensing	19	15.8
	General management	8	6.7

	Financial management	1	0.8
Preferred advanced service	Information services for patients/prescribers	57	47.5
	Health promotion	27	22.5
	Medication review and follow-up	25	20.8
	Disease prevention	7	5.8
	Physical examination	3	2.5
	Non-medical treatment	1	0.8
Main practice objective	Patient satisfaction from pharmaceutical care	102	85.0
	Drug dispensing	9	7.5
	Provision of medicines	7	5.8
	Selling drugs	2	1.7

3.4 Medication-Adherence Supporting Services

Pharmacists' orientation to medication-management support was demonstrated by the distribution of advanced pharmacy services if patients liked. Information services for patients and prescribers were the most recommended services (47.5%), followed by health promotion (22.5%) and medication review and follow-up (20.8%), as shown in Figure 2.

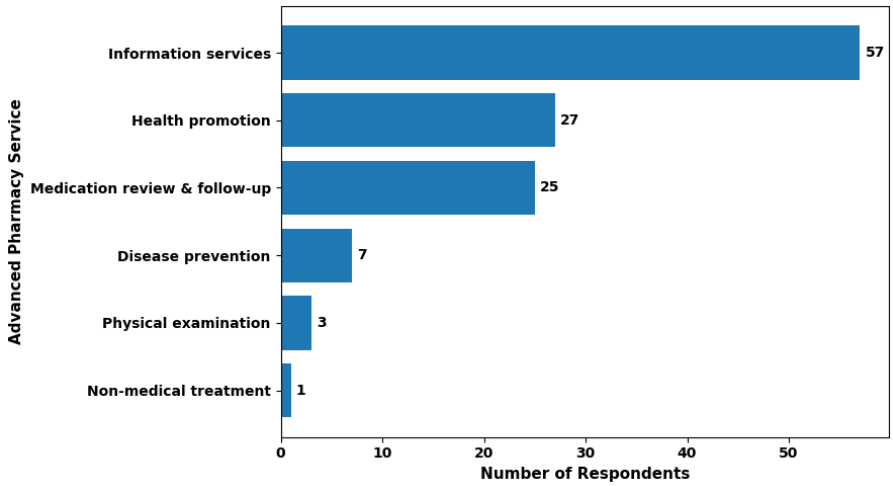

Figure 2. Distribution of recommended advanced community pharmacy services highlighting information services and medication review as key priorities

The latter is a key direct measure of support for adherence to medication in the dataset. Less frequently identified as priority advanced services were physical exam, non-medical treatment and disease prevention. The results therefore indicate that pharmacists believed that providing information, counselling, and aftercare of medications are key components to an expanded community practice. The percentage who indicated that medication review and follow-up was their top priority, however, was still around 20%.

3.5 Facilitators and Barriers to Pharmaceutical-Care Integration

As presented in Table 4, organization of pharmacy staff and responsibilities was the most common supporting factor for pharmaceutical-care practice (55.8%), while a supportive pharmacy environment and structure were the second most common supporting factor (23.3%) and the third most common supporting factor was the willingness of pharmacists to provide pharmaceutical care (17.5%). The most frequently cited pharmacist-related barrier was lack of continuous professional development (31.7%), with lack of knowledge (20.0%) and inadequate communication skills (13.3%) coming in second and third, respectively. In addition to the above, training, time, professional confidence and the coursework in pharmacy were also cited as barriers, as shown in Figure 3.

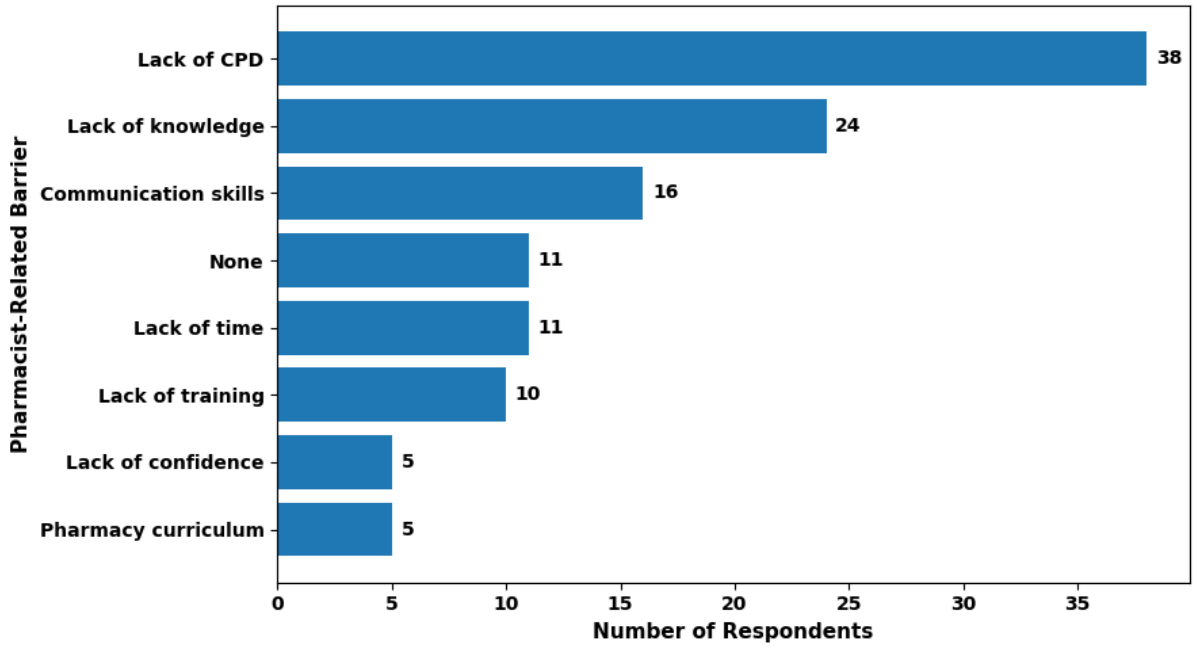

Figure 3. Pharmacist-related barriers to pharmaceutical-care implementation including lack of CPD, knowledge, and communication skills

In terms of external factors, the patient's perception and background was the most common factor (31.7%), followed by the community pharmacy structure and design (24.2%), the lack of any information technology (16.7%) and the absence of reimbursement of the pharmaceutical service (13.3%). These system-level barriers are illustrated in Figure 4.

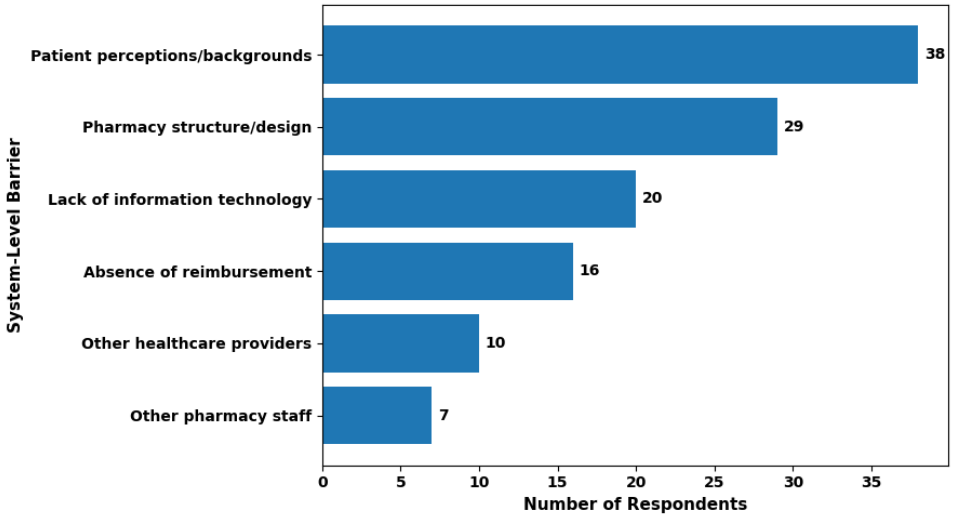

Figure 4. System-level barriers to pharmaceutical-care implementation including patient perceptions, infrastructure limitations, and lack of reimbursement

Table 4. Supporting factors and barriers to pharmaceutical-care implementation

Domain	Factor	n	%
Supporting factors	Organized pharmacy staff and responsibilities	67	55.8
	Supportive pharmacy environment and structure	28	23.3
	Pharmacists' desire and willingness	21	17.5
	Effective regulatory bodies	4	3.3
Pharmacist-related barriers	Lack of continuous professional development	38	31.7
	Lack of knowledge	24	20.0
	Lack of communication skills	16	13.3
	Lack of time	11	9.2
	None of these factors	11	9.2
	Lack of training	10	8.3
	Pharmacy curriculum	5	4.2
	Lack of confidence	5	4.2

External/system barriers	Patient perceptions and backgrounds	38	31.7
	Community pharmacy structure and design	29	24.2
	Lack of information technology	20	16.7
	Absence of reimbursement	16	13.3
	Other healthcare providers	10	8.3
	Other pharmacy staff	7	5.8

3.6 Recommendations for Strengthening Primary Healthcare Integration

Professional development was the most cited strategy to improve pharmaceutical-care implementation. 43.3% advised continual professional development/structured training of community pharmacists, as shown in Figure 5.

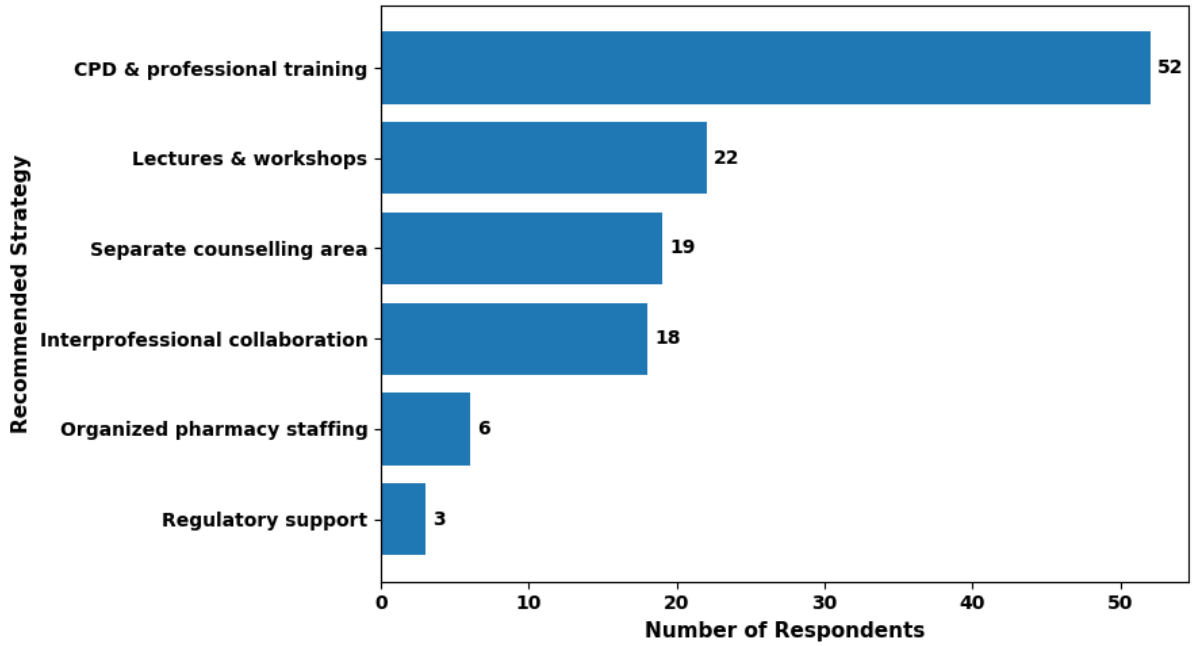

Figure 5. Recommended strategies for strengthening pharmaceutical-care integration emphasizing CPD, training, and interprofessional collaboration

The results indicate that the respondents believed the following factors were critical to the more effective integration of community pharmacies into primary health care: workforce development, appropriate infrastructure of the pharmacies, and interprofessional cooperation.

3.7 Associations with Patient-Centered and Adherence-Supporting Practice

Inferential analyses were conducted to determine if there were associations between gender, age and community pharmacy experience with four major service orientation indicators. As shown in Table 5, none of the associations

studied was statistically significant at $p < 0.05$. Sixty-three point six per cent of males and 53.9 percent of females reported having an understanding of pharmaceutical care that was centered on patients, with no difference in percentages ($\chi^2 = 1.070$, $p = 0.301$). There was a slight difference between older pharmacists (aged ≥31 years) and younger pharmacists (aged 21–30 years) in the number that said they prioritized medication review and follow-up (25.0% versus 14.6%), but this was not statistically different ($\chi^2 = 1.895$, $p = 0.169$). Also, 23.2% of pharmacists with ≤10 years of experience selected for medication review and follow-up, while 12.0% of those with >10 years of experience did so ($\chi^2 = 1.494$, $p = 0.222$). Patient satisfaction was the most common goal for all demographic groups. The difference between genders was not significant ($p = 0.396$), nor was there any significant difference between age ($p = 0.251$) or professional experience ($p = 0.358$) (Fisher's exact p). As a whole, these results indicate that a patient-centred and adherence-supportive orientation was widely distributed in the pharmacist population without being very strongly influenced by basic personal and professional attributes.

Table 5. Association of demographic/professional factors with key pharmaceutical-care indicators

Predictor	Outcome	Outcome prevalence by group	Test statistic	p-value
Gender	Patient-centered pharmaceutical care	Female 53.9%; Male 63.6%	$\chi^2 = 1.070$	0.301
Gender	Counselling/cognitive role	Female 75.0%; Male 79.5%	$\chi^2 = 0.322$	0.571
Gender	Medication review/follow-up	Female 23.7%; Male 15.9%	$\chi^2 = 1.021$	0.312
Gender	Patient-satisfaction objective	Female 82.9%; Male 88.6%	$\chi^2 = 0.721$	0.396
Age	Patient-centered pharmaceutical care	21–30: 59.7%; ≥31: 54.2%	$\chi^2 = 0.364$	0.546
Age	Counselling/cognitive role	21–30: 76.4%; ≥31: 77.1%	$\chi^2 = 0.008$	0.930
Age	Medication review/follow-up	21–30: 25.0%; ≥31: 14.6%	$\chi^2 = 1.895$	0.169
Age	Patient-satisfaction objective	21–30: 81.9%; ≥31: 89.6%	$\chi^2 = 1.318$	0.251
Experience	Patient-centered	≤10 yr: 60.0%; >10 yr:	$\chi^2 =$	0.280

	pharmaceutical care	48.0%	1.166	
Experience	Counselling/cognitive role	≤10 yr: 75.8%; >10 yr: 80.0%	χ^2 = 0.196	0.658
Experience	Medication review/follow-up	≤10 yr: 23.2%; >10 yr: 12.0%	χ^2 = 1.494	0.222
Experience	Patient-satisfaction objective	≤10 yr: 83.2%; >10 yr: 92.0%	Fisher's exact	0.358

Note: Statistical significance was defined as $p < 0.05$.

3.8 Overall Findings

In conclusion, this study shows a high level of support for community pharmacists to move away from the product-oriented pharmacist-patient relationship and adopt a more patient-focused pharmaceutical care approach. The main pharmacist role identified was counselling and cognitive services (76.7%), and patient satisfaction was seen as the main objective of community pharmacy practice (85.0%). However, 20.8% specifically mentioned medication review and follow-up, and significant professional and organizational barriers were found. Therefore, continuous professional development, suitable infrastructure in the pharmacy, information technology, reimbursement mechanisms and better interprofessional relationships were seen as important to further develop the integration of community pharmacy services into primary healthcare. Because these data were not available on medication adherence or clinical outcomes, the findings reflect adherence-supportive aspects of services and patient-centered aspects of outcomes, as opposed to actual changes in individual patient outcomes, and should not be interpreted as evidence of adherence or clinical outcomes.

4. Discussion

Community pharmacists have a significant orientation towards patient-centred pharmaceutical care, but this work highlights a number of factors at the professional and system level which could limit the implementation of practical services in primary healthcare. Pharmaceutical care was described as a patient-centred and outcome-oriented practice by more than half of the respondents and over three-quarters of those respondents indicated that counselling and cognitive services were the main role of the community pharmacist. Furthermore, most considered patient satisfaction as the primary goal of community pharmacy practice. The study results indicate that the role of the pharmacist is becoming more than a dispenser of medicines, and more of a role in direct patient care is being recognized by pharmacists. This shift aligns with evidence indicating that pharmacists can enhance medication management and aid clinical outcomes within various chronic disease settings [14].

In the present study, no direct measure was taken of medication adherence; however, the pharmacist's preference for medication review, follow-up, counselling, and information services gives an indication of adherence supporting practice. One-fifth of respondents explicitly identified medication review and followup as an advanced pharmacy service. This is crucial as structured pharmacist interventions have been linked to better adherence to therapy in patients with type 2 diabetes, and can help to improve glycemic control, including HbA1c [15]. Pharmacist-led counselling, monitoring and follow-up can also have positive impacts on the medication-taking behavior of patients with cardiovascular disease [16]. There is also systematic evidence that pharmacist interventions can lead to improved adherence with multiple chronic diseases with interventions that include patient education, individual counselling, follow-up, and medication management [17].

This modest representation of the proportion of pharmacists who see medication review and follow-up as a priority

compared to the others who emphasize information services could suggest that higher-level pharmacist-led medication-management services have yet to fully integrate into the normal community pharmacy workflow. This is significant because medication review is a more clinically intensive service than just information provision. Randomized and controlled studies have shown that community pharmacist-led medication review programs may lead to better appropriateness of medications, identification of drug-related problems and measurable patient benefits [18]. Advanced services provided in the community pharmacy can also help alleviate the burden of other primary health services by solving some of the minor ailments and referring patients to the appropriate provider through the structured triage system [19]. Hence, further scope for the medication review and follow-up service will enhance the role of community pharmacists in providing support for the primary care service.

Some barriers to the implementation of pharmaceutical care were also identified through the findings. A lack of ongoing professional development was the most common pharmacist-related barrier, which was followed by a lack of knowledge and communication skills. The results help to highlight the need for ongoing competence development and professional learning for pharmacists to ensure integration beyond just a desire to provide patient-centered care. This is especially true in the light of the increasing clinical and outcome focus of pharmacist-led services. For instance, while pharmacist participation in hypertension management has been shown to enhance blood pressure and other cardiovascular outcomes, this often requires clinical expertise, standardized protocols, monitoring, and effective communication [20]. Improved professional training could, therefore, enhance the capability of pharmacists to safely and reliably provide more advanced services.

System-level barriers were also significant. Patient perceptions, poor pharmacy organization, lack of information technology, no reimbursement and lack of cooperation with other health care professionals were common areas mentioned. The results highlight the need for support from the organisation and inter-professional support. Pharmacist–physician collaboration has been linked to decreased hospital readmissions and better continuity of medication management, highlighting the importance of community pharmacy integration through pharmacist membership in the overall primary care team [21]. Respondents' suggestion to enhance professional relations with other health care providers, therefore, is relevant to improving healthcare management efficiency and continuity of care.

There were no statistically significant differences among the main pharmaceutical-care orientations and the variables gender, age, or professional experience. This indicates that attitudes toward the patient and adherence were not strongly present in a single group of pharmacists but rather were somewhat common among all demographic groups. Implementatively, this is hopeful as services can be redesigned or interprofessional collaboration and training programmes could be used widely across the workforce and not just on certain groups of individuals.

The results should, however be interpreted with the limitations of the outcome measures in mind. Medication adherence, clinical outcomes, hospitalisation and economic efficiency were not directly measured. The need for validated and feasible adherence measures is highlighted in the current literature to assess the effectiveness of interventions in routine care [22]. Likewise, the assessment of the pharmacist-led primary care increasingly suggests multidimensional measures of patient outcomes, incorporating clinical, humanistic, utilization, and safety outcomes [23]. There is further evidence indicating that the interventions of community pharmacists also have the potential to enhance adherence to long-term pharmacotherapy and to impact clinical outcomes, depending on the nature of the intervention and the patient population [24]. Future research should therefore include pharmacist-level service indicators, clinic-level adherence, clinical outcomes, health care utilisation and healthcare cost measures to establish the broader impact of embedding community pharmacy services within primary health care.

5. Conclusion

The findings of this study could emphasize the role and increasing significance of the integration of community pharmacy services into primary care, focusing on patient-centered pharmaceutical care, medication management support, and coordinated delivery of primary care. The results show that there was increasing awareness among community pharmacists of the importance of counselling, cognitive services, and patient satisfaction, as these skills

are becoming more important in the community pharmacist role as it expands beyond just dispensing medicines to a more complex role within the care team. The level of priority given to medication review and follow-up, however, was relatively low, suggesting advanced, adherence-supporting services are not yet adequately integrated into routine community pharmacy practice. The barriers were identified as both professional and organizational including the lack of continuous professional development, limited knowledge, communication issues, inadequate pharmacy infrastructure, lack of information technology, inadequate reimbursement and lack of interprofessional collaboration. Such factors can limit the effectiveness and sustainability of the integration of pharmaceutical care into primary health care systems. Therefore, it is crucial to enhance pharmacist education, create appropriate counselling conditions, provide adequate digital and organizational support, and strengthen the linkage with physicians and other health care professionals. No measure of direct patient adherence, clinical outcome or economic efficiency was taken, but the results indicate significant preparedness for patient-centred pharmacy practice. Further study should include validated adherence measures, clinical outcomes, utilization in the healthcare system, and cost outcomes to assess the comprehensive effects of integrated community pharmacy services.

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