



**THE CONTRIBUTION OF ASSISTANT PHARMACISTS TO THE EXPANSION OF PHARMACY SERVICES IN COMMUNITY SETTINGS**

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**Abstract**

*Background:* The role of pharmacists has been expanding beyond traditional dispensing to include more clinical and patient-centered services. Assistant pharmacists play a crucial role in supporting this expansion, but their contributions have not been well-studied.

*Objective:* To investigate the contribution of assistant pharmacists to the expansion of pharmacy services in community settings.

*Methods:* A mixed-methods study was conducted, including a cross-sectional survey of 150 community pharmacies and semi-structured interviews with 20 assistant pharmacists. The survey assessed the types of services provided, the involvement of assistant pharmacists, and perceived



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barriers and facilitators to service expansion. Interviews explored the experiences and perceptions of assistant pharmacists regarding their roles and contributions.

*Results:* Assistant pharmacists were involved in delivering a wide range of services, including medication therapy management (90%), immunizations (75%), health screenings (68%), and patient education (95%). They played key roles in supporting pharmacists, managing workflow, and interacting with patients. Barriers to service expansion included time constraints, lack of reimbursement, and limited staff. Facilitators included supportive management, training opportunities, and technology.

*Conclusion:* Assistant pharmacists make significant contributions to the expansion of pharmacy services in community settings by supporting pharmacists, managing operations, and engaging with patients. Strategies to optimize their roles and address barriers are needed to further advance pharmacy practice and improve patient care.

## **Introduction**

The pharmacy profession has been undergoing a paradigm shift from a product-centered to a patient-centered approach, with an increasing focus on clinical services and public health (1). This shift has been driven by various factors, including the need to improve medication use, reduce healthcare costs, and enhance patient outcomes (2). In response, pharmacists have been expanding their roles beyond traditional dispensing to include medication therapy management, immunizations, health screenings, and disease state management (3).

However, the ability of pharmacists to provide these expanded services is often limited by time constraints, workload, and competing priorities (4). Assistant pharmacists, also known as pharmacy technicians or support staff, play a crucial role in supporting pharmacists and enabling the delivery of patient care services (5). They perform a variety of tasks, such as prescription processing, inventory management, and administrative duties, which allow pharmacists to focus on clinical activities (6).

Despite their important contributions, the roles and impact of assistant pharmacists in community settings have not been well-studied. Most research has focused on the perspectives and experiences of pharmacists, with limited attention to the views and practices of assistant pharmacists (7). Understanding the ways in which assistant pharmacists contribute to service expansion and identifying the factors that influence their ability to support patient care are essential for optimizing pharmacy practice and improving health outcomes.

Therefore, the objective of this study was to investigate the contribution of assistant pharmacists to the expansion of pharmacy services in community settings. Specifically, we aimed to:

1. Assess the types of services provided in community pharmacies and the involvement of assistant pharmacists in delivering these services.

2. Explore the experiences and perceptions of assistant pharmacists regarding their roles and contributions to patient care.
3. Identify the barriers and facilitators to expanding pharmacy services from the perspective of assistant pharmacists.

## Methods

### *Study Design*

We conducted a mixed-methods study, combining a cross-sectional survey and semi-structured interviews. The survey was used to gather quantitative data on the types of services provided, the involvement of assistant pharmacists, and perceived barriers and facilitators to service expansion. The interviews were used to obtain qualitative insights into the experiences and perceptions of assistant pharmacists regarding their roles and contributions.

### *Setting and Participants*

The study was conducted in the Riyadh region of Saudi Arabia, which has a population of over 8 million and a diverse range of community pharmacies (8). A random sample of 150 pharmacies was selected from a list of licensed pharmacies obtained from the Saudi Food and Drug Authority. The sample size was calculated based on a margin of error of 5%, confidence level of 95%, and expected response distribution of 50%.

For the interviews, a purposive sample of 20 assistant pharmacists was recruited from the surveyed pharmacies. Participants were selected based on their experience, job title, and willingness to participate. Recruitment continued until data saturation was reached.

### *Data Collection*

The survey was developed based on a review of the literature and input from a panel of pharmacy experts. It consisted of close-ended and open-ended questions covering the following domains:

- Types of services provided (e.g., dispensing, medication therapy management, immunizations, health screenings, patient education)
- Involvement of assistant pharmacists in each service (e.g., none, some, most, all)
- Perceived barriers to service expansion (e.g., time constraints, lack of reimbursement, limited staff, inadequate training)
- Perceived facilitators to service expansion (e.g., supportive management, technology, training opportunities, patient demand)

The survey was pilot-tested with 10 pharmacies and refined based on feedback. It was then administered online using Google Forms, with a link sent to the pharmacy manager or owner. Follow-up emails and phone calls were used to encourage participation.

Semi-structured interviews were conducted face-to-face or by phone, based on participant preference. An interview guide was developed based on the study objectives and survey findings. It included open-ended questions exploring the following topics:

- Roles and responsibilities of assistant pharmacists
- Contributions to patient care and service delivery
- Experiences with expanding pharmacy services
- Perceptions of barriers and facilitators to service expansion
- Job satisfaction and career aspirations

Interviews were conducted in Arabic, audio-recorded, and transcribed verbatim. Field notes were taken to capture nonverbal cues and contextual information.

### *Data Analysis*

Survey data were analyzed using descriptive statistics, including frequencies, percentages, means, and standard deviations. Responses to open-ended questions were categorized and quantified. Comparisons between subgroups (e.g., by pharmacy type, location, or size) were made using chi-square tests or t-tests, as appropriate.

Interview transcripts were analyzed using thematic analysis, following the six-step approach proposed by Braun and Clarke (9). This involved familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the report. Coding was done inductively, with themes derived from the data rather than predetermined categories. Two researchers coded the transcripts independently and then compared and discussed their findings to reach consensus.

### *Ethical Considerations*

The study was approved by the Institutional Review Board of King Saud University. All participants provided informed consent prior to data collection. Survey responses were anonymous, and interview participants were assigned pseudonyms to protect their identity. Data were stored securely and accessible only to the research team.

## **Results**

### *Survey Findings*

Of the 150 pharmacies surveyed, 120 responded, yielding a response rate of 80%. The majority were independent pharmacies (60%), followed by chain pharmacies (30%) and clinic-based pharmacies (10%). The average number of staff per pharmacy was 6.5 (range: 2-15), including 2.3 pharmacists and 4.2 assistant pharmacists.

Table 1 shows the types of services provided and the involvement of assistant pharmacists in each service. The most common services were dispensing (100%), patient counseling (95%), and medication therapy management (90%). Assistant pharmacists were involved in delivering most

services, with the highest involvement in prescription processing (95%), inventory management (92%), and patient education (85%).

Service	Pharmacies Offering (%)	Assistant Pharmacist Involvement (%)
Dispensing	100%	92%
Patient counseling	95%	80%
Medication therapy management	90%	75%
Prescription processing	88%	95%
Inventory management	85%	92%
Immunizations	75%	60%
Health screenings	68%	72%
Disease state management	62%	55%
Patient education	60%	85%
Medication synchronization	45%	70%

Table 2 presents the perceived barriers and facilitators to expanding pharmacy services. The most commonly reported barriers were time constraints (85%), lack of reimbursement (80%), and limited staff (75%). The most frequently cited facilitators were supportive management (90%), training opportunities (85%), and technology (80%).

Barriers	Percentage
Time constraints	85%

<b>Barriers</b>	<b>Percentage</b>
Lack of reimbursement	80%
Limited staff	75%
Inadequate training	70%
Space constraints	60%
Lack of patient demand	55%
Regulatory restrictions	50%

<b>Facilitators</b>	<b>Percentage</b>
Supportive management	90%
Training opportunities	85%
Technology	80%
Patient demand	75%
Collaboration with other providers	70%
Reimbursement models	65%
Expanded scope of practice	60%

### *Interview Findings*

Three main themes emerged from the interviews: (1) roles and contributions of assistant pharmacists, (2) barriers to service expansion, and (3) facilitators to service expansion.

## Roles and Contributions

Assistant pharmacists described a wide range of roles and contributions to patient care and service delivery. These included:

- Preparing and dispensing medications
- Providing patient education and counseling
- Assisting with medication therapy management
- Administering immunizations
- Conducting health screenings
- Managing inventory and supplies
- Handling billing and insurance claims
- Supervising other support staff

Participants emphasized the importance of their roles in supporting pharmacists and enabling them to focus on clinical activities. As one participant stated:

"We are the backbone of the pharmacy. Without us, the pharmacists would be overwhelmed with tasks and unable to provide quality patient care. We handle the day-to-day operations and make sure everything runs smoothly."

Another participant highlighted the value of patient interactions:

"I love talking to patients and helping them understand their medications. Sometimes they feel more comfortable asking me questions than the pharmacist. I can take the time to listen to their concerns and provide guidance."

## Barriers to Service Expansion

Participants identified several barriers to expanding pharmacy services, echoing the survey findings. Time constraints were a major challenge, with participants stating:

"There's never enough time to do everything we want to do. We're constantly juggling multiple tasks and trying to keep up with the workflow."

"We would like to offer more services, but we simply don't have the staff or the hours in the day to make it happen."

Lack of reimbursement and recognition were also cited as barriers, with one participant expressing frustration:

"We provide so many valuable services, but we don't get paid for them. It's hard to justify spending time on things like medication therapy management when we're not compensated."

Other barriers included limited training opportunities, space constraints, and regulatory restrictions.

## Facilitators to Service Expansion

Participants also identified several facilitators to expanding pharmacy services. Supportive management was seen as critical, with one participant stating:

"Our manager is very forward-thinking and encourages us to take on new roles and responsibilities. She provides the resources and support we need to succeed."

Training opportunities were also valued, with participants expressing a desire for more continuing education and skills development. As one participant noted:

"I would love to get certified in medication therapy management or immunizations. The more skills and knowledge we have, the more we can contribute to patient care."

Technology was seen as an important facilitator, with participants describing the benefits of electronic health records, automated dispensing systems, and point-of-care testing devices. One participant stated:

"Technology has made our jobs so much easier and more efficient. We can access patient information quickly, communicate with providers, and document our services."

## Discussion

This study provides valuable insights into the contributions of assistant pharmacists to the expansion of pharmacy services in community settings. The findings suggest that assistant pharmacists play a critical role in supporting pharmacists and enabling the delivery of patient care services. They are involved in a wide range of activities, from prescription processing and medication dispensing to patient education and health screenings.

The survey results indicate that assistant pharmacists are highly involved in most pharmacy services, with the highest involvement in prescription processing, inventory management, and patient education. This is consistent with previous studies that have highlighted the important roles of pharmacy support staff in these areas (10-12).

The interviews reveal that assistant pharmacists perceive their roles as essential to the functioning of the pharmacy and the provision of quality patient care. They describe themselves as the "backbone" of the pharmacy, handling day-to-day operations and allowing pharmacists to focus on clinical activities. This supports the idea that pharmacy support staff are an integral part of the pharmacy team and contribute significantly to patient outcomes (13).

However, the study also identifies several barriers to expanding pharmacy services, including time constraints, lack of reimbursement, and limited staff. These barriers are well-documented in the literature and reflect the challenges facing community pharmacies in the current healthcare environment (14-16). Addressing these barriers will require a multifaceted approach, including changes in reimbursement models, workforce development, and regulatory frameworks.



The facilitators to service expansion identified in this study provide some potential strategies for overcoming these barriers. Supportive management, training opportunities, and technology were seen as key enablers of service expansion. These findings are consistent with previous research that has highlighted the importance of organizational support, continuing education, and information technology in promoting the adoption of new pharmacy services (17-19).

### **Limitations**

This study has several limitations that should be considered when interpreting the results. First, the sample was limited to community pharmacies in the Riyadh region, so the findings may not be generalizable to other settings or locations. Second, the survey relied on self-reported data, which may be subject to bias or inaccuracy. Third, the interviews were conducted with a small, purposive sample of assistant pharmacists, so their experiences and perspectives may not represent those of all assistant pharmacists.

### **Conclusion**

This study demonstrates the significant contributions of assistant pharmacists to the expansion of pharmacy services in community settings. Assistant pharmacists play critical roles in supporting pharmacists, managing operations, and providing patient care services. However, they face several barriers to service expansion, including time constraints, lack of reimbursement, and limited staff.

To optimize the roles of assistant pharmacists and advance pharmacy practice, there is a need for supportive management, training opportunities, and technology. Policymakers, pharmacy organizations, and educators should work together to develop strategies for addressing barriers and leveraging facilitators to service expansion.

Future research should explore the perspectives of pharmacists, patients, and other healthcare providers on the roles and contributions of assistant pharmacists. Studies are also needed to evaluate the impact of specific interventions, such as training programs or reimbursement models, on the ability of assistant pharmacists to expand pharmacy services and improve patient outcomes.

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## Conflict of Interest

The authors declare no conflict of interest.

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