

Original Research

Integration of clinical pharmacy services in primary healthcare in the United Arab Emirates: Indicators and impacts

Amar M Hamrouni , Suleiman I Sharif , Abduekarem R Abduekarem , Mohammed M Hassanein 

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Abstract

Background: Clinical pharmacists are uniquely positioned to effectively bridge the gap between patients and physicians. However, there is still a lack of legislation and logistical enforcement in the provision of clinical pharmacy services. There is also lack of the effective collaboration between pharmacists and other healthcare professionals that ensures service standardization. The purpose of this study was to investigate healthcare professionals' and students' attitudes toward integrating clinical pharmacy services into primary care in the United Arab Emirates (UAE). **Methods:** Face-to-face structured interviews were conducted with 545 healthcare professionals and medical students from various medical institutions across the UAE over the course of three months (January to March 2021), using a 10-statement questionnaire that measured their level of agreement on a 3-point Likert scale. **Results:** The study interview was successfully completed by all respondents (response rate 100%). More than half of all healthcare professionals (pharmacists, physicians, and nurses) agreed that there is a growing interest in clinical pharmacy services in the UAE, but 27% said clinical pharmacists have performed such a role. Both physicians and nurses expressed an interest in working with a clinical pharmacist (94% and 98%, respectively). A majority of physicians and nurses (76% and 67%, respectively) agreed that the clinical pharmacist could improve the quality of medical care in a hospital setting. **Conclusion:** Despite the positive attitudes observed among other healthcare professionals toward collaboration and the use of clinical pharmacists' skills, it was discovered that the latter had not yet fulfilled their roles. There are still numerous obstacles that prevent pharmacists from expanding their role to include and provide optimal direct patient care.

Keywords: clinical pharmacy; primary healthcare; healthcare professionals; United Arab Emirates; medical care

INTRODUCTION

The pharmacist's role has evolved from the traditional classical focus on drugs to a more advanced and involved role that is primarily concerned with the patient, shifting from patient cure to patient care.^{1,2} The stereotype of the typical community pharmacist as someone who can only dispense medications and has little experience with disease management has shifted. Pharmacists are now recognized as drug experts with the qualifications and skills to significantly aid disease management. The general public and other healthcare professionals are

beginning to recognize the pharmacist's growing role in improving patients' quality of life. There is a growing body of evidence that pharmacy-based services improve health outcomes in people with chronic diseases and contribute positively to patient care in general.^{3,4} However, pharmacists' future involvement in primary care will be shaped not only by consumer perceptions, but also by whether physicians and other members of healthcare teams believe pharmacists are capable of fulfilling such a role.

Clinical pharmacy and the provision of its services, however, are still in their early stages in Arab countries such as the United Arab Emirates (UAE). Since there are no clear boundaries defining the clinical pharmacist's responsibilities within the medical team, clinical pharmacists' skills are still underutilized.^{5,9} This collaboration framework between pharmacist and physician is well defined and well established in many countries. Collaborative practice agreements in the United States of America (USA) allow pharmacists to provide clinical services in collaboration with physicians, such as those in hypertension management programs.¹⁰ To improve patient outcomes, pharmacists and physicians in the Netherlands hold regular pharmacotherapy meetings.¹¹ These practices highlight the critical need for a clear framework to fully benefit from our region's effective multidisciplinary partnership between pharmacists and other healthcare professionals. The advantage of such a framework is that it helps to maintain and improve the performance of all medical team members, with clinical pharmacists playing a key role because they are the most knowledgeable and experienced in pharmacological treatments and therapeutics.^{2, 12, 13}

Amar M HAMROUNI. College of Pharmacy, Al Ain University, Al Ain, United Arab Emirates. Amar.Hamrouni@aau.ac.ae

Suleiman I SHARIF. Department of Pharmacology, Faculty of Pharmacy, Libyan International Medical University, Benghazi, Libya. suleiman_elsharif@limu.edu.ly

Abdualmula R ABDUELKAREM*. Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, University City Road - University City, PO Box 27272, Sharjah, United Arab Emirates. mohammed.magdyhassanein@outlook

Mohammed M HASSANEIN. Department of Pharmacy Practice and Pharmacotherapeutics, College of Pharmacy, University of Sharjah, University City Road - University City, PO Box 27272, Sharjah, United Arab Emirates. aabelkarim@sharjah.ac.ae



Limited research has been conducted to assess physician attitudes towards pharmacist-provided medication therapy management, as well as the factors that may influence these attitudes and the implementation of a well-structured, well-defined clinical pharmacist role. A study that elicits discussion of such services provided by pharmacists in Arab countries would be extremely valuable, especially to policymakers designing and advancing the country's future healthcare system. We conducted this study to investigate the feasibility of integrating clinical pharmacy services into the UAE's primary healthcare system by assessing other healthcare professionals' and medical students' perceptions of pharmacists' roles in patient care.

METHODS

From January to March 2021, a cross-sectional questionnaire study was conducted at various medical colleges across the United Arab Emirates. A trained interviewer conducted structured face-to-face interviews with 275 healthcare professionals, including pharmacists, physicians, and nurses, as well as 270 medical senior students. The study aimed to explore the attitudes of these healthcare professionals and students towards the integration of clinical pharmacy services into the UAE's primary healthcare system. To develop and validate the questionnaire, a panel of six experts, including three faculty members from Dubai Pharmacy College with extensive clinical pharmacy experience and three physicians, developed a conceptual framework that included specific components and aspects that have been shown to influence the integration of clinical pharmacy services into primary care. To generate the questionnaire items, the panel conducted a comprehensive review of published articles on the provision of clinical pharmacy services.

The questionnaire items were carefully evaluated to ensure

clarity of statement, face validity, and appropriateness of the construct being measured. Items that consistently required modification or removal were updated accordingly. To assess the reliability of the questionnaire, it was administered twice to 12 randomly selected healthcare professionals. The results of both tests were excluded from the final survey analysis. Test-retest reliability was calculated using Spearman's correlation coefficient (r), and the obtained rho-value was 0.82, indicating adequate test-retest reliability. The final version of the questionnaire comprised ten statements, each of which was scored using a three-point Likert scale, with response options of 1 (Agree), 2 (Neutral), and 3 (Disagree)

DATA ANALYSIS

The questionnaires were encoded, and the data was analyzed with IBM Statistical Package for the Social Sciences (SPSS) Statistics for Windows, version 28.0, Armonk, NY, USA. To calculate 95% confidence intervals, three relevant response categories (agree, neutral, and disagree) were used. Proportions were used to summarize categorical variables.

RESULTS

Healthcare Professionals Survey

The survey was filled in by all the participants producing a 100% response rate. Table 1 summarizes the percentage of healthcare professionals who agreed with each of the questionnaire statements. More than 90% of the participating healthcare professionals (physicians and nurses) responded positively and were willing to work with clinical pharmacists, and 92 % of physicians and 87% of nurses saw clinical pharmacists as an essential part of any medical team. Only 6% of pharmacists said that other healthcare professionals would be unwilling to

Table 1. Proportion of healthcare professionals who agreed with each of the study statements

Statement	Pharmacists (n=103)		Physicians (n=71)		Nurses (n=91)	
	Agree with %	95% CI	Agree with %	95% CI	Agree with %	95% CI
Willingness to cooperate with the clinical pharmacist.	94	89.7-98.7	94	89.0-99.7	98	94.8-100
A clinical pharmacist is an essential and integral part of the medical team.	93	88.4-98	92	85.1-97.9	87	79.9-93.7
A clinical pharmacist can enhance the quality of medical care in a hospital setting.	81	72.9-88.2	76	66.2-85.9	67	57.4-76.7
A clinical pharmacist can be specialized in many different medical fields such as board and fellowships.	95	91-99.3	90	83.2-97	89	82.6-95.4
A clinical pharmacist is a must for any hospital accreditation.	84	76.4-90.6	89	81.4-96.1	85	77.2-91.9
A clinical pharmacist can minimize medication errors and improve patient therapy outcomes.	72	63.2-80.5	80	71.1-89.5	71	62.2-80.1
There is an increased interest in clinical pharmacy services in UAE	59	49.8-68.7	49	37.7-60.9	57	47 -67.3
Clinical pharmacy involvement in therapeutic policy committee and ward round.	92	87-97.4	97	93.4-100	89	82.6-95.4
A clinical pharmacist has a role in patient education.	99	97.2-100	93	87-98.9	89	82.6-95.4
A clinical pharmacist has fulfilled the role in UAE.	27	18.6-35.7	25	15.3-35.4	35	25.4-44.9



collaborate with a clinical pharmacist. On the other hand, the majority of pharmacists (92%) agreed that they are competent enough to participate in therapeutic policies and ward rounds. The same level of agreement was observed among physicians and nurses (97% and 89%, respectively). Almost all (99%) pharmacists believed they possessed the necessary skills to educate patients, with only 1% remaining neutral. Again, a majority (93% and 89%) of physicians and nurses agreed with the role clinical pharmacists can play in patient education.

Medical Students Survey

The majority (199, 74% and 221, 82%) of the students included in this study perceived that the clinical pharmacist is an integral part of a medical team and can help to improve the quality of medical care in a hospital setting, respectively. At the same time, only 39% agreed that there is an increased interest in services provided by clinical pharmacists in UAE healthcare settings. Table 2 summarizes the proportion and 95 % confidence interval of medical students who agreed with the study statements.

DISCUSSION

Despite the positive responses and perspectives of healthcare professionals toward integrating clinical pharmacy services in primary care, our study's main finding indicates that clinical pharmacists' role and significance as a viable member of the healthcare team is frequently overlooked. Clinical pharmacists have the potential to contribute to the efforts of the multidisciplinary healthcare team actively and effectively, and they can do so by skilfully providing pharmaceutical services that ensure medication safety, proper use, and effectiveness. By expanding pharmacist responsibilities and pharmacy services, there has been a strong emphasis on improving patient-centered care. Clinical pharmacy is defined by the American College of Clinical Pharmacy as a health science discipline in which pharmacists provide patient care that optimizes medication therapy and promotes health, wellness, and disease prevention.¹⁴ However, there is no sharp edge definition of clinical pharmacy and pharmacy practice in the UAE.⁹

Most of our sample of healthcare professionals showed a strong willingness to collaborate with the clinical pharmacist. Despite this, clinical pharmacy services are not fully implemented in the

UAE's healthcare system. There is a misunderstanding about how clinical pharmacy services are delivered. While clinical pharmacists can help manage medications for specific diseases, the provision takes a much broader approach that includes comprehensive medication management and active patient participation. Understanding and appreciating pharmacist skills can help with clinical pharmacy service integration. Obstacles to such provision in the UAE, on the other hand, are primarily logistical and financial in nature.¹⁵ According to one study conducted on final year pharmacy graduates, poor pharmacist image, lack of consultation in private areas, and a lack of robust clinical training placements after graduation were among the perceived barriers by the students.¹⁶

Optimisation of patient health and well-being should be the driving force for the medical team activities.¹⁷ Approximately 90% of our sample agreed that clinical pharmacists are an important part of the medical team. Lower proportions, around 70%, indicated that they could improve the quality of medical care in a hospital setting. Such care enhancement can be viewed as more than just a pharmacist's opinion of the skills and services that he or she can provide in a hospital or community setting, but as proven, evidence-based interventions for managing chronic conditions such as cardiovascular and renal disorders, and diabetes were beneficial in terms of patient clinical outcomes, quality of care provided, and disease prevention.¹⁷⁻²⁴ Participation of the clinical pharmacist in clinical rounds has also resulted in recommendations to make changes to many potentially inappropriate medications prescribed previously to patients.²⁵

In this study, healthcare professionals supported and encouraged clinical pharmacists to specialize in a wide range of medical fields that complement their clinical qualifications. On the one hand, there is ample evidence that clinical pharmacists have played an important role in providing cost-effective accessible patient care. Such patient care with multifaceted clinical experiences, on the other hand, necessitated continuous assessment and monitoring of the pharmacist's credentials.²⁶ The question is whether the quality of undergraduate pharmaceutical care programs and internships available to pharmacy students is sufficient for future pharmacists to achieve the level of expertise and credentials required to meet and match global standards of practice. More than half of our students said they had never heard of or known about clinical pharmacy specialized programs or residencies in the UAE.

Table 2. Proportion of students who agreed with each of the study statements

Statement	Agree with % (n=270)	95% CI
Have had heard or known of any clinical pharmacy programs.	64	58.4-69.8
A clinical pharmacist is an essential and integral part of the medical team.	74	68.5-78.9
A clinical pharmacist can improve the quality of medical care in a hospital setting.	82	77.3-86.4
A clinical pharmacist can be specialized in many different medical fields such as board and fellowships.	67	61.5-72.6
A clinical pharmacist is a must for any hospital accreditation.	57	51.2-62.9
A clinical pharmacist can minimize medication errors and improve patient therapy outcomes.	81	75.7-85.1
There is an increased interest in clinical pharmacy services in UAE.	39	32.7-44.3



We have seen that healthcare professionals understand the importance of clinical pharmacists in reducing medication errors. A systematic review concluded that implementing various pharmacist-based strategies to prevent medication errors was effective.²⁷ The pharmacist is uniquely positioned and trained to deal with the entire medication management system cycle and processes. The clinical pharmacy can positively impact medication safety at the individual level and design strategies to mitigate drug-related problems by providing clinical pharmacy services and scope.²⁸ Several studies found that collaboration between pharmacists and nurses or physicians reduced medication errors as well as related morbidity and mortality.^{29,30} Our study has been strengthened by the inclusion of various members of the healthcare team as well as medical students. It allowed us to observe any differences in perceptions among the diverse interdisciplinary medical team members who came from various backgrounds and practiced with varying responsibilities. Other healthcare professionals were supportive, and while nurses showed less agreement in some areas, we believe that this is due to their lack of understanding of the nature of the clinical pharmacy profession. There is no doubt that the use and implementation of a strong, clear framework that promotes the integration of clinical pharmacy services into patient care strategies is extremely valuable, both financially and in terms of patient outcomes.

Despite the large sample size of our study, which included a diverse range of healthcare professionals from various backgrounds, it does have some potential limitations. The convenience sampling method limits the ability to generalize results. A purposive sample with pre-set criteria could have aided in allocating healthcare professionals who are more involved in the provision of clinical pharmacy services in medical areas such as oncology, nephrology, infectious disease, or physiatry. Future research could benefit from directing their study to a more specific and defined group of healthcare professionals and assessing different stakeholders and policy-makers who are directly related to decision making and healthcare administration.

CONCLUSION

Clinical pharmacy is a service umbrella and a bridge between healthcare professionals that aims to maximize the benefits of therapy while minimizing medication-related problems. Despite all healthcare members' positive attitudes towards integrating clinical pharmacy services into primary care, there was a negative outlook on implementing such services. While existing evidence suggests that clinical pharmacists should be integrated into multidisciplinary healthcare teams, the expansion of such services is hampered primarily by reimbursement constraints, policy, and legislation.

CONFLICTS OF INTEREST DECLARATION

The authors declare no relevant or material financial interests related to the research described in this paper" and declare no conflict of interest.

AUTHORSHIP CONTRIBUTION

ARA and SIS contributed to the concept and design of the study. Both authors contributed to the data analysis. MMH participated in the literature review and the writing of the manuscript and data interpretation. AH provided revisions to the scientific content and made a significant contribution to drafting the paper for its intellectual contribution. All authors contributed to critical revision and final approval of the manuscript and agreed to take responsibility for the manuscript's content

CONSENT FOR PUBLICATION

We, authors give our consent for this manuscript, to be published in the Journal of Pharmaceutical Policy and Practice

ETHICAL CONSIDERATIONS

Data collected was completely anonymous, with no personal sensitive or confidential information being collected, and the issue being investigated was not likely to expose the study participants to any physical or emotional risks, in particular our target population. Therefore, ethical approval was not required to conduct this study.

No confidential information was collected during the study conducted on healthcare professionals and medical students. Given the nature of the settings, participants, and topic under investigation, no consent was required for the study.

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DATA AVAILABILITY

The datasets generated during and/or analyzed during the current study will be available upon request from (Prof. Abduelmula R Abduelkarem, email: aabdelkarim@sharjah.ac.ae). Data will be available for 1 year from the date the study has ended by email.

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