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Perspectives in Arabic healthcare

Pharmaceutical care in the Arabic-speaking Middle East: literature review and country informant feedback

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ABSTRACT

Background: The philosophy and practice of pharmaceutical care (PC) has challenged Middle Eastern pharmacists to embrace a new paradigm that focuses on outcomes of care rather than products or tasks. Although the application of PC was found to be associated with a reduction in adverse drug reactions, length of hospital stay and cost of care in the developed world, the status and application of the practice remains less clear in the Arabic-speaking Middle East (ME). The aim of this project was to describe the current status of PC services in a number of Arabic-speaking ME countries.

Methods: We conducted literature search to identify what had been published on the status of PC in the ME. We also invited individuals who have good understanding of the pharmacy environment in the respective country. The individuals identified were asked to respond to a set of standardized questions relating to PC services in their countries.

Results: The literature search generated 12 publications in total. Ten country informants agreed to provide information on PC practice and pharmacy practice in general in their respective countries and they ultimately provided information related to these areas.

Conclusions: The PC concept is still often confused with clinical pharmacy, which remains to be a priority in several countries in the region. Pharmacy education is rapidly changing change in many of the ME. These changes are hoped to reflect a wider recognition and application of PC services in the hospital and community settings.

<http://dx.doi.org/10.5339/avi.2013.2>

Submitted: 07 May 2013

Accepted: 29 June 2013

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BACKGROUND

In the Middle East, which encompasses countries between Western Asia and Northern Africa, pharmacy practice continues to evolve, although its progress is hampered by many challenges. While the impact of Arabs on medicine and pharmacy in Europe, and the rest of the world, cannot be overstated, the development in pharmacy education and practice in Arabic-speaking Middle Eastern countries slowed down and centered around traditional curricula and apothecary pharmacy for decades. This recession could be attributed to multiple factors, including past and current periods of conflict, occupation, social and economical pressures, and political instability.¹ Meanwhile, in the west, and in particular the United States, the 1960s and 1970s witnessed the introduction of new forms for drug distribution in hospitals, including pharmacy-based unit-dose and intravenous drug admixture programs. These new services marked the introduction of clinical pharmacy, and clinical pharmacists in these countries started to participate in patient rounds, provide drug information, and use medication profiles to document patients' drug therapies.² However, just few decades later, Hepler and Strand launched the philosophy and practice of *pharmaceutical care* which was aimed at taking clinical pharmacy and pharmacy practice as a whole, to a new level marked by more focus on the patient than on drug products.²

Like in other countries in the world, the emergence of pharmaceutical care challenged Middle Eastern pharmacists to embrace this new paradigm, which focuses on outcomes of care rather than products or tasks.² Indeed, the application of pharmaceutical care services was found to be associated with a reduction in adverse drug reactions, length of hospital stay, and cost of care.²

However, while evidence exists regarding the development and the application of clinical pharmacy in this region,³⁻⁵ the status of pharmaceutical care remains less clear. Therefore, the aim of this project was to describe the current status of pharmaceutical care services in a number of Arabic-speaking Middle Eastern countries.

METHODS

Country selection

The following nine countries in the Arabic-speaking Middle Eastern region were selected for this review: Egypt, Jordan, Kuwait, Lebanon, Oman, Qatar, Kingdom of Saudi Arabia (KSA), Sudan, and the United Arab Emirates (UAE). Of these countries, five (Kuwait, Oman, KSA, Qatar, and UAE) constitute most of the countries that form the Gulf Cooperation Council (GCC), and they are in close geographical and cultural proximity to each other. Two countries (Egypt and Sudan) are situated in the neighboring continent of Africa, and both countries lie in the Eastern Mediterranean region).⁶ The nine countries spread over a wide geographical area across two continents, Asia and Africa. Other Arabic-speaking countries in North Africa (Libya, Tunisia, and Morocco) were not included in this snapshot.

Literature review

We conducted a literature search using PubMed and Google Scholar with keywords and terms that included 'pharmaceutical care', 'patient-centered care', and 'medication management' (all often used interchangeably to denote a patient-centered, outcome-oriented service that adopts a structured procedure including patient consultation and information gathering, analysis, care planning and monitoring), in conjunction with the name of each of the selected countries. Publications that focus on pharmaceutical care services were identified and retrieved.

Country informants feedback

We used personal contact, the websites of universities and other relevant pharmacy organizations in the selected countries to identify individuals who, at the time of information collection, were working for at least 5 years in the respective country, in pharmacy academia and/or practice, and who had good understanding of the pharmacy environment in the respective country. The individuals identified were invited by email and asked to respond to a set of standardized questions, developed and reviewed by the authors, relating to pharmacy practice in general and pharmaceutical care services in particular (see [Table 1](#)).

Table 1. The 12 questions emailed to country informants.

Question
1 What is the status of pharmaceutical care in your country?
2 If pharmaceutical care does exist, what is the historical development of the services in your area?
3 What qualifications do the practitioners who provide pharmaceutical care services have?
4 What type of formal and informal training to prepare practitioners is occurring in your country?
5 How many practices, how many pharmacists involved, how many patients are receiving the service?
6 Describe the acceptance level by pharmacists, patients and physicians (as well as other patient care providers)?
7 Describe the settings in which pharmaceutical care services are delivered.
8 How have colleges of pharmacy changed their curricula to accommodate pharmaceutical care?
9 Has your government recognized the service? Are they paying pharmacists' salary to deliver the service or are they paying for the service to be delivered?
10 Are other payers providing reimbursement for the service? If so, how are they paying for the service? What are the rates of payment?
11 What do you think will be the future of pharmaceutical care services in your area? Specifically, where is the practice headed, where are education, research and legislation going to be in two, five or ten years?
12 What other information would you like to share on this subject?

RESULTS AND DISCUSSION

Our literature search for the term 'pharmaceutical care' in conjunction with the names of the countries selected generated 12 publications in total. Three articles described the practice in each of Jordan,⁷⁻⁹ KSA,¹⁰⁻¹² and UAE.¹³⁻¹⁵ One article described pharmaceutical care in each of Oman,¹⁶ Kuwait,¹⁷ and Sudan.¹⁸ Twelve country informants agreed to provide information on pharmaceutical care practice and pharmacy practice in general in their respective countries and they ultimately provided information related to these areas.

Egypt

Egypt is the most populous of the countries investigated.¹⁹ The College of Pharmacy at Cairo University is considered the oldest pharmacy program among all other programs in the Middle East, and is considered a major exporter of graduates to GCC countries.¹

While pharmacy curricula were totally dominated by traditional chemistry-based courses, recent years have seen the introduction of several undergraduate clinical pharmacy courses, which is a significant development considering the slow pace at which the practice of pharmacy was moving. The healthcare system in Egypt has been criticized for not doing enough to move the pharmacy profession forward. Lack of funding, as a consequence of the unhealthy economy, is a major issue confronting Egypt's healthcare in general, and pharmacy in particular. As a result, contemporary pharmacy practices, like pharmaceutical care, are not currently widely practiced in Egypt. However, pharmacists in a few hospitals including the National Cancer Institute and Children's Cancer Hospital are making concerted efforts towards providing pharmaceutical services at the individual patient's level separate from the routine dispensing process. This being said, these could be considered personal, rather than structured and planned, organizational efforts.

Individual attempts to practice pharmaceutical care services are made by a small number of US-trained pharmacists, as well as a few pharmacists who were able to seek certification such as those offered by the American College of Clinical Pharmacy (ACCP) e.g. Board Certified Oncology Pharmacists (BCOP). To date, no formal training is offered to equip pharmacists with the skills for providing pharmaceutical care in the country, and experiential training is not well organized yet.

On a governmental level, there was resistance to create a larger role for pharmacists in health care settings, although there were some attempts to establish hospital and clinical pharmacy departments at the Egyptian Drug Authority and the Ministry of Health to set the grounds for such practice. Presently, a good proportion of pharmacists resist practicing any form of clinical pharmacy and pharmaceutical care services as a compulsory service before the development of clear legislation, terms of reference, and scope of practice.

Jordan

In Jordan, pharmacy education is provided by two public and six private faculties of pharmacy graduating about 1000 pharmacists per year.⁸ The two public schools offer a Doctor of Pharmacy (PharmD) degree and a Master of Science (M.Sc) degree in clinical pharmacy, making Jordan the third

country in the Middle East, after Lebanon and KSA, to run a PharmD program.²⁰ Although the introduction of some pharmaceutical care courses started to take place in Jordan universities, the B.Sc pharmacy curricula still have a weak emphasis on pharmaceutical care education and training.⁸

In the last few years, the clinical pharmacist involvement in providing pharmaceutical care services for selected patient groups started to emerge in Jordan.^{9,21,22} Despite this, pharmaceutical care is still considered a new concept in Jordan, and its implementation is limited to some governmental and private hospitals, and fewer community pharmacy outlets. So far, most providers of the services are holders of PharmD or Master of clinical pharmacy degrees. In terms of physician acceptance to these new roles of the pharmacist, hospital-based physicians were found to be more likely to accept or recognize traditional pharmacy services than newer services. This suggests a need for more professional awareness of the role of the pharmacists and physicians, and interaction between the members of the health care team if this perception is to change.²³

Kuwait

Kuwait has one public pharmacy school and it offers a 5-year bachelor degree.¹ In undergraduate pharmacy education, the concept of pharmaceutical care is widely introduced in the curriculum, and the teaching methods combine traditional didactic lecturing and problem-based learning.²⁰ In the third year of the faculty of pharmacy, the students use their communication skills and therapeutics knowledge in conducting simple medication reviews, dispensing medications and providing patient counseling.

Clinical pharmacy services are limited, but efforts are being made to increase direct patient responsibilities of the hospital pharmacists.¹ Community pharmacies are not being fully utilized as sources for quality healthcare provision, and as such provide product-centered services dominated by selling drug products with little counseling and little patient-centered care.

In practice, pharmaceutical care services are not provided systematically by all practicing pharmacists, however, these services are provided on an individual basis by ambitious pharmacists. Most of these individuals are Kuwait University graduates or holders of graduate degrees such a Master's degree in clinical pharmacy or PharmD degree. In a study published in 2006, Awad et al reported lack of uniformity in the responses of hospital pharmacists regarding the focus and objectives of pharmaceutical care which indicated a lack of appropriate understanding of the practice of pharmaceutical care.¹⁷ As in Jordan and Egypt, junior pharmacists are now taking the lead in trialing these new services, while most of the 'older' pharmacists find their safety zone in the traditional roles of compounding and dispensing medications. In time, this could help in changing the public's view of what pharmacists can do, and allow other healthcare practitioners to accept the pharmacist into the healthcare team. Currently, physicians vary in their acceptance level; some are more comfortable than others with the pharmacist taking a more clinical role.

Lebanon

Five universities offer pharmacy programs in Lebanon. Two of the five universities, the Saint-Joseph University and the Lebanese University, follow the French system in which students graduate with a five-year license degree (equivalent to a bachelor's degree) or a six-year degree, "*Doctorat d'exercice en pharmacie*". The school of pharmacy at the Lebanese American University (LAU) was opened in 1995 and its program is consistent with the American pharmacy educational system.²⁴ In 2002, the PharmD degree program offered by LAU secured accreditation from the Accreditation Council for Pharmacy Education (ACPE), making it the first and only PharmD degree program outside of the United States to have ACPE accreditation. Despite the fact that all these universities follow similar curricula, variation in emphasis exists, with some placing more emphasis on basic science, and others on pharmaceutical science, or clinical pharmacy.²⁵ The practice of pharmacy in Lebanon, especially in the community, is still centered around dispensing and selling medications, a phenomenon shared by several neighboring countries. While some universities like LAU and Lebanese International University (LIU) are actively preparing their students to provide pharmaceutical care by delivering pharmacy courses that mirror the US undergraduate and PharmD courses, many of their graduates are either leaving the country to seek job overseas (especially in the more affluent Gulf countries, or in North America) or are working as medical representatives with pharmaceutical companies, mainly focusing in detailing and selling limited medicinal products to private clinics and community pharmacies.

United Arab Emirates

As in other neighboring Gulf countries, pharmacy practice in the United Arab Emirates (UAE) is in a state of evolution, though still dominated by traditional pharmacy and inconsistent service provision. There are some attempts to provide pharmaceutical care activities for selected populations of patients^{13–15}; however, the full implementation of pharmaceutical care services is still restricted, especially in the community sector due to workload, shortage of qualified staff, level of acceptance by patients and physicians, and lack of remuneration. Furthermore, because there is still no detailed legislation to organize the practice of pharmacy, no specific level of competency is needed to provide cognitive services, and all that pharmacists need is to obtain a license from the Ministry of Health to practice pharmacy. There is now, however, a requirement to obtain a set number of continuous education units for renewal of licensure. In some private hospitals in the UAE, pharmaceutical care services can be provided only by licensed pharmacist with evidence of clinical training. Several other hospitals now recruit holders of PharmD and advanced degrees from the UK and the US, and these hospitals are introducing, or have introduced, advanced clinical pharmacy services to their patient populations.²⁶ Currently, pharmacy colleges are helping to draft standards of practice and they are taking an active role in advancing the practice in the country.

Qatar

Qatar's only national pharmacy program was opened in 2007 in Qatar University. The College had secured provisional international accreditation from the Canadian Council on Accreditation of Pharmacy Programs (CCAPP) in 2008, making it the first and only accredited pharmacy program by the CCAPP outside Canada. The College had its plans for PharmD degree approved in early 2007, and its first candidates started their degree in September 2011, and graduated in July 2012, after 8 months of advanced clinical rotations. Pharmaceutical care features prominently in this college, and is introduced early in the course of study, then continues as a thread in the following years.²⁷

There is good awareness of pharmaceutical care in Qatar, though the term is often used interchangeably with clinical pharmacy. However, like in other ME countries, no structured pharmaceutical care services exist in the non-government sector in Qatar apart from a few individual initiatives by pharmacists who completed online, distance-learning courses on the service.

Qatar's National Health Strategy of 2011–2016, which articulates its goal of developing a comprehensive world-class healthcare system, describes the introduction of disease management, health insurance, and greater integration between government and private sector.²⁸ These policies and plans exemplify the political will that will be necessary to provide the impetus for an improved pharmacy practice, complete with effective patient-centered services, like pharmaceutical care, run by Qatar's pharmacists in the next few years.

Saudi Arabia

Population-wise, the oil-rich Kingdom of Saudi Arabia is the third largest Arab country. Formal education of pharmacy in KSA started in 1952 with the establishment of the College of Pharmacy at King Saud University (KSU) as a four-year pharmacy program.²⁹ As in other countries in the region, basic and foundation sciences dominated the curriculum during the early years, and students graduated with Bachelor of Pharmacy and Medicinal Chemistry.²⁰ From 1970 onward, the College of Pharmacy at KSU – and subsequently other colleges of pharmacy – started and maintained links with certain US universities for the purpose of curriculum improvement.²⁹ These strategies led to two landmark results, introducing clinical pharmacy courses, and years later (in 2008) the initiation of the first PharmD degree program in Saudi Arabia. Pharmaceutical care is taught as a 3 credit hour course in the 4th and 5th year on the BSc. Pharm and PharmD programs, respectively.

As in several other countries in the region, most pharmacy graduates in this country join the hospital sector where services are progressive and clinical pharmacists are well paid.²⁰ Saudi has an active professional pharmacy society (The Saudi Pharmaceutical Society) which has an established a pharmacy continuous education program and publishes pharmacy-related periodicals and a peer-reviewed journal.³⁰

According to a study that assessed pharmacists' understanding and attitudes towards pharmaceutical care in Saudi Arabia, most pharmacists had a favorable understanding of pharmaceutical care and believed the future of pharmacy depends on its implementation.¹⁰

Clinical pharmacy services dominate the practice and grab the interest of pharmacists. Indeed, some pharmaceutical care activities, such as individually assessing the appropriateness of each medication for patients, is well established in many large Saudi hospitals. While the pharmaceutical care idea is widely recognized, especially by fresh graduates, it is clear that, so far, pharmaceutical care that utilizes the full spectrum of the concept does not exist and will require years to be a recognized practice.

Sudan

Until recently (before it became two countries), Sudan was considered the largest country in Africa and the Arab world, and tenth largest in the world by area.³¹

Like Egypt, Sudan is one of the major sources of pharmacists working in the oil-rich Gulf countries, which has a recognizable impact on the pharmacy workforce at the national level. The concept of pharmaceutical care was introduced in Sudan very late, possibly in 2004, and now only about 40% of the existing colleges of pharmacy include aspects of pharmaceutical care in their curricula. While some of these colleges have reasonably well-established pharmacy practice departments, only a few have qualified faculty members to deliver courses with pharmaceutical care concepts as their main focus. An international meeting about pharmaceutical care was held in 2010 in Khartoum, the capital of Sudan, in an attempt to raise awareness about pharmaceutical care among pharmacy academicians. As a result of this and other such initiatives, several pharmacy programs started to target recruiting faculty with expertise in pharmaceutical care teaching or course development.

There is currently a realization among many Sudanese pharmacy graduates that they were not adequately prepared during their undergraduate years for provision of pharmaceutical care. A number of workshops and training courses on diverse professional skills and competencies are offered by the General Directorate of Pharmacy of Khartoum State, which has started to advocate and support clinical pharmacy practices in hospitals, including pharmaceutical care services of some sort, in a hospital setting. Some Sudanese pharmacists who have advanced degrees and who live and work outside Sudan had started organizing continuous education workshops on pharmaceutical care and other pharmacy practice subjects in coordination with non-Governmental health care Sudanese groups and organizations. These are usually well attended, but do not provide recognized qualifications.

Only a handful of community pharmacists started their own pharmaceutical care practice (that is separate from the dispensing process) through personal initiatives. The health problems mostly targeted are diabetes, dermatology, asthma, and hypertension.

Oman

Pharmacy education in Oman is provided by two colleges of pharmacy, which were established within the last decade. Their respective curricula had already been oriented towards patient care, away from a product-biased program. The M.Sc degree in clinical pharmacy is offered in Oman, and currently, the two schools of pharmacy are considering developing a PharmD program. Pharmaceutical care in Oman is provided by clinical pharmacist working in tertiary health care institutes. A number of hospitals have very active clinical pharmacy services, like in the Royal Hospital,¹⁶ while other hospitals offer limited clinical pharmacy services. Clinical pharmacy services are provided by clinical pharmacists who are holders of a M.Sc degree in clinical pharmacy. However, only one quarter to a third of the admitted patients in the hospitals with active clinical pharmacy services receive some sort of pharmaceutical care service. The early stages of involving clinical pharmacists in these services faced some opposition from other healthcare providers, but the medical team soon started to favor the pharmacists' involvement in patient care services. Clinical pharmacists' activities are recognized by the government in Oman through the Civil Service regulations.

Pharmaceutical care services are less developed in community pharmacies. There are plans for developing regulation to control the practice of pharmacy that would affect clinical pharmacists' role at a community pharmacy, and would benefit ambulatory patients – especially those visiting community pharmacies.

CONCLUSIONS

We provide this synopsis of the status of pharmaceutical care in a region that has significance not only in terms of the size of its population, but also in terms of its political and social importance in the world (Table 2). Our selection of nine countries in the region provided as wide a representation as possible,

Table 2. Summary of status and future indicators of pharmaceutical care in nine Middle Eastern countries.

Country	Education	PC ¹ and practice	Indicators for future practice
Egypt	24 pharmacy schools:-BSc ²	Apart from few individuals initiatives in few hospitals, no PC services are provided Some clinical pharmacy activities exist in hospitals	Initiation of a PharmD ³ program and a new clinical pharmacy degree
Jordan	8 pharmacy schools: -BSc - PharmD	Some structured PC services provided in few hospitals and the community pharmacy	Active research and rapidly developing practice
KSA ⁴	9 pharmacy schools: -BSc - PharmD	Well advanced clinical pharmacy services in several large hospitals, but limited PC	Initiation of pharmacy residency programs
Kuwait	1 pharmacy school: -BSc	No clinical pharmacy practiced in hospital No PC services provided	Plan to offer a PharmD program and to introduce clinical pharmacy
Lebanon	5 pharmacy schools: -BSc - PharmD	Well-established clinical pharmacy services in some hospitals No PC services provided	Well-established PharmD programs
Oman	2 private pharmacy schools: -BSc	Well-developed clinical pharmacy services in large hospitals No PC services provided	Plan to start PharmD and residency programs
Qatar	1 pharmacy school: -BSc - PharmD	Some clinical pharmacy services in some hospitals, PC in some clinics on individual initiatives	Started PharmD and opportunity for practicing pharmacists to join on part time bases
Sudan	15 pharmacy schools: -BSc	Slow introduction of some clinical pharmacy services PC in some community pharmacy outlets	Initiation of postgraduate degrees in clinical pharmacy
UAE ⁵	7 pharmacy schools: -BSc	Slow pharmacy services in both hospital and community sectors No PC services provided	Started PharmD program

¹PC: Pharmaceutical Care, ²BSc: Bachelor of Pharmacy, ³PharmD: Doctor of Pharmacy, ⁴KSA: Kingdom of Saudi Arabia, ⁵UAE: United Arab Emirates.

while excluding only few countries where we were unable to recruit country representatives due to geopolitical reasons and other logistics, such as access to information. Because the pharmaceutical care concept has been introduced relatively recently to many ME countries, we found that it is still often confused with clinical pharmacy, which remains a priority in several countries in the region. Evidently, pharmacy education is witnessing rapid change in many Middle East countries, and several pharmacy programs either had introduced, or are planning to introduce, the PharmD degree to replace the traditional Bachelor of Pharmaceutical Science degree. It is hoped that these changes reflect a wider recognition and application of pharmaceutical care in its many forms, like medication management services, in hospital and community settings. A lot of the information presented in this study came through contacting individuals rather than from the published literature, and this was a major limitation. Ironically, the lack of published literature on PC in the Middle East was one of the reasons why we had to adopt the strategy of using country representatives in the first place. We tried to minimize the subjectivity of information as much as possible through a triangulation approach where we accessed other sources of information like relevant web sites and published literature where available.

COMPETING INTERESTS

The authors declare no competing interest involved in the work leading to this publication.

AUTHORS CONTRIBUTIONS

NK conception of the study's idea, study design, data analysis and interpretation, wrote the manuscript. DA data acquisition, communication with external sources (mainly country informants), revised the manuscript, assisted in data analysis, and organizing the reference list.

SA helped in data acquisition, analysis and interpretation, revised the manuscript, helped in organizing the reference list.

Acknowledgements

The authors wish to acknowledge the following individuals for the information that they provided in respect to the pharmaceutical care practice and other relevant issues in their respective countries: Dr. Nirmeen Sabry (Egypt), Dr. Sherief Khalifa (Egypt), Dr. Mahmoud Elmahdawy (Egypt), Dr. Linda Tahaine (Jordan), Dr. Abdelmoneim Awad (Kuwait), Dr. Maguy Al Hajj (Lebanon), Dr. Abdulmula Abduelkarem (United Arab Emirate), Dr. Maha Al-Draimly (Saudi Arabia), Dr. Abdalla ElKhawad (Sudan), Dr. Abdelrahman Hamed (Sudan), Dr. Mohammed Eltayeb (Sudan), and Mr. Kassim Riyami (Oman).

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