

SPECIAL ARTICLES

Pharmacy Education in Jordan, Saudi Arabia, and Kuwait

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The practice of pharmacy, as well as pharmacy education, varies significantly throughout the world. In Jordan, Kuwait, and Saudi Arabia, the profession of pharmacy appears to be on the ascendance. This is demonstrated by an increase in the number of pharmacy schools and the number of pharmacy graduates from pharmacy programs. One of the reasons pharmacy is on the ascendance in these countries is government commitment to fund and support competitive, well-run pharmacy programs.

In this report we describe pharmacy education in 3 Middle East countries: Jordan, Kuwait, and Saudi Arabia. All 3 countries offer bachelor of pharmacy (BPharm) degrees. In addition, 2 universities in Jordan and 1 in Saudi Arabia offer PharmD degree programs. The teaching methods in all 3 countries combine traditional didactic lecturing and problem-based learning.

Faculties of pharmacy in all 3 countries are well staffed and offer competitive remuneration. All 3 countries have a policy of providing scholarships to local students for postgraduate training abroad. The majority of students in Jordan and Kuwait are female, while the ratio of male to female students in Saudi Arabia is even. Students' attitudes towards learning are generally positive in all 3 countries. In Saudi Arabia and Kuwait, most pharmacy graduates work in the public sector, while in Jordan, the majority work in the private sector.

Keywords: pharmacy education, Jordan, Saudi Arabia, Kuwait

INTRODUCTION

The Hashemite Kingdom of Jordan is a small Arab country in the Middle East with a total population of just over 5.5 million people. Jordan is considered a developing country with inadequate supplies of water and other natural resources.¹ In contrast, Kuwait a tiny country of 2.5 million people located between Iraq and Saudi Arabia, with 10% of the world's oil, is relatively rich. The Kingdom of Saudi Arabia is slightly more than one fifth the size of the United States and has a population of approximately 26 million. The Kingdom borders the Arabian Gulf and the Red Sea, north of Yemen. Saudi Arabia has the largest oil reserves in the world and ranks as the largest exporter of oil.

History of Pharmacy Education

The establishment of pharmacy schools in all 3 countries has been relatively recent. In Jordan, 2 faculties of pharmacy were established from 1979 to 1980: one at The University of Jordan (JU), located in the capital, Amman, and the other at Jordan University of Science and Technology (JUST), in the northern city of Irbid. Teaching started at both faculties with few full-time faculty members and a few part-time lecturers. The first group of students, numbering 90, graduated in 1985. In addition to the 2 aforementioned government-funded universities, 6 privately funded universities have pharmacy programs in Jordan. Over the past 24 years, the total number of pharmacy graduates in Jordan has surpassed 4000.^{2,3}

Prior to 1996, Kuwait did not have a school of pharmacy. Most pharmacists working in the country were trained outside the country, mainly in the United States, the United Kingdom, and Egypt. The large expenses incurred from training pharmacists abroad, the need to improve pharmacy services in the country, and the need to alleviate the shortages of pharmacists led to the establishment of the Faculty of Pharmacy at Kuwait University

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(KU) in 1996. The first class of 31 students was admitted to the program in September 1997 and 30 students graduated in June 2002. Currently the pharmacy program graduates an average of 40 students annually.

In Saudi Arabia, the first college of pharmacy was established in King Saud University (KSU), Riyadh, in 1959.² The first year commenced with the enrollment of 17 students. Currently the total number of students in the College of Pharmacy at KSU has increased to over 1500 students.² Other schools of pharmacy have since been established in Saudi Arabia. These include King Abdul Aziz University (KAAU) in Jeddah, the College of Dentistry and Pharmacy in Riyadh (a privately funded institution), The Faculty of Clinical Pharmacy at King Faisal University (KFU) in Al-Ehsa, and the Faculty of Pharmacy at King Khalid University in Abha. Reasons for the increase in the number of pharmacy schools include the popularity of pharmacy as a profession, an increased demand for pharmacists in the country, and the general increase in the number of high school graduates seeking to enroll in colleges. There also appears to be a reduced reliance on expatriate pharmacists in the Kingdom; hence, the need to train more pharmacists locally.

Pharmacy Programs and Degrees Offered

The degree of bachelor of pharmacy (BPharm) is offered in all 3 countries. The 2 main faculties of pharmacy in Jordan are comprised of 3 main departments: Biopharmaceutics and Clinical Pharmacy, Pharmaceutics and Pharmaceutical Technology, and Medicinal Chemistry and Pharmacognosy. In addition to the BPharm program, JUST now offers a 6-year doctor of pharmacy (PharmD) degree program which started in 2000. Jordan University also commenced a similar PharmD program at the end of 2005. Jordan is the third country in the region to run PharmD programs following the Lebanese American University (LAU), accredited by the Accreditation Council on Pharmaceutical Education (ACPE) and the Faculty of Clinical Pharmacy at KFU at Al-Ehsa.

In order to graduate with a BPharm degree in Jordan, students are required to complete 150 credit hours of university and faculty requirements (at the time this article was written) and 1440 hours of practice training throughout the 5-year pharmacy program in community pharmacies, hospitals, or industry. For the PharmD program, the number of credit hours required is 219. The sixth year of study of the PharmD program is the experiential year during which students spend 14 weeks in community and hospital pharmacies, followed by 5 consecutive 6-week rotations in various medical specialties such as paediatrics, internal medicine, and surgery. The language of instruction for all pharmacy

teaching in Jordan is English. The Faculty of Pharmacy at JU is taking serious steps in the direction of being internationally accredited, in collaboration with the Quality Assurance Agency (QAA) in the United Kingdom.

The Kuwait University Faculty of Pharmacy runs a 5-year BPharm program. The Faculty has 4 main departments: Pharmacy Practice, Applied Therapeutics, Pharmaceutics, and Pharmaceutical Chemistry. In the first year of study, like in Saudi Arabia, students enroll in basic science courses such as chemistry, physics, and biology. Even though English is taught beginning in elementary school in Kuwait, few students are proficient in English by the time they enter a university. Because of this, the pharmacy curriculum includes English language in the first year of study.

In the second through third years of study, students start the core pharmacy subjects. In the second year, medical science subjects such as physiology, anatomy, and biochemistry are also studied. Though didactic lectures are delivered in the fourth and fifth year of study, emphasis is on clinical practice and students in these years of study participate in clinical placements. These placements are not confined to pharmacy, and include medical rotations. As in Jordan, English is the language of instruction in the Faculty of Pharmacy in Kuwait.

Currently, plans are also underway for the Kuwait pharmacy program to be evaluated by the Accreditation Council on Pharmaceutical Education (ACPE) in the United States. The hope is that in the near future, the Faculty would acquire full accreditation status. At the time of writing, initial contact had been established between the Faculty of Pharmacy in Kuwait and the ACPE.

The College of Pharmacy at King Saud University consists of 5 departments; pharmaceutics; pharmacology, pharmacognosy, pharmaceutical chemistry, and clinical pharmacy. BPharm students enroll for a 5-year program consisting of 10 semesters. The first year includes basic science courses. In their second, third, and fourth years, students are required to take courses from all 5 departments. Final-year students choose from a variety of elective courses offered such as hospital pharmacy, clinical pharmacy, pharmacognosy, and pharmacology. In addition, final-year students are required to complete a compulsory 1 semester clerkship in various hospital settings. The language of instruction in pharmacy schools in Saudi Arabia is also English.

TEACHING

Teaching methodology in all 3 countries combines traditional didactic lecturing with more modern methods of instruction based on interactive discussions, research, and creative thinking. Didactic teaching is supplemented

by interactive multimedia teaching techniques such as videotapes, slides shows, and other computer-based instructional material. In both Jordan and Kuwait, the establishment of e-learning courses in different areas of pharmacy plays a major role in promoting self-learning among students.

In Kuwait, traditional lectures in pharmacy practice are reinforced with both dispensing laboratories and practicums and case studies. In the practicums, students dispense simulated prescriptions. During the process, students are required to regard these prescriptions as they would real cases. This includes contacting the prescribing physician (member of staff) if the student thinks there is an error in the prescription that requires intervening. A computerized dispensing system, the *FSI* from Foundation Systems, Inc. (2003, Lindon, UT) is used for dispensing practicals. By the time they graduate, students are expected to be competent with at least one computerized dispensing system. Plans are also underway to train students to run at least one automated dispensing system. Two CONSYS (2003, Baxter Healthcare, Berkshire, UK) automated dispensers have been acquired by the University for teaching purposes.

At the Faculty of Pharmacy in KU, examination questions are mainly in multiple-choice format. Though there are limitations to this method of evaluation, it appears to be the most suitable for students with limited language ability, especially in settings where English is not the first language. Examinations in Jordan and Saudi Arabia are a mixture of short-answer questions and multiple-choice questions. Oral examinations are also included in formal student assessments. Short reports and presentations are routinely used for assessing students in all 3 countries.

STAFFING

The faculties of pharmacy at JU and JUST in Jordan currently employ 27 and 24 faculty members, respectively. In addition, there are a number of support staff employed to help with both teaching and research. Graduates with high grades from the 2 universities are often offered scholarships to study for higher degrees abroad, usually PhDs, with the aim of satisfying staffing needs. The Clinical Pharmacy department at JUST has agreements with the Faculty of Pharmacy at the University of Iowa for exchange of students and faculty members to help with maintaining staffing capacity. Faculty of Pharmacy at JU hosted several guest lecturers and researchers for short-term visits (eg, from Strathclyde University, Fulbright University, and DAAD (German Academic Exchange Services)).

The Faculty of Pharmacy in Kuwait currently has 24 academic members on staff, most of whom are from

North America and Europe. To date, the Faculty is still recruiting for various academic and clinical positions. Remuneration for academic members of staff in Kuwait is competitive. Currently, a number of former graduates have been recruited by the University for postgraduate training abroad, mainly in the United States, Canada, and the United Kingdom.

The Faculty of Pharmacy at KSU has over 100 academic members of different nationalities. As in Jordan and Kuwait, KSU has a policy of providing scholarships for postgraduate training, mainly in the United States and United Kingdom. Consequently, most of the faculty members have graduated from institutions in these 2 countries.

STUDENTS

The majority of students in both Jordan and Kuwait are female. In Kuwait, females make up 99% of the student population. At JU, approximately 66% of pharmacy students are female. The distribution of male and female pharmacy students in Saudi Arabia is even. Attitudes toward learning are generally positive in all 3 countries, though the affluence of Kuwait and Saudi Arabia appears to affect student commitment, devotion, and motivation towards careers in general.

EMPLOYMENT

The majority of pharmacists (93%) in Jordan work in the private sector.⁵ Community pharmacies are the most accessible primary health care facilities in Jordan with over 1500 registered pharmacies distributed throughout the country. Still, patients rarely consider community pharmacies as health care facilities. This leads to limited interaction between pharmacists and patients, resulting in a poor public image of community pharmacists. However, the patient care-oriented PharmD programs will graduate pharmacists who are capable of providing better pharmaceutical care to patients and improving this image.

Almost all the pharmacists who graduate from the KU Faculty of Pharmacy work for the Kuwait government. However, there are currently limited clinical pharmacy services in Kuwait. Only 1 hospital in the country has established some form of clinical pharmacy services. Currently, the duties of hospital pharmacists in Kuwait mainly pertain to administrative roles such as drug orders, stock control, and personnel management. The Faculty of Pharmacy at KU, together with the Ministry of Health, are working on implementing clinical pharmacy programs in Kuwait. A major barrier in changing the practice of pharmacy in Kuwait is the lack of appreciation of pharmacy services by clinicians, policymakers, and patients. Since the inception of the Faculty of Pharmacy, policymakers

have appeared more receptive to change due to various initiatives taken by the Faculty of Pharmacy.

Currently, very few pharmacy graduates in Kuwait work in the private sector. This could be due to the fact that most patients rarely consider the community pharmacy as a healthcare facility. In Kuwait, patients view a visit to the community pharmacy to purchase a prescription or nonprescription drug in much the same way they view a visit to the supermarket to purchase food. In community pharmacies in Kuwait there is seldom interaction between the pharmacist and the patient. Intervention to change this practice could come from graduates from the Faculty of Pharmacy who are taught the importance of interacting with patients.

In Saudi Arabia, the majority of the pharmacy graduates choose to work in hospitals rather than in community pharmacies. Clinical and hospital pharmacies in Saudi Arabia are well developed and clinical pharmacists well remunerated. The attitude towards community pharmacy practice in Saudi Arabia is similar to that in Kuwait. Plans to improve the status of community pharmacy practice in the Kingdom are currently underway.

FUTURE

In general, the future of pharmacy in the 3 countries looks bright. To begin with, an increasing number of schools of pharmacy appears to indicate a thriving profession. For pharmacy to grow and be sustainable as a profession, it needs an adequate number of pharmacists. In addition to increasing numbers, training needs to have high standards. The establishment of PharmD programs in Jordan and Saudi Arabia, and the impending evaluation of the pharmacy program in Kuwait and Jordan by ACPE and the Quality Assurance Agency (QAA) in the United

Kingdom, respectively, are indicators of attempts to improve the quality of pharmacy education in the region. In addition, the recruitment of experienced, renowned academic members of staff for the Faculties of Pharmacy in all 3 countries serves as a testimony of the desire for quality pharmacy education and practice in all 3 countries.

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