



Challenges to pharmacy and pharmacy practice in Pakistan

Khan TM

College of Clinical Pharmacy, King Faisal University, PO Box 400, Al-Ahsa, Kingdom of Saudi Arabia

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Corresponding Author:

Tahir Khan
College of Clinical Pharmacy, King Faisal University
PO Box 400, Al-Ahsa, Kingdom of Saudi Arabia.
Email: tahir.pks@yahoo.com

Abstract

The Islamic Republic of Pakistan is the sixth most populous country in the world. While exploring the history of the development of the pharmacy profession, the author discovered that the late Sheikh Nabi Buksh was the first to start a general store with a pharmacy in 1863. After the independence of Pakistan (14 August 1947), the University of Punjab became the first institution to develop a three-year bachelor programme in 1948 which was extended to four years in 1978–1979. In 2003, a step towards further change was seen when the Higher Education Commission (HEC) upgraded its BPharm programme to a five-year Doctor of Pharmacy (PharmD) programme. At the moment the Pakistani PharmD programme is facing a number of problems which are acting as a hurdle to Pakistani pharmacists and the establishment of pharmacy practice as a profession in Pakistan. This perspective will highlight these challenges so that the HEC and the Pakistan Pharmacy Council (PPC) can intervene to modify the Pakistani healthcare system in order to establish a good foundation for practicing pharmacists and to develop strategies to cope with the challenges accordingly.

Key Words: Islamic Republic of Pakistan, Higher Education Commission, Doctor of Pharmacy (PharmD) programme, Challenges, Pharmacy Council of Pakistan.

Background

History of pharmacy

The credit for the foundation of pharmacy as a profession goes to the ancient Greeks. In the Greek legend, "Asclepius",

the god of the healing art, assigns the compounding duties to "Hygieia". She (Hygieia) was his apothecary or pharmacist.³ Later in Rome and during the Middle Ages in Europe this art of healing spread and apothecaries were assigned the job to provide herbal medicine to the physician to prepare.³ In 707 AD; Caliph Walid Ibn-e-Abdul-Malik in Damascus was the first to develop a hospital, where Tabib (physician) and apothecary used to practice together.^{1,2} The segregation of pharmacists' and physicians' duties was done for the very first time in the 8th century AD during the Arabian influence in Europe.³ Later in the 9th century AD pharmacy had acquired the shape of a profession in the civilised world of Baghdad.¹ This preliminary form of pharmacy spread later to Egypt, China and Europe. The invention of new methods for chemical analysis and for the manufacturing of products has changed the scope and job responsibilities of the pharmacist.² Keeping in view this change, in 1683 Benjamin Franklin legally forbade physicians from preparing medicine by hiring the first pharmacist in Pennsylvania Hospital, America³ and this was the first step toward the progress of the pharmacy profession.

History of pharmacy education

The initiative to start a first pharmacy professional course was taken by the Philadelphia College of Pharmacy (PCP), North America. In 1821, PCP started their first pharmacy professional course i.e. the Bachelor of Pharmacy (BPharm) a two-year professional course which was later upgraded to four years.^{3,4} However, in Europe, the first degree in pharmacy (BSc Pharmacy) was offered by Manchester University in 1904.⁵ Later, in the mid-19th century Americans took initiatives to incorporate the role of the pharmacist into direct patient care and in the 1960s the PharmD programme existed as a post-bachelor degree in America. Those attaining a BPharm degree will be allowed to do clinical practice only if they have a PharmD qualification with one to three years of optional residency. In 1990, the American Association of Colleges of Pharmacy (AACP) and Accreditation Council for Pharmacy Education mandated that a doctor with a pharmacy degree would be the new first-professional degree which is essential to practice in the United States of America.^{3,4}

Initiatives to develop pharmacy education in Pakistan The Islamic Republic of Pakistan is the sixth most populous country in the world, and it acts as a supplier of human resources worldwide. Pakistani professionals have played a vital role in the progress and development of many countries. In the late 1980s, medical professionals such as doctors and nurses, actively contributed towards the progress and development of many countries like



Great Britain, the United States, Canada, the Gulf region etc. The main reasons for the migration of professionals are the lack of opportunities and attractive work environments at home as well as demand from abroad. The same practice has continued with the economic crisis, political conditions, geo-strategic issues and coalitions in the fight against terrorism motivating young professionals to consider migration and foreign employment opportunities. In the current scenario, pharmacy is another profession that has a high demand worldwide and Pakistani pharmacists are seeking foreign opportunities to continue or start their practice or careers.

Historical records reveal that the first pharmacy in the subcontinent was founded in 1863 when the late Sheikh Nabi Buksh, in Gujrat started a general store with a pharmacy.⁶ After the independence of Pakistan (14 August 1947), the University of Punjab became the first institution to develop a pharmacy department in Pakistan in 1948. The University of Karachi and Gomal University followed suit. The first pharmacy programme was a three-year bachelor programme which was then extended to four years in 1978–1979. Like most countries, the initial goal of the programme was to produce pharmacists to fulfil the needs of the pharmaceutical industry. In 1998 when I enrolled in the Bachelor of Pharmacy (BPharm) programme, I was not familiar with the scope of the programme. All I knew was that this programme had something to do with medicine and that one can open a medical store after getting a degree. Later it was revealed that pharmacists could not only play a vital role in the manufacture of medicines, but they could also play a role in hospitals and retail pharmacies. But practice is always a little different from theory, so what we learned was only applicable in the pharmaceutical industry.

By 2000, there was a high demand for pharmacists in the pharmaceutical industry, but because only about 10 public universities were offering the BPharm programme and the annual number of graduates was not sufficient to fulfil the needs of the pharmaceutical industry. In 2003 a step towards change was affected with the willingness of most universities to upgrade the BPharm programme to a five-year Doctor of Pharmacy (PharmD) programme. At that time the HEC was at its maximum strength both in terms of financial aid and human resources. HEC took the initiative to develop a five-year PharmD programme which was to be strictly followed by all universities in Pakistan. A preliminary draft was generated in December 2003 which was finalised by the National Curriculum Revision Committee at the final curriculum revision meeting held from 18 to 20 March 2004.⁷ Currently, all public and private universities are following the HEC-approved PharmD programme, which is one of the essential conditions for the PharmD accreditation for the university and a requirement by the PPC for a pharmacist to practise in Pakistan.⁷

In spite of acknowledging the initiative taken by the HEC to upgrade and standardise the current pharmacy education system according to international educational and practice needs, many have criticised the Pakistani PharmD programme. Initially the PharmD was questioned in relation to the high

demand of pharmacists in the pharmaceutical industry or it can be said that there was no need to upgrade the BPharm programme to a PharmD, because BPharms were suitable for the requirements of the industry.^{8,9} Later issues concerning the clinical contents of the curriculum and deficiencies in the curriculum were highlighted in a way so as to present the Pakistani PharmD programme as a tag not a professional degree. It seems quite easy to comment on the PharmD programmes in developing nations but no one sees the facts that the PharmD was initiated in 1955 in the USA by the University of California and it took about 30 years for the authorities to develop a clinically-oriented curriculum which was assumed to be adopted for the PharmD as a national professional degree in the USA.^{3,4} During this time frame of 30 years many hurdles and barriers have been faced which are often neglected while criticising the PharmD in Asian countries. Particularly speaking, in terms of the PharmD initiative in the Asian sub-continent, the majority started as PharmD programmes in 2003–2007. In spite of deficiencies in the hospital-based setting for the role of the clinical pharmacist and other resistance in the form of the criticism to these PharmD programmes, many countries like Pakistan, India, the Philippines and Thailand have successfully adopted the PharmD as a professional degree. However, for developed nations like the US, this struggle started in 1955 and in the 1990s, the ACCP and professional American pharmacy organisations took a decision to adopt the PharmD programme as a professional degree.^{3,4} The criticism of Jamshed et al (2007) and Jamshed et al, (2009) may be valid in some cases where they have highlighted improving the clinical content in the syllabus and lack of qualified clinical pharmacy teaching staff which are even one of the main challenges faced in the USA. Approximately 56% of faculty positions are vacant primarily due to a lack of candidates with suitable academic qualifications.¹⁰ However, it will be an injustice to label a professional degree as a tag, the efforts taken to improve the pharmacy education system in Pakistan should be encouraged and fruitful criticism should be done by experts which will help positive modifications instead of directly spoiling the integrity of the national programme.

Furthermore, with the latest revisions (April 2010) being approved by the curriculum committee, few deficiencies in the clinical part of the syllabus are covered.⁷ However, this does not mean that there is no room for further improvement and revisions in the programme. Curriculum development is a continuous process and with periodic revisions the percentage of flaws and deficiencies become less automatic. Still there are many experiential and clinical-based deficiencies in the PharmD curriculum which should be compensated for on a priority basis. Apart from the deficiencies in the curriculum, the graduating PharmDs have to face a number of challenges in the Pakistani healthcare system. The aim of this perspective is to highlight the challenges to the pharmacy profession, so that the HEC and the PPC can make positive amendments in the curriculum and the healthcare set-up



in order to establish a solid foundation for practicing pharmacists and to develop strategies to scope with the challenges accordingly.

Challenges to the pharmacy profession in Pakistan

Comparison of Pakistani PharmD with regional and international programmes

The step toward the commencement of a PharmD programme was taken by the ACCP 2000. Many Asian and European countries have upgraded their BPharm programme to a PharmD; currently Asia, Pakistan, India, the Philippines and Thailand have started the PharmD. On other hand in the Gulf region the Kingdom of Saudi Arabia, Lebanon, the United Arab Emirates and Qatar are offering PharmD programmes. To follow is a comparison of some Asian and Middle East programmes with the Pakistani PharmD programme.

Starting with the sub-continent, in India at the moment the BPharm degree is continued with the PharmD degree¹⁴, in addition a crash course has also been launched for the BPharm graduates in order to make their qualification equivalent to the PharmD graduates. Moreover an additional degree, the Masters in Clinical Pharmacy, is also in practice.¹⁵ The first step to implement the PharmD programme in India was taken in 2007 and the first batch of Indian PharmDs will graduate in 2014.¹⁴ A senior professor at one the pharmacy colleges in Karnataka, stated that at the moment there is limited scope for the PharmD in India but it will be wise to continue it in India to fulfil the needs of industry. As in Pakistan, the Indian PharmD programme is also facing criticism in terms of programme design and content of the curriculum, furthermore Shazia et al, (2007) also disclosed that the Indian PharmD is designed by highly non-technical personnel who have no idea about clinical pharmacy or pharmacy practice.⁹ The main focus for the Indians is on pharmaceutical technology with a limited focus on clinical pharmacy.¹⁸ Also as in Pakistan the hospital pharmacy/clinical pharmacy is at a preliminary level in India and due to this reason the involvement of the pharmacist in direct patient care is limited which has a major association with the lack of a clinical component in the PharmD syllabus.

Similarly Iran has also modified the BPharm programme to a PharmD programme. However, the syllabus lacks the potential to give clinical insight to students because of the limited exposure to the clinical set-up and patient care.¹⁶ This deficiency is defended by the statement that "pharmacy education and pharmaceutical services in Iran must be in accordance with social needs".¹⁷ In other words they have designed their PharmD curriculum according to the available facilities in the healthcare set-up and the percentage of the clinical components also depends on per country requirements.

In the Gulf region the main countries offering the PharmD are the Kingdom of Saudi Arabia, Lebanon, the United Arab Emirates, Jordan, Qatar and Kuwait. However, many institutions still offer BPharm and MPharm degrees.²¹

Comparatively the Gulf universities have a better PharmD programme than the Asian countries. A well-established healthcare set-up, state of the art hospital/community pharmacy chains, consultation and guidance from developed nations and availability of qualified multicultural medical and teaching staff are the main reason that has enabled them from the very start to design PharmD programmes with ideal clinical components. Furthermore, most of the universities in Saudi are taking consultancy from American foreign consultants who are well aware of the design and curriculum setting for the PharmD programmes that has enabled most Saudi universities to set a clinically effective curriculum.²¹

With regards the Pakistani PharmD programme there are, in particular, many deficiencies in the clinical content of the curriculum that need to be covered. For example, there is limited didactic and practical exposure for students to feel, see and understand their future role in public health, similarly the subjects assigned for therapeutics, community pharmacy and pharmaceutical care are also insufficient to equip future graduates with the knowledge that will enable them to play an effective role in direct patient care. However, apart from its limitations the Pakistani PharmD programme is perhaps the only programme that complies with the criteria of "The Bologna Declaration". The vision of "The Bologna Declaration" of 19 June 1999 in Barcelona is to synchronise the curriculum throughout European pharmacy colleges to ensure the same quality of graduating pharmacist in every region.¹⁹ In addition almost the same thought was under discussion in forums at the International Pharmaceutical Federation (FIP) and the United Nations Educational, Scientific and Cultural Organization (UNESCO) to synchronise the curriculum in pharmaceutical sciences education in order to ensure uniform quality and to improve communication for scientific innovation, healthcare outcomes, and ultimately, the attainment of the Millennium Development Goals.²⁰

It is my contention that the pharmacy profession is facing four main challenges:

1. PharmD curriculum development and challenges to the PharmD programme

a. Motivation for the PharmD programme

The development of this programme was for two important reasons.

The first reason was to fulfil an international need so that Pakistani pharmacists would not face problems in continuing their higher education and applying for jobs worldwide and in my view this is the right of every developing country to do this, even Canadians have upgraded their BPharm programme to a PharmD. This upgrading was not only to create uniformity in pharmacy



education standards with Americans but also to provide a way for future graduates to practice in the US.

The second motivation was *job saturation* for pharmacists in the pharmaceutical sector. *Job saturation* had risen to about 75% in the pharmaceutical industry, according to the HEC in the curriculum report developed by the National Curriculum Revision Committee.⁷ Furthermore, keeping in view the international need, it was essential to prepare Pakistani pharmacists to play their role in well-organised clinical set-ups (e.g. hospitals, basic health units) and in pharmacies (i.e. retail and community pharmacies).

b. Limitations of the PharmD programme

Although the motivation and the intention to develop the programme were good, in approving the final curriculum there was no consultation with the institutions offering the PharmD programme worldwide. If there had been consultation at the onset, a better programme, free from serious criticism, would have emerged. Most of the universities in the Gulf region provide an excellent example of this. They have adopted the concept of benchmarking. In particular the Saudi PharmD programme, for example, developed by King Faisal University is good in this regard. Even with limited availability of clinical staff they have designed a curriculum that is accredited by the Accreditation Council for Pharmacy Education (ACPE). First they have evaluated the national pharmacy education curriculum that is offered by other institutions. In the second phase they have designed a curriculum keeping in view the local and ACPE requirements and in the third phase they have sent their curriculum for review to foreign specialists to comment on its contents.

Many Pakistani universities have adopted the alternative of signing a Memorandum of Understanding (MOU) to counter some of the deficiencies by sharing knowledge, skills and updates in clinical pharmacy with other universities. Many have chosen to sign a MOU with Universiti Sains Malaysia (USM). USM is one of the reputable universities in Malaysia and its recent APEX status has made it the number one research university in Malaysia. It also has a well-established clinical pharmacy curriculum. But so far none of the Malaysian universities has taken the initiative to develop or commence a PharmD programme. However, it will be an excellent choice to seek consultancy from USM for a programme that is not in practice in Malaysia.

c. Examination system

Another important issue is the examination system. Many of the universities continue to implement the old annual examination system. In other words, the PharmD programme in Pakistan is functioning under a dual examination system, that is, either an annual or a semester system.¹⁰ Even more surprising is the fact that different institutes practicing the same system are not uniform in terms of grading their students. This can deprive capable students of obtaining jobs since both in the government and the private sectors candidates are short-listed based on their grades in pharmacy school.¹⁰ Hence, there is a real need to standardise the examination system in all pharmacy institutes of Pakistan.¹⁰

2. Availability of hospital jobs and acceptance by medical and paramedical staff in clinical settings

One of the major challenges graduating PharmD pharmacists have to face is the availability of hospital jobs and acceptance of pharmacists in clinical settings by the medical and paramedical personnel. Muhammad (2008) has praised the activities and effectiveness of the pharmacy residency programmes at the Agha Khan University Hospital (AKUH), Karachi, Pakistan.¹¹ AKUH is undoubtedly a source of inspiration for pharmacists willing to practice and enhance their skills in clinical practice; it is possibly the only institution that has taken early initiatives to establish hospital pharmacy practice in 1990s. Furthermore AKUH has a well-established drug information centre and total parental nutrition and aseptic preparation the reason that it attracts pharmacy graduates to enhance their expertise in the field of hospital pharmacy. However, AKUH does not exemplify a typical clinical pharmacy practice in Pakistan because of the lack of qualified staff which is one of the major challenges that limit the development of the ideal pharmacy practice set-up. Although the government of the Punjab Province Pakistan has announced jobs for pharmacists in government hospitals, the pharmacist merely performs a clinical role. In many public hospitals, there is only one post for a pharmacist, so there is a long waiting list. Often the person in charge of the medical store is a MBBS doctor with the pharmacist performing a clerical role in its management. When we talk about the PharmD, we should be talking about the role of pharmacists in clinical practice, but in Pakistan their role in patient care and the rational use of drugs remains in doubt.

In fact, there is a need to explore doctors' willingness to accept the role of the clinical pharmacist in patient care. This is further reinforced by the evaluation of nurses' responses towards the clinical role of the pharmacist. In their view, the pharmacists' role is to perform managerial duties in supervising the distribution of medicine in hospitals.¹² They have suggested that the availability of the pharmacist at the hospital around the clock may improve patient care. However, Pakistani nurses are more likely to believe that pharmacists being allowed to be a part of patient care will be an intrusion in their affairs, and they would prefer pharmacists to focus on the management of pharmacies rather than patient care.¹² In short, for the development of an effective pharmacy practice set-up in Pakistan, pharmacists will have to face resistance to enhancing their functional role in patient care not only from medical doctors but also from the paramedical staff, especially nurses. On the other hand physicians were also uncomfortable with the role of the pharmacist in direct patient care in Pakistan. Findings of Siara et al (2010) have shown that doctors consider pharmacists as drug information experts. However, their anticipation of pharmacists as providers of quality clinically-focused pharmacy services was low. The doctors



were also uncomfortable with pharmacists providing direct patient care.²³

There is yet another hurdle for the pharmacist. A dispenser is often available in pharmacies, especially in government hospitals performing the job of the pharmacist in dispensing extemporaneous preparations. The majority of these dispensers are part of the Army Medical Corps (AMC) Pakistan acting as a substitute for pharmacists. According to two pharmacists with previous exposure to hospital pharmacies (personal communication), often the active ingredients used in the extemporaneous preparations are either out of stock or are past their expiry date. Consequently, in most cases, a placebo or a blank extemporaneous preparation is given to the innocent Pakistani public. These dispensers often proudly introduce themselves as pharmacists although they are not qualified as pharmacists. Undoubtedly, they will be unwilling to relinquish the job functions they are currently performing without proper knowledge or training.

3. Dispensing rights to physicians and non-professionals

According to the rules and regulations of the Ministry of Health of Pakistan, a physician can set-up his own medical store where patients can get the prescribed medicines. The person in charge of filling the prescription does not have to be a pharmacist: he only has to have matriculated with 10 years of study equivalent to the British GCSE or have an intermediate qualification of 12 years of study equivalent to the British A-level. The right of these non-professionals and physicians to run their own medical stores is a big challenge to the functional role of pharmacist in retail and community pharmacy practice.

4. Pharmacists' responsibility in pharmacy practice

The Pakistani scenario is itself a big challenge for pharmacy practice. The majority of pharmacists rent out their category licence to practice in Pakistan to laymen for a monthly payment. Consequently, the person who runs the medical store/retail/community pharmacy is a non-professional who has little knowledge of drug interactions and dosages of medicine.²² Furthermore, the general public is often not aware of the role of the pharmacist in medical/patient care. While purchasing some prescribed medicine, I have personally observed people describing their symptoms to these non-professionals who then give them medicine to treat their medical condition. Given this scenario, the question that arises here is whether or not the Pakistani pharmacist is willing to practice in the community/retail pharmacy.

It is the duty of the PPC and Ministry of Health Pakistan to ensure the presence of the practicing person (i.e. the pharmacist) at the pharmacy around the clock. In addition, the PPC should enforce the pharmacy law: those retail/community pharmacies functioning under the supervision of non-professionals (i.e. non-pharmacists) should be closed and the licence of pharmacists renting out their licences cancelled if they cannot fulfil their social responsibility and supervise the medical store themselves. Furthermore, the PPC should discontinue the registration of category C diploma holders in pharmacy. These category C

holders are eligible to register with the PPC and to run a medical store/retail pharmacy in their localities. With the implementation of the PharmD programme, it is the responsibility of the PPC to take strict initiatives at the grassroots level so that future pharmacists get a favourable environment to play their role freely and effectively to strengthen the healthcare set-up in Pakistan.

Conclusion

In Pakistan, pharmacy education is at a transitional stage, in terms of curriculum. A lack of experienced and qualified staff is the main challenge that the education sector is facing after upgrading the BPharm programme to a PharmD programme. This is one of the main reasons for the deficiencies in the clinical contents of the PharmD programme. Furthermore, the role of the pharmacist as a member of the healthcare team and in direct patient care does not exist in Pakistan which will be a major challenge for the graduating pharmacist and a possible reason for the lack of acceptance by the medical and para-medical staff for the role of the pharmacist as a healthcare provider.

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