ABSTRACT
Pharmacy profession has become more dynamic in recent years. Pharmacy graduates need additional practical and clinical skills which can be acquired from direct interaction with patients and other health care professionals. To accomplish this, graduates require more effective courses and clerkships. Effective clinical pharmacy clerkship is essentially a pharmacy training program in clinical settings where pharmacy graduates acquire clinical training and skills. In Pakistan, clinical pharmacy continues to be at its gross-root level and because of this reason the involvement of the pharmacist in direct patient care is restricted. Suggestion is that there should be a legally qualified and professionally competent pharmacist in every unit of the hospital. This viewpoint will highlight hurdles to the profession and the clerkship program so that the main stakeholders can intervene to transform the Pakistani healthcare system in order to establish a good foundation for practicing pharmacists and to develop strategies to cope with the challenges consequently.

Keywords: Clinical pharmacy clerkship, challenges, health care system, Pakistan, patient care

INTRODUCTION
Health care cannot be effectively provided without drugs and a skilled pharmacy workforce to deliver them [1-3]. Around the globe efforts are being made to transform the capacity of hospital pharmacy by moving the hospital pharmacists from dispensing counters into the wards and clinics. Relatedly, there is an increasing trend in low income countries such as Pakistan and India towards Doctor of Pharmacy (Pharm.D) level education. In Pakistan, about 2587 pharmacists graduate every year. More than 50% work in the pharmaceutical industry and less than 25% actually work in a hospital or community pharmacy [4-7]. This number is too low to provide best possible health care delivery to the population in hospital and community setup.

Focusing mostly on clinical pharmacy, the Pakistan Pharmacy Council and Higher Education Commission of Pakistan allowed few institutions to start a five year Pharm.D degree in 2003.

There are a number of reasons for shifting to a more clinical oriented degree, including more complex therapies coming to market, an increasing geriatric population with more morbidities and conditions requiring more complex therapies, and the growth in tertiary care and hospital-based care. There is also a greater threat of litigation forth inappropriate use of medicine. In addition, much more consideration has been given to the degree of drug therapy problems, highlighting the need for interventions to improve patient outcomes and safety and to improve cost effectiveness. Since 2003, there has been a change in education from the conventional role of pharmacist in industry and marketing, which have been Pakistan's strengths, towards community and clinical pharmacy [8]. The objective of this viewpoint is to highlight the challenges to the pharmacy profession, so that the health care authorities, Pakistan pharmacy council and higher education commission can make positive changes in the syllabus and the healthcare setting in order to establish a solid basis for practicing pharmacists and to develop policies to scope with the challenges in view of that.

EFFECTIVE CLINICAL PHARMACY CLERKSHIP
Effective clinical pharmacy clerkship (ECPC) is essentially a health training program in clinical settings where pharmacy graduates acquire clinical training, skills needed for rational drug utilization with particular importance on recognition of actual and potential drug therapy problems, after case analysis and then to recommend appropriate management of patient drug therapy in conjunction with other health care professionals [9].

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Medicine management is an important tool in the prevention and treatment of diseases and health problems [10]. No useful data related to ECPCP is available in most of the developing countries of the world including Pakistan; ECPCP provides the way the pharmacists can extend their medicine-based knowledge and skills. An effective clinical attachment with a physician consultant in wards and outpatient departments presents many opportunities for learning. The pharmacist fully uses these opportunities to gain greatest possible benefit from the program and to progress in an acceptable way in the field. Within ward, the pharmacist requires to produce a detail process of figuring out the worth, of a wide range of patients; critical drug therapy evaluation and increase the effectiveness of the ECPCP input to the ward. This program prepares graduates with the skills and knowledge for managing drug therapy in partnership with patients, doctors and other health care professionals.

Effective clinical pharmacy clerkship program will specialize in observance of the standard improvement program and drug utilization review program that ought to embody a system for observance, reviewing, and reportage medication errors to help in distinctive and eliminating causes of errors and preventing their repetition.

**EFFECTIVE CLINICAL PHARMACY CLERKSHIP IN PAKISTAN**

Now in Pakistan, ECPCP is an important part of the clinical pharmacy and is also required for the partial fulfillment of the requirements for the degree of Doctor of pharmacy (Pharm.D). It has been reported that Pharm.D graduate’s positive interventions as a team member of health care professional can improve proper drug utilization in health care settings [11-13].

Most of the work during clinical pharmacy clerkship comprised of recording patient histories with special emphasis on medication histories. Clerkships and hospital internships are given only 10% to 15% of the total grade. Clinical clerkship should impart sufficient clinical skills to students and therefore recommended to be assessed for clinical skills independently from that of course work. Similarly, there should be sufficient room for public speaking and seminars, which are also important aspects of skills training for pharmacists [14].

**MAJOR CHALLENGES TO THE PHARMACY PROFESSION AND CLERKSHIP PROGRAM IN CLINICAL SETUP 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.

Pharmacists in Pakistan are undergoing an “identity crisis” with nearly 90 percent of pharmacy graduates going away from Pakistan after their graduation. Reasons conducive to the exit embody a shortage of established hospital pharmacy services within the country, barriers to effective pharmacy practice, lack of dispensing separation and standard practice guidelines. A difficulty in continued growth of these clerkship programs is the lack of educational and clinical training capacity in several institutions. The shortage of preceptor is a worldwide problem. Even in the developed countries, there are difficulties in providing adequate numbers of hospital-based preceptors. So as for practitioners to achieve success and effective preceptors, they need time to receive appropriate training and preparation, which then becomes a staffing and human resources issue [15].

In Pakistan, the clinical pharmacy is in juvenile phase and because of this, the involvement of the pharmacist in direct patient care is restricted. This is often additionally the major reason for the dearth of a clinical element within the Pharm. D syllabus [16]. Many developed countries of the Gulf, Asian and European region have upgraded their BPharm (bachelor of pharmacy) program to a Pharm.D; after the Pharm.D program started by the American College of Clinical Pharmacy in 2000. Currently in Asia, Pakistan, India, Philippines and Thailand have started the Pharm.D degree program.

**PAKISTANI PHARM.D PROGRAM COMPARISON WITH SOME ASIAN AND MIDDLE EAST PROGRAMS**

Starting with the sub-continent, in India, The first step to implement the Pharm.D program in India was taken in 2007 and the first batch of Indian Pharm.D graduated in 2014. As in Pakistan, the Indian Pharm.D program is also facing criticism in terms of program design and content of the curriculum, the main focus for the Indians is on pharmaceutical technology with a limited focus on clinical pharmacy.

Similarly, Iran has also modified the BPharm program to a Pharm.D program. 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. In the Gulf region the main countries offering the Pharm.D are the Kingdom of Saudi Arabia, Lebanon, the United Arab Emirates, Jordan, Qatar and Kuwait. However, many institutions still offer BPharm and Pharm.D degrees [17].

Comparatively, the Gulf universities have a better BPharm and Pharm.D program 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 reasons that has enabled them from the very start to design Pharm.D programs with ideal clinical components [18,19].

With regards, the Pakistani Pharm.D program, 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 Pharm.D program is perhaps the only program that complies with the criteria of “The Bologna Declaration”. The vision of “The Bologna Declaration” of 19 June 1999 in Barcelona is to synchronize the curriculum throughout European pharmacy colleges to ensure the same quality of graduating pharmacist in every region.

The pharmacy profession is facing four main challenges as described by Khan TM 2011[16]:

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The first reason was to fulfill a global need and the second reason was job saturation for pharmacists in the pharmaceutical sector. Keeping in view the international need, it was essential to prepare Pakistani pharmacists to play their role in well-organized clinical set-ups (e.g., hospitals, basic health units) and in pharmacies (i.e., retail and community pharmacies).

Although the intention to develop the program was good but approving the final curriculum there was no consultation with the institutions offering the Pharm.D program worldwide. If there had been consultation at the onset, a better program, free from serious criticism, would have emerged. Most of the universities in the Gulf region provide an excellent example of this.

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.

One of the major challenges graduating Pharm.D pharmacists have to face is the availability of hospital jobs and acceptance of pharmacists in clinical settings by the medical and paramedical personnel. Agha Khan University Hospital (AKUH), Karachi, Pakistan 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. Although the government of Punjab province Pakistan has announced jobs for pharmacists in government hospitals, the pharmacist merely performs a clinical role. Health department of Khyber Pakhtunkhwa Pakistan has also approved 119 vacancies of pharmacists in government hospitals that are pending for announcement.

In fact, there is a need to explore doctor's willingness to accept the role of the clinical pharmacist in patient care. This is further reinforced by the evaluation of nurse's responses towards the clinical role of the pharmacist. In their view, the pharmacist's role is to perform managerial duties in supervising the distribution of medicine in hospitals. 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. 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 from other healthcare professionals.

CONCLUSION

In Pakistan, pharmacy education is at its transitional phase, in terms of curriculum. A lack of experienced and qualified academic staff is the main challenge that our pharmacy education sector is facing. This is one of the main reasons for the deficiencies in the clinical contents of the Pharm.D program. Furthermore, the role of pharmacist as a member of the healthcare team and in direct patient care does not exist in Pakistan, which is 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.

Some of the recommendations that can enable pharmacy educators to produce ideal pharmacists that can provide direct patient care are: Training and practical skills based Pharm. D curriculum, launching ideal pharmacy practice setups, applying the practical experience gained in academic settings by interning in existing clinical initiatives, employing clinical care based interventions during ward rounds, emphasizing on problem based learning and pharmacy curriculum development and validation model.

With the implementation of the Pharm.D program, it is the responsibility of the Pakistan pharmacy council to take strict initiatives at the gross root level so that future pharmacists get a favorable environment to play their role freely and effectively to strengthen the healthcare set-up in Pakistan.

Conflict of Interest

None.

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