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Pharmacy Education and Practice in Pakistan: A Guide to Further Development

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Introduction

Health care services (hospitals and clinics) in Pakistan usually exhibit a very prominent role of physicians assisted by nurses. Pharmacist's duties are being performed by nurses, mid-wives, lady health workers and other paramedical staff.[1] As health policies are made by such a committee that consists mainly of senior physicians so they allocate no space for pharmacy profession in health care services. Perhaps, physicians feel fear by the increasing role of pharmacists in health department so they are ignoring pharmacy profession as much as possible.

The number of pharmacy institutes has increased quantitatively not qualitatively since 2001 both in public and private sector throughout Pakistan (15 public and 8 private pharmacy institutes = 23 registered pharmacy institutes in whole country in 2009). These accredited

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institutes have offered baccalaureate degree of pharmacy in English for 170 million population of Pakistan.[2] They are graduating 900-1000 pharmacists each year. Nine pharmacy institutes (public and private as well as registered and affiliated) are present in Lahore city only. All these institutes are located in big cities. Many pharmacy institutes are offering co-education however; some institutes are devoted exclusively for only female students such as Lahore College for Women University (a public university) and the University of Faisalabad (a private university).

There is "so-called" merit or admission test to get into private pharmacy institutes. Most of them are money earning oriented corporations for owners. However, there is tough competition for admission in public pharmacy institutes. Approximately 15000 students applied for admission in all public pharmacy institutes in 2010 for only 900-1000 seats in morning shift for open merit. In many pharmacy institutes, there are two shifts of classes, morning and evening, due to which competition for admission has fallen to some extent. The rules and regulations of Pakistan Pharmacy Council regarding admission to Pharm. D. are given in Table I.

During the golden period of education in Pakistan (year 2000-2007), many new reforms in education including revision in curriculum were introduced by Higher Education Commission (HEC) of Pakistan. During the same era, 2004 Baccalaureate of Pharmacy degree was modified from Bachelor of pharmacy (B. Pharmacy, 4 year program) to Doctor of Pharmacy (Pharm. D.; 5 year or 10 semester program).[3]

There are only two publications in the literature that describe the current status of pharmacy education and practice in Pakistan.[4,5] So, the objective of this manuscript is to assess various shortcomings and possible instructions for further development of baccalaureate level pharmacy education and its practice in Pakistan. Published literature, [4,5] program websites and personal contacts with administrations of various universities is source of information for the completion of this manuscript.

Methodology

A random sample of 145 pharmacy teachers (Lecturers, Assistant professors, Associate professors and Professors) were selected from 17 departments of pharmacy of public and private universities in eleven cities and were interviewed about their perception regarding key features

TABLE I

Rules and regulations of PCP regarding admissions to pharmacy institutes[6]

A	Minimum academic requirements for admissions	
	The following shall be the minimum academic qualifications for admission of a candidate to the First Professional of Doctor of Pharmacy Degree Course, namely: Priority 1: The candidate shall have passed the Intermediate Science (HSS) Examination (Medical Group), of a Board of Intermediate and Secondary Education in Pakistan or the student shall have passed an examination of a foreign institution or examining body, which is equivalent to the Intermediate (HSS) Examination (Medical Group) of a Board of Intermediate and Secondary Education in Pakistan. Equivalence to be determined by Inter Board Committee of Chairman. Priority 2: The candidate shall have passed a higher examination of a Pakistani university with Biological Sciences provided that he has passed the Intermediate (HSS) Examination (Medical Group) from a Board of Intermediate and Secondary Education in Pakistan. The admissions granted on this qualification will not exceed 10% of the total seats.	
B	Admission to pharmacy institutions	
	1	Admission of students to pharmacy institutions including that to reserved seats shall be strictly on merit.
	2	A candidate seeking admission to a pharmacy institution shall possess adequate mental and physical health.
	3	Pharmacy institutions may allocate seats for children of registered pharmacist provided that such seats shall not exceed 5% of total annual admissions of students in the First Professional.
	4	Pharmacy institutions shall allocate not more than 2% of the total annual admissions of students in the First Professional for nominee of the proprietors, partners and directors of pharmaceutical industry as specified in the Companies Ordinance, 1984.
	5	The optimum number of annual admissions of students in the first professional in a pharmacy institution shall not be more than one hundred (including the reserved seats) in each session subject to the capacity of lecture rooms and the facilities in laboratories and libraries. However, the number of sessions will not be more than one in an academic year.
	6	The teacher and student ratio of 1:10, shall be maintained and adequate facilities including that of hospital will be provided for teaching and training of students.
	7	The number of students working in groups in laboratories shall be no more than three.

and various shortcomings of pharmacy education and practice in Pakistan. Ethical approval for this study was obtained from the University of Faisalabad.

The questionnaire used consisted of two parts. The first part of the questionnaire included demographic queries and basic questions about current status of pharmacy education and practice in Pakistan. The participants were asked to identify key shortcomings in the subject. The second part of the questionnaire included questions regarding approaches necessary for the development of pharmacy education and practice in Pakistan.

Different institutes were visited with prior consents and the questionnaires were presented to the participants to fill out personally during the interviews.

Results and Discussion

A total 145 pharmacy teachers of 17 departments of pharmacy out of 23 (≈74%), cooperated and agreed for interview. The age of most (73%) of the teachers was in the range of 27-38 years, most (85%) were lecturers, and their qualification was M. Phil. Majority (78%) of them were male. The teaching experience in pharmacy of most of the teachers was 3 to 10 years. According to the opinion of pharmacy teachers, following various challenges to pharmacy education and practice come across in Pakistan.

Student Issues

According to most (59%) of the pharmacy teachers, majority of students since their childhood have strong desire to become physicians. Those who fail to achieve this goal join pharmacy program by chance, not by choice. Due to this failure, most students are dejected and do not take their keen interest in their studies and fail to become competent pharmacists. Beside this, economic status of students (10%), increased interest to extra-curricular activities (14%), lack of proper guideline (10%) and similar other issues (7%) are challenges to pharmacy students.

Curriculum and Pedagogic Principles

Most (88%) of the teachers elaborated that a committee of pharmacy experts specialist in Pharmaceutics, Pharmaceutical chemistry and

Phytochemistry was constituted in 2004 by HEC to design Pharm. D. curriculum (Table II) under the rules and regulations of PCP regarding curriculum (Table III).

In all pharmacy institutes, curriculum in first professional year consists of same basic subjects such as pharmaceutics, pharmaceutical chemistry, and pharmacology and clinical pharmacy in later years. There are no optional subjects in the curriculum of pharmacy. However, every institute can adopt its own pedagogic principles.

Pharmacy program is a mixture of a variety of major subjects. It is the responsibility of teachers to coordinate these distinct fields for the ease of students as observed in the curriculum of advance countries.[7] But our teachers are not imparting such knowledge that creates a link within these different fields due to which students are unable to understand actual sense of pharmacy education. Many (51%) teachers expressed that report or thesis writing on a specific topic and then its defense polishes creative abilities of students. This activity is not an integral part of Pharm. D. curriculum in Pakistan. As a result students do not bother to collect latest knowledge and its application for the sake of its usage in their work. It brings a negative effect on their part.

Accreditation

There are increasing number of private pharmacy institutes in country. PCP has established rules and regulations for the accreditation of pharmacy institutes but their implication is very loose. Majority (67%) of the teachers think that many institutes are violating the rules of PCP such as enrollment of higher number of students than that of permitted, twice registration in a year, deficiency of well equipped laboratories and teaching staff, but no serious action is taken against such institutes. These institutes are conducting pharmacy programs for profit and thus are compromising quality for money.

Administration

Most (82%) of the teachers expressed that now a day a lot of research in various fields of pharmacy and their presentation through a number of journals are being made through out the world. On the other hand students in Pakistan are unable to get updated knowledge because

TABLE II

Curriculum of all professional years of baccalaureate program of pharmacy (Pharm. D.) in Pakistan

S. No.	Subjects	Credit hours		Marks	
	First Professional Year	Theory	Practical	Theory	Practical
1	Pharmaceutical Organic Chemistry	4	4	100	100
2	Pharmaceutical Biochemistry	4	4	100	100
3	Physical Pharmacy	4	4	100	100
4	Physiology	4	4	100	100
5	Anatomy	3		50	-
6	Pharmaceutical Mathematics and Statistics	6		100	-
	Second Professional Year				
7	Pharmaceutical Preparations	4	4	100	100
8	Pharmacology and Therapeutics-I	4	4	100	100
9	Pharmacognosy-I	4	4	100	100
10	Pharmaceutical Microbiology	4	4	100	100
11	Pakistan Studies and Islamiat	6		100	-
	Third Professional Year				
12	Pharmacology and Therapeutics-II	4	4	100	100
13	Pharmacognosy-II	4	4	100	100
14	Dispensing and Community Pharmacy	4	4	100	100
15	Instrumentation	4	4	100	100
16	Pathology	4		100	-
	Fourth Professional Year				
17	Hospital Pharmacy	6		100	-
18	Clinical Pharmacy-I	4	4	100	100
19	Industrial Pharmacy	4	4	100	100
20	Biopharmaceutics	4	4	100	100
21	Pharmaceutical Quality Management	4	4	100	100
	Fifth (Final) Professional Year				
22	Medicinal Chemistry	4	4	100	100
23	Clinical Pharmacy-II	4	4	100	100
24	Pharmaceutical Technology	4	4	100	100
25	Forensic Pharmacy	6		100	-
26	Pharmaceutical Management and Marketing	6		100	-
27	Computer and its Application in Pharmacy	2	2	50	50
	Total	115	78	2600	1950

TABLE III
Rules and regulations of PCP regarding Pharm. D. curriculum [6]

A	The following general principles shall be observed while formulating curriculum and teaching Doctor of Pharmacy program, namely:	
	1	The institutions will follow the curriculum approved and notified by the Pharmacy Council of Pakistan;
	2	Lectures shall not be overloaded with unnecessary and irrelevant details;
	3	More emphasis will be given to tutorials, seminars, workshops, practical work and clinical training especially in the Fourth and Final Professional;
	4	Clinical pharmacy and clinical pharmacy training shall be conducted preferably in teaching/ (District Head Quarter) DHQ hospitals;
	5	Appropriate arrangements shall be made for retail and community pharmacy training;
	6	The academic session will not be less than nine months in one academic year or two semesters in one academic year;
	7	The teachers must set exemplary attitude so as to inculcate qualities of character and attitude expected of a good pharmacist.
B	All subjects shall be integrated.	

administrations of institutes do not subscribe high impact journals. Public sector institutes are providing this facility through on-line subscription to some extent but students in private institutes are still deprived of this source of latest knowledge. Many (49%) teachers told that all universities appoint faculty members on permanent basis rather than hiring faculty on tenure track so they are least interested in pedagogic principles, research and students' affairs. Few (17%) teachers pointed out that politics and internal conflicts among faculty members (particularly in Public sector institutes) are barriers to academic and research activities and thus majority of students avoid facing teachers due to the fear of unexpected failure.

Majority (92%) of the teachers realize that most of the Ph. D. faculty members are leaving their chairs in next 5 to 10 years. No sufficient policy has yet been made to compensate these forthcoming intellectual gaps. Though, there is some growing interest of pharmacy graduates in higher education such as M. Phil and Ph. D., this professional force will

not be equal to the retiring teachers. Government or HEC has taken no serious step for this very critical issue.

Infrastructure

Many (53%) teachers are of the opinion that pharmacy profession has undergone a so-called shift from B. Pharmacy to Pharm. D. (Patient oriented education) in Pakistan. However, there is no basic infrastructure and economic resources in country to adopt this change. The allocation of budget for the uplift of laboratories is very low, insufficient chemicals and latest equipments, unavailability of latest software and hardware hinder the students to get practical education. Pharmacy education and practice in Pakistan is, therefore far behind developed countries. Most (62%) of the pharmacy teachers express that Pakistan is currently facing deficiency of highly qualified faculty in its all fields. Some subjects, such as clinical pharmacy and Pharmacy Law, are being taught by inexperienced and incapable teachers as no qualified personnel are available for these posts.

Regulations

Majority (73%) of the teachers express that no specific schedule is set for students to work in some pharmaceutical organization for practical experience except 2 or 3 one-day industrial visits during whole 5 year degree program. However, students of 4^{th} and 5^{th} professional year visit hospitals because of a major subject, clinical pharmacy. Pharm. D. is a practice based profession but internship has not been declared compulsory after completion of program. Nevertheless, pharmacists are encouraged to do internship in some well established organizations.

Most organizations (pharmaceutical industries and hospitals) pay nothing to pharmacist trainees, but they do not cost any fee for providing students with professional experience. However, some organizations pay some remuneration to pharmacist trainees. Aga Khan Hospital Karachi is an example where approximately Rs. 7000 or 85 US$ are paid monthly to the trainees, recruited through a strict selection procedure that comprises of academic background, comprehensive written test and interview.

Many (39%) point out that Pakistan Pharmacist Association (PPA), only pharmacist association in country, is not working as efficient as

it could and should. PPA should struggle to inculcate pharmacist's best role in National Health Policy and to improve pharmacy curriculum and pharmacist caliber. Most (62%) of the teachers realize that another critical problem is that many existing pharmacies are deprived of well-trained pharmacists. Therefore, medicines are being distributed without strict control. Any person can purchase freely any medicine without prescription just like purchase of other wares. So pharmacist training is as necessary as the revision of curriculum.

Miscellaneous

Beside above mentioned problems, all pharmacy teachers think that there are many other challenges such as rare visits to pharmaceutical industry, no memorandum of understanding between institute and pharmaceutical industry, no quota of pharmacists in competitive exams. Pharmacy, in a net shell is a low income profession in country.

English as language of communication, use of traditional teachings aids, white boards due to which fresh pharmacists are not carrying sufficient and updated knowledge add fuel to the fire to the dim scenario of pharmacy.

Instructions for Further Development

According to the opinion of all pharmacy teachers, rules and regulations as mentioned in Table III and the below mentioned useful ideas should be followed for the better future of pharmacy profession.

Student Issues

Many (69%) teachers propose that it is the need of time to conduct seminars and educate public to realize them the scope and potential job opportunities of pharmacy profession so that students may join this profession by choice, not by chance. In this way, students will take keen interest in their studies to become competent pharmacists eventually. Most (59%) of the teachers also suggest that needy students should be awarded scholarships to meet their educational expenses. Majority (87%) of the teachers express that it is the moral responsibility of students to

concentrate his education with their optimum effort and should consult their teachers for any guidance.

Curriculum

All teachers were of the view that pharmacy is a continually developing field. Therefore, pharmacy curriculum should be revised regularly to fulfill main national needs which can be more helpful to produce competent pharmacists. Subjects especially concerning to Pharm. D. such as patient assessment, communication skills, pharmacotherapeutics should be included to curriculum. Moreover, it will be helpful for pharmacists to enter pharmacy professions in advance countries such as UK, USA, Canada and France. Basically, pharmacy education is a combination of many different fields. Thus, it is the responsibility of teachers and other stakeholders to design a coordinated pedagogic model. An updated curriculum is presented in Table V.

Accreditation

PCP accredits pharmacy programs through an ongoing review process because pharmacy is a continually developing profession. PCP independent panel of pharmacy experts consisting of academicians and practitioners evaluate documented and established educational standards (Functions of PCP are given in Table IV).

For any institute's accreditation PCP sends comprehensive comments after inspection and evaluation of that institute. These comments must be addressed and their compliance with accreditation standards should be ensured by the institute. PCP evaluates documented and established educational standards again after an already given time period and decide according to situation for reconsideration, preliminary approval (At admission of institute's first batch into the program after successful initial evaluation), provisional accreditation (If an institute fulfills all major accreditation requirements usually after its first year of teaching) or full accreditation (If a provisionally accredited institute fulfills all accreditation requirements usually after its first batch of graduates has passed out) for undefined tenure. PCP keeps institutes under observation continually even after accreditation. However, accreditation should be given for specific time-period such as 2 or 3 years and then PCP should revaluate educational standards because pharmacy is a continually developing profession.

TABLE IV
Functions of PCP [6]

S. No.	Functions of PCP
1	To approve examinations in pharmacy for the purpose of qualifying persons for registration as practicing pharmacists
2	To prescribe the subjects in which approved examination will be held.
3	To approve the courses of study and practical training in pharmacy for the purpose of admission to approved examinations.
4	To prescribe the conditions and procedure for admission of candidates to an approved examination
5	To lay down the standard of teaching to be maintained by institutions conducting the approved courses of study.
6	To prescribe the equipment and facilities to be made available to the students.
7	To recognize degree or diplomas in pharmacy for the purpose of registration as pharmacist.
8	To cause inspection of institutions which conduct any courses of study in pharmacy and of the teachings imparted and examinations held by them.

The participants of this study suggest that trend for violating rules and regulations of PCP should be discouraged keeping private institutes under continuous observation even after accreditation and holding examination of all pharmacy institutes by a central agency, such as University of Pharmaceutical Sciences.

Administration

Fifty percent participants propose that faculty members should be trained for problem oriented teaching as practice makes a man perfect. Few (21%) teachers comment that government should appoint faculty on tenure track which may be extended in case of good performance. Similarly, administrations of pharmacy institutes should provide students with free access to high impact journals.

Infrastructure

Many (65%) teachers think that though pharmacy profession has undergone a so-called movement from B. Pharmacy to Pharm. D. (Patient

TABLE V

Proposed curriculum of all professional years of baccalaureate program of pharmacy (Pharm. D.) in Pakistan

S. No.	Subjects	Nature (Theoretical=T and Practical=P)	Credit hours	Marks
	First Professional Year			
1	Pharmaceutical Organic Chemistry	T & P	8	200
2	Pharmaceutical Biochemistry	T & P	8	200
3	Physical Pharmacy	T & P	8	200
4	Physiology	T & P	8	200
5	Anatomy	T	3	50
6	Pharmaceutical Mathematics and Statistics	T	6	100
7	Public Health	T	3	100
	Second Professional Year			
8	Pharmaceutical Preparations	T & P	8	200
9	Pharmacology and Therapeutics-I	T & P	8	200
10	Pharmacognosy-I	T & P	8	200
11	Pharmaceutical Microbiology	T & P	8	200
12	Microbiological Medicine's Production	T & P	8	200
13	Pharmaceutical Immunology	T & P	8	200
14	Pharmaceutical Biotechnology	T & P	8	200
15	Genetics and Pharmacogenomics	T & P	8	200
16	Medicine Design and Analysis	T & P	8	200
	Third Professional Year			
17	Pharmacology and Therapeutics-II	T & P	8	200
18	Pharmacognosy-II	T & P	8	200
19	Dispensing and Community Pharmacy	T & P	8	200
20	Instrumentation	T & P	8	200
21	Pathology	T & P	4	100
22	Oncological and Psychiatric Pharmacy	T & P	8	200
23	Neurological and Cardiovascular Pharmacy			
24	**Fourth Professional Year**			
25	Hospital Pharmacy	T & P	6	100
26	Clinical Pharmacy-I	T & P	8	200
27	Industrial Pharmacy	T & P	8	200
28	Biopharmaceutics	T & P	8	200
29	Pharmaceutical Quality Management	T & P	8	200

	Fifth (Final) Professional Year			
30	Medicinal Chemistry	T & P	8	200
31	Clinical Pharmacy-II	T & P	8	200
32	Pharmaceutical Technology	T & P	8	200
33	Forensic Pharmacy	T	6	100
34	Pharmaceutical Management & Marketing and Pharmacoeconomics	T	8	200
35	Computer and its Application in Pharmacy	T & P	4	100
36	Project	T	8	200
	Total		248	6050

oriented education) in Pakistan, yet basic infrastructure and economic resources are insufficient. Sufficient budget should be allocated for uplifting patient and laboratory oriented training.

Most (72%) of the teachers also suggest that the stakeholder, HEC should make short and long term policies to produce a team of highly qualified faculty to replace retiring staff. Short term strategy may include hiring of highly qualified faculty from various advance countries. While, national competent students having keen interest in advance education should have the facility of sponsorship for higher education in technologically developed countries.

Regulations

The rules and regulations for the development of pharmacy profession regarding may be evaluated according to the need of the country, establishment of training based Pharm. D. program and creation of potential job opportunities.

Need of the Country

Majority (92%) of the teachers agree that pre-registration training must be an integral part of Pharm. D. program. PCP should not issue license for pharmacy practice immediately after the completion of university based five year degree program. Internship in candidate's desired field, hospital, industry, community pharmacy under the supervision of a registered pharmacist should be compulsory for baccalaureate degree of pharmacy

at the end of 5th professional year. The duration of internship should be at least of one year followed by a comprehensive practical test, provision of counseling to patient on a disease issue (clinical pharmacy), prescription dispensing (hospital pharmacy), people education for some epidemiological problem (community pharmacy), development of some formulation (industrial pharmacy). The successful specialized candidates should be considered eligible for license. The internship in hospital or some other pharmacy organizations leads to pharmacy careers in hospitals or public health. Hospital pharmacists may perform multifunctional duties as assigned by administration, such as hospital pharmacist has to purchase chemicals, develop formulations and perform quality control tests on these dosage forms. They also manage radiopharmaceuticals, sterile instruments, meetings with health care personnel and many other activities. The training in advance subjects such as biotechnology, genetics, pharmacogenomics, and pharmacoeconomics lead to careers in teaching and research. Internee pharmacists can also join analytical (chemical as well as microbial) laboratories to gain expertise in pharmacoepidemiology, pharmacotoxicology, pharmacokinetics, gene therapy, hospital hygiene, biotechnology and nanopharmaceuticals.

Establishment of Training Based Pharm. D. Program

About 66% of the teachers agree that exposure to actual working premises of pharmacy practice should be an integral part of the curriculum in every professional year like advance countries such as France and UK.[8-9] After completion of 2nd professional year, students should be placed in some medicine dispensing premises for at least 3 months, suitable in summer vacations of the same duration. The rationale of this activity is to make students capable of dosage adjustment and its schedule. Similarly, students after completion of 3rd professional year should be placed in some community pharmacy practice for at least 3 months. The objective of this placement is to make students capable of counseling patients to get optimum therapeutic outcome of medicines. At the end of 4th professional year, students should be placed in clinical setting for at least 3 months. This activity will enable students to talk patients directly and assess disease state. Students should be placed in pharmaceutical industries for at least 2 weeks each year for learning dosage from development techniques.

Creation of potential job opportunities

Most (79%) of the teachers propose that medicines should be categorized into various classes according their sale and supply. The health authorities should make a class of safe medicines for prescription by pharmacists. This rule will reduce burden from the shoulders of physicians and enhance pharmacist's role in health care delivery system, ultimately creation of potential job opportunity for pharmacists. Moreover, pharmacists can be motivated to work in community pharmacies to achieve their level of satisfaction. Pharmacists should be allowed to prescribe drugs other than potent and harmful drugs such as Tranquilizers. Moreover, pharmacists should be allowed to substitute drug products on the basis of efficacy and price. In this way, the patient's pharmacotherapy can be optimal and the pharmacist can have a good income. Potential job opportunities can also be created by producing the role of clinical pharmacist in National Health Policy. In this way, present nature of pharmacist job (manufacturing and marketing oriented, (Table VI) in Pakistan can become patient oriented.

Miscellaneous

Few (18%) teachers suggest that animations should be used to make students better understand. Teachers should deliver compact and integrated lectures. Class quiz and general discussion should be compulsory during degree program. Its marks should be counted in final result. Some (14%) teachers also express that memorandum of understanding should be signed with institutes having an excel in the field of pharmacy to exchange students and faculty members for the development of this profession. Most (87%) of the teachers demand that optional subjects, relevant to pharmacy, should be available for pharmacists for national and provincial level competitive examination.

Conclusions

Pharmacy education and practice in Pakistan needs drastic improvement in the curriculum, infrastructure, administration, regulations and accreditation criteria for movement to Pharm. D., a patient

TABLE VI
Areas of current pharmacy practice in Pakistan

S. No.	Area of pharmacy practice	Pharmacists working (%)
1	Government employment (Federal and provincial drug inspectors and hospital pharmacists)	8
2	Hospital pharmacists in private hospitals (For example, Ahga Khan Hospital Karachi, Shoukat Khanum Hospital Lahore and Children Hospital Lahore)	1
3	Pharmaceuticals sales promotion (Medical representatives)	39
4	Pharmaceutical industries	27
5	Teaching	15
6	Others	10

oriented profession. These measurements can enhance pharmacist's role in health care provisions in Pakistan and can enable Pakistani pharmacists to compete with the international pharmacist community, so that their degrees will earn better respect even in developed countries.

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Summary

The objective of this article is to identify possible causes for the below par standard of the pharmacy education and practice in Pakistan and some remedial measures for bringing it closer to the advance standards. One hundred and forty five pharmacy teachers from 17 departments of pharmacy of public and private universities were interviewed about their perception regarding key features and various shortcomings

of pharmacy education and practice in Pakistan. In Pakistan, pharmacist's role is not squeezed into national health policy which should be accomplished on priority basis to uplift this profession. In addition, pharmacy institutes need improvement in academic and research facilities qualitatively, not quantitatively. Moreover, pharmacy curriculum needs drastic revision on regular basis for moving to Pharm. D. requirements. Young academicians should be sent to developed countries to get higher education in new subjects of pharmacy to achieve long run goals. As short term policy, well reputed foreign faculty members should be hired and an efficient coordination should be developed between pharmacy institutes, pharmaceutical industries and Pharmacy Council of Pakistan (PCP). Pharmacy education and practice in Pakistan needs drastic improvement in the curriculum, infrastructure, administration, regulations and accreditation criteria for movement to Pharm. D.

Key words : Pharmacy education, Pharmacy practice, Curriculum, Infrastructure, Regulations.

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