

Status of Pharmaceutical Education in India: an Overview

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Summary

Pharmacy education in India traditionally has been industry and product oriented. In contrast to the situation in developed nations, graduate pharmacists prefer placements in the pharmaceutical industry. To practice as a pharmacist in India, one needs at least a diploma in pharmacy, which is awarded after only 2 years and 3 months of pharmacy studies. These diploma-trained pharmacists are the mainstay of pharmacy practice. The pharmacy practice curriculum has not received much attention. In India, there has been a surge in the number of institutions offering pharmacy degrees at various levels and a practice based doctor of pharmacy (PharmD) degree program was started in some private institutions in 2008. However, relatively little information has been published describing the current status of complex pharmacy education of India. In this paper we describe the status of pharmacy education in India and highlight major issues in pharmacy practice including deficiencies in curriculum. Prof. Dandlya is an eminent scientist of pharmacy field. His views about pharma education, our strength, weakness and future hope is also included in this paper.

Introduction

Indian pharmaceutical sector has grown to a world class industry during the last three decades with almost 45 per cent of its production is being exported to the US, Europe and many developing countries. The growth of this industry over the years has also pushed up the demand for quality pharmacy professionals in the country. The spurt in the number of pharmacy colleges in most parts of the country in recent years is a clear indication of this growing demand. There are more than 800 pharmacy colleges in the country at present, which was around 300 just four to five years ago. Although the number of pharmacy colleges has gone up over the years, the quality of pharmacy education is not up to the mark on account of various factors. The main reason for this situation is the shortage of competent faculty in the colleges. It is fact that a large number of the 800 pharmacy colleges is being run without adequate number of pharmacy teachers and some even do not have principals. Some of the colleges are found to be lacking even the basic infrastructure such as laboratory and equipments. As these pharmacy colleges are controlled by managements having mainly commercial interests, such lapses in maintaining standards of education are common. But, what is surprising is the indifferent attitude of All India Institute of Technical Education in periodically inspecting the colleges and taking action. Now the Pharmacy Council of India is the designated authority to ensure uniform implementation of educational standards in pharmacy colleges throughout the country by approving courses of

study and examination for qualifying for registration as a pharmacist. PCI had thus issued show cause notices to several pharmacy colleges in Madhya Pradesh and Rajasthan in the past for flouting rules in running these institutions. Early, Pharmabiz carried a report that some of the pharmacy colleges in the country are planning to change the duration of Diploma in Pharmacy course to four years and minimum qualification for applying to the course to 10th standard from 12th with the sanction from AICTE. This is actually in contravention of the Education Regulations, 1991 (ER-91) for Diploma course in Pharmacy framed by PCI.

Now PCI has warned the colleges that in the event of any deviation from the statutory provisions with regard to admission qualification and duration of the D.Pharm course and will disqualify passed out students to be eligible for registration as a pharmacist and practise the profession under the Pharmacy Act. What is emerging from all these developments is the confusion that is being created by having dual authority in regulating pharmacy education in the country. This is not a desirable situation to have an atmosphere of uncertainty for the young pharmacists coming out of the colleges. In fact, it does not seem appropriate to have AICTE as the sanctioning authority of pharmacy colleges while PCI has to oversee the quality of pharmacy education. Central government should have thought of assigning PCI as the sole authority to regulate the pharmacy education and profession in the country (1).

Pharmaceutical Education in India: a Historical glance

The Banaras Hindu University was the only university in India for imparting education in Pharmacy. There was also the Punjab University in Lahore which has started admissions in the B. Pharm from 1944. This department also got partitioned and one part which came to India started Pharmaceutical Education in India functioning in Amritsar to begin with and later in moved to Chandigarh where the Panjab University (India) started working. In 1947 itself, the L.M. College of Pharmacy was started in Ahmedabad and this was followed by BITS (Pilani), Jadhavpur, (Calcutta) and Sagar. These three clatters were also established by Professor M. L. Schroff who was responsible for starting it the Banaras Hindu University as early as in 1932. Soon after some other universities also started these countries. It was in 1962 All India Institute of Medical Sciences had started functioning in Delhi for advanced training to the doctors. In spite of repeated requests to the government nothing happened for 23 years but it was in 1985 that Rajiv Gandhi came to inaugurate the Indian Pharmaceutical Congress at Delhi at the invitation of Dr. Parvinder Singh who was the President of the Congress and had been a personal friend of the Prime Minister. In spite of Rajiv Gandhi's declaration that a National Institute of Pharmaceutical Sciences will start soon it took many years for it to really get started and technically the institute which was started a few years later in Mohali (Punjab) received the authority to admit students for the M. Pharm and the Ph.D. degree only in 1998. Today, of course, it has acquired the status of highly prestigious institution of global status undertaking not only teaching programmes but also researches in areas where India needs to go ahead and find out new medicines for Malaria, Tuberculosis and Blindness. It also runs advance courses both of short and long durations for Pharmaceutical Scientists in India and of other developing countries round the year and thus, it has become a centre for advanced learning in pharmaceutical subjects and acquired the same status as the All India Institute of Medical Sciences has done in the field of medicine. Encouraged by the contribution of the NIPER at Mohali, the Ministry of Petroleum & Chemicals decided in 2007 to open six more NIPERs in various parts of the country such as Ahmedabad (Gujarat), Hajipur (Bihar), Kolkata (West Bengal), Hyderabad (Andhra Pradesh) and Rai Bareilly

(Uttar Pradesh). Then it was a strong feeling of researchers that the government undertook to do too much, all at once. It is very difficult to create a proper infrastructure for institutes of this high category and it is not possible to find so many faculties of experienced and brilliant professors all at once. The government should have been well advised to open one new NIPER every year although from my point of view even that would have been also going too fast. The government has also fast. The government has also made admissions of the students in these new institutions in temporarily acquired buildings and were being taught by "Guest" staff from neighbouring degree colleges. It is definitely going to lower the standard of education that has been set by the NIPER at Mohali. The Pharmacy Council of India has also encouraged the establishment of the five and a half years Pharm.D. course (Doctor of Pharmacy) on the pattern of the developed countries where the B.Pharm course is gradually being replaced by Pharm.D which is more clinically oriented and caters to the high grade community pharmacist who is obviously very highly clinically oriented. Now a diploma course in pharmacy which caters for the five lakh community pharmacies and other similar establishments run by the government and the corporate world in this country. The Diploma in Pharmacy is the minimum registerable qualification under the Pharmacy Act and thus these diploma holders serve the whole nation as the next door pharmacist of the community (2).

Current Scenario

Pharmaceutical education plays a very prominent role in attaining sustainable and equitable development of a country. The curriculum of the degree in some developed countries (B. pharm.) usually requires 5 academic years of study. In most of the European countries successful completion of a university degree leads to a one-year internship. The formal pharmacy education in India (3 year degree in BHU) dates back 1932, and since then, there has been a continuous growth in number of such institutions. As per PCI 2005 diary calendar, the total numbers of recognized degree institutions are 220 with intake of 12506 students. And as per AICTE, the total number of degree colleges are 445 with the intake of 24672 students as well 30 institutions for the post graduation in various fields. The number of accredited institutions like the National Institute of Pharmacy Education Research (NIPER) is very few. Faculty strength and its quality is a problem. The education system is not geared for the WTO era. Management is not proactive in providing facilities and necessary educational environment. National pay scales are not fully implemented and hence good academia is missing. There are a few centers of excellence where students get all the facilities and are well placed after their graduation. In the next decade, pharmaceutical industries will scout for pharmacy graduates who are inclined to research. Therefore, pharmacy colleges must appoint the right faculty.

Education Standards at Present

There is no doubt that currently there is enormous gap existing between education and practice of pharmacy. Most of the academic institutions providing education in pharmacy are away from practice environment. The overall basis of pharmacy education is still extra biological synthesis, physicochemical studies, analysis, and manufacturing aspects of drug. It is a common feeling that the medical practitioner is better placed for pharmacists' job than the pharmacists themselves. The dispensing services are poor. The syllabus and duration of the two-year diploma course in pharmacy education in India is completely outdated and irrelevant in the present industry context. It is a heterogeneous mixture of clinical and industrial subjects. Since clinical subjects are there PCI comes into the picture and AICTE came in because of industrial

orientation of pharmacy syllabus. Pharmacy as a nascent science developed like this in the last century. During 1940s and 50s, hospitals and industries were established in large numbers in India. Consequently, pharmacists and pharmaceutical chemists were required in huge numbers. Hence pharmacy education was developed in such a way to satisfy the requirement of industry and hospital. Short-term compounders and or D. Pharm. course to satisfy the needs of hospital and medical shops and B. Pharm. course for the industry were started. This is proved by the fact that in the last few decades D. Pharm. holders are not employed by the industry and B. Pharm. holders are not in many numbers in hospitals or medical shops. In the West, pharmacy education is patient-oriented and is responsible for Healthcare Management, while in India pharmacy education is industry-oriented. Nearly 55 per cent of the jobs are available in the industry sector while 30 per cent in education. There are only three per cent jobs in healthcare. There must be revolutionary changes in the healthcare system e.g. making laws for appointing pharmacists at each Primary Health Centre and government hospitals (3). There should be adequate staff in the state drugs control departments for better control of drug distribution system. It is crystal clear that separation and improvement of clinical and industrial subjects in the pharmacy syllabus is a compulsion of the time. But it is yet to be completed, that is why there is such a situation and a lot of infighting among government authorities. Present B. Pharm. syllabus can be divided into 2 major courses like B. Pharm. (Clinical) and B. Pharm. (Industrial) as it has been already decided to abolish D. Pharm. course. Such an arrangement will increase the confidence and competitive skills of pharmacy graduates among health care team and technocrats and some sort of specialization during under graduation itself. If two B. Pharm. courses are created as above, needless to say clinical course can be controlled by PCI and industrial course by AICTE. Private college managements can opt for any one of the courses. If any college wants to run both the courses they should accept both masters, there is no other go. Existing D. Pharm. colleges who are in the verge of closure can adopt B. Pharm. (Clinical) and continue to serve the profession. This stunted growth of professional pharmacy in our country is the result of misplaced belief that profession is same as vocation. This belief has kept Indian pharmacy academics completely focused on industrial pharmacy at the cost of real – community pharmacy. While the justification for focusing pharmacy education on Industrial Pharmacy after attaining national freedom was valid, its review to make it relevant in contemporary scenario is already too late. Our present system has produced half a million "qualified" pharmacists but not many "trained" professionals. This has effectively led to a situation where neither there is a need felt by the society nor is there anyone available to fulfill that "professed" need. This situation feeds on itself to such an extent that any attempt to keep one's knowledge updated and work professionally has strong economic disincentives in Indian retail pharmacy practice. Gravity of the situation dawns upon us when we think about petitions filed in High courts that propose scrapping of the Pharmacy Act because the pharmacists - according to petitioners - do not play any role other than selling the drugs like all other commodities. There is virtually a complete lack of any training or incentive to professionalize – as a result of which even the most enthusiastic pharmacists gradually convert into mere traders. The uninspiring implementation of statutory provisions has led to a cancerous proliferation of retail drug shops and the situation now threatens the profession itself. The retail pharmacist shall be relevant to the society 'only' if he can make a difference to the patient - by providing him information about drug usage to achieve better outcome than the patient obtains by uninformed usage of drugs. The president of this IPC - Prof. Kulkarni – himself conceded in his inaugural address of IPC 2001 that talking about Community Pharmacy has become a pass-time lately. A lot of credit for this new

fascination about community pharmacy goes to the Community Pharmacy Division of IPA, which launched a persistent campaign to nudge the retail pharmacists, the academicians, professional association managers and lately the society itself. Apart from whatever else is taught in pharmacy colleges under the garb of "Pharmacy Practice"- I feel the following are mandatory subjects: Pharmaco-therapeutics, Communication skills and Hands down training on computer operations. He must be trained and experienced in working as a health-care team member and this factor is not to be underestimated in the formal education design (4).

Driving an automobile can be learnt only in an automobile on a road. Or - you at least need a imulator to learn driving. Similarly, pharmacy practice cannot be taught in an institution that has no affiliation with a patient-care set up. This fundamental principle must be kept in mind before a Pharmacy Practice course is conceived. The pharmacy teacher's community should take notice of this critical and important issue and involve a cross section of practicing pharmacists to review and suggest a relevant curriculum. Any further delay will diminish whatever slim chances we believe we have today of projecting Pharmacy as a socially relevant profession. Control of pharmacy Education by The PCI The PCI controls and regulates the standards for a better pharmacy education in India. The main aims of PCI are: To prescribe minimum standard of education required for qualifying as a pharmacist i.e. framing of Education Regulations prescribing the conditions to be fulfilled by the institutions seeking approval of the PCI for imparting education in pharmacy. To ensure uniform implementation of the educational standards through out the country. To approve the courses of study and examination for pharmacists i.e. approval of the academic training institutions providing pharmacy courses. The curriculum of pharmacy education has been designed to produce the following professional categories of pharmacists; Community and hospital pharmacists who will work as an important link between doctor and patient and will counsel the patient on various facets of drugs like usage, side effects, indication, contra-indications, compatibilities, in-compatibilities, storage, dosage etc. Specialist in research and development i.e. research of new drug molecules, biotechnical research etc. Occupational specialist (industrial pharmacist engaged in pharmaceutical technology) i.e. manufacture of various dosage forms, analysis and quality control, clinical trials, post-marketing surveillance, patent application and drug registration, sales and marketing. Academicians i.e. Teachers of Pharmacy education. Manager and Administrators of Pharmaceutical Services working for various regulatory authorities and pharmaceutical systems. Chemists and Druggists engaged in selling of medicines.

Future: An Overview

In the future, drug treatment will be increasingly and confidently tailored to the individual through the help of specific diagnostics. Many new drugs will be given parenterally and targeted for specific diseases. The pharmacists will need to adapt to this changing pattern in order to be seen by the patient as part of health care team. However in spite of many lacunae in pharmacy education system, the fact cannot be overlooked that tremendous development in the field of new drug discovery and research activities, has taken place. Research centers attached with pharmaceutical institutions have played a major role in this regard. Notable among them are BRNCRC, Mandsaur; TIFAC CORE in JSS College of Pharmacy, Ooty; TIFAC CORE and ACCUNOVA in Manipal College of Pharmaceutical Sciences, Manipal and many more. These steps taken at present to upgrade the pharmacy education must be maintained for proper

development and utilization of the course. Apart from these, emphasis should be given on fields like Biotechnology, Bioinformatics, Clinical Trials, Drug Regulatory Affairs (National and International).

A Ray of Hope for A Brighter Future

There are two significant developments taking place in the Pharmaceutical arena in India. One, the India Pharma Industry has made phenomenal progress in the last quarter of a century. If we go by predictions of the pundits, the turnover of the industry will touch USD 20 b in the coming years. We are proud that we are not only self sufficient in drugs but India is a global supplier of medicines. The second big development is in the area of clinical research. A great amount of out sourcing dollar money is going to be invested in India for clinical trials and other Pharma developments. Young pharmacy graduates will have great opportunities to take-up challenging jobs in these areas. But the serious question is, as pharmaceutical educators are we in a position to train our graduates for these challenging jobs? Is our current curriculum good enough to provide the needed training? Are we prepared to move forward by amending the Drugs Act to accommodate global changes and provide our practicing pharmacists not only their dues but also the respect they deserve as partners in the healthcare delivery? If we do not address these issues today, the future generation of Pharmacists will not forgive us (5).

Conclusion

Overall, the education system is based not only on infrastructure but also on the teachers, immorality and mismanagement has taken over education. Pharmacy teachers, have to regulate themselves, update their knowledge, deliver excellence and inspire students by adapting values, time management is the other factor that they must bring in their own personality. Education, which they have to deliver, must be of highest standard so that the upcoming pharmacists should not be a liability, but should be able to deliver excellence at national and international levels.

“Success can not be harvested until and unless its seed is sown”

Acknowledgement

The author is thankful to the principal of Desh Bhagat College of Education Dr. Mrs. Surjeet Patheja for providing assistance in the preparation of this article.

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