



## Full Length Research Article

### PHARMACEUTICAL EDUCATION IN INDIA: CURRENT SCENARIO

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#### ABSTRACT

Pharmaceutical education is a dynamic professional education for the development of country, individual and with a view to protect public health. This article represent current scenario of pharmacy in India, lack of awareness about advanced pharmaceutical technology and industry institution interaction, scope for pharmacist in hospital, compounding, dispensing, consultancy, industry, internet, nuclear, veterinary. It emphasizes on current syllabus of pharmacy, drawbacks of current syllabus, requirement of industry and need to upgrade syllabus with respective advance technology in pharmaceutical industry. It also represents flaws in pharma and the remedy to solve such unlikely things.

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#### INTRODUCTION

The beginning of pharmaceutical education in India was initiated at the Banaras Hindu University in 1932 by Professor M. L. Schroff. From there it has been a long journey of almost 80 years for this profession in this country. The enactment of the Pharmacy Act 1948 established the statutory regulation of pharmacy institutions in India. The Pharmacy Council of India was established in 1949 under "Ministry of Health" and the first education regulations (ER) framed in 1953, which were subsequently amended in 1972, 1981 and 1991. On the other hand, the pharmacy education has never been part of paramedical team and hence, its development has been quite unique and quite different from rest of the world. Pharmacy Council of India and Pharmacy Act were created to establish minimum qualification required to be a pharmacist. The role of pharmacist in the society was never been given its due place and did not grow due to less paying job compared to job in industry. This would have been the reason for transfer of pharmacy education from PCI to All India Council of Technical Education (AICTE) under the "Ministry of Human Resource Development" (Desale, 2013).

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Increasing population in India demands survival of peoples by any way. Everybody is trying to get admission to professional courses like Medical, Pharmacy, Veterinary, Engineering, Polytechnique to withstand their future. There are regular, non professional but curricular courses which are useful for individual and society also. Money holders and rich persons amongst society are going to establish private education system with a view to get money and majority of system are lacking quality education because of admission of candidates of poor quality or the person who are unable to tolerate scientific study. Our government and other technical authorities related to pharmacy course are handicapped to think over professional quality education system. Policy to develop majority of students by such a course is convulsive thinking of authoritative bodies and in vein (Sucheta and Ranavare, 2013).

#### EDUCATION CONCEPT

Education is a form of learning in which knowledge, skills, and habits of a group of people are transferred from one generation to the next through teaching, training, research, or simply through auto didacticism. Generally, it occurs through any experience that has a formative effect on the way one thinks, feels, or acts.

Education may be defined as a purposive, conscious or unconscious, psychological, sociological, scientific and philosophical process, which brings about the development of the individual to the fullest extent and also the maximum development of society in such a way that both enjoy maximum happiness and prosperity. The purpose of education is dependent on the form of the family and society, and the historical context and place an individual is raised within. The current context is one of rapid economic globalization oriented towards knowledge-based industries aimed at increasing human longevity and enhancing human capabilities (Lal and Rao, 2005).

## PHARMACY PROFESSION IN INDIA

Currently there are over a million pharmacists in India with around 55% of them in community, 20% in hospital, 10 % in industry & regulatory and 2 % in academia in India, formal pharmacy education leading to a degree began in 1937, with the introduction of a 3 year industry oriented Bachelor of Pharmacy course. To meet the varying needs of the profession at different levels the following pharmacy programs are offered in India today: Diploma in Pharmacy, Bachelor of Pharmacy, Master of Pharmacy, Practice based Doctor of Pharmacy (Pharma D.), and Doctor of Philosophy in Pharmacy (Ph.D.) (Basak and Sathyanarayana, 2010). To practice as a pharmacist in India, one needs at least a diploma in pharmacy, which is awarded after 2 years and 3 months of pharmacy studies & practical training. These diploma-trained pharmacists are currently the mainstay of pharmacy practice in India. Every year nearly 20000 D. Pharma, 30,000 B. Pharma, 6000 M. Pharma and 700 Pharma D. Students graduate in the Country (Dewey and John, 1944; Dave, 2011).

Pharmacy Council of India (PCI) is the statutory body established in 1949, for regulating pharmacy education and practice of pharmacy profession in India. PCI is actively working towards strengthening and upgrading the curriculum to produce competent workforce that is able to meet the growing demands of the industry & community. In 2003, the Pharma Vision 2020 Charter was released by the then President of India, Late Dr. A.P.J. Abdul Kalam, at the 55th Indian Pharmaceutical Congress at Chennai. The Vision 2020 is focused on promoting the highest professional ethical standards of pharmacy, focusing the image of pharmacists and competent healthcare professionals, sensitizing the community, government and others on vital professional issues and supporting pharmaceutical education and sciences in all aspects (Shantanu , 2004).

## TOTAL QUALITY MANAGEMENT IN PHARMACY EDUCATION

Applying principles of TQM to pharmacy education in India leads to the development of pharmacy education in India. Many educators believe that the concept of TQM provides guiding principles for needed educational reform. Education is a fast moving commodity in the market and is mainly business oriented which means it should give some profit to the undertaker. The TQM principles which are most salient to educational reform are as follows: Synergistic relationship:

According to this principle, an organization must focus, first and foremost, on its “suppliers” and “customers”. In other words, teamwork and collaboration are essential. The concept of synergy suggests that performance and production is enhanced by pooling the talent and experience of individuals. In a classroom, teacher-student teams are the equivalent of industry’s front-line workers. The product of their successful work together is the development of the student’s capabilities, interests, and character (Kulkarni, 2011).

**Continuous improvement and self evaluation:** TQM emphasizes self-evaluation as part of a continuous improvement process. In addition, this principle also laminates to the focusing on students’ strengths, individual learning styles, and different types of intelligences.

**A system of ongoing process:** The recognition of the organization as a system and the work done within the organization must be seen as an ongoing process. Quality speaks to working on the system, which must be examined to identify and eliminate the flawed processes that allow its participants to fail.

**Leadership:** The upper level provides proposes basic way of functioning, provides quality staff, while the lower level are directly linked to the students as lecturers who perform the most important functions of the whole system. The school teachers must establish the context in which students can best achieve their potential.

## REGULATORY BODIES OF PHARMACY EDUCATION

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 (Hepler and Strand, 1990). Consequently, pharmacists and pharmaceutical chemists were required in huge numbers. Hence pharmacy education was developed in such away 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. 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. Pharma syllabus can be divided into 2 major courses like B. Pharma (Clinical) and B. Pharm. (Industrial) as it has been already decided to abolish D. Pharmacy 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 (Roop *et al.*, 2011).

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. 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.

## CURRENT SYLLABUS OF PHARMACY

Education in India has not been based on reality. It is being imparted in isolation without taking the pharma industry, the ultimate employer, into consideration. The syllabus is not regularly updated. Educators are not serious about looking into the technical courses or revamping them.

### Need for Industrial pharmacy

Pharmacy courses are not well defined in our country and are mostly oriented towards the conventional needs of an industry. The elements of the course have become outdated and provide no or little interaction with the status and growth of the pharmaceutical industries. It becomes necessary to follow the rapid and continuous changes in pharmaceutical industry, which makes academia-industry interaction a necessity. In the current curriculum, interaction with the pharmaceutical industries is hard to witness, which ultimately creates a gap between the academia and industries (Lalla, 1999).

## Course Introduction and Design

In order to achieve this task we need to strengthen the base of our educational system so that the height of the pyramid of excellence could be enhanced (Kulkarni, 2011). As parts of pharmacy syllabus have now become outdated; many pointless issues of very slight value are present in it. Our curriculum is irrelevant when it comes to practical application. It needs to be flexible in terms of the needs of students, e.g., students with interest in marketing don't need to attend classes on pharmaceutical mathematics as well as analytical chemistry. They can instead attend something more productive. Similarly, students with interest in regulatory affairs should be taught regulatory-based subjects. Research oriented way of learning is more effective rather than mugging up a lot of theory (Jishnu *et al.*, 2011).<sup>1</sup> Remembering reaction mechanisms and formulations and writing them in exams is in no way a proof of one's ability.

Curriculum should be modified to deliver students with updated information by focusing on new areas and overlooking onto outdated issues. Regular up gradation of curriculum will generate manpower in ready to use mode that could be utilized and absorbed by industries. More value should be given to projects/assignments, conceptual and practical approaches of teaching so that students can spend more time on understanding the subject and develop specific skills. Involvement of industry experts in framing the syllabus is yet another way to get updated with industrial developments. Designing of model curriculum, systems and procedures for academics will help in seeding ready-to-serve quality students. In the proposed students' course program, it is the students who can self assess their interest and intrinsic ability to reach their ultimate goals. The course duration should be of total four years as it presently is. To gear up the present curriculum to meet the industrial needs, we can design a curriculum in a manner that in the first two years of the course, the basic pharmacy knowledge could be imparted to students (special subjects) and in the last two years they should have an option to select the subject of their choice for specialization (Seth, 1999).

## FLAWS IN THE PRESENT SYSTEM

- Lack of industrial and clinical exposure.
- Entry of less quality and non-meritorious students into the course.
- Unskilled ways of practical and lab training in the institutes.
- None focused and unspecialized way of learning.
- Out dated curriculum and educational regulations,
- Research output from Indian educational labs rarely lead to commercialization and revenue generation, given the market needs for trained man power, teaching takes total priority over research in our universities.
- Institutional base of research in India is extremely narrow serious research is limited to a few 'elite' institutes (Basak, 2016).

## Conclusion

Each pharmacy institute should operate a model pharmacy; this would not only improve the image of pharmacists in

Indian society but provide an opportunity for pharmacy students to train in community practice. To prepare pharmacist capable of providing high quality health care to meet the diverse needs of the society and to achieve the excellence in pharmaceutical education training and research through well defined planning and practice, it is better to think over creative, positive and well aspects about pharmacy professionals by responsible persons who can control and monitor pharmacy education in India.

Technical and controlling authority of this country should strictly controlled, monitor, assessed, evaluated, accredited pharmacy institutions strictly with respective syllabus, teacher and student quality and feedback .Permission to start new colleges and approval should be considered by thinking of output of candidates and their futures. Present situation intimates extra and quality less output as per demand, which will indirectly affect overall development of country and society. It will be better if our government, regulatory bodies, best teachers, quality students, pharma experts and decision makers will decide to fulfill requirement as needed and it will be valuable boon for all of us.

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