REVIEW ARTICLE

Current Pharmacy Curriculum in India and Need for an Update

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ABSTRACT- With 21st Century, the pharmaceutical industry is constantly bringing in new challenges upfront day by day. There is constant need of knowledgeable and competent workforce in different streams of pharmaceutical industry having soft skills and positive energy. In India, to meet the current Pharma industry demands, adequate restructuring of pharmacy academia is required to match current updates of research and innovation from the industry. New courses such as Pharmacovigilance, Medical Writing, Drug Regulatory Affairs, Pharmaceutical Marketing and Pharmaceutical Manufacturing should be introduced as a part of curriculum to match Research and Regulatory needs and should not limit to professional trainings. In developed countries, such courses are already in place. Pharmacists with such additional skill-sets are in great demand in India as well as overseas. So, the time has arrived for institutions in India to strategize and implement change in pharmacy curriculum in order to meet global needs.

Key-words- AICTE, industry, Pharmacy Council of India (PCI), Pharmacist, Pharmaceutical Pharmacovigilance (PV)

INTRODUCTION

Pharmacy education in India is regulated by 2 organizations: Pharmacy Council of India (PCI), under the Pharmacy Act of 1948, and the All India Council for Technical Education (AICTE), which was established under the AICTE Act of 1987 [1-3]. The quality of pharmacy education imparted by our universities has everlasting impact on quality of health care offered to our society [1-3]. Moreover, there is no standardized pharmacy curriculum and it varies across the universities. Any further delay in meeting present and future requirements of pharmacy curriculum may cause major set-back for the coming generations of pharmacists [4,5]. The current curriculum of industrial pharmacy covered in the Bachelor of Pharmacy at some universities is outdated. To confront new challenges there is thus an urgent unmet need to initiate an academic exercise aimed at attaining revamping of the curriculum and restructure the present pharmacy education in pace with current and emerging trends in the field of pharmacy [2,3,6,7]. Keeping all this in view, a new syllabus that enables to meet the future challenges needs to be deployed. Newer courses that can be introduced to match Research and Development needs includes PV and Medical Writing (MW), Pharmacology, Drug Regulatory Affairs, Pharmaceutical Marketing, Pharmaceutical Manufacturing, and other areas, which in turn cater the current knowledge and developments and create newer avenues for the employment of the pharmacy students [8-11]. The pharmacy institutes, importantly, needs to understand the impact of the new syllabus on the potential employment of the students coming out of the institutions [2,3]. In India, the current syllabus of pharmacy leverage limited information about the PV and MW. In view to increase the safety reporting, we also need to target the education of PV and MW not only in the pharmacy syllabus but also among the respective streams of sciences [8-11].

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Role of Pharmacists

The role of the pharmacist is now evolving from that of compounder and dispenser of medicines to that of experts on medicines within multidisciplinary health care systems [9-11]. Pharmacists are preferred choice for task shifting in health care industry and can per further train for roles such as clinical management, laboratory diagnostics etc [9-11]. Certainly, pharmacists are competent and cost-effective workforce for "Pharmaceutical care Interventions"; however, internationally, there is an underuse of pharmacists for patient care and public health programs. There is an urgent need for advanced education and training for preparing an adequate number of well-trained pharmacists for such roles. The role of pharmacists is still in infancy in India unlike in developed countries where they are the authority on drug

dispensation [1-11]. 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. The current education system is complex and the profession is yet to be established in India. Even in government hospitals, around 25% of the posts are vacant [1-4]. Acknowledging that health care needs can vary across geography and culture, an international group of key stakeholders in pharmacy education and global health has reached unanimous agreement that pharmacy education must be quality-driven and directed towards societal health care needs, the services required to meet those needs, the competences necessary to provide these services and the education needed to ensure those competences [12]. Using that framework, this commentary describes the Pharmacy Education Taskforce of the World Health Organization, United Nations Educational, Scientific and Cultural Organization and the International Pharmaceutical Federation Global Pharmacy and the Education Action Plan 2008-2010, including the foundation, domains, objectives and outcome measures, and includes several examples of current activities within this scope [13,14].

Necessity, Importance, Impact/Benefits, and Awareness of PV reporting in India- All medicines (pharmaceuticals, biologicals and vaccines) as rules have known or unknown side effects. However many adverse drug reactions (ADRs) are preventable with a sound knowledge of pharmacology and good prescribing practices [15,16]. In the United States the Safe Use Initiative, an initiative of the US FDA, aims to broaden the FDA's post-marketing mission by placing a new emphasis on partnering with health care providers and medical, pharmacy, and nursing associations to promote the safe use of drugs. As pharmacists play an important role in patient safety, the FDA seeks to more fully comprehend the depth and coverage of science of safety (SoS) topics in pharmacy school curricula. The development of a SoS curriculum is expected to better prepare new practitioners to actively contribute to improving the safe use of medical products. In a vast country like India with a population of over 1.2 billion with enormous ethnic variability, variety of disease prevalence patterns, different systems of medicines practice, diverse socioeconomic status, it is important to have a standardized and robust PV and drug standard monitoring procedure in the nation [17-20]. Majority people are unaware of such kind of programs, though National Centers have played a significant role in increasing public awareness of drug safety; it has not reached to the major population. Such lesser awareness has turned down the reporting rate. Awareness about drug safety reporting has a key role to play in the success of any PV program.

An unmet need and suggestions to update Pharmacy curriculum in India

There is no standardized pharmacy curriculum and it varies across the universities in India that offer degree to students. In India, we are still struggling with communication gap between the industry and the academics. The curriculum lacks the current practices and modern techniques that industry practices. This is the most important reasons for the 4 professional degradation and discrimination of pharmacists in the country.

Similar to the SoS curriculum in the US, we recommend the revision of the curriculum based on following points-

- Revise curriculum to cater the development of the pharmacy workforce relevant to current global market needs.
- Include case studies, current PV practices, and MW skills in the graduation level curriculum.
- Develop online industry-oriented programs where sample case studies and trials are elaborated; and educate the students on how to identify, understand, report, manage, and communicate medication risks.
- Foster and support industry-standard research activities at degree level.

CONCLUSIONS

There is an unmet need to validate the domain specific (industry and/or community) requirement for pharmacists in India with a well-designed pharmacy work-force study to review pharmacy education programs, within India versus globally and also to compare them with the current job roles accepted internationally. Then, pharmacy degree programs can be revamped accordingly to fulfill requirements for industry and for pharmacy practice both in communities as well as hospitals.

REFERENCES

[1] Tharappel LJP, Kaur G, Buttar HS. Pharmaceutical Education in India Past, Present Future, J. Pharm. Sci. & Res., 2014; 6(8): 278-81.
[2] Basak SC, Sathyanarayana D. Pharmacy Education in India. Am.J. Pharm.Educ., 2010; 74(4): 1-8.
[3] Jishnu V, Gilhotra RM, Mishra DN. Pharmacy Education in India: Strategies for a Better Future, JYoung Pharm., 2011; 3(4): 334–42.
[4] Bhuyan B. Pharmacy education in India Current standard, admission criteria and regulation. Int. J. Pharm. Bio. Sci., 2013; 4: 860-66.
[5] Sachan A, Sachan AK, Gangwar SS. Pharmacy education in India and its neighbouring countries. Int. Curr. Pharm. J., 2012; 1: 294-301.
[6] Kulkarni SK. D. Pharm or Pharm D A professional chirality. Ind. J. Pharm. Educ Res., 2009; 43: 114-16.
[7] Narayana TV. Pharmacy education in India. Pharmatimes, 2011; 43: 35.
[8] Shirke S. Medical writing on an accelerated path in India. Perspect Clin. Res., 2015; 6(3): 125–28.
[9] Sharma S. Development of medical writing in India: Past, present and future. Perspect Clin Res., 2017; 8(1): 45–50.
[10] Ahmad A, Patel I, Sanyal S, Balkrishanan R, Mohanta GP. A Study on Drug Safety Monitoring Program in India. Ind. J. Pharm. Sci., 2014; 76(5): 379–86.
[11] Kalaiselvan V, Thota P, Singh GN. Pharmacovigilance Programme of India Recent developments and future perspectives. Indian J. Pharmacol. 2016; 48(6): 624–28.

[12] Anderson C, Bates I, Beck D, et al. The WHO UNESCO FIP Pharmacy Education Taskforce, Commentary. Human Resources Health, 2009, 7(45): 1-8.
[13] Mishra H, Kumar V. Pharmacovigilance Current Scenario in a Tertiary Care Teaching Medical College in North India. J Pharmacovigilance, 2013; 1(2): 1-4.
[14] Kaur I, Kalaiselvan V, Kumar R, Mishra P, Kumari A, Singh GN. Effective Reporting by Pharmacist in Pharmacovigilance Programme of India. Adv Pharmacoepidemiol Drug Saf., 2015, 4(6): 197-200.
[15] Tandon VR, Mahajan V, Khajuria V, Gillani Z. Under-reporting of adverse drug reactions: A challenge for pharmacovigilance in India. Ind. J. Pharmacol., 2015; 47(1): 65–71.
[16] Kalaiselvan V, Thota P, Bisht A, Singh S, Singh GN. Adverse drug reactions reporting culture in Pharmacovigilance Programme of India. Ind. J. Med. Res., 2014; 140(4): 563–64.
[17] Suke SG, Kosta P, Negi H. Role of Pharmacovigilance in India An overview. Online J. Public Health Inform., 2015; 7(2): 222-23.
[18] Sharma PK, Singh S, Dhamija P. Awareness among tertiary care doctors about Pharmacovigilance Programme of India: Do endocrinologists differ from others?. Ind. J. Endocrinol. Metab., 2016; 20(3): 343–347.
[19] Bharadwaj V, Budania N, Mondal A, Yadav V, Sharma P. A Survey to Assess the Awareness of Adverse Drug Reactions and Pharmacovigilance Practices among Healthcare Professionals in a Tertiary Care Hospital. Int. J. Med. Res. Prof., 2016; 2(1): 134-37.
[20] Rajanandh MG, Praveen Kumar V, Yuvasakthi S. Roles of Pharmacist in Pharmacovigilance: A Need of the Hour. J. Pharmacovigil, 2016; 4(6): 221-22.

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