Original Article

Acceptance of doctor of pharmacy in India: A survey-based study

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ABSTRACT

Aims: The current study aims to assess the attitude of Indian Doctor of Pharmacy (Pharm.D) graduates toward the pharmacy curriculum and pharmaceutical care in India.
Settings and Design: Web-based survey
Materials and Methods: A nineteen item web-based questionnaire was used to attain the purpose of study. A total of $n = 130$ pharmacy students were invited for their participation in this study. Descriptive statistics was applied to assess the responses using Microsoft Excel®.
Results: $n = 108$ Pharm.D students responded to this survey with a response rate of 83.0%. Results identified acceptance and dissemination in each of the key areas; 96% (mean: 1.04; standard deviation (SD): 0.19) respondents felt that there is a need for the Pharm.D course in India and 76.0% (4.19; 0.85) agreed that there is a need of continuous professional education for a pharmacist. Also, 83.0% (4.14; 1.01) students has shown willingness to be the part of pharmaceutical care process for their patients and 97.0% (4.64; 0.56) agreed that providing pharmaceutical care can increase the quality of service. Nearly 64.0% (3.72;1.07) agreed the Pharm.D program was successful in India.
Conclusions: Findings of the current study reflects that Pharm.D curriculum is well accepted in India and pharmacy students get more insight through active participation in patient care. The Pharmacy Council of India (PCI) need to initiate more proactive measures in creating clinical pharmacy jobs for Pharm.D graduates in India, and promote the Pharm.D degree to gain international status, as in United States.

Key words: Clinical pharmacy, Doctor of Pharmacy degree, India, pharmaceutical care, pharmacy education, pharmacy practice

INTRODUCTION

India is a developing nation with a population of 121 billion.[1] History of pharmacy education in India is rooted to 1937, when Banaras Hindu University has started a three year bachelor of pharmacy (B.Pharm) program.

Previously inidan pharmacy curriculum was industry oriented rather than patient care oriented.[2] However, keeping in view the global trends six year doctor of pharmacy (Pharm. D) program is started that is designed to meet both the clinical and industry needs of India [Table 1].[2,3]

Pharmacists in developing countries have focused on a patient-care approach. During early nineteen century pharmaceutical care has evolved into a concept, that underwent several changes. Pharmaceutical care is defined as the direct, responsible provision of medication-related care for the purpose of achieving definite outcomes that improves the quality of life of the patient.[4,5] The Pharm.D program was introduced in 2008 with the aim of producing clinically oriented pharmacists who had undergone extensive training in clinical and practice sites in hospitals and of providing pharmaceutical care to the patients;[3] The idea is to train pharmacy students to meet the shortage of

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pharmacists in Indian hospitals and also to match with the Pharm.D curriculum as in United States.[6]

In India, the profession of pharmacy practice is evolving slowly and in the past decade, much attention has been directed by professional leaders towards the aspects of hospital and clinical pharmacy. Postgraduate courses like M.Pharm in pharmacy practice and Pharm.D have came up in various institutions in the country, especially in the southern part of India. The introduction of these courses in the country have led to attitudinal changes in young pharmacists as well as conventional pharmacists.[5] In a recent survey conducted among pharmacists in Karnataka and Kerala, young pharmacists have opined that patient counseling is a key responsibility of practicing pharmacists and it is also a part of pharmaceutical care.[4,5,7]

Keeping in view the practice challenges in India, the current study aimed to assess and disseminate the attitude of Indian Pharm.D graduates towards the curriculum and pharmaceutical care.

MATERIALS AND METHODS

A nineteen item questionnaire was used to attain the objectives of study. of whom the first three questions were collecting the demographic data (timing, gender, and country). Next Seven questions were related to the Indian Pharm.D program. In addition a set of eight questions focus on pharmaceutical care, and the final question was about the survey itself. A pretested questionnaire was administered to the participants of the Web-based survey. The Web-based tool Qualtrics were employed for data collection and summary. The questionnaire was distributed among Pharm.D graduates (n = 130) with a link to access the survey via online tools such as email and social networking sites like Facebook, LinkedIn, and Twitter. This study was conducted over a period of one month from 1st August 2012 to 1st September 2012.

A total of 108 Pharm.D graduates responded to this Web-based survey. Microsoft Excel® was used for statistical analysis.

RESULTS

Out of 130 Pharm.D graduates, 108 responded; the response rate was 83.0%. Among them, 61.0% were males, and 39.0% were females (mean: 1.39, SD: 0.49); 97.0% belonged to India and only 3% were from other countries [Table 2]. The results were presented in Table 3 (mean: 1.04, SD: 0.23). Only 71.3% (mean: 2.6, SD: 0.68) of the respondents gave the correct answer for the abbrevation of Pharm.D; 96.0% felt that there is a need of Pharm.D in India. Most of the participants believed that pharmacists persuing six-year program of Pharm.D have more competence than the pharmacy courses of four plus two years (4 years B.Pharm + 2 years M.Pharmacy Practice); 39, 26, and 14% (mean: 3.76, SD: 1.33), respectively, strongly agreed, agreed, and disagreed. The six-year program provides more pharmaceutical care compared to the pharmacy education of four plus two years. Of the study participants, 45% agreed that a pharmacist requires continuous professional education, 31.0% strongly agreed, and only 10% neither agreed nor disagreed.

Table 4 discusses pharmaceutical care and benefit from this study: 50% participants strongly agreed with the fact that Pharm.D students have the skills to provide pharmaceutical care; 44% participants favoured institutional support for pharmaceutical care. Further, 42% agreed and 41% strongly agreed that Pharm.D graduates are ready to provide pharmaceutical care to the patients. Of the participants, 39% agreed that other health-care professionals understand the role of a pharmacist in pharmaceutical care, whereas 24% strongly agreed. The success of pharmaceutical care depends on acceptance of the following: Pharmacist (28%), physician (36%) and patients (36%) respectively; 82% study participants

Table 1: Qualification required for registered pharmacists in India

Qualification	Duration of course	Training needed for registration as pharmacist	Subjects related to pharmaceutical care	Current employment
D. Pharm	2 years, full time	500 hours in hospital (3 months)	Nil	Community pharmacy/ hospital pharmacy
B. Pharm	4 years, full time	One month in pharmaceutical industry	Nil	Pharmaceutical industry/hospital pharmacy/community pharmacy
Pharm.D	5 years, full time/ 2 years for (Post baccalaureate)	One-year internship	Therapeutics, pharmacovigilance, clinical toxicology, clinical pharmacy, hospital pharmacy, pharmacoepidemiology, drug safety, etc.	Pharmacovigilance industry, CROs, academia

CRO=Contract research organization

believed that this study was beneficial and remaining 18% felt it was not.

DISCUSSION

Clinical pharmacy is an emerging discipline in India.[7] Clinical pharmacy services optimize patient outcomes by promoting the rational use of medicines.[8] As clinical pharmacy is more of a concept rather than a practice in India, an attempt has been made to carry out the work to the best of the abilities of the clinical pharmacists involved. A few studies have reported that clinical pharmacy activities reduce drug-related problems (DRPs), related hospitalizations, probability of readmission, and cost of drug therapy.[5,7]

The present study showed that Pharm.D graduates have more training in providing pharmaceutical care to patients compared to conventional pharmacists (4 years B.Pharm + 2 years M.Pharm). Most of the participants agreed with the need for continuing education for a pharmacist in India; about success or failure of the Pharm.D course, it was too early to comment because until date, only two batches of Pharm.D (Post Baccalaureate) has passed out and were placed in good jobs in academia or other contract research organizations (CROs), and no batch has been passed out from the integrated Pharm.D course.

Stating that the pharmacy practice experiences are more or less non-existent with particularly no emphasis on pharmacotherapeutics and clinical pharmacy and the implementation of the Pharm.D program must largely emphasize pharmaceutical care encompassing areas of patient care such as hospital and clinical pharmacy.[9]

Table 2: Demographic characteristics of the study data

Demographic factors	Categories	Total *n* (%) of survey	Standard deviation
Are you from India?	Yes	105 (97)	0.23
	No	3 (3)	
Please provide your gender	Male	66 (61)	0.49
	Female	42 (39)	

Table 3: Questionnaire related to the Indian Pharm.D program (*n*=108)

Data related to the Pharm.D program in India	Categories	Total *n* (%)	Standard deviation
What does Pharm. D mean?	Doctor in pharmacy	12 (11.11)	0.68
	Doctorate in pharmacy	19 (17.59)	
	Doctor of pharmacy	77 (71.29)	
Does India need of Pharm.D	Yes	104 (96.30)	0.19
	No	4 (3.70)	
Pharmacists graduated from the 6-year program have more competence than 4+2 year curriculum graduation	Strongly disagree	10 (9.25)	1.33
	Disagree	15 (13.88)	
	Neither agree nor disagree	13 (12)	
	Agree	28 (25.92)	
	Strongly agree	42 (38.88)	
Pharmacists graduated from 6-year program have more pharmaceutical care-providing skills than 4+2 year graduates	Strongly disagree	6 (5.55)	1.22
	Disagree	13 (12)	
	Neither agree nor disagree	14 (12.96)	
	Agree	30 (27.77)	
	Strongly agree	45 (41.66)	
Does pharmacists need a continuous education program	Strongly disagree	2 (1.80)	0.85
	Disagree	5 (4.62)	
	Neither agree nor disagree	11 (10.18)	
	Agree	49 (45.37)	
	Strongly agree	33 (30.55)	
The Pharm.D program failed	Strongly disagree	33 (30.55)	1.16
	Disagree	26 (24)	
	Neither agree nor disagree	33 (30.55)	
	Agree	10 (9.25)	
	Strongly agree	6 (5.55)	
The Pharm.D program success	Strongly disagree	7 (6.48)	1.07
	Disagree	5 (4.62)	
	Neither agree nor disagree	27 (25)	
	Agree	42 (38.88)	
	Strongly agree	27 (25)	

Table 4: Questionnaire related to pharmaceutical care and benefit from this survey (*n*=108)

Data related to pharmaceutical care	Categories	Total *n*(%)	Standard deviation
Whether Pharm.D students have skills in providing pharmaceutical care	Strongly disagree	4 (3.70)	0.85
	Disagree	2 (1.85)	
	Neither agree nor disagree	5 (4.62)	
	Agree	43 (39.81)	
	Strongly agree	54 (50)	
Whether Pharm.D having experience in providing pharmaceutical care	Strongly disagree	3 (2.77)	0.98
	Disagree	8 (7.40)	
	Neither agree nor disagree	16 (14.81)	
	Agree	47 (43.51)	
	Strongly agree	34 (31.48)	
Institutional support is necessary for pharmaceutical care	Strongly disagree	5 (4.62)	1.07
	Disagree	15 (13.88)	
	Neither agree nor disagree	16 (14.81)	
	Agree	50 (46.29)	
	Strongly agree	22 (20.23)	
Whether Pharm.D students are oriented towards pharmaceutical care	Strongly disagree	4 (3.70)	1.01
	Disagree	9 (8.33)	
	Neither agree nor disagree	5 (4.62)	
	Agree	45 (41.66)	
	Strongly agree	45 (41.66)	
Whether other professionals understand the role of pharmacists in pharmaceutical care	Strongly disagree	6 (5.55)	1.16
	Disagree	19 (17.59)	
	Neither agree nor disagree	18 (16.66)	
	Agree	39 (36.11)	
	Strongly agree	26 (24.07)	
Pharmaceutical care depends on acceptance of	Pharmacists	30 (27.77)	1.24
	Physicians	39 (36.11)	
	Nurses	0 (0.00)	
	Patients	39 (36.11)	
Providing pharmaceutical care increases quality of service	Strongly disagree	1 (0.92)	0.56
	Disagree	2 (1.85)	
	Neither agree nor disagree	2 (1.85)	
	Agree	33 (30.55)	
	Strongly agree	70 (64.81)	
The success of pharmaceutical care Services depends on individuals	Strongly disagree	5 (4.62)	1.10
	Disagree	12 (11.11)	
	Neither agree nor disagree	9 (8.33)	
	Agree	46 (42.59)	
	Strongly agree	36 (33.33)	
Is this survey beneficial?	Yes	89 (82.40)	0.37
	No	19 (17.60)	

The primary activities involved in pharmaceutical care are well known. They include the following:

- Assessment such as taking a history of medication and identifying real and potential DRPs
- Development of a plan for pharmaceutical care, such as making and implementing recommendations and monitoring parameters to resolve and prevent DRPs
- Evaluation such as follow up to determine whether clinical outcomes have been achieved.

In this study, most of the participants were found to be dedicated toward patients, but most of the pharmacy colleges are run by private organizations and do not have their own hospitals. But as a formality they show the memorandum of understanding (MOU) to the PCI to get approval. Hence, students are not getting adequate hospital exposure which is an essential criteria for Pharm.D curriculum

Due to lack of jobs in pharmacy practice, these skilled pharmacists may migrate to other jobs or to other developed countries. The main preference for Pharm.D in India is due to its potentiality for new job avenues as well as to get international accreditation.

The PCI and professional leaders need to take the initiative by lobbying with the government authorities to create positions in the hospital setup

for these clinical pharmacists. We would suggest that the PCI should work in close association with bodies like the National Association of Boards of Pharmacy (NABP) who conduct the North American Pharmacist Licensure Examination (NAPLEX) to introduce and mandate a similar national board examination for pharmacy graduates, and further to assess the quality of pharmacy education the PCI should frame all India screening examination for all the prospective pharmacy graduates starting from D.Pharm to Pharm.D.[10]

CONCLUSION

Our results show that the Pharm.D curriculum is well accepted by young generation of India and pharmacy students get more insight through active participation in patient care. But, the Pharm.D students are in a dilemma, whether the course will add value in creating jobs in the industry or hospital, further implementing professional pharmaceutical care services in hospitals is still at a nascent stage in India. The PCI needs to initiate proactive measures in creating clinical pharmacy jobs to the first batches of the Pharm.D graduates for the advocacy of the pharmacy practice profession in India, and promotion of the Pharm.D degree to gain international recognition.

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