

# Assessment of Views Opinions and Perceptions of Pharmacy Students towards Doctor of Pharmacy Profession in India

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## ABSTRACT

**Background:** Although clinical pharmacy is considered as one of the most vibrant and exigent professions, when it comes to the recognition, scope and the career opportunities for Pharm D professionals are ill-defined in the current scenario of Indian Pharmacy. The SPICE-PHARM study (Suggestions, Perceptions and Ideas for Comprehensive Education system towards Pharmacy profession) primarily aims at the various views, opinions and perceptions of Pharm D students in order to enhance the standards with respect to the recognition and address future career opportunities in particular to Indian context.

**Materials and Methods:** A cross-sectional survey was conducted by using a semi-structured, pre-tested self-administered questionnaire which was validated through a pilot study conducted with 20 respondents prior to the full-fledged study. Survey was conducted at various educational institutions of India primarily using google document forms over a period of six months. The responses were collected and analyzed by using descriptive statistics. **Results:** By analysing the survey results, majority of the participants has showed desire for the specific issues that needs to be addressed. Also, results clearly represents that there is an absolute need for enhancing the standards with regards to the respect, identity and cadre towards the Pharm D profession in India.

**Conclusion:** Our survey emphasized on the views, opinions and perceptions with regards to Pharm D profession in India. In a nutshell, survey result concludes that there is an immense need for development in the educational and professional standards of Doctor of Pharmacy in India.

**Key words:** Doctor of Pharmacy, Pharm D Profession in India, Pharmacy students, Clinical Pharmacy, Cross sectional study, Questionnaire-based survey.

## INTRODUCTION

In the past, pharmacists were solely restricted to manufacturing and dispensing of medications.<sup>1</sup> Chronologically, the traditional role of pharmacist is expanding and now pharmacists are considered as the integral part of healthcare team, especially the new generation clinical pharmacists with respect to patient centric care.<sup>2-3</sup> Pharmaceutical education plays a very prominent role in attaining sustainable and equitable development of a country.<sup>3</sup> Pharmacists comprise the third largest healthcare professionals in the world and pharmacy profession has been evolving steadily over the last decade in India. The

scope and potential for growth of Pharm D profession is enormous, if the standards upgrade to international and global expectations.<sup>4</sup> Clinical Pharmacists in developing countries like India are still underutilized and their role as health care professionals is not deemed important by either the community or other health care providers, though they are considered as the drug therapy experts with potentiality of optimizing medication use which aids patients with positive health outcomes.<sup>4-5</sup> The SPICE-PHARM study mainly emphasize on the interim status of the Doctor of Pharmacy

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profession in India. The information presented in this paper might stimulate discussion on critical analysis and planning, thus it would be of value in future adaptation of the Pharm D profession for desired beneficial outcomes as a result.

## OBJECTIVE

To assess the views, opinions and perceptions of Pharm D students towards Doctor of Pharmacy profession in India.

## MATERIALS AND METHODS

### Study Procedure

A cross-sectional survey was conducted by using semi-structured, pre-tested self-administered questionnaire over a period of six months i.e. from August 2017 to January 2018 among the Pharm D students at various colleges and universities around India by using google document forms which was easy, quick and reliable to collect wide range of responses around the country. The survey cohort was restricted to the students of final year (5<sup>th</sup> year), Interns and recently graduated Pharm D professionals as they might have broader knowledge, considerable opinions and accountable views towards Doctor of Pharmacy profession in India.

### Designing of Survey Questionnaire

A survey questionnaire was designed based on the study objective and respondents in mind. The questionnaire was framed with closed ended questions with multiple choices as responses to be selected in order to collect the required information. As the designing of questionnaire is a challenging process, the survey questions' structure, sequence and pattern were revised and peer reviewed. Then questionnaire was evaluated for validity by using face and content validation methods and then assessed for reliability by using test-retest and split-half methods through a pilot study conducted with 20 respondents prior to the full-fledged survey. The questionnaire consists a total of 22 questions, out of which 8 questions each are related to views and opinion domain, whereas 6 questions are related to perceptions domain respectively.

### Statistical Analysis

The study participants were segregated based on their age, gender and year of the study. The responses were collected and entered into Microsoft excel spread sheet for sorting and analyzed by using SPSS version 14 for descriptive statistics of study participant characteristics.

## RESULTS AND DISCUSSION

A total of 369 participant responses were collected from various Pharmacy colleges across India. The mean age of the participants was found to be 25.09 with a standard deviation of 1.8. However, nearly one-fourth (23%) of the study participants were 23 years of age. Among the study cohort, 152 were males (41.2%) and 217 were females (58.8%). These findings are in accordance with the similar study performed by Flora Keshishian *et al.* which consists of 47% of male and 53% of female pharmacy students.<sup>6</sup> The number of responses provided by final year Pharm D students, interns and graduates were found to be 138 (37.4%), 99 (26.8%) and 132 (35.8%) respectively as represented in Table 1.

### Views towards Doctor of Pharmacy Profession in India

Among the responses of questions related to views among Pharm D students towards their profession, more than three-fourth of study participants 302 (81.8%) agreed that there is a need for mandatory competency entrance examination for Pharm D. The reason for such a response from the participants might be because, they felt the profession lacks the quality due to significant number of institutions getting permissions for Pharm D which might indirectly trigger enrolling vast number of students with inadequate knowledge.<sup>2</sup> Interestingly, more than two-third (78%) of them positively responded towards need for collaboration with foreign country universities for better standards and opportunities and around 85% of the students showed a positive inclination towards Pharm D students and academic staff attending international conferences

**Table 1: Demographical distribution of the survey population.**

Item	Category	Study participants Total (n) = 369	Percentages (%)
Age Mean ± S.D (25.09 ± 1.8)	23	85	23 %
	24	66	17.9 %
	25	70	19 %
	26	56	15.1 %
	27	42	11.4 %
	28	30	8.1 %
Gender	Male	152	41.2 %
	Female	217	58.8 %
Year of study	Final year	138	37.4 %
	Intern	99	26.8 %
	Graduate	132	35.8 %

abroad to broaden their vision. The rationale behind such responses might be that, unlike in India most of the developed countries have Pharm D since decades which would have made them eminent epitomes with regards to the scope, standards and career opportunities for many developing countries like India.<sup>7</sup> Around two-third (65%) of the students positively responded towards need for student exchange programs with foreign universities in order to have better scientific exposure and fruitful learning. So, participants might have thought attending conferences, visiting abroad universities as a student for exchange between the universities and getting collaborated with such paramount universities around the world would aid them in bridging the gap between their dreams and reality. Nearly 80% of the students agreed that there is need to organize frequent seminars and workshops at institution level for better understanding of career opportunities. As all of us are aware of the fact that Pharm D is the new born course in India most of the students, graduates and professionals might lack the knowledge with regards to the scope and future opportunities about the profession.<sup>3</sup> Surprisingly, 266 (72.1%) students want institutions to invest the academic funds in research related activities which can assist in creating young research scholars. Astonishingly, 336 (91%) students claimed towards need for licensing examination for registration as a pharmacist in India like in other countries. As known to all, India doesn't have a specific competency examination for registering as a licensed Pharmacist, which could lead to shallow archetype trait in near future in context of Indian Pharmacy. Most of the study responses are in accordance with the similar study conducted by Garipelly. R *et al.*<sup>7</sup> Detailed responses regarding the views of study participants are listed in Table 2.

### Opinions towards Doctor of Pharmacy Profession in India

Among the responses of questions related to opinions among Pharm D students towards their profession, half of the participants 185 (50.1%) mentioned that they joined the course because they get "Dr." as a prefix, however 128 (34.7%) students replied "may be" for the same. As we all aware of a fact that Pharm D is a doctoral program,<sup>3</sup> it could serve as an asset from a student's point of view to secure a respectful position in the society. Interestingly, more than half of the participants 191 (51.8%) mentioned that they will not suggest Pharm D as a career to others. This response might be because of dilemma within students regarding the scope and further career options. Nearly 82% of the study participants agreed that there is a need for Pharm

**Table 2: The frequency of responses for view related questions.**

Questions	Yes	No	May be
Do you think there is a need for mandatory competency entrance examination for Pharm D in India?	302 (81.8%)	22 (6%)	48 (13%)
Do you think there is a need for collaboration between India and other foreign universities for raising standards at institutional level?	288 (78%)	19 (5.1%)	62 (16.8%)
Do you think Pharm D graduates and academic staff should attend international seminars and conferences abroad for better development in the educational standards?	312 (84.5%)	23 (6.2%)	34 (9.2%)
Do you think there is a need to organize frequent seminars and workshops by collaboration with the industry for better understanding with regards to career opportunities?	294 (79.7%)	46 (12.5%)	29 (7.8%)
Do you think investing academic funds in research related activities will assist in creating young research scholars?	266 (72.1%)	50 (13.5%)	53 (14.4%)
Do you think there is a need to update the knowledge of teaching staff through continuing medical education (CME's) in order to maintain their competency and innovativeness?	216 (58.5%)	62 (16.8%)	91 (24.7%)
Do you think there is a need for student exchange programs with foreign universities in order to have better scientific exposure and fruitful learning?	239 (64.8%)	46 (12.4%)	84 (22.8%)
Do you think there is a need for licensing examination for registration as a pharmacist in India like in other countries such as NAPLEX, PEBC, APEC, MOH and DHA etc.?	336 (91%)	8 (2.2%)	25 (6.8%)

D course in India. A recent study conducted by Vikas Bajpai *et al.* quoted that India has one government doctor for every 11,528 people and one nurse for every 483 people.<sup>8</sup> This clearly depicts the current scenario of doctor-patient relationship. As most of the doctors might not have enough time to discuss the disease and drug related problems with the patients, there comes the role of clinical pharmacist.<sup>9-10</sup> Surprisingly, 225 (61%) students claimed that the profession is not valued in the way it deserves. Nearly 64% of the participants mentioned that Indian Pharm D doesn't have the scope like other developed countries do. As Pharm D is young and emerging course in India, definitely it takes some time to take existence and gain what actually aimed for. Around 62% of the participants agreed that Pharm D graduates should participate in the ongoing health camps and campaigns. In a paper authored by Sachan D *et al.* and Jain A *et al.* they clearly mentioned various pitfalls in the current medical profession and there is a need for all healthcare professionals in order to strive for better patient care.<sup>11-12</sup> Out of 369 participants, 316 (85.6%) students agreed that Pharm D professionals can able to minimize medication errors, maximize cost-effectiveness and improve patient outcomes. In a study conducted by Foroughinia F *et al.* and Khalili H *et al.* stated that clinical pharmacist can efficiently detect and manage drug related problems in health care settings.<sup>13-14</sup> And 304 (82.4%) students suggested that there should be an enhanced inter-professional relationship between Clinical Pharmacist and a physician for better patient care. A study conducted by Mishra A *et al.* strongly suggests that collaboration between clinical pharmacist and a physician would predominantly yields significant patient outcomes.<sup>15-16</sup> Detailed responses regarding the opinions of study participants are listed in Table 3.

### Perceptions towards Doctor of Pharmacy Profession in India

Among the responses of questions related to perceptions among Pharm D students towards their profession, around three-fourth (72.1%) of the participants claimed that pharmacists are not just meant for dispensing of the prescribed drugs. Nearly 75% of the students mentioned that there is a need for clinical pharmacist in the hospital care settings. In a study conducted by Viktil KK *et al.* and Blix HS *et al.* concluded that clinical pharmacist has a vibrant role in the disease management in the hospital care settings,<sup>17,18</sup> and more than three-fourth of the participants 283 (76.7%) agreed that clinical pharmacist is an integral part of the health care team. In a study conducted by Deshpande P.R *et al.* stated that clinical pharmacists are the major

Questions	Yes	No	May be
I joined Pharm D because I get "Dr." as a prefix.	185 (50.1%)	56 (15.2%)	128 (34.7%)
Do you suggest Pharm D as a career to others?	129 (34.9%)	191 (51.8%)	49 (13.3%)
Do you think there is a need for Pharm D course in India?	307 (83.2%)	25 (6.8%)	37 (10%)
Do you think the Pharm D profession is valued in the way it deserves in the current scenario?	96 (26%)	225 (61%)	48 (13%)
Do you think Indian Pharm D has equal scope as like other countries such as USA, Canada and Australia etc.?	84 (22.8%)	236 (63.9%)	49 (13.3%)
Do you think Pharm D graduates should participate in the ongoing health camps and campaigns such as polio eradication, family planning and disease awareness etc.?	228 (61.8%)	46 (12.5%)	95 (25.7%)
Do you think Pharm D professionals can able to minimize medication errors, maximize cost-effectiveness and improve patient outcomes?	316 (85.6%)	10 (2.7%)	43 (11.6%)
Do you think there should be an enhanced inter-professional relationship between Clinical Pharmacist and a physician for better patient care?	304 (82.4%)	9 (2.4%)	56 (15.2%)

support to Indian healthcare system.<sup>19</sup> Around 85% of the students claimed that Pharm D should be implemented as a qualification for registration as a pharmacist in India. Approximately, 90% of the participants agreed that clinical pharmacist should be appointed at the PHC (Public Health Centre) and CHC (Community Health Centre) at villages and rural areas.<sup>9</sup> Astonishingly, only one-fourth 98 (26.5%) of the participants agreed that doctors and other healthcare staff will accept the interventions made by clinical pharmacists. In a study conducted by ND Barber *et al.* declared that most of the physicians would accept the clinical interventions made by the clinical pharmacists in healthcare settings, which are in contrast with the current survey results.<sup>20</sup> Detailed responses regarding the perceptions of study participants are listed in Table 4.

Over all these explorations, technical and controlling authorities of this country should strictly control, monitor,

**Table 4: The frequency of responses for perception related questions.**

Questions	Yes	No	May be
Pharmacists are only meant for dispensing of prescribed drugs?	42 (11.4%)	266 (72.1%)	61 (16.5%)
There is a need for Clinical Pharmacists in the hospital care settings.	271 (73.4%)	29 (7.8%)	69 (18.7%)
Clinical pharmacist is an important and integral part of the health care team.	283 (76.7%)	40 (10.8%)	46 (12.5%)
Pharm D should be implemented as a qualification for registration as a pharmacist in India?	311 (84.3%)	19 (5.1%)	39 (10.6%)
Clinical Pharmacists should be appointed at the PHC (Public Health Centre) and CHC (Community Health Centre) at villages and rural areas.	329 (89.1%)	19 (5.1%)	21 (5.7%)
Doctors and other healthcare staff will accept the interventions made by clinical pharmacists in patient disease management.	98 (26.5%)	99 (26.8%)	172 (46.6%)

assess, and evaluate the quality while accrediting pharmacy institutions with respect to syllabus, academic staff and student quality and feedback. Also study results evidently proven that, present situation intimates low quality output as per demand, which would indirectly affect overall development of the society and country as well. The students should also be made to understand their responsibilities and importance of their service so that they strive hard to produce better care for the patients.<sup>2</sup>

## CONCLUSION

To compete with the thriving advancements in the field of pharmacy across the globe there is a compelling need to initiate an academic exercise aimed at attaining revamping of standards, keeping in pace with current and emerging trends. Survey results predominantly concludes that there is an urge for improvement with respect to the educational and professional standards towards Doctor of Pharmacy course in India. If the country's pharmacy authorities be able to consider and adopt the view, opinions and suggestions provided by the Pharm D students, it can lead to a tremendous and sustained raise in the quality growth of Indian pharmacy education and profession as well.

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## CONFLICT OF INTEREST

There are no conflicts of interest.

## ABBREVIATIONS

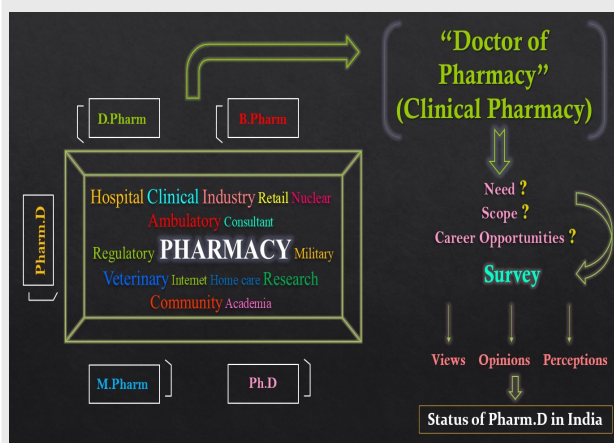
**Pharm D:** Doctor of Pharmacy; **SPICE-PHARM study:** Suggestions, Perceptions and Ideas for Comprehensive Education system towards Pharmacy profession; **SPSS:** Statistical Package for the Social Sciences; **S.D:** Standard Deviation; **CME:** Continuing Medical Education; **NAPLEX:** The North American Pharmacist Licensure Examination; **PEBC:** The Pharmacy Examining Board of Canada; **APEC:** The Australian Pharmacy Examining Committee; **MOH:** Ministry of Health; **DHA:** Dubai Health Authority.

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### PICTORIAL ABSTRACT



### SUMMARY

- Alongside the various branches in the field of pharmacy, clinical pharmacy plays an integral part of health-care team with respect to patient centric care.
- At present in India the recognition, scope and the career opportunities for Pharm D professionals are ill-defined.
- This SPICE-PHARM study aims at the various views, opinions and perceptions of Pharm D students in order to enhance the standards with respect to the recognition and address future career opportunities in particular to Indian context.
- This survey is considered as the first of its kind, conducted in order to assess the views, opinions and perceptions of Pharm D students as well as recent graduates towards Doctor of Pharmacy educations and profession in India.
- Survey results depicted that there is a need for expeditious advancements in norms in order to raise the standards of the course and make it well established in India.
- Through this survey we wish to stimulate discussion on critical analysis and planning, which would be of a value in future adaptation of the Pharm D profession for desired beneficial outcomes as a result.

### About Authors



**Dr. Sai Krishna Gudi** is a research graduate pursuing his MSc (2017-19) at the Department of Pharmacy, University of Manitoba, Canada. He has done his bachelors in Pharmacy (2010-14) from SIMS college of Pharmacy, A.N.U University, Guntur, Andhra Pradesh, India. Also, he has done his Masters in Doctor of Pharmacy (2014-17) from JSS University, Mysore, Karnataka, India as a post-baccalaureate. Of now, he has authored around 30 papers which were published in both national and international journals as well. So far, he has attended about 10 Seminars and Conferences, more than 30 Poster and Oral Presentations, around 15 Workshops and 10 CME's and also various correspondence Diplomas and online Certifications in the field of Pharmacy from reputed organizations around the world. He is also a member of numerous National and International Societies. Throughout his journey in the profession of Pharmacy, he has received various Scholarships and Awards. His research interest includes Knowledge Translation through Evidence-Based Practice, Optimizing Irrational Drug-use, Pharmacoepidemiology, Pharmacy Education, Pharmacist Interventions, Patient-oriented Outcomes, and various aspects of Pharmacy Practice. Currently, his research aims at the intensity of potential over-treatment related to glycemic targets among the elderly population with Diabetes across Canada.

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