

Different Career Opportunities after B. Pharmacy

Dande Kiran Nitin, Rokade Anita Suresh, Ajay V. Ade, Dr. Khedkar Amol. N., Khan Afrin

Saikrupa Institute of Pharmacy, Ghargaon Maharashtra

Abstract: Pharmacies in India are facing many issues. For small scale organizations, a medical graduate might be too expensive and Pharmacy graduates can be a reasonable alternative. Pharmacy graduates have various job avenues besides the traditional ones. The pharmacist should be cognizant of these opportunities and should be able to advance their talents in these non-conventional areas.

Keywords: Pharmacy, Career, Hospital Pharmacist, Formulation Development, etc.

I. INTRODUCTION

In India, Pharmacy program started in the year 2008 with the aim of increasing the scope of pharmacy to meet the current health care needs.^{1,2} At present, the Pharmacy council of India (PCI) has approved

160 pharmacy schools offering Pharmacy in India and near about half of them (70) are located in the southern state of Andhra Pradesh. 157 of the 160 Pharmacy offering schools are private institutions and universities.³ A Pharmacy aspirant assumes that after completion of Pharmacy, he/she can diagnose, treat, and provide pharmaceutical care to the patients. In India, pharmacists are still often known as mere compounders/dispensers. The field of pharmacy practice is yet in its initial stages of development and pharmacists with M.Pharm in Pharmacy Practice/Clinical pharmacy are facing difficulties in getting jobs as clinical pharmacists in hospitals or clinical settings since clinical pharmacy is not accepted nationwide.^{2,4} Akram et al 2013, reported poor job satisfaction among pharmacists working in different pharmacy sectors including community pharmacies, hospitals, pharmaceutical industries, and academia.⁵

In India, pharmacies often operate without a registered pharmacist. Many a times, pharmacists will rent their certificates to store owners or renters for an annual payment of Rs.5000–10,000/year.⁴ Another issue is that physicians dispense medications without hiring a full-time pharmacist. When pharmacists are hired in hospitals, there are no specific job profiles, working conditions are poor, and salaries are too low. In industry, pharmacists work with arts and science graduates instead of fellow pharmacists, get a poor salary (Rs.4000–8000/month) and have to work 12 hours/day. In academia as well, the salary is poor for especially fresher candidates with M. Pharm degree.^{2,4} Their salaries now range from 10–15k/month but previously before 2008, it was a minimum of 18 k. Similarly for Pharmacy graduates the salaries have dropped from 25–35 k/month to 15–21k/month.

Many Pharmacy graduates are unaware about the non-traditional career opportunities available and continue to look for traditional job opportunities in the job market. The aim of the present report is to find the potential employment opportunities for Indian Pharmacy graduates and scope for development in each specific area

Healthcare comes in many forms—you do not always need a degree in medicine to save a life. Thousands of people all over the globe are living a healthy life thanks to pharmacists who prepare and dispense medicine. But how to go for a career in Pharmacy?

What is Pharmacy?

Pharmacy combines certain aspects of healthcare like direct patient contact, patient care, technology application, drug development and business management. Pharmacists are responsible for the discovery, production, and disposal of medicine along with the safe and effective use of drugs.

Why Study Pharmacy?

A pharmacist understands chemical compounds as well as their nature and effect on the human body. Modern healthcare is dependent on this versatile branch of Clinical Science.

Here are some reasons it is one of the most sought-after subjects after Class XII:

- Pharmacy offers a wide range of career opportunities ranging from patient care to research and development.
- This field gives you the opportunity to know about and participate in the innovation of drugs.
- It provides ample opportunities in both academia and industry along with the chance to earn a stable income.
- It allows you to assist people in need.

How to Study Pharmacy?

You can opt for three courses to get a degree in Pharmacy. They are:

1. B. Pharm (Bachelor's Degree in Pharmacy)
2. PharmD (Doctor of Pharmacy)
3. D. Pharm (Diploma in Pharmacy)

You can opt for any of these courses after passing your Class XII board exams with at least 55% aggregate and with Physics, Biology and Chemistry as compulsory subjects in Class XI–XII.

You can also go for higher studies with a M. Pharm course after completing the BPharm course and choose a specialisation based on your career interests after graduation.

If you are pursuing a D. Pharm degree, you can enrol in a PharmD course after obtaining your diploma. After completion of a PharmD or M. Pharm course, you can opt for a PhD degree.

Pharmacy Entrance Exams

Undergraduate Entrance Exams:

1. **WBJEE:** The West Bengal Joint Entrance Examination (WBJEEB) is the state-level joint entrance test for Engineering and Pharmacy courses in Bengal. It is conducted by the West Bengal Joint Entrance Examination Board (WBJEEB).
2. **GUJCET:** The Gujarat Common Entrance Test (GUJCET) is a state-level entrance exam for admission to various pharmaceutical colleges in Gujarat. This exam is held by the Directorate of Technical Education.
3. **UPSEE:** The Uttar Pradesh State Entrance Examination is a test for gaining admission to colleges in Uttar Pradesh. It is conducted by Dr APJ Abdul Kalam Technical University.
4. Other states also conduct their own entrance exams for students willing to study Pharmacy in those states after their Class XII board exams.

Here are some such exams:

- Odisha Joint Entrance Examination – Pharmacy (OJEE-P)
- Maharashtra Common Entrance Test – Pharmacy (MHT CET)
- Rajasthan University of Health Sciences (RUHS-P)
- KCET (Karnataka Common Entrance Test)
- Goa Common Entrance Test (Goa CET)
- Bihar Combined Entrance Competitive Examination Board (BCECEB)

Postgraduate Entrance Exams:

1. **GPT:** Graduate Pharmacy Test is a national-level exam conducted by the All-India Council of Technical Education (AICTE) for students seeking admission to M. Pharm programmes.
2. **NIPER JEE:** It is a national-level entrance exam to various postgraduate courses in Pharmacy.

Leading Pharmacy Institutes in India:

- Delhi Institute of Pharmaceutical Sciences and Research, Delhi
- National Institute of Pharmaceutical Education And Research (NIPER), Kolkata
- Institute of Chemical Technology (ICT), Mumbai
- University Institute of Pharmaceutical Sciences, Chandigarh
- Jamia Hamdard University, Delhi
- Jagadguru Sri Shivarathreeshwara University, Mysore
- The Oxford College of Pharmacy, Bangalore
- VELS University, Chennai
- PSG College of Pharmacy, Coimbatore

What will you do with a Pharmacy degree

Other than working in hospitals and communities, pharmacists play different roles in the pharmaceutical industry, regulatory bodies and academia.

Here are some of the roles for a pharmacist:

- Hospital pharmacist: Every hospital has a pharmacy and pharmacists are required to run that drug store smoothly.
- Community pharmacist: These professionals help community members to access the medicine they need.
- Clinical research associate: These pharmacists are part of drug discovery teams. They usually work in areas of formulation and process improvement and clinical trials.
- Pharmaceutical educator: They play an important role in academia by teaching students about different aspects of Pharmacy through theory and practical classes.
- Drug safety associate: They are in charge of overseeing the safety of pharmaceutical drugs. Their main job is to assess and prevent adverse reactions in patients.
- Formulation development associate: They are in charge of the development of new drugs, processes, systems and formulations. They offer technical assistance to the team.
- Pharmaceutical sales/marketing executive: All pharmaceutical companies require highly trained pharmacists for marketing and selling their products.
- Pharmaceutical expert: They work for regulatory bodies like CDSCO and FDA as a drug inspector, assistant/deputy drug controller or state/central drug controller.

It is an incredibly exciting time to pursue a career in pharmacy and pharmacy graduates have a wide range of career opportunities available to them. As you read through the various career opportunities for pharmacists, take your time and study the various options before you, find areas that interest you and challenge your skill and abilities.

II. PHARMACOVIGILANCE

Major drug companies based in Europe and other developed countries outsource their work to major IT companies in India. There are some advantages to outsourcing such as high manpower costs compared with India and ease of finding trained staff to carry out work effectively. In companies abroad, employers might have to give sick leaves and maternity leaves that can lead to temporary gaps in the workforce and delays in setting up a pharmacovigilance department. At times, a more specialized manpower with special skills might be needed to run the pharmacovigilance department successfully.⁶

Pharmaceutical companies give project work to these IT companies who then finish them as per the company's requirements. Some examples for IT companies where Pharmacy graduates can seek employment are Wipro, Accenture, Cognizant, Quintiles, TCS, PPD, I Gate Patni Computers, ICON Solutions and Quantum Solutions, etc. Central drug standards control organizations (CDSCO) has also made it mandatory for all pharma companies those are working in India to establish a pharmacovigilance department and submit pharmacovigilance reports time to time.⁷ As a result, most of these pharmaceutical companies outsource their pharmacovigilance program effectively with the help of these IT companies.

These firms work for both clinical trials and post marketing surveillance. Government of India has already launched the National pharmacovigilance program of India (PvPI) which encourages pharmacovigilance reporting from time to time from different health care organizations.⁸ Pharmacy graduates can be hired for pharmacovigilance reporting because they have good knowledge about pharmacovigilance, clinical and medical terminologies. Also, due to higher salary expectation from medical, dental and nursing graduates, this area provides a good opportunity for Pharmacy students who would be willing to get paid an average salary Rs.18–26k/month.

III. MEDICAL WRITING/MEDICAL SCIENCE LIAISON / MEDICAL ADVISOR

Medical writer or medical science liaison or medical advisor is a health care professional who works for pharmaceutical, biotechnology, medical device, and managed care companies.⁹ Currently, it's the largest employer for Pharmacy graduates. Medical writing or medical liaison involves producing scientific documents by a specialized writer. Medical writer works with physicians, medical scientists and other subject experts. A medical writer produces documents that well and unmistakably describe research results, product usage, and other medical information. Medical writers also work towards preparing documents for regulatory authorities, journals as well as designing guidelines in the form of content, format and structure.⁹ Medical advisors also answer queries asked by physicians providing consulting to pharmaceutical companies. Previously, medical writer positions were primarily filled by medical graduates. However, now, pharmaceutical companies also prefer writers who have sound knowledge of English language and as well as writers who are well acquainted with scientific and medical technical words.⁹ The starting salary for medical writers' ranges from Rs.15 to 20k/month.

Medical advisors or scientific advisors can work in clinical research and sales or marketing department within the pharmaceutical companies.¹⁰ They are responsible for providing solutions for medical and scientifically related queries. Their main job is to provide publications related to their company brands besides developing scientific tools to perform successfully their jobs, participating in discussions with other stake holders, participating in cross functional interactions, attending scientific congresses etc.¹⁰ Medical advisors are also responsible for duties such as maintaining up to date clinical knowledge about their therapeutic areas, performing review from time to time, changing promotional resources, checking regulatory documents compliance with concerned guidelines and regulations, and providing therapeutic area training as needed.¹⁰ Most of the company hires medical graduates for this job but now pharmacy and other allied health care graduates are also hired. Pharmacy students can be potential candidates that can be hired as substitutes for medical graduates who are hired to perform the same role with a 3–4 times higher salary. Salary as such in this area for Pharmacy graduates is very high compared with other job roles. Medical science liaison also has similar job role in the industry.

IV. IT SECTOR- MEDICAL BILLING, MEDICAL CODING AND INSURANCE CLAIM

There is an availability of high number of jobs in medical billing, medical coding and in insurance claim. Medical coding experts play a key role in the medical billing process. Every visit of the patient receives health care from doctor office, outpatient clinic or in hospital facility, the provider must document the services provided. The medical coder abstracts the information from the documentation, assigns the appropriate codes, and creates a claim to be paid, whether by a commercial payer or the patient.¹¹ Most of the people working are undergraduates or post graduates in science, nursing, pharmacy and allied health sciences; especially those with an extensive knowledge about physiology, anatomy and medical terminology. For this job role, it is also necessary to become well-known with diverse types of insurance schemes, regulations, compliance, and the coding community's three critical resource books and ICD-9-CM along with their corresponding codes and guidelines.¹¹ hence for this job, the pharmacists are the most qualified candidates. Starting salary for this job ranges from Rs.12–18k/month.

Health insurance industry is another unpredicted area that is booming for Pharm. D graduates. It involves evaluating the claimed prescriptions and establishing their actuality for patient bill compensation in a competent, and professional manner. The demand for health insurance is increasing in India and the Indian government is also trying to provide mandatory insurance to its citizens so in the future, the demand for working in the health insurance industry will be very high.

V. CONTRACT RESEARCH ORGANIZATIONS (CRO)/ INDUSTRY

Contract research organizations work for pharmaceutical, biotechnology, medical device industry to perform research and developmental work on a contractual basis. For pharmaceutical companies, CROs provide consultation for services such as development of medications, biologic assay development, commercialization, preclinical research, clinical research, clinical trials, and pharma-covigilance.¹² In pharmaceutical industry as well, newly hire Pharmacy graduates mostly work as clinical research coordinators (CRC) and after 1–2 years of experience, are promoted to clinical research associates (CRA). The starting salary in pharmaceutical industry is Rs.12–22k/ month based on the company and work location. In future, Pharmacy graduates might be appointed as principal investigators and co-investigators in clinical trials along with medical graduates with a master's degree in pharmacology or AYUSH physicians with a Masters in clinical pharmacology and therapeutics. Starting salary in CRC is Rs.10–15k/month.

However, the future scope of CRO is doubtful as Supreme Court has banned new clinical trials in the country since many clinical trials companies suspected for illegal and unethical activities.¹³ But still India is the big market for generics so research officers will always be required for bio-equivalence and bio-waiver studies.

Hospital Pharmacy

As members of the health care team composed of physicians and nurses, among others, institutional pharmacists have an opportunity for direct involvement with patient care. The knowledge and clinical skills that contemporary pharmacist possesses make this individual an authoritative source of drug information for physicians, nurses, and patients.

In addition to direct patient care involvement, pharmacists in hospitals are responsible for systems which control drug distribution and are designed to assure that each patient receives the appropriate medication in the correct form and dosage, and at the correct time. Hospital pharmacists maintain records of each patient, using them not only to fill medication orders but also to screen for drug allergies and adverse drug effects.

Also because of the diversity of activities involved in pharmacy departments, there is also demand for management expertise, including finance and budgeting, personnel administration, system development and planning.

Community Pharmacy/ Retail Pharmacy

This is a more familiar practice setting for the pharmacists and people probably visit the community pharmacy more often than they do other health care team. Pharmacists talk to people whether they are healthy and when they are sick.

Pharmacists are playing an increasing role in the “wellness” movement, especially through counselling about preventive medicine. Pharmacist serve patients and the community by providing information and advice on health, providing medications and associated services, and by referring patients to other sources of help and care, such as physicians, when necessary.

Pharmacists, in and out of the community pharmacy, must be knowledgeable about the composition of drugs, their physicochemical properties, their manufacturer and uses, as well as how products are tested for purity and strength. More and more prescribers rely on pharmacists for information about various drugs, their availability, and their activity. Thus, a community pharmacist must keep abreast of new knowledge through continuing education in order to provide current drug information.

Industrial Pharmacy

The pharmaceutical industry produces active drug substances, chemicals, prescription and non-prescription drugs, and all other health products. Pharmacists do such things as marketing, research and product development, quality control, sales and administration.

Many pharmacists go on to obtain postgraduate degrees in this field. Pharmacists with an interest in sales and administration can combine this with their technical background in pharmacy by serving as medical representatives. They explain the uses and merits of the products their firms manufacture.

Experienced and successful medical service representatives with administrative abilities often rise to supervisory or executive posts in the pharmaceutical industry.

Veterinary Pharmacy

The Pharmacist towing this line is focused on the treatment given to animals. A veterinary pharmacist should have a grounded knowledge of the basic care given to animals. He should be able to provide the necessary medication to animals and livestock.

Such individual is to take note of the animals in the environment so that you provide the proper services. It is also important to be knowledgeable about antidotes in case of bites and other sores.

This field is also a voice in giving advice to regulatory boards and other bodies involved in veterinary drug production.

Social/Administrative Pharmacy

This practice involves research and analysis in various areas of the health sector including how to improve public health care, making necessary drugs available and affordable among others. Information gathered and the analysis made is important to the enhancement of pharmaceutical procedures. This helps various organizations take positive steps to serve the society better.

A sound background is advisable in this field as well as a post-graduate.

Pharmacy Journalism

This is an adventurous field for the pharmacist who is looking for a not-so-ordinary job. This area involves being inquisitive and having a spark for writing.

With your wealth of knowledge in the pharmaceutical field, you could educate your readers through your work. You can become a journalist for a pharmaceutical journal or you can opt to be a freelance writer.

There are new platforms seeking medical information where you can share your expertise. There are quarterly pharmaceutical journals, columns in newspapers and other media.

A lot of people started out as columnist and rose to become correspondents for major news channels and global magazines. It's also a good idea to learn on hand at a magazine office just to know if you are really comfortable in this field.

The Academia

Pharmacists here are interested in training the next generation of pharmacists. They are involved with teaching, research, public service and patient care. Others serve as consultants for local, state, national and international organizations.

Becoming a member of the faculty at a college of pharmacy usually requires a Ph. D. Degree or at least a Master's degree. The pharmaceutical scientists in other departments other than clinical pharmacy are mainly concerned with research that includes sophisticated instrumentation, analytical methods, and animal models that study all aspects of drugs and drug products.

However, in clinical pharmacy, social, economic and behavioural science research often uses survey methods and statistical analyses to solve complex problems of drug utilisation management, health care delivery, marketing, management, and other practice issues.

OTHER

Product Management Team (PMT) is a core team of marketing development in a pharmaceutical organization, which oversees the overall marketing plan for a specific product and is responsible for profit or loss generated by that brand.¹⁸ PMT also trains the marketing executives that are newly hired by the company or for any new product launch. Previously, those having a degree in pharmacy combined with a management degree were preferred for PMT jobs because the job profile needed knowledge about medical, management and good communications.¹⁸ Some companies preferred candidates with a pharmacy degree and an experience of 2–3 years in marketing. Pharmacy is a sufficient qualification for this job because Pharmacy graduates have a good knowledge base about clinical research, management, and communication skills. The salary is also very high compared to any of the other jobs.

Now-a-days, many retail chain pharmacies are operating in the country. These companies mostly hire pharmacists with a 2-year diploma to work in the pharmacy. These diploma holders don't have sufficient knowledge compared to pharmacists with a 4-year degree or Pharmacy enrolled in a 6-year program.

For instance, Apollo Pharmacy, Med plus and Guardian pharmacy are such retail chain pharmacies that employ B.Pharm or M. Pharm graduates under the job title of an "Executive in training and development" (Technical/Soft Skills Trainer). The job description mainly comprises of traveling and delivering training programs to newly hired and existing employees about plan and induction. Now, even Pharm. D graduates can procure jobs in this sector. Some other job roles for pharmacists are medical reviewing, sales, marketing, medical tourism, Business Process Outsourcing (BPO), Knowledge Process Outsourcing (KPO) and working as a procurement officer in state level government medical companies like Tamil Nadu medical service corporation (TNMSC), Kerala Medical Services Corporation (KMSCL), West Bengal Medical Services Corporation (WBMSC) etc.

VI. CONCLUSION

Pharmacies in India are facing many issues. For small scale organizations, a medical graduate might be too expensive and Pharmacy graduates can be a reasonable alternative. Pharmacy graduates have various job avenues besides the traditional ones. The pharmacist should be cognizant of these opportunities and should be able to advance their talents in these non-conventional areas.

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