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Role of Pharmacist in Community World

Dr. Abdul Quaiyoom*[1], Dr. Shiv Dhananjay[2], Navneet Kumar Verma[1], Ashish Pal[1], Satyam Gupta[1]
[1]Suyash Institute of Pharmacy, Hakkabad, Gorakhpur, UP, India-273016
[2]SNB College of Pharmacy and Management, SNB Nagar, Amhara Bihta, Patna, Bihar- 801103

***Corresponding Author**
Dr. Abdul Quaiyoom
Suyash Institute of Pharmacy, Hakkabad, Gorakhpur, UP, India-273016
Email:
abdulquaiyoom0786@gmail.com

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Abstract: Pharmacy is the art and science of making and administering drugs as well as educating the public about drugs. The Greek word Pharmakon, which means "Poison" in toxicology or "Remedy" in pharmacology, is where the word "Pharmacy" originates. Globally, the field of pharmacy is constantly evolving. The "Seven-Star Pharmacist" concept was first presented by the World Health Organization in 1997. E-pharmacy is a fairly unknown industry that gained prominence thanks to a number of entrepreneurs that wanted to provide every Indian citizen with high-quality healthcare at reasonable prices. Pharmacists are medical specialists who have worked in many different health care systems, including the pharmaceutical business for quality control, formulation, production, processing, innovation (R&D), and maintaining appropriate safety and toxicity limits. In drug distribution systems, pharmacists are essential to patient education. The pharmacist's job is to dispense prescriptions and make sure patients comprehend the nuances of their recommended regimens in light of more sophisticated drug delivery systems. Numerous international investigations have acknowledged the critical role pharmacists play in encouraging prudent antibiotic prescribing. Ensuring optimal prescriptions and appropriate drug dispensing to patients is the primary responsibility of pharmacists in relation to medication safety.

Keywords: *Pharmacy, E-Pharmacy, Pharmacy a Complete Profession, Role of Pharmacist, Antimicrobial Stewardship Programs,*

INTRODUCTION

Pharmacy is the art and science of making and administering drugs as well as educating the public about drugs. Prescription order interpretation, drug product selection, drug utilization evaluations, compounding, labeling, and dispensing, patient monitoring and intervention, and cognitive services relating to medication and device use are all included [1]. The Greek word Pharmakon, which means "Poison" in toxicology or "Remedy" in pharmacology, is where the word "Pharmacy" originates [2]. The word "Apotheca," which in ancient Rome signified a storehouse for goods, is where pharmacies got their start. Later, it spread quickly throughout a number of significant civilizations, including Baghdad, and eventually made its way to Indonesia during the Dutch colonial era. Only Europeans ran pharmacies during the colonial era, but following independence, the Indonesian government started encouraging locals to seek careers in pharmacy and enacted specific laws to aid in its growth [3]. By serving as a link between patients and healthcare professionals, pharmacists support public health education, accessibility, and preventative care [4]. The profession of pharmacy has been around for many centuries, dating back to a time when making medications from plants was still practiced [5].

In the United States of America, pharmacy has long supported what is now known as healthcare [6]. Because their job is intimately related to global aims and issues, pharmacists play a crucial role in health care as members of a public trust profession [7]. The traditional pharmaceutical system is mostly dependent on human skill and manual procedures, which can result in delays, mistakes, and inefficiencies. For instance, filling a prescription requires a number of manual processes, including reading the prescription, delivering the drug, and checking the dosage and frequency. These manual procedures can take a lot of time and are prone to mistakes. Additionally, the success of drug therapy may be limited by the traditional pharmacy system's inability to customize medication regimens for specific patients [8].

Globally, the field of pharmacy is constantly evolving. The "Seven-Star Pharmacist" concept was first presented by the World Health Organization in 1997. It encompasses the several tasks that a pharmacist must play, including caretaker, decision-maker, communicator, manager, lifelong student, teacher, and leader. Later, two more positions (Researcher and Entrepreneur) were added, resulting in the "Nine-Star Pharmacist," highlighting the significance of research in both academic and professional settings [9]. In the past, pharmacy was seen as a vocation that overlapped the chemical and health sciences, guaranteeing the safe use of medications. The idea of pharmaceutical care emerged as a result of the pharmacist's job gradually changing from one that was product-oriented to one that was more patient-centered. The direct, responsible administration of medication-related care with the goal of attaining particular results and enhancing a patient's quality of life is known as pharmaceutical care [10].

As a result, interactions between doctors, pharmacists, and other medical workers have been impacted. To maximize patient care, doctors and pharmacists must collaborate closely. As a result, during the past 30 years, pharmacy education has evolved globally with the goal of improving the medical skills learned over a professional career. The primary internal characteristics that affect performance are communication skills, experience, and alertness. However, environmental elements like restroom accessibility are significant external elements that enhance pharmacists' work. These days, pharmacists operate in a variety of contexts, including communities, hospitals, businesses, and healthcare facilities [11]. Therefore, the most crucial factor in achieving the highest level of professional execution through standardized goals that enable detailed access to drug therapy, optimize patient outcomes, minimize redundancies and interruptions in health care delivery, and increase collaboration and synergy between pharmacists, physicians, and other health care professionals is the ongoing improvement of pharmacists' experience and knowledge [12].

E-PHARMACY

A web-based pharmacy is an online platform that enables consumers to buy pharmaceuticals and E-services online, enabling them to quickly acquire these items in the convenience of their homes [13]. Our goal in writing this piece is to offer insightful information about the Indian online pharmacy market [14]. E-pharmacy is a fairly unknown industry that gained prominence thanks to a number of entrepreneurs that wanted to provide every Indian citizen with high-quality healthcare at reasonable prices. E-pharmacy preference increased from 23% in 2013 to approximately 59% in 2018 [15]. According to another fascinating study by Frost and Sullivan, the Indian e-drug store business is expected to develop at an astounding compound annual growth rate (CAGR) of 63% and reach US$36 billion by 2022, up from US$512 million in 2018 [16].

- **Pharmacy a Complete Profession:** Pharmacists reflect on every sector of society in the form of
- **Artists**-Designing a drug dosage form
- **Lawyer**-Having fair knowledge of laws and legislation about the drug
- **Engineer**-Having sound technical knowledge
- **Entrepreneur**-With sound knowledge of management, accounting, marketing,
- **Counseling Health Professional**-Having fair knowledge regarding health.

As pharmacists deals with every issue regarding health of the society and built superior health care system, constantly endeavor and elaborate his knowledge with ethics. Thus, pharmacists are the one and only well qualified and practitioner that provides backbone that strengthens the health care of the nation [17].

Role of Pharmacist

Pharmacists are medical specialists who have worked in many different health care systems, including the pharmaceutical business for quality control, formulation, production, processing, innovation (R&D), and maintaining appropriate safety and toxicity limits. In addition to working in medical practice settings like hospitals and community pharmacies to give patients the right medication at the right dosage and to counsel them, they also participate in academic pursuits, regulatory affairs, clinical research, and more [18]. In order to ensure and control the safe and effective use of drugs to achieve the intended therapeutic effect and to minimize drug-related problems, the pharmacist's primary professional roles (PR) are to search for, prepare, compound, supply, store, sell, and organize the disposal or destruction of drugs [19]. Because of their special place in the community, pharmacists have been urged to actively participate in the treatment, prevention, screening, and referral of non-communicable diseases (NCDs) on a global scale, according to the International Pharmaceutical Federation study [20].

Role of Community and Hospital Pharmacist

Community and hospital pharmacists have played a variety of roles in the COVID-19 pandemic. In addition to ensuring medication management and patient adherence, pharmacists have been crucial in developing remote health care services, educating frontline healthcare workers about new coronavirus treatments, and raising awareness of and offering infection control measures [21]. The contributions of pharmacists are not limited to medications; they also play a significant role in

disease prevention, self-care, the dispensing of medications, medical devices, cosmetics, and other items, as well as in determining the needs of patients, educating them about them, and enhancing their use in terms of safety and efficacy.

Pharmacists are crucial to the treatment of illnesses and ailments, and their responsibilities extend beyond prescription drugs. As a result, it is necessary to create a definition of pharmacist care that takes into account the role that pharmacists play in helping patients, the general public, and society [22].

A community pharmacy is a retail location where pharmacists and employees give patients prescription prescriptions, over-the-counter medications, and health advice. By serving as a link between patients and healthcare professionals, these pharmacies support public health education, accessibility, and preventative care. Community pharmacists are essential to primary healthcare because they provide services like immunizations, health screenings, and pharmaceutical therapy management [23].

Working with physicians, nurses, and allied health professionals in a variety of settings, including emergency rooms, outpatient clinics, and inpatient bedsides, hospital pharmacists play a crucial role in health care systems [24]. Hospital pharmacists' roles can be optimized to improve operational efficiency, allowing pharmacy managers to make efficient use of pharmacists' expertise and resource allocation in day-to-day operations [25].

The Evolving Role of Pharmacists in Drug Delivery

In drug distribution systems, pharmacists are essential to patient education. The pharmacist's job is to dispense prescriptions and make sure patients comprehend the nuances of their recommended regimens in light of more sophisticated drug delivery systems. This include outlining the mechanism of action, appropriate administration methods, possible adverse effects, and the significance of adherence. Since patients must understand the reasoning behind particular drug delivery methods, effective communication is crucial. Patients depend on pharmacists to demystify these processes, whether it's the continuous absorption obtained through transdermal patches or the delayed release of medication in enteric-coated formulations, in order to empower them and make educated decisions [26].

Ward Rounds Participation

Hospital pharmacists have historically visited wards every day to give clinical services, addressing any MRPs found with the proper interventions. The pharmacist's role in prescribing is typically retroactive, which increases the risk of expensive adverse drug events (ADEs) because there may be significant delays between the time of prescription and the pharmacist's intervention. As a result, it would be more beneficial for a pharmacist to be there during the prescription process, offering their specific knowledge when it might be most needed [27].

Research has demonstrated that when a pharmacist participates in consultant-led ward rounds in addition to the ward-pharmacist visit, much more interventions can be accomplished per patient compared to the ward-pharmacist visit alone [28]. Pharmacists may find it time-consuming to participate in daily ward visits, but it's a great way to top event ADEs and drastically save healthcare expenses [27–29]. Similar to this, having a pharmacist on a post-admission ward round enables early correction of drug history inconsistencies, which can cut patient risk and prescription costs [30].

Readmission, Adverse Drug Events, and Best Practices

In order to minimize ADEs and drastically lower healthcare expenses, telepharmacy is essential. Dose-related, non-dose-related, dose and time-related, time-related, withdrawals, and unsuccessful therapy are the six categories into which ADEs fall [31]. In the US alone, medical errors cost more than $2 billion annually and cause 7,000 fatalities and 250,000 injuries [32]. Telepharmacy has been shown to be successful in lowering hospitalizations and medical errors in hospitals [32, 33]. In order to manage polypharmacy and reduce adverse drug events (ADEs), pharmacists play a critical role in the healthcare system by putting strategic initiatives like frequent patient follow-ups, unambiguous labeling, and deprescribing into practice. In the end, these procedures lessen hospital readmissions and prolonged stays by addressing patient concerns about drug load and enhancing comprehension [34].

A multidisciplinary approach to healthcare is essential, as evidenced by the fact that 48% of pharmacists utilize deprescribing to reduce pill burden and 10% use it to avoid medicine duplication [35]. It is commonly known that pharmacist-led teams are more successful than physician-only teams at lowering readmission rates. These teams ensure appropriate dosages, identify duplications, fix medication management problems, and drastically reduce the incidence of ADEs [35]. Additionally, by controlling medical errors that lead to adverse events, telepharmacy projects have shown yearly cost savings of more than $700,000 [32]. In accordance with established best practices endorsed by groups like the American Society of Health-System Pharmacists (ASHP) and CMS, the healthcare sector promotes telepharmacy as a

component of normal care. It includes thorough documentation of patient interactions, safe patient communications, and pharmacist training [36, 37].

A thorough approach to patient care is also ensured by integrating SDOH screens into pharmacist duties [38]. Telepharmacy has been shown to enhance patient retention and follow-up care, despite certain patients' technological difficulties. However, specialized technology and thorough telepharmacy training are need for its wider deployment [39]. In conclusion, telepharmacy presents a viable way to cut ADEs, save healthcare costs, and enhance patient outcomes when it is backed by best practices and strategic pharmacist interventions. Its efficacy in treating chronic illnesses and polypharmacy can be further increased by maintaining the focus on interdisciplinary methods and deprescribing.

ANTIMICROBIAL STEWARDSHIP PROGRAMS (ASPS)

Numerous international investigations have acknowledged the critical role pharmacists play in encouraging prudent antibiotic prescribing. As a result, pharmacists are becoming important participants in multidisciplinary AMS models created in numerous nations [40]. As a strategic response, the Joint Commission for Acute Care Hospitals has mandated the implementation of antimicrobial stewardship programs (ASPs) [41,42]. By maximizing the use of antibiotics, these programs hope to improve patient outcomes and reduce the development of resistance [42, 43]. Infectious disease doctors, clinical pharmacists, infection control specialists, and hospital epidemiologists are frequently the main team members of these interdisciplinary programs [41,43].

Clinical pharmacists are essential members of these teams because of their proficiency in pharmacotherapy and understanding of antibiotics [44, 45]. Their contributions cover a wide range of tasks, including formulary administration, teaching, research, guideline and policy creation, prospective audits, and feedback [46,47]. However, because of the diverse roles pharmacists play in various institutions and the complexity of ASPs, it is difficult to pinpoint the exact influence of pharmacists [44,46].

Role of Pharmacist In Minimizing Medication Errors

Ensuring optimal prescriptions and appropriate drug dispensing to patients is the primary responsibility of pharmacists in relation to medication safety. Dispensing alerts like tall-man letters, dosage form notifications on each box for every confusing medicine, and double-checks before to delivery are common methods for preventing dispensing errors. Even with alerting mechanisms, the dispensing process is still error-prone and primarily depends on human operations. Automated dispensing cabinets (ADCs) are devices that regulate medication storage, management, dispensing, and delivery in accordance with the closed-loop electronic medication management system concept. These devices may integrate human operations with electronic information and enable tracking of all medication-related issues throughout the medication process [48].

Role of Pharmacist In Patient Care and Education

To address these issues, clinical pharmacists (CPs) offer medication management and patient education. Clinical pharmacists in oncology clinics were interviewed to gain insight on the services and communication provided. CPs follow national guidelines to give patients high-quality care. To close gaps in the patient care pathway, they are still being drawn in different ways. Pharmacists get burnout as a result of feeling unsupported. It is challenging to argue for more supportive resources because many CPs have stated that they do not bill for services rendered [49].

Role of Pharmacist in Manufacturing Industries

Pharmacists play a variety of responsibilities in the life cycle of pharmaceuticals. From obtaining raw materials to producing, storing, transporting, and administering medications to patients and the general public, they are ultimately in charge of the whole pharmaceutical supply chain (Visacri et al., 2021) [50]. Because they are in charge of the medications that are manufactured and administered within the pharmaceutical sector, pharmacists are essential specialists in this field. Since most nations need pharmacists for regulatory compliance, manufacturing pharmaceutical companies (MPCs) utilize pharmacists' expertise for technical tasks [51].

Role of Pharmacist in Clinical Trials

Like other medical professionals, pharmacists can participate in a variety of clinical research projects. On the other hand, a clinical research pharmacist is a pharmacist who works in clinical studies [52]. Every dose of an investigational drug that the Investigational Drug Service (IDS) receives, delivers, discards, transfers, or returns is its responsibility [53,54]. Drug accountability record forms are typically used to do this. Each medicine in the trial must have its own accountability form, and these forms must adhere to the FDA's specific requirements [55]. Additionally, the IDS pharmacist makes sure the research medication is stored properly. Investigational pharmaceuticals should be kept apart from non-investigational medication supplies in a secure location due to safety and accountability issues [53,54].

In addition to supporting inspections of locations where experimental medications are received, kept, and dispensed, the IDS pharmacist can give auditors study paperwork, policies, and procedures [54]. For the research group, keeping an orderly IDS pharmacy can facilitate and improve audits. Additionally, IDS pharmacists have proven to be adept at arranging investigational drugs for multi-center trials [56]. For every protocol, the IDS pharmacist should also provide dispensing instructions [57].

CONCLUSION

Prior to many decades ago, the basic and major functions of a pharmacy included distributing and compounding medications for clients. Following that, the ready-made sector expanded, a number of formulations entered the market, and pharmacists began to concentrate more on inventory control and medication administration. After a few years, modern industry was created to uphold the appropriate regulations and safety concerns of public health care. In order to ensure that patients benefit from logical, evidence-based medication and that patient care is improved, pharmacists participate in patient education and collaborate with doctors and other medical experts. In order to maintain the highest standards for medication safety practices and, ultimately, the quality, efficacy, and safety of the study's results, a pharmacist must be involved in the planning and execution of any clinical research study containing experimental medications. The pharmacist can support an institution's implementation of the protocol, offer ongoing compliance or audit support, and act as a consultant during protocol creation or revision. In the end, the pharmacist's experience and education in the safe and efficient use of pharmaceuticals naturally translates into the clinical research setting, enabling researchers to carry out clinical trials with greater assurance and skill.

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