

# The Integral Role of Pharmacists, Laboratory Professionals, and Nurses in Enhancing Medication Management during Physical Therapy Rehabilitation for Patients with Chronic Illnesses

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## Abstract

*Chronic diseases are a primary source of morbidity and death worldwide, needing appropriate treatment approaches. An interprofessional healthcare team, consisting of pharmacists, laboratory specialists, and nurses, is crucial in optimizing drug regimens and increasing patient outcomes throughout physical therapy rehabilitation programs. This research investigates the joint responsibilities of these experts in chronic illness management. A systematic review was carried out utilizing databases such as Google Scholar, PubMed, Scopus, EBSCO, and the Cochrane Library. The search looked for papers from 2010 to 2023 that utilized phrases like "pharmacist," "laboratory technician," "interprofessional healthcare," and "chronic disease." The results demonstrate how important pharmacists are to medication management, including patient education, medication reconciliation, and drug interaction monitoring. The coordinated efforts of pharmacists, nurses, and laboratory specialists result in better treatment results and higher patient satisfaction. Effective communication and coordination within the interprofessional team are critical for reducing medication mistakes and adhering to treatment plans. In conclusion, multidisciplinary care teams that include pharmacists, lab specialists, and nurses greatly improve drug schedules during physical therapy rehabilitation. This partnership not only improves clinical results, but it also raises the quality of care delivered to patients with chronic diseases. Future study should concentrate on building frameworks for improving interprofessional cooperation and investigating the long-term effects of these practices on patient health.*

**Keywords:** *Interprofessional Collaboration, Chronic Illness, Medication Management, Pharmacists, Physical Therapy Rehabilitation.*

## Introduction

Chronic illness is now one of the main causes of death and disability and a burden on public health. An interprofessional care team, including primary care physicians, medical experts, pharmacists, nurses,

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psychiatrists, and additional healthcare providers, is in charge of managing chronic illnesses in hospitals. The team is headed by a physician [1]. When a specialist's function is restricted to giving primary care doctors diagnostic guidance or performing technical treatments for diagnosis and cure without continuing to manage the health issues, they are acting as consultants [2]. If there is a lack of effective communication, collaboration, and coordination, disagreements and work weariness may arise in an interprofessional medical team. As a result, including teammates in decision-making will provide unique ideas while also allowing them to participate in their own fields [3].

Pharmacists can assist in enhancing chronic illness management and reduce medication mistakes. Pharmacists are in charge of a wide range of patient tasks, including medication reconciliation, drug interaction detection, laboratory testing for tracking drug treatment and prescribed drugs, medication extension, and patient education. Pharmacists promote patients when medications are no longer necessary or beneficial. Despite their time and money constraints, pharmacists frequently operate on nonclinical weekdays to keep up with patients who are having treatment issues or at the insistence of physicians and nurses [4].

In addition to lowering prescription drug prices and improving the rationale of treatment for individuals with chronic illnesses, pharmacists' inclusion in the multidisciplinary medical team should benefit the patient's recuperation [5]. Nevertheless, little research has been done on the contemporary functions that pharmacists play in this team. As a result, this study addresses the role that pharmacists play in treating patients with chronic illnesses as members of the multidisciplinary medical team from a number of angles, such as collaboration, cooperation, interaction, collaborative decision-making, and clinical outcomes.

## Methods

Employing the terms "pharmacist," "laboratory technician," "interprofessional healthcare," and "chronic disease," we retrieved publications from Google Scholar, PubMed, Scopus, EBSCO, as well as the Cochrane Library that were published between 2010 and 2023.

### *The Impact and Management of Chronic Illnesses*

Chronic illnesses constitute the main cause of both death and illness. Chronic disease promotes premature death, elevated turnover, and impairment while decreasing salaries, incomes, work involvement, and efficiency. The rising long-term care costs will need a larger share of both public and private funding. Asthma, diabetes, heart disease, as well as chronic obstructive pulmonary disease, also known as (COPD) are all considered chronic illnesses. A number of additional illnesses, such as different forms of HIV/AIDS, cancer, mental disorders (including schizophrenia, depressive disorders, as well as alzheimer), and impairments including blurred vision, must be regarded as chronic ailments in light of the rise in survival rates and length of disease. An older population is linked to many chronic illnesses and ailments, but it is also linked to lifestyle choices including smoking, sexual conduct, dietary habits, physical activity, and genetic susceptibility. Long-term conditions known as chronic illnesses need a multifaceted approach including several medical specialists and access to the required medications, supplies, and social assistance [6].

Social service workers, care executives, and health professionals in the community are members of multidisciplinary medical teams that work closely alongside patients to address health-related requirements, administer complicated structures, and lower obstacles to good health [7]. In order to assess patients' qualifications for conventional therapies and guarantee therapeutic compliance, collaborative healthcare teams create multidisciplinary educational programs (nursing, physiotherapy, and dietary) [8]. Each member of the healthcare organization ought to possess an excellent disposition toward the other members of the team and feel at ease if another member of the team performs a specific function (such as drug treatment administration and treatment services offered by pharmacists) [9]. In one study category, physicians as well as nursing team managers worked with pharmacy technicians and pharmacist managers to determine high-risk patient groups and make it easier to prescribe and administer naloxone [10]. Patients expressed an

affection for a certain healthcare facility for their treatment when a multidisciplinary healthcare team—consisting of pharmacists, doctors, nursing staff as well as social workers—was present [11].

The group included people from a variety of occupations and worked together as a team. A certain amount of transparency, a readiness to make concessions, and a clear grasp of each person's position were necessary for this partnership [12]. An interdisciplinary medical group may collaborate with people of different ages as well as from different organizations. Through distinct lines of responsibility throughout nursing, a medical student working alongside a senior nursing managed to disseminate knowledge about health and patient care [13].

Pharmacists who engaged in collaborative treatment to establish connections with healthcare providers (such as physicians and nurses at social and health service organizations) were another category of professionals who were a member of the multidisciplinary medical team. In addition to helping with tobacco cessation initiatives, pharmacists, as members of a multidisciplinary medical team, were beneficial in treating chronic illnesses including hypertension, diabetes, and elevated cholesterol levels [14, 15]. To apply multidisciplinary monitoring techniques for non-compliant individuals to their medical clinic at their hospital, pharmacists were approached by health care providers who were also members of the multidisciplinary healthcare team, such as physicians and nurses. By coordinating and reiterating the significance of nutrition across all specialty areas, medical professionals, pharmacists, nurses, dental professionals, psychologists, physiotherapists, and language and speech therapists may have a significant impact on patient care [15, 16].

To thoroughly assess prescription procedures, a group of interdisciplinary and interprofessional healthcare professionals—known as an interprofessional healthcare team—was assembled from both prescribers and non-prescribers [17]. Patients with persistent illnesses including heart failure and COPD were treated by a multidisciplinary healthcare team that included doctors, pharmacy technicians, nursing staff physician assistants, and health coaches. The creation of self-administration kits for cardiac failure and COPD was examined and authorized by the team. Parents of kids with chronic diseases (such chronic kidney illness) were partnered with hospital-based collaborative teams, which were composed of specialists with specialized knowledge in a specific health issue [18, 19]. Since the physicians saw the pharmacists as collaborators, they followed up on their suggestions on drug administration and recommended lessening the devolution of authorities. For faster recuperation and restoration to health, the multidisciplinary medical team used collaborative methods to offer the right kind of assistance with lifestyle modifications [20, 21].

#### *The Impact of Interprofessional Healthcare Collaboration on Patient Care*

Interprofessional healthcare collaborations enhanced team members' duties. With the assistance of other team members, pharmacists in multidisciplinary care teams were able to effectively carry out their duties. Multidisciplinary healthcare teammates helped each other out by attending work-related activities that kept them busy and motivated [3]. Evaluation of patient requirements, integration of services and treatments, patient representation, and follow-up are just a few of the many services offered by multidisciplinary healthcare teams [7].

In order to help patients with COPD go from the hospital to their homes, a medical professional, nurse, as well as pharmacist may get in touch with them and create fresh action plans [22]. According to Johns Hopkins Hospital, the hospital collaborating team that identifies obstacles to prescription naloxone to outpatients and creates and executes rules that uniformly specify how to prescribe naloxone in a medical clinic is another example of interprofessional collaboration. Pharmacists monitor and purchase medications, especially antiretroviral medications, hands-on alongside primary care physicians [10, 11].

Because the pharmacist's work frequently intersects with that of medical professionals, cooperation with them is crucial and may sometimes result in disagreements among teammates. Patients benefit from reduced treatment expenses as a consequence of effective multidisciplinary healthcare collaboration and efficient utilization of medical services [23, 24]. Pharmacists, senior nurses, and junior physicians have effectively coordinated the rollout of innovative therapies [13]. By coordinating and reinforcing the significance of

diet in all domains, medical professionals, pharmacy technicians, dental practitioners, and other members of a multidisciplinary medical team positively impact patient care [25].

The crucial role that pharmacists as well as multidisciplinary healthcare leaders play in delivering medical care to help patients manage chronic illnesses serves as more evidence of the value of these cooperative healthcare teams [26]. Experts reaffirm facts conveyed to siblings, parents, or other relatives. The implicit notion that every member helps the others is coupled with this distribution of work. Multidisciplinary teamwork has been used to manage patients with various illnesses, and nurses handled recommendations [19, 21].

Effective coordination between all healthcare providers is necessary when treating individuals with chronic illness issues. The primary objective is patient healing, and every individual contributes to accordance with their area of expertise and steers clear of conflicts with other specialists. Multidisciplinary healthcare teams have collaborated in therapy customization, learning, and therapeutic alternative exploration [27]. Interprofessional healthcare teams must work together to customize treatment for each patient. A complete health team's expertise in many sectors of the health system influences collaboration while treating patients with serious illnesses [22]. For instance, a pharmacist as well as a primary care physician may work together to treat patients who have many medical conditions [28].

Heinen et al. worked together to create and assess a counseling program aimed at encouraging those who have leg ulcers to be more active and stick to their treatment plans [29]. An infectious disease specialist and a nurse worked with community pharmacists to establish interdisciplinary therapeutic compliance for individuals with chronic illnesses at a public medical center in Neuchâtel, Switzerland [30]. Significant progresses has been made in lowering the prescription of possibly insufficient medications, improving patient safety, through collaboration between pharmacists and medical doctors (medical professionals, nurse professionals, and physician staff members) as well as at the medical and educational levels [17].

Managing the quality of medication usage among individuals on elderly care wards requires cooperation and communication amongst interdisciplinary team members. By offering physical activity treatments, rehabilitation experts and HIV specialists, including nurses, physicians, social service providers, pharmacy technicians, psychiatrists, and dietitians, can avoid the difficulties that people affected by HIV encounter [13, 31]. In a different instance, the participation of a multidisciplinary medical team of physicians, nurses, as well as pharmacists produced significantly better outcomes in the management of ambulatory hypertension. In order to facilitate management of the delivery of naloxone medication, the multidisciplinary medical team also worked and cooperated with ambulatory pharmacies [10, 32].

In order to improve collaboration and cooperation with respect to medication administration and general patient care, pharmacists and physicians have developed strong partnerships [20]. Thorough, population-specific, treatment-centered primary care has been given by interprofessional healthcare teams, and they have collaborated to assess medications in patient kits in order to constantly enhance their quality [12, 18]. The home-based treatment that medical professionals as well as pharmacists prescribe has also been examined by multidisciplinary medical groups. In a homeopathic assessment, a patient is sent to a pharmacist as well as a medical professional. Ideally, the patient's house was the location of the meeting. 32 Outcomes from pharmacists working together in collaborative care have been superior to those from pharmacists working alone in interprofessional care. Every member of a multidisciplinary care team has a role to play in enhancing treatment of patients [32].

### *The Role of Multidisciplinary Medical Teams in Healthcare Decision-Making*

Multidisciplinary medical groups exploit its members' abilities and provide innovative solutions by including them in their decision-making process. Accurate medical data, effective collaboration, adequate monitoring, and collaborative decision-making are just a few of the intricate operations that take place in medical settings and need contact among parties [3, 24]. Effective employment, patient engagement, and health program execution have been made possible by the proactive engagement of physicians as the main source of referrals and as directors of multidisciplinary medical teams [26]. Physicians may have a big impact on

the main healthcare network since they usually possess a wider breadth of medical expertise and abilities than other healthcare providers. Since they often interact effectively in professional organizations, physicians are at the core of healthcare decision-making processes [13, 20].

In one instance, physicians recommended that community pharmacists provide guidance on medication administration [28]. By initiating new drugs, discontinuing treatment, or adjusting dosages of existing treatments, pharmacists were capable of to maximize therapy for individuals. In an underprivileged community, the average pain rating decreased as a consequence of the pharmacists' engagement [15, 34]. Every member of the multidisciplinary medical team was to get interprofessional instruction from the pharmacist. However, the multidisciplinary medical group purposefully discontinued some patients' treatment without getting their consent [11, 18].

The decision on the treatment is made by the multidisciplinary medical team's leader. The team members must reach an agreement with the multidisciplinary care manager, who is often a physician, while working with patients. Surgery, rehabilitation, psychotherapy, radiation, and medication therapy are some of the methods used to treat chronic diseases. Drug treatment is one of the biggest healthcare costs in Australia as well as other wealthy nations. Chronic illness prevention and treatment will need a lot of medications, which will be expensive [35].

Individuals with chronic illnesses are treated by pharmacists in a variety of clinical as well as non-clinical capacities. In the US, pharmacists not only sell medications but also help with treatment and therapy optimization. By putting more emphasis on the patient's medication treatment, pharmacists who are part of an interdisciplinary medical team may enhance patient security [36]. Because chronic illnesses often need complicated care, patients may become less likely to take their medications as prescribed, which may result in negative side impacts, drug relationships, higher treatment expenses, and patient confusion. In multidisciplinary care groups, pharmacists may provide strategies to promote patients' therapeutic compliance, which can enhance clinical results and lower treatment expenses and side effects [37]. Patients with chronic illnesses who get treatment from interprofessional care teams report greater satisfaction with the services they receive and better therapeutic outcomes than those who receive treatment from a single expert.

## Discussion

According to our analysis, pharmacists play a vital role in helping multidisciplinary care teams ensure that medication administration is accurate, which lowers hospitalization and medical costs. A number of collaborative elements are necessary for interprofessional care teams, such as mutual trust and cooperation. Teams of interprofessional healthcare professionals must determine the elements of collaboration necessary for patient-centered treatment. The multidisciplinary medical team leaders set the objectives in a cooperative approach. In the individual treatment process, the strategy is the first step that must be assessed once it has been put into practice. The interprofessional care team's professional competence, which will keep growing and elevating the team's competence, will be the key to providing successful multidisciplinary care [38].

As previously stated, the five characteristics of the multidisciplinary medical team—partnership, cooperation, collaboration, decision-making, and therapeutic outcomes—all express the feeling of belonging that each member should have. Because one dimension complements the others, they are tightly connected and explain how well an interdisciplinary medical staff treats patients with chronic illnesses. Regulating the activities to ensure that the policies and procedures to be followed do not clash with one another is the task of integration.

A team's ability to communicate effectively is another crucial component. According to the relational collaboration concept, a team must develop relationships focused on tolerance and shared objectives in order for data and comprehension to be communicated and for cooperation to be successful [39]. The restoration of patients to improved health is the interprofessional healthcare team's constant objective. Every person in a multidisciplinary medical team must have a high level of trust and mutual respect due to

the diversity of occupations on the team. To ensure that no details are concealed while supplying clinical information about patients, they exchange medical records with one another.

According to research, good nurse–doctor partnerships may raise patient satisfaction, lower patient illness and death, and enhance the standard of patient treatment. Collaboration may improve job contentment and engagement for medical professionals. In regard to a common identity, multidisciplinary cooperation is similar to cooperation. Collaboration and cooperation, nevertheless, are viewed as less significant. People see team work as less complicated, less critical, and more dependable. However, since it requires shared responsibility among people along with clarification around roles, duties, and objectives, coordination is seen as being comparable to cooperation [40]. Cooperation is characterized as a kind of collaborative effort carried out by multiple people to accomplish shared objectives. In a multidisciplinary medical team, cooperation entails working together to fulfill the diverse requirements of patients. Because it directly affects patient outcomes, the standard of multidisciplinary cooperation within the medical field should be a top priority.

A common obstacle is a patient's incapacity to engage in collaborative decision-making. Nevertheless, since healthcare professionals may also facilitate collaborative decision-making, they are involved in providing patients with knowledge regarding the condition and therapy. The significance of enhancing general physicians' and district pharmacists' psychological competence should also be underlined in order to support multidisciplinary medical teams in making collaborative choices. Since medical knowledge is the cornerstone of effective collaborative decision-making in handling patients, general health professionals emphasize the significance of information exchange across practitioners and contexts [41].

Enhancing multidisciplinary medical team practices may save healthcare expenditures, increase patient treatment results, and enhance care quality. The absence of a theoretical basis for bringing collaboration together is one factor contributing to the failure of initiatives to enhance the practice of multidisciplinary medical teams. Identifying multidisciplinary procedures and creating the measures required to enhance results will be made easier by deciphering the intricacies of multidisciplinary medical team operations [42].

## Conclusions

Chronic diseases such as diabetes, hypertension, and chronic obstructive pulmonary disease (COPD) need multidisciplinary treatment regimens. The rising complexity of chronic illness management needs a change away from old, segregated methods and toward more collaborative, interprofessional care models. This research highlights the critical responsibilities of pharmacists, laboratory experts, and nurses in improving drug regimens throughout physical therapy rehabilitation programs.

A thorough assessment of the literature revealed that pharmacists fulfill crucial responsibilities such as medication reconciliation, monitoring for drug interactions, and educating patients on correct medication usage. Laboratory specialists participate by performing essential tests to guide drug selection and effectiveness, whilst nurses promote team communication and ensure that patients follow recommended treatment programs. Our research found that interprofessional cooperation improves treatment outcomes, reduces hospital readmissions, and increases patient satisfaction. Successful interdisciplinary teams need effective communication and collaborative decision-making. Healthcare practitioners may improve the quality of care they offer to patients with chronic diseases by creating an atmosphere of mutual respect and trust.

To summarize, integrating pharmacists, laboratory workers, and nurses into multidisciplinary care teams is critical for optimal drug management during physical therapy rehabilitation. This collaborative strategy improves clinical results while also contributing to a more patient-centered healthcare system. Future research should focus on establishing best practices for interprofessional cooperation and evaluating the long-term effects of integrative care models on patient health and quality of life. Prioritizing cooperation and communication allows healthcare organizations to effectively handle the challenges of chronic disease treatment, eventually leading to better patient outcomes.

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## الدور المتكامل للصيادلة وأخصائيي المختبرات والممرضين في تعزيز إدارة الأدوية خلال إعادة التأهيل بالعلاج الطبيعي للمرضى المصابين بالأمراض المزمنة

### الملخص

**الخلفية:** تُعد الأمراض المزمنة أحد الأسباب الرئيسية للمراضة والوفيات على مستوى العالم، مما يستدعي اعتماد استراتيجيات علاجية فعالة. يلعب فريق الرعاية الصحية متعدد التخصصات، والذي يشمل الصيادلة وأخصائيي المختبرات والممرضين، دورًا أساسيًا في تحسين نظم العلاج الدوائي وتعزيز نتائج المرضى خلال برامج إعادة التأهيل بالعلاج الطبيعي. تهدف هذه الدراسة إلى استكشاف الأدوار المشتركة لهؤلاء المختصين في إدارة الأمراض المزمنة.

**الطرق:** تم إجراء مراجعة منهجية باستخدام قواعد البيانات مثل **Google Scholar**، **PubMed**، **Scopus**، و**EBSCO**، و**Cochrane Library** تضمنت عملية البحث مقالات منشورة بين عامي 2010 و2023 باستخدام مصطلحات مثل "الصيدلي"، "في المختبر"، "الرعاية الصحية بين التخصصات"، و"المرض المزمن".

**النتائج:** أظهرت النتائج أهمية الدور الذي يؤديه الصيادلة في إدارة الأدوية، والذي يشمل تثقيف المرضى، والتوفيق بين الأدوية، ورصد التفاعلات الدوائية. كما تبين أن التنسيق بين الصيادلة والممرضين وأخصائيي المختبرات يؤدي إلى تحسن كبير في النتائج العلاجية وزيادة رضا المرضى. تُعد فعالية التواصل والتنسيق بين أعضاء الفريق الطبي أمرًا بالغ الأهمية لتقليل الأخطاء الدوائية وضمان الالتزام بخطط العلاج.

**الاستنتاجات:** في الختام، تسهم فرق الرعاية الصحية متعددة التخصصات، التي تضم الصيادلة وأخصائيي المختبرات والممرضين، بشكل كبير في تحسين نظم العلاج الدوائي خلال إعادة التأهيل بالعلاج الطبيعي. لا تقتصر هذه الشراكة على تحسين النتائج السريرية فحسب، بل تعزز أيضًا جودة الرعاية المقدمة للمرضى الذين يعانون من أمراض مزمنة. ينبغي أن تركز الدراسات المستقبلية على تطوير أطر لتعزيز التعاون بين التخصصات الصحية ودراسة التأثيرات طويلة الأمد لهذه الممارسات على صحة المرضى.

**الكلمات المفتاحية:** التعاون بين التخصصات، الأمراض المزمنة، إدارة الأدوية، الصيادلة، إعادة التأهيل بالعلاج الطبيعي.