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## **The role of clinical pharmacists in chronic disease management: Review**

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**Abstract--Background:** Chronic diseases, particularly non-communicable diseases (NCDs), are leading causes of morbidity and mortality globally. Effective management of these conditions, such as inflammatory bowel disease (IBD), requires a multidisciplinary approach, including the integration of clinical pharmacists into patient care teams. **Methods:** This review analyzed literature from seven databases, including MEDLINE and EMBASE, focusing on pharmacist interventions in the management of chronic diseases, specifically type 2 diabetes and asthma, to assess their applicability to IBD. Studies published between 2014 and 2023 were included to evaluate the impact of pharmacist-led initiatives on clinical outcomes. **Results:** The findings reveal that pharmacist interventions significantly improve patient outcomes in chronic disease management through medication management, patient education, and regular monitoring. While type 2 diabetes and asthma management strategies have been well-documented, there is a notable gap in research regarding pharmacist involvement in IBD care. Proposed interventions for IBD include medication adherence support, risk assessment, and preventive health services, which have demonstrated effectiveness in other chronic conditions. **Conclusion:** The integration of clinical pharmacists into the management of inflammatory bowel disease presents a valuable opportunity to enhance patient care. By adapting successful strategies for diabetes and asthma management, pharmacists can play a critical role in improving health outcomes for IBD patients. Future research should focus on formalizing the role of pharmacists in IBD care and evaluating the long-term benefits of their involvement in multidisciplinary healthcare teams.

**Keywords---**Chronic disease management, Clinical pharmacists, Inflammatory bowel disease, Medication adherence, Multidisciplinary care.

## 1. Introduction

Chronic illnesses, known as non-communicable diseases (NCDs), are the primary contributors to death and disability worldwide [1]. The World Health Organization (WHO) defines a chronic illness as a “disease of long duration and generally slow progression” [2], often necessitating lifetime disease treatment, diminished quality

of life, and compromised mental health in affected individuals [1,2]. Approximately one in five individuals have many chronic diseases, and the effective treatment of these conditions is a significant burden for healthcare systems.

Inflammatory bowel disease (IBD) encompasses a collection of chronic conditions, notably Crohn's disease (CD) and ulcerative colitis (UC) [3,4]. Inflammatory Bowel Disease (IBD) is often diagnosed in early adulthood and is characterized by persistent discomfort and a steadily deteriorating condition [5]. Approximately 80% of patients necessitate at least one surgical procedure during their lifetime, particularly in cases of Crohn's disease, accompanied by various modifications to treatment protocols, variable symptoms, and extra-intestinal manifestations, all of which significantly impair quality of life [6,7]. The multidisciplinary care of inflammatory bowel disease (IBD) is demonstrably beneficial.

The significant morbidity linked to chronic illnesses profoundly affects people, their families and caregivers, communities, healthcare providers, and the healthcare system [8]. Effective care of chronic diseases requires a comprehensive, patient-centered strategy aimed at reducing premature mortality and morbidity via multidisciplinary cooperation across primary, secondary, and tertiary sectors [1,9]. Type 2 diabetes and asthma are effectively controlled in Australia, New Zealand, Canada, and the United Kingdom by primary care pharmacists collaborating within multidisciplinary healthcare systems.

While all chronic illnesses need a comparable treatment strategy aimed at enhancing patients' quality of life, preventing complications, and alleviating disease burden, the management of IBD is mostly conducted by gastroenterologists [8,10,11]. Numerous essential services are available only via secondary or tertiary care facilities, despite evidence supporting a coordinated multidisciplinary strategy in the treatment of IBD [12-14]. A recent systematic review emphasized the significance of pharmacists as primary care practitioners in the treatment of patients with chronic gastrointestinal disorders [8]. Their incorporation into the multidisciplinary primary care system might enhance IBD treatment by engaging in key prevention strategies.

Currently, there are no published studies assessing the effects of pharmacist interventions in the primary care treatment of inflammatory bowel disease (IBD). Significant research exists about type 2 diabetes and asthma, two chronic conditions mostly addressed in primary care via a collaborative multidisciplinary strategy including General Practitioners (GPs) and pharmacists. The primary objective of this research was to evaluate the treatments administered by pharmacists in the management of type 2 diabetes and asthma and to illustrate the advantages of these interventions via quantifiable clinical, humanistic, and economic results. Secondly, using these examples, we examine possible prospects for pharmacists in primary care to provide customized treatment for patients with IBD, therefore filling the existing gap in the literature and enhancing the management of this chronic condition.

## **2. Methods**

A comprehensive search of articles presenting original research across seven bibliographic databases and grey literature was performed to identify studies on pharmacist interventions in type 2 diabetes and asthma. The databases included International Pharmaceutical Abstracts, MEDLINE, SCOPUS, CINAHL, EMBASE, and PsycINFO, with the search conducted from 2014 to 2023. A further search in the Cochrane database was conducted to locate relevant systematic reviews.

## **3. Advancements in Pharmacist Interventions for Chronic Disease Management**

The function of pharmacists in the management of chronic illnesses has markedly transformed in recent decades, propelled by a growing acknowledgment of their capacity to enhance patient outcomes via diverse treatments [1]. This review emphasizes essential pharmacist-led treatments, including education and counseling, medication management and review, patient monitoring, and follow-up, in addition to screening and risk prevention specifically designed for chronic illnesses like type 2 diabetes and asthma. These approaches have shown quantifiable advantages in primary care environments, highlighting the crucial role pharmacists may assume in chronic illness management.

Notwithstanding the intrinsic disparities in the characteristics of type 2 diabetes and asthma—given their unique pharmacological treatments, management approaches, and patient requirements—the dependence on primary care physicians remains uniform throughout both ailments. Our results corroborate the current research that validates the efficacy of pharmacist interventions in improving health outcomes [15-19]. This evaluation reflects a groundbreaking initiative to advocate for pharmacist interventions in the treatment of inflammatory bowel disease (IBD).

## **4. Proposed Pharmacist Interventions for the Management of Inflammatory Bowel Disease**

Our research suggests that the core therapies found for type 2 diabetes and asthma might be successfully modified for the management of IBD. We underscore the need for screening and risk mitigation, continuous patient surveillance and follow-up, extensive teaching and counseling, and meticulous medication management by qualified pharmacists. The treatment framework for IBD mostly operates within secondary and tertiary care environments, in contrast to the extensive participation of primary care pharmacists in the management of diabetes and asthma. The integration of pharmacist treatments for IBD presents a substantial opportunity to use established knowledge in chronic disease management, potentially enhancing patient results akin to those seen in diabetes and asthma treatment [20,21].

## **5. Significance of Surveillance and Assessment**

Pharmacist interventions are essential in the treatment of chronic diseases, facilitating efficient patient monitoring and adherence to medication. Despite

being reported less commonly among individuals with type 2 diabetes and asthma, screening and risk prevention programs are essential for the early identification and treatment of chronic problems. Research demonstrates that timely therapies may reduce complications related to illnesses such as type 2 diabetes [21,23-26]. Pharmacists can provide patients with the ability to identify early warning symptoms and successfully manage their asthma, hence enhancing disease management and mitigating severity [27-31].

Moreover, research indicates that patients with inflammatory bowel disease often do not get sufficient preventative care in comparison to the general medical population [15,32]. This gap underscores the pressing need for proactive engagement from healthcare practitioners, especially pharmacists. Empirical research has highlighted the importance of avoiding complications with frequent screenings for vaccinations, mental health, and illnesses such as skin cancer and osteoporosis in individuals with IBD [15,16,32]. Considering that patients often exhibit non-specific symptoms in primary care environments, the participation of pharmacists may improve the early detection of problems, including exacerbations and consequences related to IBD [17].

## **6. Pharmacist-Directed Preventive Healthcare Services**

Vaccination programs represent a preventative health service that pharmacists are well equipped to oversee. Pharmacists are integral to immunization initiatives in several nations [18]. Delegating these services to qualified pharmacists might markedly improve the quality of treatment for IBD patients, ensuring they remain up to date with necessary vaccines and tests.

## **7. The Function of Education and Counseling**

Education and counseling are essential components for enhancing treatment in patients with chronic diseases [2,19]. In the realm of IBD, promoting patient-centered treatment via engagement and collaborative decision-making is essential [33]. Patient participation in decision-making and self-management requires access to relevant, personalized information [33,34]. Our analysis demonstrates that tailored education and counseling may result in substantial improvements in disease severity, management, and drug compliance for illnesses including asthma.

Moreover, while drugs are pivotal in the treatment of IBD, patient compliance with recommended regimens poses a significant barrier, with non-compliance rates soaring to 45%. This problem is linked to elevated disease activity, relapses, and augmented healthcare utilization [35,36]. Interventions aimed at improving drug adherence have shown favorable healthcare outcomes, leading to decreased total expenditures [32].

To tackle these obstacles, we recommend that primary care pharmacists provide specialized education and counseling on IBD drugs as an element of a comprehensive intervention plan. Collaboration among multidisciplinary healthcare teams, including general practitioners, pharmacists, nurses, and gastroenterologists, can enhance comprehensive, individualized care that

integrates medication management, psychological support, nutritional guidance, and preventive health strategies.

## **8. Management of Pain in Inflammatory Bowel Disease**

Chronic abdominal pain is a common and distressing symptom among many IBD patients, with research suggesting that up to 70% of these people endure discomfort during flare-ups [37-39]. Consequently, efficient pain management measures are crucial therapeutic objectives in the treatment of IBD. Nonetheless, pain treatment may include significant dangers, particularly with the prescription of opioid drugs. Data reveal that over 30% of IBD patients get opioid prescriptions, which may result in problems including narcotic bowel syndrome, concealment of illness exacerbations, and possible opioid dependence [37-39].

Our study confirms previous data that supports the effectiveness of pharmacist-led interventions in medication management for diverse chronic conditions, particularly in diabetes and asthma treatment. This experience offers significant potential for primary care pharmacists to execute customized treatments that meet the complex drug requirements of IBD patients. Pharmacists may substantially improve therapeutic monitoring and adherence in IBD patients by actively managing prescription regimens and advising on over-the-counter treatments.

## **9. Constraints of the Evaluation**

Notwithstanding the excellent insights obtained from the review, several limitations need discussion. The research analyzed differed in design, results, and measuring techniques, hence diminishing the capacity for a precise evaluation or meta-analysis. The rejection of publications published in languages other than English restricted the inclusion of relevant research from both developed and developing nations. Moreover, concentrating just on two chronic illnesses (type 2 diabetes and asthma) may have distorted our comprehension of the overall effects of pharmacist treatments across a wider range of chronic ailments.

## **10. Future Ramifications for Pharmacist Engagement**

The role of primary care pharmacists in chronic illness management is becoming more vital as the healthcare environment evolves. The degree of pharmacist involvement varies worldwide, although there is an increasing acknowledgment of their significance in implementing comprehensive strategies for treating chronic disorders, such as IBD. The incorporation of pharmacist-administered therapies into existing care models may result in better sustainable health outcomes for patients.

## **11. Summary**

Current data indicates that primary care pharmacists may significantly contribute to the treatment of chronic disorders, including type 2 diabetes, asthma, and inflammatory bowel disease (IBD). This potential is based on their capacity to implement critical interventions that increase patient outcomes,

promote medication adherence, and provide vital information and counseling to patients. The effective execution of pharmacist-led interventions depends on the creation of creative interdisciplinary models and the promotion of cooperation among healthcare professionals in diverse care environments. Due to the intricate healthcare requirements of IBD patients, pharmacists are well situated to augment and improve current care models, therefore facilitating superior treatment of this chronic ailment.

To realize these advantages, it is essential to include pharmacist services in existing healthcare systems, guaranteeing explicit responsibilities and communication channels among all professionals engaged in a patient's care. Such platforms enable coordinated strategies vital for tackling the complex issues faced by patients with chronic conditions. Moreover, to ensure that pharmacist-delivered services provide optimal value in standard clinical practice, extensive education and training for pharmacists will be needed. This assistance will provide them with the essential information and practical expertise needed to treat disorders like IBD successfully, hence augmenting their contributions to patient care.

In conclusion, as healthcare systems increasingly acknowledge the essential role of pharmacists in chronic illness management, there is an urgent need for institutional support to include their services in primary care. Utilizing their knowledge and promoting collaborative care models, we can enhance health outcomes for patients with various chronic illnesses, hence improving the overall efficacy of healthcare delivery.

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## دور الصيدالة الإكلينيكيين في إدارة الأمراض المزمنة: مراجعة الملخص

**الخلفية:** تمثل الأمراض المزمنة، وخاصة الأمراض غير المعدية (NCDs)، الأسباب الرئيسية للمراضة والوفيات على مستوى العالم. يتطلب الإدارة الفعالة لهذه الحالات، مثل مرض الأمعاء الالتهابي (IBD)، اتباع نهج متعدد التخصصات، بما في ذلك دمج الصيدالة الإكلينيكيين في فرق رعاية المرضى.

**الطرق:** حللت هذه المراجعة الأدبيات من سبعة قواعد بيانات، بما في ذلك MEDLINE وEMBASE، مع التركيز على تدخلات الصيدالة في إدارة الأمراض المزمنة، وتحديدًا مرض السكري من النوع الثاني والربو، لتقييم قابليتها للتطبيق على IBD. شملت الدراسات المنشورة بين عامي 2014 و2023 لتقييم تأثير المبادرات التي يقودها الصيدالة على النتائج السريرية.

**النتائج:** أظهرت النتائج أن تدخلات الصيدالة تحسن بشكل كبير من نتائج المرضى في إدارة الأمراض المزمنة من خلال إدارة الأدوية، وتثقيف المرضى، والمراقبة المنتظمة. وبينما تم توثيق استراتيجيات إدارة مرض السكري من النوع الثاني والربو بشكل جيد، لوحظ وجود فجوة واضحة في الأبحاث المتعلقة بدور الصيدالة في رعاية مرضى IBD. تشمل التدخلات المقترحة لمرضى IBD دعم الالتزام بالأدوية، وتقييم المخاطر، والخدمات الصحية الوقائية، والتي أثبتت فعاليتها في حالات مزمنة أخرى.

**الاستنتاج:** يمثل دمج الصيدالة الإكلينيكيين في إدارة مرض الأمعاء الالتهابي فرصة قيمة لتحسين رعاية المرضى. من خلال تكييف الاستراتيجيات الناجحة من إدارة مرض السكري والربو، يمكن للصيدالة أن يلعبوا دورًا حيويًا في تحسين النتائج الصحية لمرضى IBD. يجب أن تركز الأبحاث المستقبلية على تحديد دور الصيدالة بشكل رسمي في رعاية IBD وتقييم الفوائد طويلة المدى لمشاركتهم في فرق الرعاية الصحية متعددة التخصصات.

**الكلمات المفتاحية:** إدارة الأمراض المزمنة، الصيدالة الإكلينيكيون، مرض الأمعاء الالتهابي، الالتزام بالأدوية، الرعاية متعددة التخصصات.