

# INVESTIGATING THE IMPACT OF PHARMACY SERVICES ON PATIENT OUTCOMES

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## Abstract

As members of a diverse team of medical professionals, pharmacists in developed countries guarantee the prudent use of medications, improve clinical results, and improve health status. In order to improve the therapeutic, safety, humanistic, and financial results for Pakistani patients, we therefore plan to critically evaluate the clinical responsibilities that pharmacists play. After two reviewers separately evaluated the research's risk of bias, a disagreement was resolved by consensus. PRISMA reporting requirements were followed, and a descriptive synthesis of all included studies was conducted. Clinical pharmacists in Pakistan significantly improve patient health outcomes, according to the results of the included studies in this systematic review. It should be highlighted, although, that most of the studies are extremely prone to bias, and further research with a suitable study design is required.

**Keywords:**PRISMA, health outcomes, relevant articles, clinical

## 1. INTRODUCTION

Pharmacists' occupations have evolved from working in lone dispensaries to providing patient-centered healthcare since the introduction of pharmaceutical care in 1990. In industrialized countries, pharmacists are highly skilled professionals who are vital to pharmaceutical treatment [1]. Additionally, pharmacists at community pharmacies are essential in promoting public health, which includes routine immunization programs, preventing infections and illnesses, controlling alcohol and tobacco use, and promoting healthy eating and lifestyle choices[11]. Consequently, research in Pakistan has started to emphasize possible clinical pharmacy development, such as increased bedside activity, patient counseling, and optimization of therapy in chronic illnesses [2].

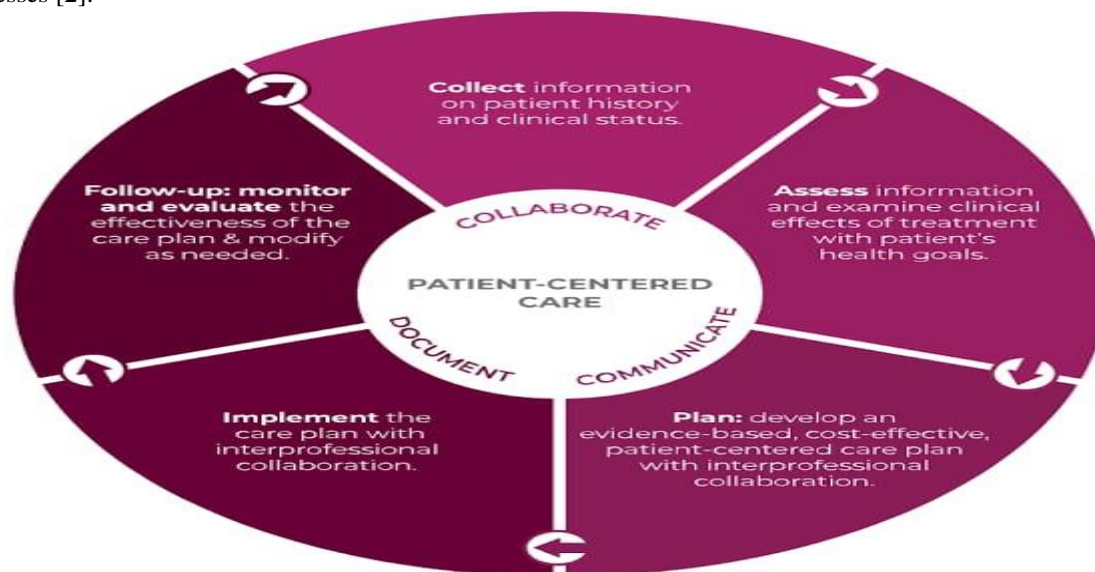


Figure 1 patient care

The results showed that pharmacist services enhance the quality of life for patients with chronic conditions such as diabetes, asthma, and hypertension as well as treatment outcomes like cholesterol management, systolic blood pressure (SBP), diastolic blood pressure (DBP), and hyperglycemia [4]. However, the authors were unable to get cost data, and the results were not comparable because each trial looked at distinct outcomes with different clinical settings using different measuring techniques, which required cautious interpretation[3]. The review covered every study conducted in middle-income countries, including those in Southeast Asia, Africa, and Eastern Europe [6]. As a result, the findings cannot be applied to nations with distinct healthcare systems, such as Pakistan, a southern Asian LMIC [8]. Clinical pharmacist services are not widely used in Pakistan. Policymakers' and stakeholders' ignorance of clinical pharmacists' additional functions and their ramifications in the Pakistani context may hinder the use of these services[16].

## 2. REVIEW OF LITERATURE

The traditional dispensing-focused role of pharmacists has evolved to include pharmacological and clinical care services. Helping patients reach their optimal health is at the heart of pharmacists' constantly changing roles in the workplace [5]. Low- and middle-income countries (LMICs) have fewer and worse pharmacy services than high-income countries (HICs). But according to recent reports, pharmacists at LMICs accompany other medical professionals on ward rounds to record and assess patients' clinical follow-up and drug-related issues, as well as to create and implement medication therapy management plans [12]. Drug abuse, recycling leftovers, using sub-therapeutic or supra-therapeutic dosages of medications, not completing the entire course of treatment, not paying attention to doses, and using antimicrobials irrationally are all factors that contribute to the development of resistance, higher therapeutic costs, and even patient death [10]. Providing drug information, managing medication concordance, encouraging appropriate medication use, avoiding and resolving drug treatment problems, and enhancing patient pharmacotherapy and HRQOL are all important tasks for pharmacists in LMICs[13].

Physicians can be assisted by pharmacists in choosing the right medication for prescribing. Physicians will be better equipped to understand the status of medication treatment if pharmacists help them understand and monitor delivery. Through community pharmacies, they can also support the promotion of public health. Clinical pharmacy practice is still relatively new in South Asian nations [7]. Although clinical pharmacy services are required of hospital pharmacists, their responsibilities are mainly restricted to material management and dispensing. However, they are believed to have the education, experience, and confidence needed to offer clinical pharmaceutical services. To build these talents, training and hands-on learning are required. Compared to dispensing services, clinical pharmacy services allow pharmacists to be more patient-centered and are acknowledged by patients and policymakers.

## 3. MATERIALS AND METHODS

We searched the Cochrane Library, PubMed/Medline first examining relevant abstracts and titles and then relevant full texts in compliance with qualifying criteria[14]. If any data were not reported or if more information was needed about the derived data, the letter's authors were emailed. The reviewers reached a consensus to resolve any differences in the collected data. Additionally, ROBs and resolved disagreements by consensus. Using PRISMA criteria, a descriptive synthesis of all included studies was conducted.

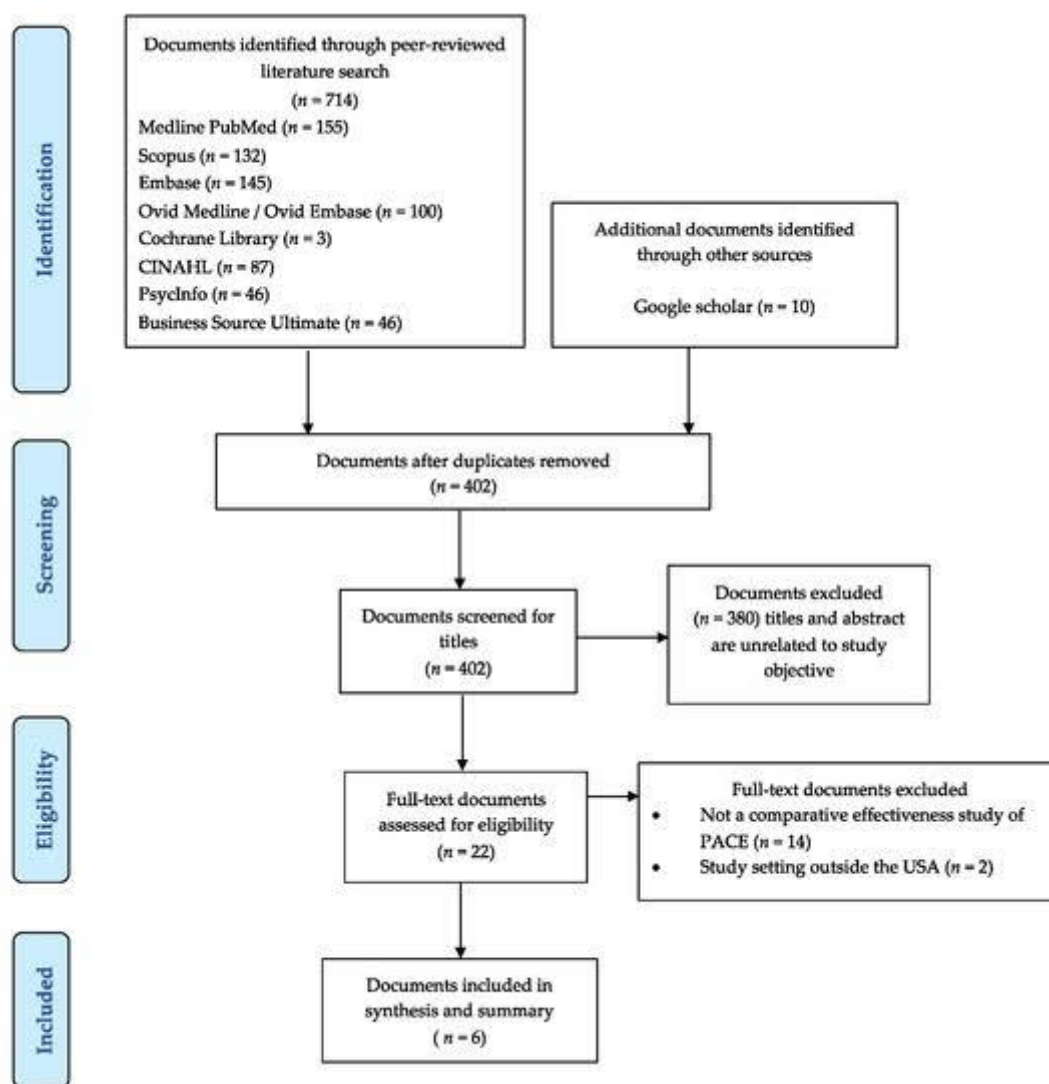


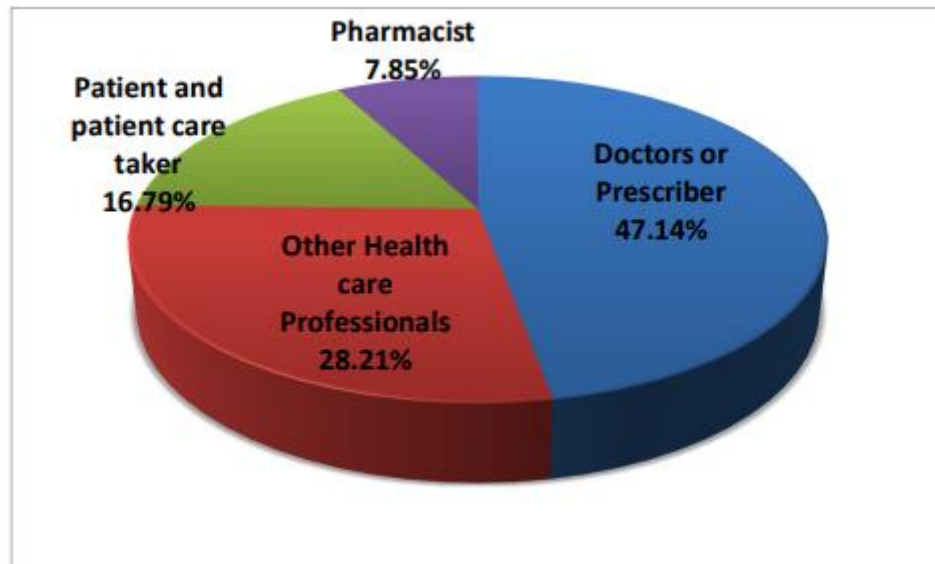
Figure 2 sample design

This comprehensive analysis came to the conclusion that pharmacists' services had a significant positive impact on improving patients' clinical outcomes. Research on the clinical services provided by pharmacists has shown that patients with chronic conditions like type 2 diabetes and cardiovascular disease have better health outcomes when pharmacists are included in the disease management process. Similar results were noted in equivalent studies in other nations like Nigeria, Brazil, Singapore, and Egypt. Shown that pharmacist-provided care greatly enhanced glycemic control through the decrease. The pharmacist intervention also improved the patients' creatinine clearance (CrCl), calcium levels, and parathyroid hormone (PTH), according to a thorough examination of clinical pharmacy services for chronic kidney disease (CKD). in order to improve clinical outcomes for patients with chronic illnesses, emphasized the critical role that pharmacists play in interdisciplinary health teams[9].

Pharmacist interventions were essential in enhancing patients' humanistic outcomes, which is consistent with the results of a comprehensive review and multiple European studies. Clinical pharmacy techniques improved glucose control and HRQOL while lowering AEs and T2DM management costs. An RCT conducted among community pharmacies in the Netherlands found that the HRQOL level of older patients, as assessed by the EuroQol Visual Analogue Scale, increased by 3.4 points throughout a six-month period of clinical medicine services. All of these elements contributed to fewer ER visits and general practitioner visits even after discharge.

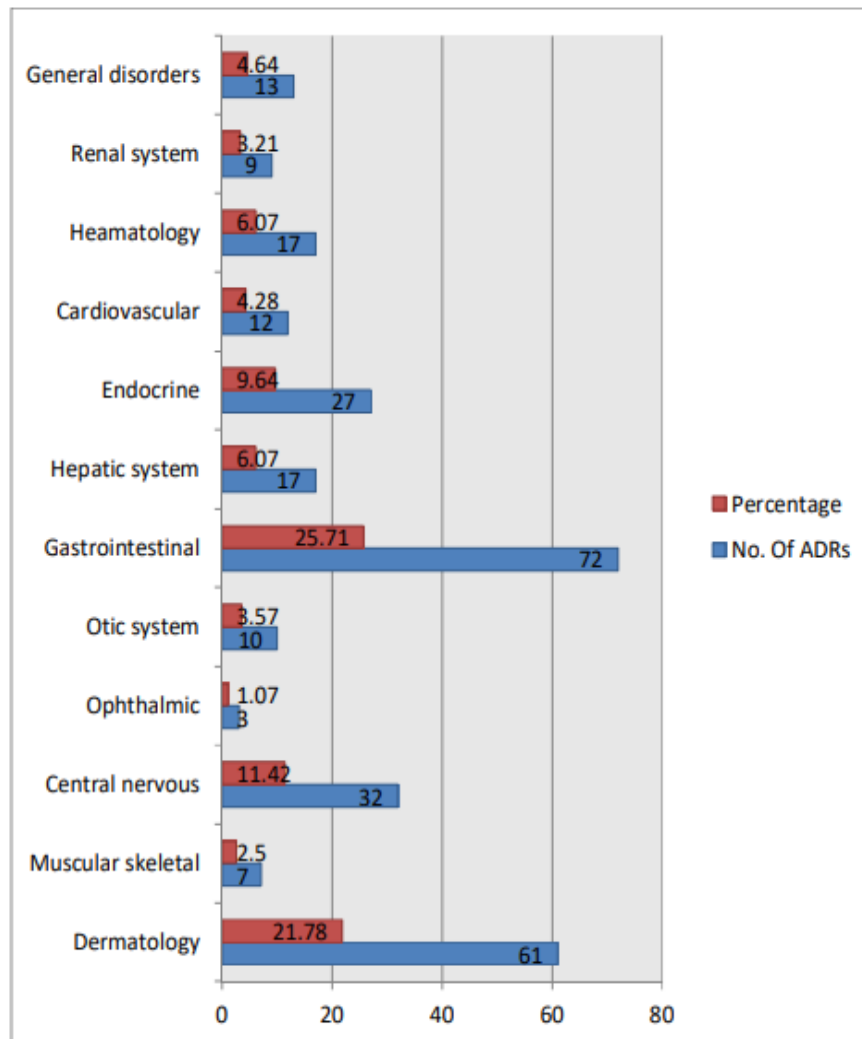
#### 4. RESULT AND DISCUSSION

In order to keep pharmacists abreast of the latest developments in healthcare systems, health facilities must implement programs for their ongoing professional development. Similarly, to increase the recognition of pharmacists' roles, the advantages and economic viability. To improve clinical outcomes, well conducted trials with standardized outcome measures, longer pharmacist intervention duration, and more frequent and content-based interventions are required. It is anticipated that the review's conclusions will help South Asian policymakers choose appropriate pharmacist actions based on local resources[15].



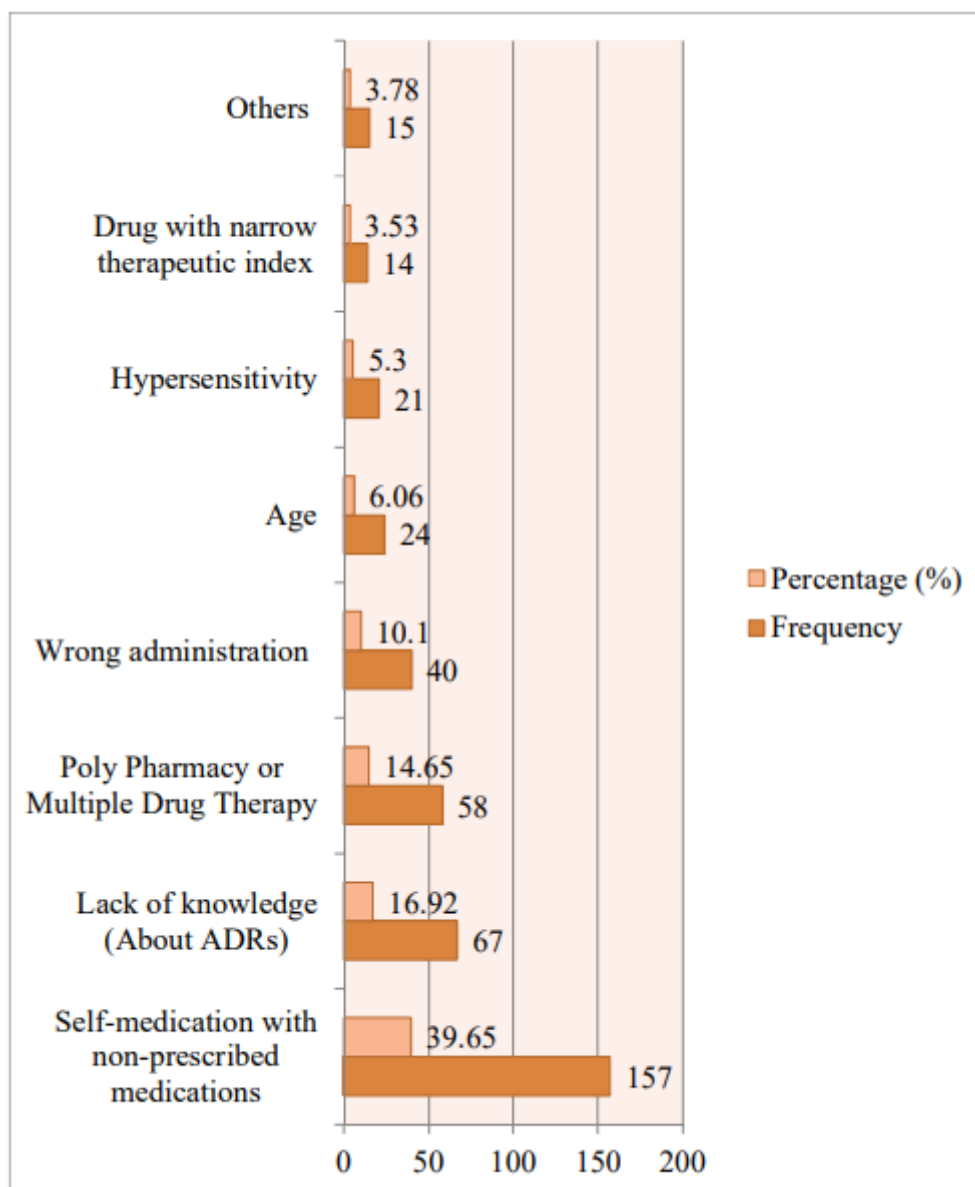
**Figure 1: Patient Outcomes**

However, just one systematic review from South Asian nations has been published, demonstrating that patients' health outcomes are improved when pharmacists are part of the healthcare team.



**Figure 2: Patient Outcomessystem codes**

This is supported by the results of the current review, which indicate that giving pharmacy graduates clinical residency training can be extremely beneficial for enhancing patient outcomes and reducing overall healthcare expenses.



**Figure 3: Risk factors**

However, this review has certain limitations. First off, in order to prevent bias, this study only considered peer-reviewed published papers; unpublished studies that might have provided more information were disregarded.

## 5. CONCLUSION

However, we believe that our evaluation can help improve pharmacy services and pharmacist-mediated care in South Asia, and hence improve patient outcomes. Although it has been demonstrated that pharmacist treatments enhance ECHO, it is yet unknown whether these interventions have an impact because most research only documented short-term effects. Therefore, more research with a suitable study design and randomization in both the interventional and control arms is required to assess the pharmacist's complex impact on long-term outcomes in terms of economic (e.g., cost-effectiveness, cost-utility), clinical (e.g., improved health status), and humanistic (e.g., health-related quality of life). Additionally, a comprehensive pharmacoeconomic analysis must be conducted to facilitate informed decision-making.



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