



Reconciliation of Medication Counseling by Pharmacists for Improving Outpatient Adherence: A Review

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Abstract

Background: Medication adherence is crucial in managing chronic and acute diseases, particularly in outpatient settings. However, non-compliance remains a significant issue, leading to adverse health outcomes and increased healthcare costs. Pharmacists play a vital role in overcoming these challenges through medication counselling and reconciliation.

Materials and Methods: a systematic search of relevant literature was conducted using electronic databases including PubMed, Google Scholar, Scopus, and Science direct. Articles focused solely on inpatient or hospital-based settings without outpatient follow-up.

Results: This review explores the effectiveness of pharmacist-led interventions in outpatient settings, focusing on counselling, medication reconciliation, post-discharge counselling, and their impact on adherence. Pharmacists ensure that patients understand their medications, reducing errors and improving health outcomes. Key strategies such as motivational interviewing, patient education, and technology integration contribute to enhanced adherence rates and fewer medication discrepancies.

Conclusion: Pharmacist-led medication adherence programs significantly improve patient outcomes by reducing errors, enhancing compliance, and lowering hospital readmission rates. The review highlights key strategies, challenges, and innovations that enhance pharmacist-led adherence programs.

Keywords: drug-induced photosensitivity, photoallergic, phototoxic, adverse drug reactions, medications

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Introduction

Lack of medication adherence is a patient care issue affecting health systems all over the world [1]. According to WHO estimates, rates of medication non-adherence fall between 30%-50% in patients suffering from chronic illnesses. [2–3] This case is highly common in outpatient clinics where patients are expected to self-administer medication without the constant supervision of a healthcare professional. [3–4] Some of the barriers that enhance non-adherence include misunderstanding of prescribed medication, patient apathy, cognitive and physical limitations, and socioeconomic hurdles. [4–5]

As medication specialists, pharmacists can contribute to better patient outcomes by proactively addressing these issues and offering more elaborate counselling and medication reconciliation services. "Medication reconciliation ensures that patients are not taking medications that may work against each other; otherwise, they will do more harm than good," Dr. Susan Brown, one of the leading pharmacists of outpatient programs for improving medication adherence, says. [5–6] These advanced interventions, together with counselling, can significantly increase adherence rates and decrease the risk for repeated admissions.

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Recent studies highlight the positive outcomes of pharmacist-led counselling and reconciliation. In one systematic review, pharmacist interventions led to improved adherence rates and reduced medication errors across various outpatient settings. [7] "A pharmacist's role is more than just dispensing medications. It's about ensuring the right patient gets the right medication at the right time," emphasizes Kwan et al. (2019). See **Table-1** for an overview of key counselling components. [8]

Material and Methods

This review included peer-reviewed articles from databases such as PubMed, Scopus, and Google Scholar, published between 2015 and 2025. Studies focusing on pharmacist-led medication reconciliation, counselling interventions, post-discharge counselling, and their impact on outpatient adherence were considered. Keywords used included "medication counselling," "pharmacist interventions," "medication adherence," "outpatient settings," and "medication reconciliation." Articles were screened for relevance, and data were extracted for qualitative synthesis.

Findings and Discussion

1. Role of Pharmacist-Led Medication Counselling:

Counselling done by pharmacists has enhanced medication adherence greatly by increasing patient education, resolving issues, and motivating patients. Patients should be empathically and extensively educated about the purpose, dosage, and possible side effects of medications. [7, 8] Education provided by pharmacists increased adherence by 20% for patients suffering from hypertension. [8] "Patients are more empowered and controllable over their health needs when they understand the reasoning behind the medications they take," explain Lee et al. Adherence can be fostered through the use of motivational interviewing and other behavioural cognitive approaches. [9, 10] These tactics help patients who have psychological obstacles and raise their willingness to comply with medication orders. Providing patients with ongoing counselling helps to address new and old problems that patients need to be concerned about in order to reinforce adherence. [11] These follow-ups help in identifying non adherence early enough and providing suitable solutions. Refer to **Table-1** for a summary of major counselling components. [10, 11]

Table-1 Key Components of Pharmacist-Led counselling [1, 8]

Key Component	Descriptions
Patient Education	Explaining medication purpose, dosage, and side effects to patients clearly
Behavioural counselling	Using motivational techniques to enhance patient adherence
Follow-Up and Monitoring	Regularly checking on patients to ensure adherence and address concerns

2. Medication Reconciliation as a Tool for Adherence

Medication reconciliation ensures that the patients have an accurate and up to date medication list. This step is especially important during transitions in care such as from a hospitalization to an outpatient follow up.

Pharmacists are crucial in: Causative Medication Errors- The process of finding out medication discrepancy and resolving them for safety purposes. [5, 6] Missing medications, Prescribed medications with wrong dosage, Prescribed medicines with wrong dosage, and Prescribed medicines with duplicate Though these vary between different healthcare practices, most practitioners experience them. Look at **Table-2** for examples of medication discrepancies that are most likely to be encountered. Causative Medication Errors- Detecting the corrective changes in an extensive description and altering them whether or not needed. [12, 13] This is especially helpful in compliance issues for older people or patients who take more than one prescribed medicine. Coordinative care: Working together with the physician and other medical personnel to refine treatment. [14, 15] In a collaborative health care model, every member of the health care team is apprised of the patient's medication and can make decisions.

Table-2 Common Discrepancies Identified During Medication Reconciliation [5, 7]

Discrepancy Type	Descriptions
Omitted Medications	Medications that were not prescribed or taken as intended
Incorrect Dosages	Dosages that differ from prescribed amounts
Duplicate Medications	Patients taking two or more medications with the same active ingredient
Drug-Drug Interactions	Medications that negatively interact with each other

3. Patient Reconciliation Counselling for Post-Inpatients

Pharmacists' involvement in medication reconciliation after hospital discharge is critical for ensuring continuity of care. Many patients experience medication changes during hospitalization, which can lead to confusion and non-adherence after discharge. Pharmacists can play a crucial role in bridging this transition by: 1. Providing detailed medication counselling before hospital discharge, including explanations of new medications, dosage changes, and potential side effects. [15] 2. Conducting follow-up calls or visits within 48 hours of discharge to address any medication-related questions or concerns. [15, 16] 3. Ensuring that primary care providers are informed of any medication changes made during hospitalization. [17, 18]

Studies have shown that post-discharge medication counselling significantly reduces hospital readmissions and improves adherence rates. For example, a randomized controlled trial found that patients who received post-discharge counselling from pharmacists had a 25% lower risk of readmission within 30 days. [7, 8]

4. Combined Counselling and Reconciliation Interventions

Several studies have highlighted the synergistic effect of combining medication reconciliation with tailored counselling. Such integrated approaches have shown reductions in medication errors, improved clinical outcomes, and higher patient satisfaction. Interventions that include both components are more likely to sustain long-term adherence. [19, 20] In a randomized controlled trial, patients who received both counselling and reconciliation had a 30% higher adherence rate compared to those who received standard care. [20, 21] This dual approach also led to a significant reduction in hospital readmissions and emergency department visits.

5. Barriers and Challenges

Despite the benefits, barriers to pharmacist-led interventions persist. Common challenges include: 1. Limited pharmacist availability in busy outpatient settings. [21, 22] Pharmacists often have competing responsibilities, making it difficult to allocate sufficient time for counselling. 2. Cognitive decline, health literacy, and socioeconomic factors that affect adherence. [22, 23] Patients with low health literacy may struggle to understand medication instructions, while financial constraints can prevent access to necessary medications. 3. Lack of reimbursement for counselling services and limited integration with primary care teams. [24] Addressing these systemic barriers is essential for scaling pharmacist-led interventions. Refer to **Table-3** for a summary of barriers to effective pharmacist interventions. [23, 24]

Table-3 Barriers to Effective Pharmacist-Led Counselling and Reconciliation [9, 10]

Barrier	Description
Time Constraints	Limited pharmacist availability in busy settings
Patient Health Literacy	Difficulty understanding medication instructions due to low health literacy
Socioeconomic Barriers	Financial constraints that limit medication access
System-Level Issues	Lack of reimbursement and integration with healthcare teams

6. Technological Innovations to Enhance Pharmacist Led Counselling

Digital health technologies, such as mobile applications, telehealth, and electronic medication management systems, have the potential to augment pharmacist interventions. These tools can facilitate remote counselling, medication reminders, and real-time adherence

monitoring. [8, 9] Telehealth platforms enable pharmacists to provide virtual counselling sessions, increasing access for patients in remote or underserved areas. Additionally, mobile applications can send automated reminders and educational materials to patients, further promoting adherence. [10]

Conclusion

Pharmacist-led medication counselling and reconciliation are essential strategies for improving outpatient medication adherence. By addressing barriers, employing tailored interventions, and leveraging technological innovations, pharmacists can play a pivotal role in optimizing patient outcomes. Future research should focus on large-scale implementation and evaluation of these interventions to further substantiate their effectiveness.

Recommendations

To optimize the impact of pharmacist-led medication counselling and reconciliation, the following strategies are recommended:

1. **Policy and System Changes:** Advocate for policies that support pharmacist reimbursement and integration into multidisciplinary teams. Enhanced reimbursement models could incentivize pharmacists to dedicate more time to counselling.
2. **Training and Development:** Enhance pharmacists' skills in patient-centred communication and behavioural counselling.. Continuous education programs can ensure pharmacists are equipped with the latest evidence-based strategies.
3. **Technology Integration:** Leverage digital health solutions to improve counselling efficiency and adherence tracking.

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NN: Wrote the manuscript, **PK and CD:** Contributed equally in editing and reviewing this review article. **NN, PK and CD:** All were red the article and accepted to publish.

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