



Original Research Article

Characterization of Drug-Related Problems Occurring in Iranian Ambulatory Patients and the Acceptance Rate of Clinical Pharmacist's Recommendations by Physicians

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Abstract: Drug-related problems (DRPs) pose a major threat to patient safety, especially in ambulatory care settings where polypharmacy and chronic diseases are common. This review article characterizes DRPs among Iranian ambulatory patients and evaluates the acceptance rate of clinical pharmacist recommendations by physicians. Emphasis is placed on the prevalence, nature, and outcome of interventions within Iran's outpatient pharmacotherapy context.

Keywords: Drug-Related Problems (DRPs), Ambulatory Care, Clinical Pharmacist, Physician Acceptance, Iran.

INTRODUCTION

Ambulatory care in Iran often involves patients with chronic diseases and multimorbidity, leading to complex medication regimens. Suboptimal prescribing, poor patient education, and systemic factors collectively contribute to DRPs. Clinical pharmacists, through medication reviews and interventions, are key agents in minimizing DRPs and improving patient outcomes. This article explores the types of DRPs found in Iranian outpatient clinics, assesses their underlying causes, and quantifies physician acceptance of pharmacist advice.

METHODS

Recent prospective and observational studies performed in Iranian university-affiliated ambulatory clinics were reviewed. DRPs were identified and categorized using the DOCUMENT classification and similar validated systems for Iranian patients. The evaluation included the class of medication involved, type and frequency of DRPs, pharmacist interventions, and subsequent follow-up to assess patient compliance and physician acceptance rates.

Characterization of DRPs in Iranian Ambulatory Patients

Prevalence and Patterns

- A 22-month study noted 875 DRPs among 200 Iranian outpatient adults with chronic conditions, averaging 4.37 DRPs per patient^[1].
- Elderly patients, those with polypharmacy, and female patients experienced higher DRP rates.
- Median number of drugs per prescription in Iran outpatients was found to be 3.16 to 3.05, with about 15–17% of patients receiving four or more drugs—a known driver of DRPs^[2].

Common Types of DRPs

The most frequent categories of DRPs included:

- Inadequate patient education or insufficient information (22.8%)
- Undertreated medical indications (17.4%)
- Poor patient compliance with therapy (17.2%)
- Incorrect or unnecessary drug selection (12–18%)
- Dosing errors (10–15%)
- Potential drug-drug interactions (up to 19.2% in outpatient settings)^{[1][2]}

Medications Frequently Implicated

- **Alimentary and metabolic drugs:** 22.2% of DRPs
- **Cardiovascular drugs:** 19.2%
- **Nervous system medications:** 9.6%^[1]
- High rates of antibiotic and injectable drug use observed, often exceeding WHO recommendations^[3].

Contributory Factors

- Polypharmacy, especially prevalent among patients with chronic illnesses
- Limited patient awareness or education regarding correct medication use
- Incomplete documentation or inadequate communication between care providers
- Prescriber habits and gaps in following best practice guidelines

Clinical Pharmacist Interventions

- Clinical pharmacists performed a wide array of interventions, including patient education, medication initiation/discontinuation, and non-pharmacological advice.
- Interventions per patient averaged 4.56, and 1.04 per identified DRP.
- The majority of interventions targeted patient education (41.3%), medication changes (initiation or discontinuation, 24.5%), and lifestyle modifications (12.9%)^[1].

Table 1: Profile of Clinical Pharmacist Interventions

Intervention Type	Percentage (%)
Patient education	41.3
Medication initiation/discontinuation	24.5
Non-pharmacological (lifestyle)	12.9
Dosage adjustment or regimen change	10–12
Drug selection/avoidance of drug-drug interaction	7–10

Acceptance Rate of Pharmacist Recommendations by Physicians

- Of 912 pharmacist interventions, 665 were amenable to follow-up (427 patient-dependent, 228 physician-dependent).
- Patient compliance with pharmacist recommendations reached 81.2%.
- **Physician acceptance rate:** Only 44.1% of clinical pharmacist recommendations were formally accepted and enacted by physicians in ambulatory settings^[1].
 - Acceptance was higher when interventions concerned clear safety risks or major guideline deviations.
- In hospital settings and other studies, physician acceptance ranged from 45% to 67%, improving as collaboration and trust developed^[4].

Graph: Acceptance Rate of Clinical Pharmacist Recommendations by Physicians in Iran

Study/Setting	Number of Interventions	Physician Acceptance (%)
Iranian outpatient clinic (2022) ^[1]	228	44.1
Diabetic foot unit study ^[4]	160	45.9–67.6
Hospital studies	Various	50–68

The graph below demonstrates the comparative acceptance rates over time and across different clinical settings.

! [Bar chart: Acceptance rate (%) of clinical pharmacist recommendations by physicians in Iranian outpatient and hospital settings, showing growth with closer pharmacist-physician collaboration.]

Impact of Pharmacist Interventions

- Positive outcomes observed included improved patient awareness, fewer medication errors, and enhanced medication adherence.
- Successful interventions reduced preventable adverse drug reactions, undertreatment rates, and polypharmacy burden.
- The need for increased collaborative practices and communication between pharmacists and prescribers was highlighted repeatedly.

DISCUSSION

Barriers to Acceptance

- Some physicians perceive pharmacist recommendations as less relevant to clinical decision-making, particularly in non-life-threatening situations.
- Time pressures and lack of established collaborative protocols can limit uptake.
- Differences in knowledge base and clinical judgment between professions.

Strategies for Improvement

- Ongoing education and interprofessional training to build trust and underscore the value of pharmacist contributions.
- Institutional policies fostering routine referral and joint management of complex drug regimens.
- Adoption of standardized documentation and feedback processes to close the intervention loop.

CONCLUSION

Drug-related problems are prevalent among Iranian ambulatory patients, driven by polypharmacy, complex chronic disease management, and gaps in patient education. While clinical pharmacist interventions are effective—especially in patient education and DRP prevention—the acceptance rate by physicians in ambulatory care remains moderate. Enhanced multidisciplinary collaboration and systemic efforts to integrate pharmacists into prescribing teams are necessary to improve acceptance rates and patient safety outcomes.

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