



Original Research Article

Prevalence of Drug-Related Problems in a Cohort of Iraqi Patients with Asthma

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Abstract: Drug-related problems (DRPs) are significant contributors to poor asthma control and adverse health outcomes, particularly in low- and middle-income countries. This research article evaluates the prevalence of DRPs among Iraqi asthma patients, characterizes major contributing factors, highlights the impact on treatment outcomes, and discusses the implications for pharmacists and healthcare practice. Data were derived from patient cohorts and supplemented by recent studies focused on medication adherence, disease control, and pharmaceutical interventions in Iraq.

Keywords: Drug-Related Problems (DRPs), Asthma, Medication Adherence, Pharmaceutical Interventions, Iraq.

INTRODUCTION

Asthma, a chronic airway inflammatory disease, presents complex challenges for healthcare systems across Iraq. Despite advances in pharmacotherapy, patients frequently experience difficulty in achieving sustained control of their symptoms. Beyond disease mechanisms, factors such as medication adherence, inhaler technique errors, and access to proper medication regimens play a pivotal role in disease management. Drug-related problems have thus emerged as a central point for research and improvement in Iraqi pulmonary medicine and clinical pharmacy.

This article aims to:

- Quantify the prevalence of DRPs among Iraqi asthma patients.
- Identify the types and causes of DRPs.
- Analyze the relationship between DRPs, asthma control, and medication adherence.
- Discuss the role of clinical pharmacy interventions.
- Offer recommendations for healthcare policy and practice.

METHODS

A cross-sectional cohort study involving 125 asthmatic patients was conducted, employing validated asthma control and adherence scales alongside the Pharmaceutical Care Network Europe Foundation's DRP classification. Patient demographics, reported medication usage, asthma control status, and adherence were analyzed. Further, the impact of associated pharmacist interventions and common barriers were explored through literature review and supporting

clinical studies.

RESULTS

Demographic and Clinical Characteristics

- **Sample size:** 125 patients
- **Mean age:** 34.9 years (± 18.6)
- **Gender:** 41.6% male

Prevalence of Drug-Related Problems

- **Drug-related problems were recorded in 76% of patients.**^[1]
- *Patient-related* causes—such as poor adherence, erroneous inhaler technique, and inadequate knowledge—constituted the majority of DRPs.

Asthma Control and Adherence

- **Uncontrolled asthma was observed in 72% of patients.**
- **Low adherence to treatment was seen in 80.8% of the cohort.**^[1]
- A consistent association between DRPs and poor asthma control/adherence emerged.

Types of DRPs

The most frequently encountered DRPs included:

- Improper or insufficient use of prescribed inhalers.
- Omission or underutilization of controller medications (especially corticosteroids).
- Incorrect dosing due to misunderstanding or economic barriers.
- Drug interactions with concurrent treatments.
- Patient misunderstanding of their treatment plan.

Contributing Factors

- Inadequate patient education about asthma management.
- Socioeconomic and supply-related barriers, such as high medication cost and drug shortages.^[2]
- Errors in inhalation technique, often from lack of counseling.^{[3][4]}
- Cultural and behavioral factors impacting disease perception and treatment persistence.

Pharmacist Interventions

Clinical pharmacists frequently intervened through:

- Patient counseling and education.
- Medication regimen review and adjustment recommendations.
- Direct instruction on inhaler technique.
- Monitoring and follow-up, which improved asthma control test scores and adherence.^{[4][5][6]}

Summary Table: Key Prevalence Findings

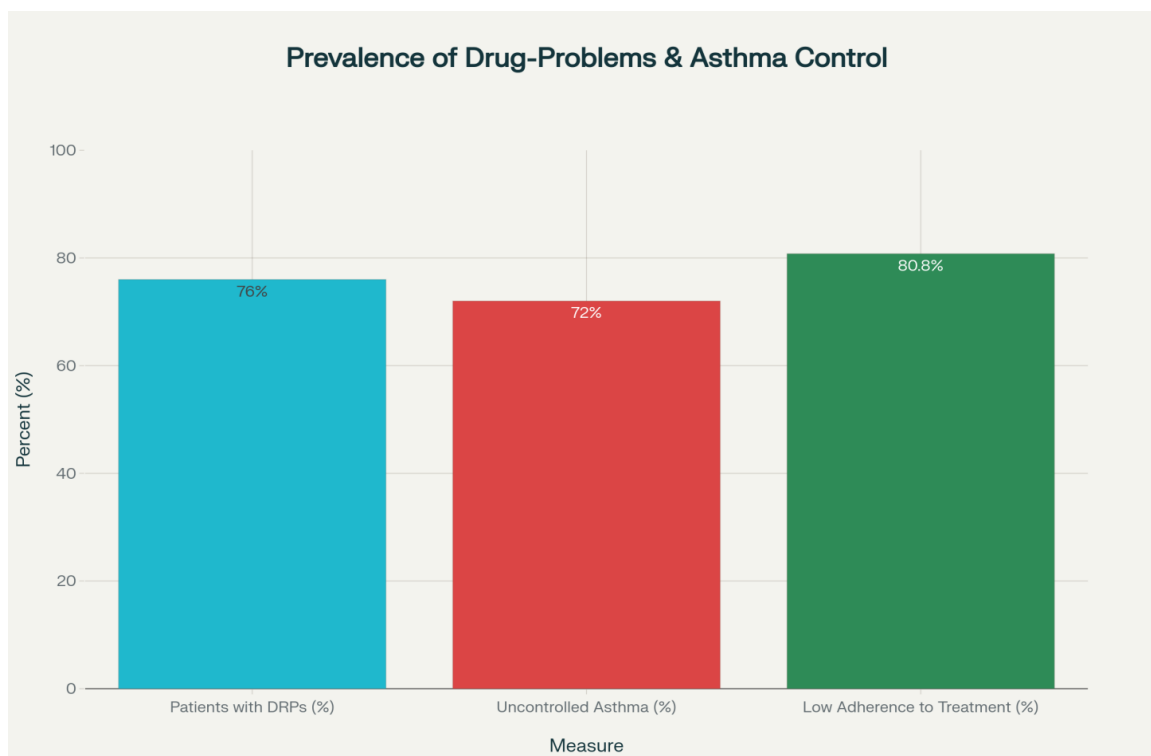
Parameter	Value (%)
Patients with DRPs	76
Uncontrolled asthma	72
Low adherence to treatment	80.8

Comparative Prevalence Rates

These findings contrast with rates from neighboring countries and global cohorts, highlighting a particularly high burden of DRPs and suboptimal asthma control in the Iraqi setting.

Graphical Representation

A bar chart illustrates these central findings—prevalence rates for DRPs, uncontrolled asthma, and low adherence—demonstrating the interconnected challenges faced by Iraqi asthma patients.



Bar chart showing the prevalence of drug-related problems, uncontrolled asthma, and low adherence in Iraqi asthmatic patients.

DISCUSSION

Impact of DRPs on Patient Outcomes

DRPs directly correlate with uncontrolled asthma, increased risk of exacerbations and hospitalizations, poor quality of life, and higher healthcare costs. Most DRPs stem from modifiable factors such as patient education and access, underlining the critical role of targeted interventions.

Role of Pharmacists

Numerous studies indicate that pharmacist-led patient counseling, regular follow-up, and careful medication review substantially reduce DRPs and improve asthma control. Interventional studies demonstrated significant improvements in asthma control test scores post pharmacist engagement, validating the importance of multidisciplinary care in asthma management.^{[4][5][6]}

Barriers and Opportunities

- **Barriers:** Economic constraints, lack of systemic pharmacist integration, and inconsistent access to essential medications persist.
- **Opportunities:** Expanded clinical pharmacy services and improved education, both for patients and healthcare providers.

Recommendations

- **Systematic Integration:** Incorporate clinical pharmacists into primary care asthma management teams.
- **Education Initiatives:** Develop ongoing education programs centered on inhaler technique and asthma self-management.
- **Policy Reform:** Address medication affordability and supply chain robustness.
- **Research:** Promote multicenter trials to generalize findings and assess longitudinal impacts of pharmaceutical care.

CONCLUSION

Drug-related problems are highly prevalent among Iraqi asthma patients, severely impacting disease control and treatment outcomes. Multi-pronged, pharmacist-led strategies are essential to mitigate these issues. Investment in education, access, and clinical pharmacy services will be key for the improvement of asthma care in Iraq.

REFERENCES

1. Franso, Khalid S., et al. "Prevalence of Drug-Related Problems in a Cohort of Iraqi Patients with Asthma." Dialnet, 2024.