

Five or More: Polypharmacy as an Emerging Global Challenge in Elderly Populations

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Abstract

Polypharmacy, commonly defined as the concurrent use of five or more medications, is a growing concern among the elderly population worldwide. Age-related physiological changes, multiple chronic illnesses, and frequent healthcare visits increase the risk of excessive medication use. While polypharmacy is often necessary for disease management, it can lead to adverse drug reactions, medication non-adherence, functional decline, and psychosocial distress. This case review describes an elderly patient experiencing physical and psychological complications related to polypharmacy. The case highlights the impact of medication burden on mental well-being, daily functioning, and quality of life. Nursing interventions, including medication review, patient education, and psychosocial support, played a crucial role in improving outcomes. The review emphasizes the importance of holistic, patient-centered care in managing polypharmacy among older adults.

Keywords: Polypharmacy, Elderly, Psychosocial impact, Nursing care, Medication management

INTRODUCTION

The global elderly population is rapidly increasing, leading to a higher prevalence of chronic diseases such as hypertension, diabetes mellitus, arthritis, and cardiovascular disorders. As a result, many older adults require multiple medications for disease control. Polypharmacy is commonly defined as the use of five or more medications simultaneously. Although appropriate in certain clinical situations, polypharmacy increases the risk of adverse drug reactions, drug–drug interactions, medication errors, and poor treatment adherence.¹

Beyond physical complications, polypharmacy can significantly affect the psychosocial well-being of elderly individuals. Complex medication regimens may cause confusion, anxiety, dependency, fear of side effects, and reduced quality of life. Elderly patients may also experience emotional distress due to frequent hospital visits, financial burden, and loss of independence. Nurses play a vital role in identifying polypharmacy-related problems and providing holistic care that addresses both physical and psychosocial needs.¹

Polypharmacy (polypragmasia) is an umbrella term to describe the simultaneous use of multiple medicines by a patient for their conditions, which significantly increases fall risk in the elderly. Though the risk is more tied to *specific* fall-risk-increasing drugs (FRIDs) and comorbidities than just the *number* of pills, requiring medication reviews to identify and reduce problematic prescriptions for prevention.¹

DEFINITION

Polypharmacy, the use of multiple medications (often 5+), significantly increases fall risk in the elderly due to drugs affecting balance, cognition, and mobility, especially central nervous system (CNS) drugs, psychotropics, and diuretics

The term polypharmacy is often defined as regularly taking five or more medicines

ETIOLOGY

Polypharmacy in older adults primarily arises from **multimorbidity**, with common conditions such as osteoarthritis, chronic obstructive pulmonary disease, coronary artery disease, depression, type 2 diabetes mellitus, and hypertension requiring multiple concurrent therapies. Even single complex conditions—such as resistant hypertension, myocardial infarction, heart failure, or diabetes—often necessitate combination pharmacotherapy to achieve optimal outcomes.²

Additional contributing factors include **obesity, sarcopenia, and smoking**, which increase disease burden and medication use. The expansion of evidence-based clinical guidelines, availability of newer drugs (particularly for geriatric conditions), and widespread use of preventive or prophylactic therapies further promote polypharmacy. Moreover, improved laboratory diagnostics have led to early detection of subclinical conditions (e.g., hypovitaminosis D, subclinical hypothyroidism, hyperuricemia), resulting in increased prescribing before overt disease manifestation.²

RISK FACTORS

- **Physiological Effects:** Multiple drugs can impair physical and cognitive function, leading to dizziness, confusion, sedation, and imbalance.
- **Cumulative Risk:** Each additional drug adds potential side effects, increasing the overall risk of adverse events like falls.

Key Medications (FRIDs) Linked to Falls

- **CNS Agents:** Benzodiazepines, hypnotics, antidepressants, and antipsychotics.
- **Cardiovascular Drugs:** Some antiarrhythmics and diuretics.
- **Analgesics:** Opioids.

The Role of Comorbidities & Frailty

- Polypharmacy often stems from multiple chronic conditions, which themselves increase fall risk.
- Frailty, a geriatric syndrome, is closely linked to both polypharmacy and falls, creating a dangerous triad.

Clinical Features of Polypharmacy

Polypharmacy in older adults is strongly associated with **preventable adverse drug events (ADEs)** and should always be considered when evaluating new symptoms in elderly patients. Many new clinical complaints may represent drug-related effects rather than new diseases. Early recognition helps prevent **prescribing cascades**, reduces hospitalizations, and minimizes healthcare costs.

Common clinical consequences include **falls, hip fractures, cognitive decline, confusion, and functional impairment**. The risk increases with the number of medications, especially when potentially inappropriate drugs are prescribed. Therefore, medication appropriateness must be individualized, balancing over-prescribing and under-prescribing, and considering life expectancy and goals of care.

Polypharmacy is particularly concerning in patients on **long-term opioid therapy**. Concomitant use of interacting medications—especially **benzodiazepines**—significantly increases the risk of opioid

overdose. Studies have shown higher odds of overdose when non-opioid interacting drugs are used within 90 days prior to the event, even after adjusting for opioid dosage. Combined opioid–benzodiazepine therapy also elevates the risk of sedation, confusion, falls, and hip fractures.

Overall, careful medication review, deprescribing when appropriate, and vigilant monitoring are essential to reduce adverse clinical outcomes associated with polypharmacy.³

MANAGEMENT & PREVENTION STRATEGIES

Effective management of polypharmacy requires a **Patient-Centered, systematic, and multidisciplinary approach** aimed at optimizing therapeutic benefit while minimizing harm.

1. Comprehensive Medication Review

A structured and periodic medication review is the cornerstone of management. All prescription drugs, over-the-counter medications, and herbal supplements should be evaluated for indication, dose, duplication, duration, drug–drug interactions, and adverse effects. Tools such as **Beers Criteria** and STOPP/START criteria help identify potentially inappropriate medications in older adults.^{2,4}

2. Deprescribing

Deprescribing is a planned and supervised process of dose reduction or discontinuation of medications that may no longer be beneficial or may be causing harm. It reduces adverse drug events, falls, hospitalizations, and healthcare costs. Deprescribing decisions should consider life expectancy, goals of care, functional status, and patient preferences.⁶

3. Individualized Risk–Benefit Assessment

Clinicians should balance over-prescribing and under-prescribing by assessing medication appropriateness based on comorbidities, frailty, and prognosis. Disease-specific guidelines should be cautiously applied in older adults with multimorbidity to avoid therapeutic burden.⁷

4. Interprofessional Collaboration

Collaboration among physicians, nurses, and pharmacists improves medication reconciliation, monitoring, and patient education. Pharmacist-led interventions have shown effectiveness in reducing inappropriate prescribing and adverse drug reactions.⁴

5. Patient Education and Shared Decision-Making

Educating patients and caregivers about medication purpose, dosing, potential side effects, and adherence improves safety. Shared decision-making ensures alignment of therapy with patient values and enhances treatment outcomes.⁵

6. Monitoring and Follow-Up

Regular follow-up for therapeutic response, adverse drug events, cognitive changes, falls, and functional decline is essential. Dose adjustments and simplification of regimens (e.g., once-daily dosing, fixed-dose combinations when appropriate) may improve adherence and reduce risk.

Overall, careful medication reconciliation, application of explicit prescribing criteria, deprescribing strategies, and individualized care planning are essential to reduce adverse outcomes associated with polypharmacy in older adults.

- **Medication Review:** Regular deprescribing by healthcare professionals to identify and stop unnecessary or problematic drugs.
- **Focus on Specific Drugs:** Prioritize reducing FRIDs, not just the total pill count.
- **Comprehensive Assessment:** Evaluate overall health, functional status, and fall history, not just medications.

SIMPLE TIPS FOR AVOIDING POLYPHARMACY:

1. Always read labels. It helps to prevent from drug interactions
2. Use only one pharmacy to fill prescriptions
3. Learn the medications name and what they are for
4. Prepare a list of all medications with pill strength and dose and Update it after every Physician visit
5. Carry all medications or pill bottles or prescription list during doctor visit
6. If you visit more than one physician, make sure each one should know what the other is prescribing
7. Ask primary caregiver or pharmacist to cross check the medication when you are on five or more drugs
8. Avoid combination products such as cold formulas. Ask your pharmacist to help you find a product just for the symptoms you're experiencing – not for every possible symptom
9. Never take a new drug without consulting physician about its side effects and interactions with any other drugs
10. Be familiar with your medications. Learn about them from your physician or pharmacist don't believe the information available in internet or on-line sources
11. Always take your medications exactly as directed by your health care provider; ask what to do if you miss a dose.
12. Remember the brand name not the color of pills.
13. Always use the same pharmacy for all of your prescription medications. Most pharmacies today have computer systems that will alert the pharmacist to any possible drug interactions.
14. Never stop taking a medication or alter the way (time/dosage) you take a medication without talking to your health care provider.
15. Never share your medication with someone or take medication given to you by someone other than your health care provider
16. Don't take any medication that there is no reason to take. In other words, make sure every medication you take is for a valid reason or diagnosis
17. Keeping a daily journal of what medications was taken, when and documentation of symptoms or health status on a daily basis is good practice.
18. **Annual Brown Bag**-Place all medications, including over-the-counter medications, herbals and supplements in a brown bag and bring it in to your doctor's visit.³

SUMMARY

While polypharmacy raises fall risk, it's the presence of *specific* fall-inducing medications and underlying conditions that drives this risk. Managing polypharmacy through careful prescribing and deprescribing is crucial for fall prevention in older adults.

CONCLUSION

Polypharmacy in the elderly is a significant healthcare challenge with both physical and psychosocial consequences. This case highlights how multiple medications can lead to functional decline, emotional distress, and reduced quality of life. Holistic nursing care, including medication management, patient education, and psychosocial support, plays a vital role in improving outcomes. Early identification and appropriate intervention can prevent complications and promote healthy aging.

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