



Polypharmacy: Prevalence and Associated Factors among Elderly Patients in a Tertiary Care Setting, Ajmer, Rajasthan

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Abstract

Background:

India's ageing population faces a rising burden of chronic diseases, leading to increased use of multiple medications. Polypharmacy is a major public health concern due to its association with adverse drug reactions, hospitalization, functional decline, and increased mortality among elderly individuals. Defining polypharmacy as the concurrent use of four or more medications, this study aimed to determine its prevalence and identify associated socio-demographic and health-related factors among geriatric outpatients in Ajmer, Rajasthan.

Methodology:

A cross-sectional descriptive study was conducted in a selected tertiary care hospital in Ajmer, Rajasthan. A total of 450 elderly patients aged ≥ 60 years were recruited from various outpatient departments using proportionate sampling. Data were collected using a structured questionnaire covering socio-demographic variables; source of income, number of medications currently used, and self-reported chronic morbidities. Data analysis included descriptive statistics and inferential statistics using the Chi-square test. Statistical significance was set at $p < 0.05$.

Results:

The prevalence of polypharmacy (≥ 4 medications) was 35.1%. The mean number of medications used per patient was 2.75 ± 1.35 . The most frequently reported morbidities were joint disorders (80.5%), hypertension (75.0%), and diabetes mellitus (65.8%). Polypharmacy showed a statistically significant association with increasing age ($p < 0.01$), source of income—particularly retired individuals receiving pensions ($p = 0.03$), and the presence of three or more chronic conditions ($p < 0.001$). No statistically significant association was found with gender, marital status, or educational status.

Conclusion:

The high prevalence of polypharmacy among elderly outpatients highlights the need for structured medication review and rational prescribing practices. Targeted interventions focusing on older

adults with multiple chronic conditions and stable income sources are essential to optimize medication use and improve quality of life among the elderly population in Rajasthan.

Keywords: Geriatrics, Elderly, Polypharmacy, ≥ 4 Medications, Prevalence, Ajmer, Rajasthan, Chronic Disease, Adverse Drug Reactions.

Introduction

The global demographic transition towards an ageing population is one of the defining public health challenges of the 21st century. In India, the elderly population is increasing rapidly, leading to greater demand for healthcare services and long-term pharmacological management. Ageing is commonly associated with the accumulation of chronic diseases, resulting in increased medication consumption.

Polypharmacy is defined in this study as the concurrent use of four or more medications. The World Health Organization defines polypharmacy as the use of more medications than are clinically necessary. Polypharmacy is widely recognized as a contributor to adverse health outcomes among older adults, including drug–drug interactions, inappropriate medication use, poor adherence, falls, hospitalization, and mortality.

Physiological changes associated with ageing alter drug pharmacokinetics and pharmacodynamics, increasing vulnerability to adverse drug events. Despite advances in healthcare delivery, inappropriate and excessive medication use among elderly individuals remains insufficiently addressed, particularly in regional healthcare settings such as Ajmer, Rajasthan.

Objectives

- To assess the prevalence of polypharmacy (concurrent use of ≥ 4 medications) among elderly OPD patients (≥ 60 years) in Ajmer, Rajasthan.
- To determine the association between socio-demographic and health-related factors and the prevalence of polypharmacy.

Hypothesis

H₁: Polypharmacy (use of four or more medications) will be prevalent among elderly patients aged 60 years and above attending the outpatient departments in Ajmer, Rajasthan.

H₂: There will be a significant association between selected socio-demographic and health-related factors and the occurrence of polypharmacy among elderly outpatient department patients.

Methodology

A hospital-based cross-sectional descriptive study was conducted in the outpatient departments of a selected tertiary care hospital, Ajmer, Rajasthan. A total of 450 elderly patients aged ≥ 60 years were included using proportionate sampling across eight departments. Data were collected through face-to-face interviews using a structured questionnaire. Polypharmacy was defined as the concurrent use of four or more medications. A p -value < 0.05 was considered statistically significant.

Results

Table 1: Socio-Demographic Profile of the Respondents (n = 450)

Demographic Factor	Frequency (n)	Percentage (%)
Age Group (Years)		
60–65	130	28.9
66–70	110	24.4
71–75	90	20.0
76–80	70	15.6
≥81	50	11.1
Gender		
Male	230	51.1
Female	220	48.9
Place of Residence		
Rural	320	71.1
Urban	130	28.9
Source of Income		
Still Working	65	14.4
Retired & Pensioner	120	26.7
Retired, No Pension	145	32.2
No Source of Income	120	26.7

Table 2: Morbidity Profile of the Study Population (n = 450)

Chronic Disease	Frequency (n)	Percentage (%)
Joint Disorders (Arthritis / Musculoskeletal)	362	80.5
Hypertension (HTN) & CVDs	338	75.0
Diabetes Mellitus (DM)	296	65.8
Respiratory Disorders (COPD / Asthma)	270	60.0
Depression / Sleep Disorders	145	32.2

Table 3: Prevalence of Polypharmacy

Medication Use	Frequency (n)	Percentage (%)
Taking ≥ 4 Medications (Polypharmacy)	158	35.1
Taking < 4 Medications	292	64.9
Total	450	100.0

Mean number of medications used = 2.75 (SD = 1.35)

Table 4: Association between Polypharmacy and Socio-Demographic Variables

Socio-Demographic Variable	χ^2	df	p-value	Significance
Age Group	18.52	4	0.001**	Significant
Gender	2.10	1	0.147	Not Significant
Educational Status	3.95	4	0.413	Not Significant
Marital Status	2.05	2	0.358	Not Significant
Family Status	1.15	2	0.562	Not Significant
Place of Residence	3.55	1	0.060	Not Significant
Source of Income	9.08	3	0.028*	Significant

* Significant at $p < 0.05$

** highly significant at $p < 0.01$

Nearly 85% of elderly patients with three or more chronic conditions were found to have polypharmacy ($p < 0.001$).

Discussion

The present study identified a polypharmacy prevalence of 35.1% among elderly OPD patients in Ajmer, Rajasthan. This finding is comparable with studies conducted in other parts of India and developing countries. The high prevalence of joint disorders, hypertension, and diabetes mellitus explains the increased medication burden observed.

The significant association between polypharmacy and advancing age reflects cumulative disease burden and prolonged pharmacotherapy. The association with stable income, particularly among pensioners, suggests that financial accessibility influences medication continuation. The lack of association with gender, marital status, and education indicates that biological and economic factors play a greater role than social determinants.

Limitations

- ✓ Cross-sectional design limits causal inference.
- ✓ Medication data were self-reported, which may introduce recall bias.
- ✓ Medication appropriateness was not assessed using explicit tools.

Conclusion

Polypharmacy is prevalent among elderly outpatients in Ajmer, Rajasthan, primarily driven by advanced age, multiple chronic conditions, and stable income sources. The findings emphasize the need for structured medication review, deprescribing strategies, and geriatric-focused care to promote rational medication use.

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