WJPMR, 2025, 11(12), 106-111 **Research Article** **Impact Factor: 6.842**

WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH

www.wjpmr.com

ISSN (O): 2455-3301
ISSN (P): 3051-2557
Coden USA: WJPMBB

ASSESSMENT OF POLYPHARMACY PRESCRIPTION AND MEDICATION ADHERENCE AMONG ELDERLY PATIENTS

Pinki Kumari*, Kuldeep Choubisa

Department of Medicine, Geetanjali Medical College and Hospital, Udaipur, Rajasthan, India.

***Corresponding Author: Pinki Kumari**

Department of Medicine, Geetanjali Medical College and Hospital, Udaipur, Rajasthan, India.

DOI: https://doi.org/10.5281/zenodo.17746427

How to cite this Article: Pinki Kumari*, Kuldeep Choubisa. (2025). Assessment of Polypharmacy Prescription and Medication Adherence Among Elderly Patients. World Journal of Pharmaceutical and Medical Research, 11(12), 106–111.

Article Received on 29/10/2025 **Article Revised on 19/11/2025** **Article Published on 01/12/2025**

ABSTRACT

Polypharmacy as the routine use of five or more medications. Polypharmacy occurs in all age group patient but it is a big concern and important health issue in elderly because of several reasons. The increasing number of elderly populations in developing world including India is not any doubt built a pressure on socio-economic including increased health problems and health care expenses. It also refers to the 'use of multiple medications in a patient, commonly an older adult, the use of numbers of different medications by individual patient at same time. Prescription assessment is an important part in elderly patients to avoid adverse effects that can occur due to Polypharmacy. It aims to optimize prescription for elderly by decreasing doses for several drugs or stopping drugs that are not in use.

KEYWORDS: Polypharmacy, Medication Adherence, Geriatric Care, Drug Utilization.

INTRODUCTION

The 'Polypharmacy' refers to the 'use of multiple medications in a patient, commonly an older adult, the use of numbers of different medications by individual patient at same time. It is related with several outcomes such as side effects, non-adherent to therapy, drug interactions (DI), also an increased risk for geriatric syndromes like falls, cognitive impairment and mortality. Polypharmacy is linked with high risk of adverse drug interactions. It is additionally associated with increased medication adherence challenges.[1] The common symptoms that occur in Polypharmacy are often tiredness, sleepiness, decreased alertness, constipation, diarrhoea, incontinence, loss of appetite, confusion, falls, depression, lack of interest in your usual activities, weakness, tremors, visual or auditory hallucinations, anxiety, excitability, and dizziness. In reference to oral health the most common adverse effect are dry mouth and Xerostomia.[2] Polypharmacy occurs in all age group patient but it is a big concern and important health issue in elderly because of several reasons. The increasing number of elderly populations in developing world including India is not any doubt built a pressure on socio-economic including increased health problems and health care expenses.[3] It's now a worldwide phenomenon as in almost every country elderly population is growing rapidly. Elderly patients are at an increased risk for adverse drug events (ADEs) and drug interactions.[4] Many factors contribute to ADEs in the elderly, one such factor is the number of medications prescribed. The possibilities for an adverse event increase as the number of prescribed drugs increases.[5] Disease-specific prescribing guidelines, increasing multi-morbidity due to aging population and lack in evidence of deprescribing approaches is common in elderly which give rise to polypharmacy.[6] The elderly population with increasing age Multiple chronic disease like hypertension, diabetes mellitus, arthritis, chronic heart diseases, renal diseases etc represent a notable challenge for health authorities.[7] Elderly patients are at serious risk for adverse drug reactions (ADRs) due to metabolic deterioration and decrease drug clearance because of ageing. Less organ function in elderly is more vulnerable to diseases that results in more drug consumption (polypharmacy). Polypharmacy can decrease quality of life, increase physical problems, drug interactions, side effects, and medical problems and also the value of treatment. Moreover, it also increases the incidence of fall, number and rate of hospital stay, length of stay, frequent hospitalizations, and therefore the death rate in

elderly population.[8] The explanation for drug complications and interaction is increases due to pharmacokinetics and pharmacodynamics alternation because of age related physiological changes in elderly. Nowadays, practices like use of mail service pharmacies have increased and also time available has reduced for the pharmacist to provide services like patient counselling, so they present challenges for the pharmacist to assess and detect the issues regarding medication adherence effectively. However, there is a unique role for pharmacist in the medication management system which places them in a position which positively affects the medication adherence. All of this needs a continued review of all new information of new concepts and ideas to be incorporated in the counselling and intervention programs for the patients. The aim of proposed work is to assess polypharmacy prescriptions among elderly patients at tertiary care hospital.[9] The assessment of medication adherence among elderly patients at tertiary care hospital. The work was also assessed the various risk factors associated with polypharmacy in elderly patients. The work was use to optimize prescription for elderly by decreasing doses for several drugs or stopping drugs that are not in use. Inappropriate counselling regarding medication can lead to undesirable effect of drugs in elderly patients. Due to higher risk of adverse drug events in older population because of the higher number of drug and aging process is associated with physiological changes such as weight loss, deterioration of liver, renal or liver excretion, decreased cardiac output, body composition remodeling etc. There are more chances that those events can lead to complications in elderly patients therefore; we would like to assess the factors which are responsible for the development of the polypharmacy over time. The lack of evidence from longitudinal, prospective study limits are understanding of epidemiology of polypharmacy and most likely used to underestimating the true burden of medication used in older patients. This study can also be helpful in finding different strategies to decrease overall burden of polypharmacy in elderly patients at some extent.

MATERIAL AND METHODS

A predesigned patient data collection form was prepared for the study of Polypharmacy in elderly patients' information.

The data collection form encompasses various essential components, including patient demographic details (name, age, sex), physician information (name, qualifications, specialization), prescription date, current medical condition, medical history, signs and symptoms, current prescription medications (drug, dose, frequency, indication), ongoing drug products or nutritional supplements, dosage regimens, medical records of inpatients maintained by Geetanjali Hospital in Udaipur, informed consent forms available in both Hindi and English, and the Morisky Medication Adherence Scale (MMAS).

Methods: The study conducted and observe at Medicine department with 150 bedded male and female at Geetanjali Hospital, Udaipur, Rajasthan. The study duration is six months. This covers an in-depth review of literature, composing project proposal and documents required for the study (which areInformed consent form in English and Hindi, predesigned data collection form, Morisky Medication Adherence Scale (MMAS) in English and Hindi), obtaining approval from Ethical committee, obtaining the IRB approval, data collection, following protocols of the study, entryof data, analysis of the data, discussion and conclusion. The population of patients' elder male and female patients aged >60 years the sample size for study was 218 patients.

Parameters

- Population size (for finite population correction factor or fpc) (N): 500
- Hypothesized % frequency of outcome factor in the population (p): 50% +/-5
- Confidence limits as % of 100(absolute +/- %) (d): 5%
- Design effect (for cluster surveys-DEFF): 1

Exclusion Criteria: The out-patients and those coming for follow-ups only. The other pregnant, breastfeeding and lactating mothers.

Conduct of study

Source of Data: The particulars were collected from patients medical file admitted to Medicine ward at Geetanjali Medical College and Hospital.

Registration and Ethics approval: GU/HREC/EC/2022/2038

Method of collection of data: Patients with 5 and more medications prescribed during their stay in the hospital were screened by the study team of their inclusion and exclusion criteria. Before employing the patients, verification of the eligibility requirements was done. A predesigned patient data collection form was used to gather and document essential information, including patient demographics (name, age, sex), physician details (name, qualifications, specialization), prescription date, current medical condition, medical history, signs and symptoms, current prescription medications (drug, dose, frequency, indication), ongoing drug products or nutritional supplements, and dosage regimens.

The data was collected as follows-

The study team visited the medicine department and the objectives, procedures and need of the study were explained to the physicians of that department. The study team screened the possible medical records. Predesigned patient data collection form was used to collect the detailedinformation of the patients and their prescriptions to assess polypharmacy.

Medication adherence was evaluated using the MMA Scale, which consisted of eight questions, followed by a

scoring system with three categories: less than 6 indicating low adherence, 6 to 8 representing medium adherence, and greater than 8 signifying high adherence. All relevant data were gathered from each patient's medical records within the medicine departments.

RESULTS

This observational type of study was done in the given population of 218 elderly patients. To assess polypharmacy prescription among elderly patients at tertiary care Hospital. The was done to study the polypharmacy prescription, its prevalence, medication adherence and various risk factors associated with polypharmacy in elderly patients. The following outcomes were achieved by the study which is reported in graphical and tabular form. The Age group (in years) of the study population shown in figure 1 studied the maximum number of study population of elderly patients were between the age group of 60- 69 which is 64.20% and only 1% of elderly patients belonged to more than 88 years of age. The socio-demographic detail of the study population is described in graphical form, which includes: age, gender, marital status and residential status. The figure 2 explained that the maximum number of patients belong to rural area which comprised about 64%. Majority of the elderly patients were married (85%). Male elderly patients were in majority comprising about 60% and in minority female patients about 40%. The figure 3 optimized only 6% patients were alcoholics and 12% were smokers thus, it cannot be clearly explained that these factors influence polypharmacy. In the study population the percentage of patients as shown in figure. 4 with loss of appetite were 32%, inadequate sleep pattern was 24%, and having abnormal bladder and bowel movement were 14%. The above pie chart (figure. 5) briefs about the chief complaints of the patients in our study population. The majority of the patients complained about pain, followed by fever and generalized weakness. The table 1 explained the information about diagnosis of the study population based on different organ system. It shows that majority of the patients had cardiovascular diseases- 22.47%, followed by Renal & Urinary diseases- 19.72%, Gastrointestinal diseases- 16.5%, endocrine diseases 12.84%, and the least from Hepatic system about 3.66%.

DISCUSSION

Polypharmacy is an important concern in elderly population. Assessment of medication prescription in individual is required as to control or minimize the polypharmacy. Monitoring of prescription can assess if any improvement is required in term of polypharmacy. As it can directly affect elderly population. Minimizing polypharmacy is necessary to reduce risk associated with it and for improving health. Adherence to prescribed medications is defined as the degree to which a person's behavior confirms to medical and pharmacological advice. Adherence refers to a positive action in which the patient is sufficiently motivated to comply with the prescribed treatment because of a perceived advantage. In the present study 218 elderly patients of above 60 years of age with all disease conditions and polypharmacy prescription medications were assessed for polypharmacy prescription assessment and for degree of adherence for prescription medications. In our study it indicates that the polypharmacy was highest in the age group of 60-69 years about 64.20%. In the other study conducted by Rohini Gupta et. al, polypharmacy was highest in age group 76-80 years, next highest with 65-70 years of age group. Comparing gender, it was observed that male ratio was more w.r.t female same as previous study. In our study mostly prescribed medications were PPI about 86.23% and highly used formulations were Injections about 99.08%. These observations in our study were in accordance with the observations made in the other studies. The observations explained that the most commonly used group of medications were PPI about 23.4% in tablet forms. Mostly used medications group was Antihypertensives about 35.4%. To assess risk factors associated with polypharmacy we used certain parameters which included lack of primary care physician in which we observed that 50.04% elderly patients neglected minor health conditions. 20.64% patients had more than 2 multiple chronic conditions. 36.69% had 5-8 days of hospitalization stay. 77.52% visited tertiary care hospital. 52.22% of the patients belonged to BPL. Ability to function was poor in 43.12%, very poor in 14.22%, and average in 42.66%. Use of self-medication was observed in about 12.85% patients and 53.66% used multiple pharmacies. All these factors directly influence the polypharmacy to increase in elderly patients. In our study the average number of medications prescribed were 10.57. The optimum therapeutic outcome involves a good patient adherence to the prescribed medications, effective measures to ensure a high degree of adherence are to be implemented. The patient adherence to medications prescribed can be thus improved by reducing the number of medications therefore by decreasing polypharmacy.

Limitations: As it is a hospital-based study extrapolation is not possible and the study may not be representing patients from all socioeconomic backgrounds. Only in-patients were involved in this study, and the sample size used were small as compared with other studies.

Table 1: Diagnosis based on different organ system.

S. No	Organ system	Percentage (%)
1	Respiratory system	9.17
2	Gastrointestinal system	16.05
3	Cardiovascular system	22.47
4	Renal & Urinary system	19.72

5	Reproductive system	5.5
6	Hepatic system	3.66
7	Endocrine system	12.84
8	Other systems	37.15

Table 2: Assessment of risk factor associated with polypharmacy.

Risk factors associated with polypharmacy		**Percentage**
Lack of primary care physician	Due to residing in rural area	24.31%
	Due to transport unavailability	6.42%
	Due to financial problems	18.80%
	Neglecting minor health conditions	50.45%
Multiple chronic conditions (past medical history)	HTN	12.84%
	DM	5.04%
	HTN+DM	6.40%
	Thyroid/COPD/UTI & others	20.64%
	HTN+DM+Thyroid/COPD/UTI & others	3.20%
	HTN+Thyroid/COPD/UTI & others	4.12%
	DM+Thyroid/COPD/UTI & others	4.58%
Duration of hospitalization	1-4 days	12.38%
	5-8 days	36.69%
	8-12 days	23.39%
	13-16 days	27.52%
Visiting multiple health care systems	Tertiary care hospital	77.52%
	PHC	32.56%
	CHC	40.82%
	Private clinic	25.22%
	PHC+CHC	21.55%
	TCH+CHC	44.03%
	TCH+PHC	33.94%
	TCH+PHC+CHC	34.86%
	TCH+PHC+Private clinic	28.89%
	TCH+Private clinic	48.16%
Socioeconomic status	APL	47.71%
	BPL	52.29%
Ability to function (self-limited activities)	Very poor	14.22%
	Average	42.66%
	Poor	43.12%
Self-medication (use of OTC medications or borrowing from family or friends)	Yes	12.85%
	No	87.15%
Use of multiple pharmacies	Yes	53.66%
	No	46.34%

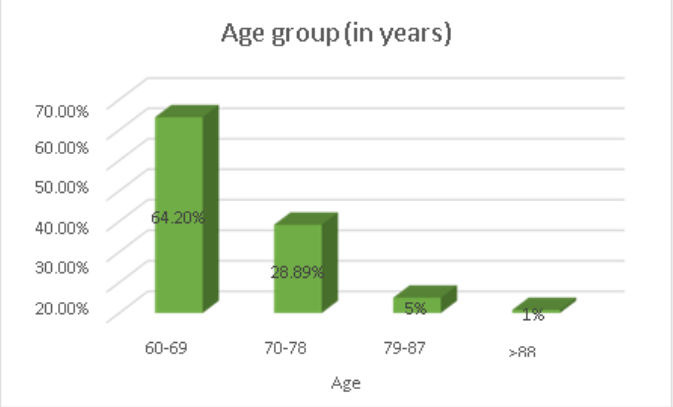

Figure 1: The Age group (in years) of the study population.

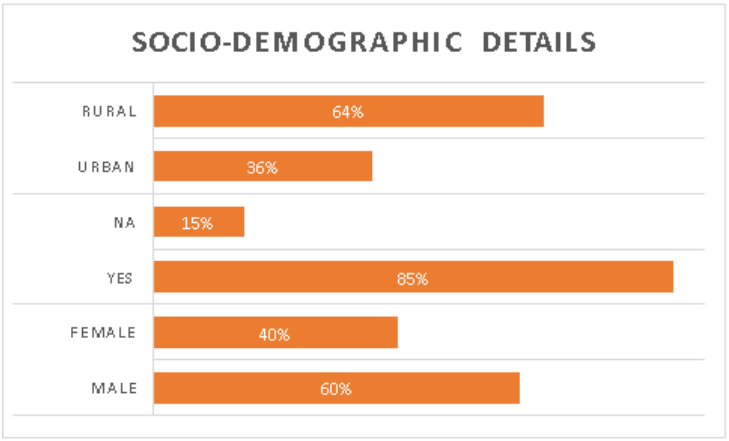

Figure 2: The socio-demographic detail of the study population.

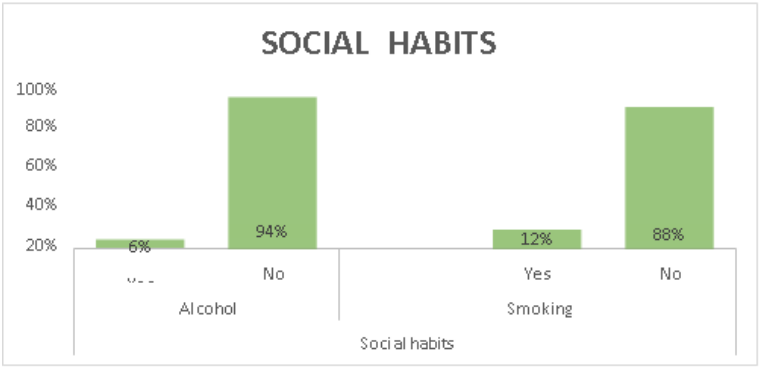

Figure 3: Social Habits.

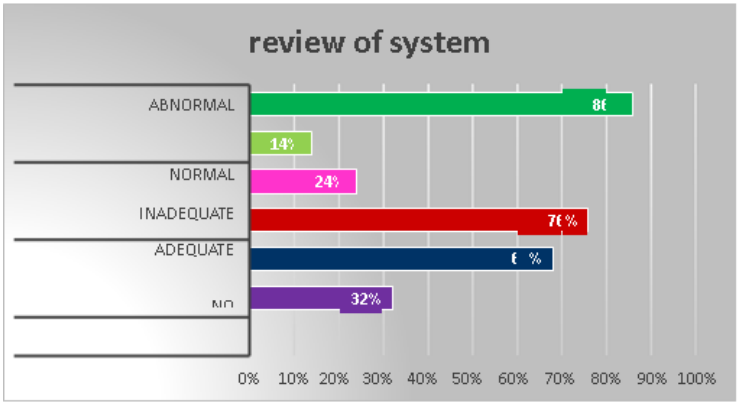

Figure 4: Characteristics of elderly patients.

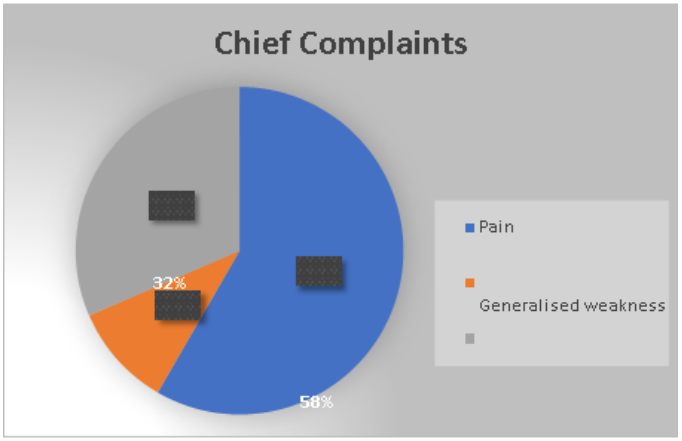

Figure 5: Chief complaints of the patients.

CONCLUSION

In our study, polypharmacy was found in all the patients enrolled and highest in the age group 60-69 years. The majority of the patients complained about pain, followed by fever and generalized weakness. The factors assessed associated with polypharmacy directly influence the polypharmacy increase in elderly patients. Thus, to minimize or to control polypharmacy, more of such studies are needed to be done in this field to address the issue of polypharmacy. Moreover, there also is a need for inculcating a more of a responsive attitude among healthcare professionals toward the elderly individuals so that at every follow-up visit their drug regimens are thoroughly evaluated to prevent polypharmacy-related problems and to improve the quality of life of elderly individuals. The present study confirms the existence of low adherence to the prescribed medications among the elderly patients. However, there was variation in the reported rates of degree of adherence (low/medium/high), probably due to differences in methods of the study.

REFERENCES

1. Fauziyah S, Radji M, Andrajati R. Polypharmacy in elderly patients and their problems. Asian J Pharm Clin Res., 2017; 10(7): 44-9.
2. Payne RA. The epidemiology of polypharmacy. Clinical medicine, 2016; 16(5): 465-9.
3. Dagli RJ, Sharma A. Polypharmacy: a global risk factor for elderly people. Journal of international oral health: JIOH., 2014; 6(6): i.
4. Priya S, Gupta N, Chauhan H. Polypharmacy-Prevalence and risk factors among elderly patients in government medical college, Tanda, Distt Kangra (HP). International Journal of Health and Allied Sciences, 2015; 7: 1071-571.
5. Davies LE, Spiers G, Kingston A, Todd A, Adamson J, Hanratty B. Adverse outcomes of polypharmacy in older people: systematic review of reviews. Journal of the American Medical Directors Association, 2020; 21(2): 181-7.
6. Nobili A, Garattini S, Mannucci PM. Multiple diseases and polypharmacy in the elderly: challenges for the internist of the third millennium. Journal of comorbidity, 2011; 1(1): 28-44.
7. Sharma P, Gupta N, Chauhan H. Prevalence of polypharmacy: Comparing the status of Indian states. Indian Journal of Community and Family Medicine, 2019; 5(1): 4-9.
8. Rankin A, Cadogan CA, Patterson SM, Kerse N, Cardwell CR, Bradley MC, et al. Interventions to improve the appropriate use of polypharmacy for older people. Cochrane Database of Systematic Reviews, 2018(9).
9. Dobbels F, Damme-Lombaert RV, Vanhaecke J, Geest SD. Growing pains: Non-adherence with the immunosuppressive regimen in adolescent transplant recipients. Pediatric transplantation, 2005; 9(3): 381-90.