

Home Medication Review in Geriatric population in Gandhinagar

Saloni Patel*, Shrushti Patel*, Srushti Patel*, Viren Patel*, Dr. Priyanshee Rathod**, Dr. Shrikalp Deshpande***

* Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.

** Assistant Professor, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.

*** Principle in-charge, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.

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Abstract- With advanced age there is an increase in multiple disease states, with a consequent increase in the number of medicines taken. The elderly therefore need regular review. Home Medication Review (HMR) Program was pioneered by Australian Government in the year 2001. HMR is a collaborative service involving the general practitioner, pharmacist and the patient. This study was carried out to assess medication taken, adherence. The main objectives of this study are to collect demography and check disease prevalence, study medicine use and to assess medication adherence in geriatric population.

Results: 102 patients of age greater than 60 years participated in the study. 48 were females (47.05%) and 54 were males (52.95%). The most prevalent chronic disease in geriatric population is Hypertension (50%) followed by Diabetes mellitus (28%). The average number of disease per patient is 1.42 ± 0.6 . A total of 144 medicines of different doses and combinations are identified as being taken, an average of 3.18 medications per patients. The average Medication Adherence Rating Scale (MARS) score at baseline is 9.74 ± 0.64 and in follow up is 9.93 ± 0.25 , while average pill count percentage at first follow up is 99.35 ± 19.5 and in last follow up is 99.92 ± 17.053 , indicating that all patients are adherent. **Conclusions:** This study gathered demographic and medication-usage data. All patients are adherent to their medications; and their caretakers also play a vital role in maintaining their medication adherence. Further studies can be carried out on a larger subject population and using patient education as an intervention so as to give an overview of the health related issues & to adopt suitable measures to uplift the health of the masses.

Index Terms- Home Medication Review, geriatric population

I. INTRODUCTION

Globally, the population is ageing and the World Health Organisation (WHO) predicts that, by 2050, the population aged 60 years or more will double, whilst those aged 80 years or more will number 400 million persons.^[1] This extension of the lifespan is looked upon as a triumph of medical advances, access to better

treatments as well as a focus on preventive therapies; the use of pharmacotherapy is the key contributor to this.^[2]

With advanced age there is an increase in multiple disease states, with a consequent increase in the number of medicines taken.^[3]

Chronic diseases are defined as diseases which have one or more of the following characteristics: they are permanent, leave residual disability, are caused by non-reversible pathological alteration, require special training of the patient for rehabilitation, or may be expected to require a long period of supervision, observation or care.^[4] The elderly suffers from a variety of chronic conditions and their changes demands a different set of medication regimen. Elderly patients are particularly vulnerable and they therefore need regular review. A pharmacist led medication review is found having the capacity to identify and resolve pharmaceutical care issues, use of health and social service.^[3]

Home Medication Review (HMR) Program was pioneered by Australian Government in the year 2001. The HMR program is designed to help those people living at home to maximize the benefits of their medication regimen and prevent the harmful consequences of medication misuse.^[5] HMR is a collaborative service involving the general practitioner, pharmacist and the patient.^[3]

Adherence to medication is a crucial part of patient care and indispensable for reaching clinical goals. The WHO, in its 2003 report on medication adherence, states that "increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatment". By opposition, non-adherence leads to poor clinical outcomes, increase in morbidity and death rates, and unnecessary healthcare expenditure.^[6] The WHO defines adherence as "the extent to which the persons' behavior (including medication-taking) corresponds with agreed recommendations from a healthcare provider".^[4] Currently none of the available methods can be considered as a gold standard and the combination of methods is recommended.^[6]

Chronic diseases are of great health concern in India and about a few million individuals are influenced by different chronic diseases. Trained pharmacist conducting HMR will be helpful in

implementing prescription audit in India, similar to the situation in Australia to help the Indian clinical pharmacist to contribute further to the health care needs of their communities.^[7]

Statistics reveals that in Gujarat, 8.3% of population is over 60 years old.^[8] In 2018, the Gujarat Government started HMR program under the name “Senior citizen home visit scheme” in GMERS Civil Hospital, Gandhinagar.^[9]

Conducting a review of medicine in patients’ own home is likely to be the most convenient for the patient and provides the opportunity to understand their medicine-taking in the context of the home environment.^[10] Patients are interviewed in their own homes by a clinical pharmacist, to recover relevant information from their homes that are of value.^[11]

The aim of this study is to visit patient’s home, collect demography and medication details and check their medication adherence.

II. MATERIALS AND METHODS

Objectives

The main objectives of this study are:

- To collect demography and check disease prevalence.
- To study medicines used during home medication review.
- Assess medication adherence.

Inclusion criteria

- Patients of 60 years of age and above.
- Patients of either gender (male and female).
- Patients with any chronic diseases.
- Patients who have consented to participate in the study.

Exclusion criteria

- Non-permanent residents.
- Critically ill and Psychiatric patients.

SAMPLE SIZE:

102 patients who met the inclusion and exclusion criteria were enrolled in the study.

STUDY PROCEDURE

In this study, 4 visits were conducted at every patient’s home who enrolled in the study at an interval of 15 days.

VISIT 1 (BASELINE – DAY 1)

- Patients are recruited after agreement of consent.
- Patients or their caretakers are interviewed for demographic details, clinical details and medicines using data collection form and medication chart.
- If they are not willing to do so, patient’s file was used as primary source of information.
- Patients were assessed for medication adherence using MARS form. The questions in MARS scale were asked to the patients in Gujarati. Pill count was not performed in the first visit and the patients were instructed to preserve the strips for next follow up.

VISIT 2 (1ST FOLLOW UP – DAY 16)

- Medication adherence was assessed using MARS form and pill count form.

VISIT 3 (2ND FOLLOW UP – DAY 31)

- Medication adherence was assessed using MARS form and pill count form.

VISIT 4 (3RD FOLLOW UP – DAY 46)

- Medication adherence was assessed using MARS form and pill count form.

Table 1: Activity chart

Sr. No.	Activity during visit	Visit 1 (Baseline -Day1)	Visit 2 (Day 16)	Visit 3 (Day 31)	Visit 4 (Day 46)
1	Data collection	√			
2	Medication Chart	√			
3	MARS	√	√	√	√
4	Pill count		√	√	√

Data Analysis

MARS score calculation: If the score is > 5, then the patient is adherent and if the score is <5, then the patient is non-adherent.^[12]

Pill counts measure compliance by comparing the number of doses remaining in a container with the number of doses that should remain, if the patient’s compliance were perfect.

$$\% \text{ adherence} = (\text{Total no. of doses the patient consumed since last appointment}) / (\text{Total no. of doses to be consumed since last appointment}) * 100$$

If % adherence >80%, the patient is adherent.

If % adherence is between 70% and 80%, the patient is partially adherent.

If % adherence <70%, the patient is non-adherent.^[13]

III. RESULTS

Demographics

102 patients met the inclusion criteria and participated in the study. Out of 102 patients, 48 were females (47.05%) and 54 were males (52.95%) and the mean age of the patients is 72.22 years. The average BMI is 25.07.

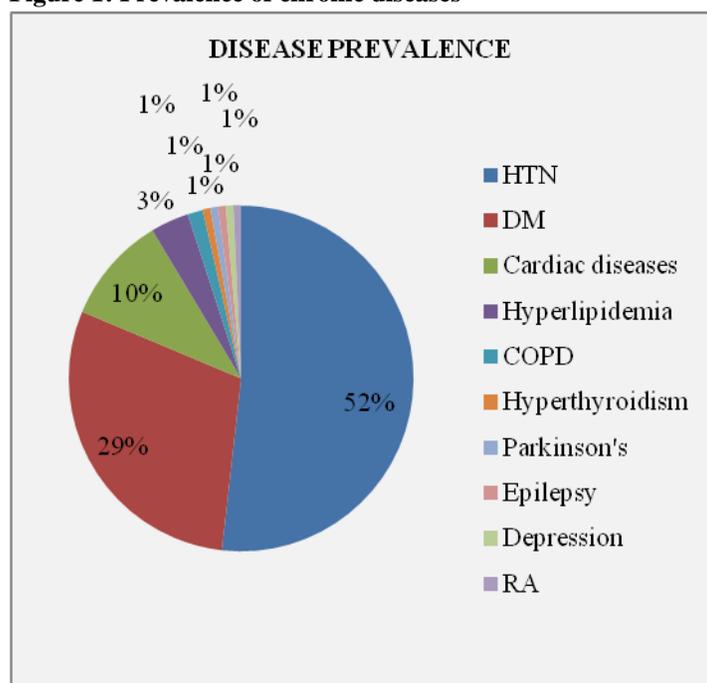
Table 2: Patient characteristics at baseline

Patient characteristics	Baseline data
Females (in percentage)	47.05%
Males (in percentage)	52.95%
Age (Mean ± SD)	72.22 ± 8.45
BMI (Mean ± SD)	25.07 ± 4.36
Number of diseases per patient (Mean ± SD)	1.42 ± 0.6
Number of medicines per patient (Mean ± SD)	3.18 ± 2.32

Disease Prevalence

The most prevalent chronic disease in geriatric population is Hypertension (50%) followed by Diabetes mellitus (28.47%). The prevalence of Cardiac diseases, Hypothyroidism and Hyperlipidemia is 9.72%, 3.47% and 3.47% respectively. Other diseases such as COPD, Hyperthyroidism, Parkinson's disease, Depression, Epilepsy and Rheumatoid arthritis had a prevalence of 0.69%.

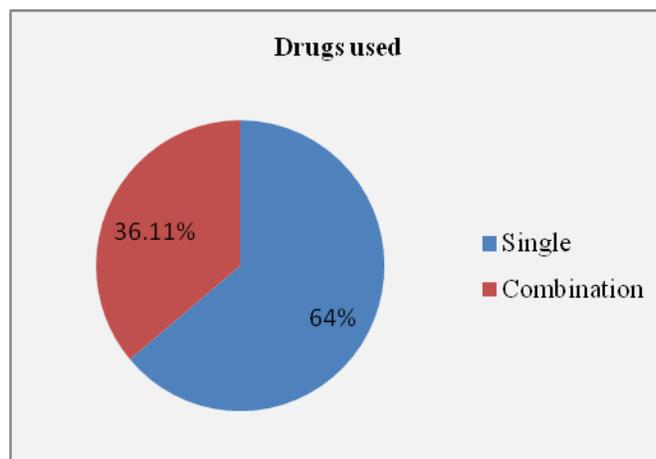
Figure 1: Prevalence of chronic diseases



Medication use

A total of 144 medicines of different doses and combinations are used by the patients. Out of 144 medicines, 92 medications are mono therapy while 52 medications are in combination.

Figure 2: Drug therapy regimen



Antihypertensive drugs are most prescribed (21.73%). The other commonly used drugs are Antidiabetic drugs (10.86%), Multivitamins (8.69%), Antianginals (7.6%) and Analgesics (4.34%). Out of 102 patients, 6 patients (5.88%) also consumed Ayurvedic medicines.

Table 3: Class wise drug distribution

Drug class	Number of drugs	Percentage (in %)
Antihypertensive	20	21.73
Antidiabetic	10	10.86
Multivitamins	8	8.69
Analgesics	4	4.34
Anti Parkinson's	4	4.34
Antianginal	7	7.6
Thyroid products	3	3.26
Lipid lowering agents	3	3.26
Antipsychotics	3	3.26
Antidepressants	2	2.17
Immunosuppressants	2	2.17
Corticosteroids	2	2.17
Antiasthmatics	2	2.17
Antibiotics	2	2.17
Antigout	2	2.17

Others	12	13.04
Total	92	

Medication Adherence

Out of 102 patients, all of them are adherent. The mean MARS score at baseline is 9.74 ± 0.64 and at last follow up is 9.93 ± 0.25 .

Table 4: MARS score during all visits

	MARS score at baseline	MARS score at 1 st follow up	MARS score at 2 nd follow up	MARS score at 3 rd follow up
Mean \pm SD	9.74 \pm 0.64	9.55 \pm 0.63	9.94 \pm 0.23	9.93 \pm 0.25

The mean pill count at first follow up was found to be (99.35 ± 19.5) and at last follow up was found to be (99.92 ± 17.053). No cases of non-adherence are seen.

Table 5 : Pill count score during all visits

	Pill count at 1 st follow up	Pill count at 2 nd follow up	Pill count at 3 rd follow up
Mean \pm SD	99.35 \pm 19.5	99.98 \pm 17.05	99.92 \pm 17.053

IV. DISCUSSION

In this study, the average age of geriatric patients involved is 72.2 years. Hypertension (50%) is the most prevalent chronic disease, followed by diabetes mellitus (28.47%). A similar prevalence pattern was observed in a study conducted by R. Anchala et al.^[14] with 33.8% hypertension prevalence. In a study conducted by R. Anjana et al.^[15], the prevalence of diabetes was found to be 7.3%.

A total of 144 medicines were prescribed from 16 different classes of drugs. Out of 144 medicines, 92 are single drugs while 52 were in combination. On an average, 3.18 medicines are prescribed per patient. In a study conducted by M Graffen et al.^[16], an average of 8.4 medications per patient was identified. 6 patients (5.88%) also consumed Ayurvedic medicines.

In this study, MARS and pill count, both methods are used to check patients' medication adherence. The average MARS score at baseline is 9.74 ± 0.64 and in follow up is 9.93 ± 0.25 , while average pill count percentage at first follow up is 99.35 ± 19.5 and in last follow up is 99.92 ± 17.053 . In a study conducted by S. Ponnusankar et al.^[13] the average pill count score of the patients was found to be 84.71 ± 11.8 . Baseline pill count was not conducted because the medicine strips were not preserved by the patients, and they were then instructed to preserve the strips for follow up visits. All patients are adherent to their medications.

V. CONCLUSION

This study gathered demographic and medication-usage data. Male participants are more as compared to female participants.

The most common diseases found prevailing in geriatrics were Hypertension (50%) and Diabetes Mellitus (28.47%). The most commonly used drugs were Antihypertensive, Antidiabetic drugs, Multivitamins, Antianginals and Analgesics. Few patients also preferred to take alternative therapy like Ayurvedic medicines and home remedies. All patients are adherent to their medications; and their caretakers also play a vital role in maintaining their medication adherence. The elderly patients are most at risk of developing drug related problems. HMR can hence be a boon to them. So people should be made aware about this concept and further studies can be carried out on a larger subject population. Patient education can be used as an intervention so as to give an overview of the health related issues & to adopt suitable measures to uplift the health of the masses.

VI. LIMITATIONS

- Patient unavailable at the time of follow up visit (7 patients were unavailable at the time of follow up but the follow up was conducted at some other day).
- Throwing away of medicine strips posed a difficulty in pill counting (4 patients out of 102).
- Patients inflated their compliance or they were reluctant to admit their non-compliance.

VII. ACKNOWLEDGMENT

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VIII. ETHICAL APPROVAL

This study was approved by KBIEC- K. B. Institute Ethics Committee.

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Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.

Correspondence Author – Saloni Patel, Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat. Email Id: sonapatel 30@yahoo.in

AUTHORS

First Author – Saloni Patel, Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.
Second Author – Shrushti Patel, Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.
Third Author – Shrushti Patel, Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.
Fourth Author – Viren Patel, Pharm D Intern, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.
Fifth Author – Dr. Priyanshee N. Rathod, Assistant Professor, Department of Pharmacology and Pharmacy Practice, K. B. Institute of Pharmaceutical Education and Research, Gandhinagar, Gujarat.
Sixth Author – Dr. Shrikalp S. Deshpande, Principle in-charge, Department of Pharmacology and Pharmacy Practice, K. B.

