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Research Article

A Community Based Study To Assess The Impact Of Home Medication Review On Medication Adherence Among Hypertensive Geriatric Patients Of Dakshina Kannada

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ABSTRACT

Background: Hypertension is prevalent in geriatric, and non-adherence to prescribed medications can significantly impact their health and quality of life. Home Medication Review (HMR) is an emerging intervention aimed at enhancing medication management and improving adherence among this vulnerable population. This study explores the influence of HMR on medication adherence in hypertensive geriatric patients in the Dakshina Kannada region of India. **Methods:** A community-based research design was employed, involving a sample of 50 hypertensive geriatric patients of Dakshina Kannada. Medication adherence was assessed through MMAS-8 scale and the subjects were classified into high, medium and low. Structured interviews and questionnaires were used to gather data on socio-demographic characteristics, health status, and patient perspectives on HMR. Data analysis included statistical test (Student t-test) to determine the impact of HMR on medication adherence. **Results:** Preliminary results indicate a positive correlation between HMR and improved medication adherence among participants. During the pre-intervention phase, it was found that 40% had low medication adherence. Intervention study included interventions by oral counselling using PIL, pill card, pill box, medication reminder alarms and mobile apps according to the categories mentioned above. After 2 months, post-intervention study showed improvement in medication adherence i.e., low medication adherence was reduced to 22%. The post intervention phase exhibited higher rates of adherence which showed that patients receiving HMR were more likely to achieve and maintain better medication adherence.

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Conclusion: Study concludes that HMR has a positive impact on medication adherence among participants. The findings underline the importance of proactive interventions aimed at improving medication management and the potential benefits, into healthcare services for this vulnerable population. These results may inform policy decisions and healthcare strategies to enhance the well-being and health outcomes of hypertensive geriatric patients in the region.

INTRODUCTION

Medication adherence is a major concern in older patients with chronic diseases like hypertension. Noncompliance can result in treatment failure, increased hospital readmissions and increased healthcare costs[1]. A possible approach to improve adherence is by implementing pharmacist led HMR[2].

HMR is a consumer-focused, structured and collaborative health care service provided in the community setting, to optimize quality use of medicines and patient understanding[3,4]. Various studies have shown that HMR could benefit patients with multiple medications, comorbid conditions and elderly population [5,6,7].

Geriatric patients usually have multiple comorbid conditions and are prescribed with multiple medications and hence offering tailored educational materials by pharmacists, may help them manage their medications more effectively[8]. In developing countries including India, the HMR service can be implemented aiming for constructive results aiding patients to deal with medicines at their homes.

METHODOLOGY

Study design: A Prospective and interventional study was carried to assess the effectiveness of HMR on medication adherence in hypertensive geriatric patients of Dakshina Kannada. Data was collected from 50 samples using convenient sampling method between January to September 2022. Medication review was provided to participants at their residences.

Ethical clearance: The study protocol was approved by the Institutional Ethics Committee (IEC) of Srinivas Institute of Medical Science, Mukka, Mangaluru. In addition, written informed consent was obtained from all the participants in this study. (Ref. No.: SIMS & RC/2022/10/05)

Inclusion criteria: The study population were hypertensive geriatrics under medication from both genders. Able to read and write English / Kannada language and agreed to participate.

Exclusion criteria: Patients < 60 years, Mentally handicapped, Who declined to participate in the study.

Source of data: Data was collected using data collection form through direct interaction with the study subjects at their residences. The current study included geriatrics who were hypertensive.

Inform Consent process: Inform consent form were in English and Kannada, only the participants willing to fill ICF were included. ICF were orally explained to the participants before filling it and nonverbal by taking help of caregiver.

Data(s) collection method: Data was collected using questionnaire after subjects were given information regarding the study and confidential statement of respondents' information, medication adherence using MMAS-8 scale. Data was collected using patient's daily medication list and through direct interaction with the patient at their homes. All the data(s) were kept confidential. The average time needed to answer the questionnaire and complete the HMR session was between 20-30 minutes.

Data analysis: Statistical analysis involves collecting and scrutinizing of every data sample in a set of items from which samples were drawn. Student-t test was applied to analyse the data using Social Sciences Statistical Software.

Operational modality: The study methodology was divided into 3 phases;

Phase 1: Preparation for the study in which informed consent forms, data collection forms, Counselling Aids were prepared.

Phase 2: After the ethics approval, the Phase-2 commenced and the study subjects meeting the inclusion criteria were selected and patient home was visited. Average of 20-30 min was spent each session. The participants were explained about the study and consent was obtained for data collection. BP and BMI screening was provided. Based on the data collected, medication adherence was analysed, categorised and were given interventions accordingly. Interventions were given using oral counselling, PIL, Pill card, Pill Box, SMS alerts, Adherence mobile apps, medication reminder alarms.

Phase 3: The post-intervention phase was started 2 months in which the subjects were analysed using the same data collection form and checked for improvement. The data obtained was then analysed by applying Student t test.

RESULTS

Socio Demographic Characteristics of Study Participants:

A total of 50 subjects were included in the study from various localities of Dakshina Kannada. Geriatric patients were included in the study and subjects were distributed according to age group. Majority of participants were of 60-69 age group (66%), 14 participants of 70-79 age group (28%). Only 3 participants were of the range 81-90 (6%). Among the 50 subjects, 28 (56%) were female and 22 (44%) were male.

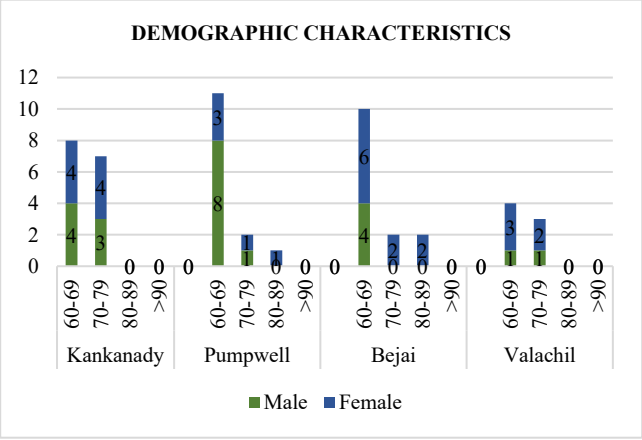

Figure 2: Demographic characteristics of study participants

Description of Physical Characteristics of Subjects:

Physical characteristics of the study participants, measured Height and weight, BMI was calculated and categorized into normal(30), overweight (17) and underweight (3), overweight were provided with counselling. Post intervention study witnessed the acceptance of these interventions by participants, by incorporating advised changes in their lifestyle.

The present study participants had a normal mean range of blood pressure in pre-study (135.4/83.6 mmHg). The importance of regular follow-up was stressed to the subjects by oral counselling. During post intervention study subjects showed positive attitude in BP check-up. Mean BP was slightly lower compared to pre-intervention mean BP (132.6/83.4 mmHg).

Table 1: Physical characteristics of subjects

Sl. No	Variables		Mean ± SD
1	Height (m)		1.622 ± 0.095
2	Weight (kg)		62.76 ± 9.49
3	BMI (kg/m^2)		23.81 ± 2.82
4	SBP (mmHg) DBP (mmHg)	PRE-TEST	135.4 ± 12.96 83.6 ± 6.92
	SBP (mmHg) DBP (mmHg)	POST-TEST	132.6 ± 11.91 83.4 ± 5.19

Medication Adherence:

Present study utilizes MMAS-8 scale for analysing medication adherence. It included 8 questions out of which 7 are yes/no type questions and 8th question is a 5-point likert scale. The questionnaire assessed patient forgetfulness, stoppage due to side effects and willingness to stay adherent to therapy.

The patients were categorized into 3 categories based on the MMAS-8 scale for which intervention was provided accordingly. The study subjects with medium adherence were given counselling, PIL, Pill card (36%) and low adherent subjects were given all the available compliance tools such as counselling, PIL, Pill card, Pill box,

SMS alerts, Medication reminder Alarms, Medication Adherence apps (40%).

Among the 50 participants only 24% (12) had high adherence, 36% (18) showed medium adherence while majority of the subjects had low adherence (40%). Females (n=28) were found more adherent to therapy compared to males (n=22), but gender equality was not maintained among the study subjects.

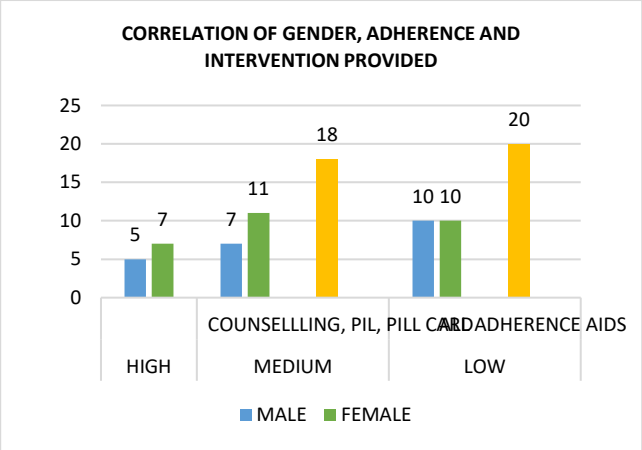

Figure 3: Correlation of Gender, Adherence and Intervention provided

The Post test revealed, there was increase in number of medium and high adherence patterns in subjects (Table 2). Out of the 20 low adherent subjects, 9 improved to higher adherence. The intervention given to low adherent subjects were statistically significant at $p<0.05$ ($p=0.0029$).

Table 2: Effect of intervention on medication adherence

Medication Adherence	PRE-TEST	POST-TEST	P value
HIGH	12	16	-
MEDIUM	18	23	>0.05
LOW	20	11	<0.05

DISCUSSION

HMR is a service designed to help patients living at home to maximise the benefits of their medication regimen and avoid medication-related problems especially in geriatric population with chronic diseases like hypertension. Numerous studies in other countries have previously established the impact of pharmacist-led HMR[2,4,5,6,7]

Medication adherence, is a critical factor in achieving BP control[10].The present study utilises MMAS-8 scale for assessing adherence among the study subjects. From findings of the current study, only 24% had high adherence, this was in contrast with a study conducted in Kerala by Balasubramanian A et al., 41.3% had high adherence, while the remaining 58.7% had medium or low adherence[11] these variations could also be attributed to the different sample size used by both studies.

Similarity was observed in Jordan, which showed an increase in high adherence from 19% to 33% post- intervention[5]. This was consistent with the current study's findings, which showed an increase in high adherence from 24% to 32% following HMR. There was also a reduction of low adherent subjects from 40% to 24%. These results suggest that regular HMR visits can significantly increase adherence in subjects. Patient information leaflet (PIL), Pill Card, Pill Box, Medication reminder alarm, Medication adherence apps along with oral counselling was given to non-adherent subjects. PIL, pill cards, Pill Box, pill card are one of the techniques used to give patients clear pharmaceutical information about their usage of medications, enhanced adherence as well as disease information which subsequently leads to optimal therapeutic impact similar to previous studies[12,13,14].

CONCLUSION

Study concludes that HMR has a positive impact on medication adherence among hypertensive geriatric patients. The findings underline the importance of proactive interventions aimed at improving medication management and highlight the potential benefits of incorporating HMR into healthcare services for this vulnerable population.

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