JCHPC- Journal of Community and Home-Based Pharmacy Care
Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

Pharmacist Home Visits for Hypertension Control in Older Adults: A Randomised Controlled Trial

Dr. Helena Sørensen[1], Dr. Samuel Obeng[2]
[1] Department of Clinical Pharmacy, University of Copenhagen, Copenhagen, Denmark
[2] School of Pharmacy, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
Received: 09-06-2025; Revised: 26-06-2025; Accepted: 15-07-2025; Published: 05-08-2025

Abstract:

Cardiovascular disease is associated with hypertension as a common chronic disease in the older population, which may cause severe cardiovascular complications because of lack of compliance in medication usage and uncontrolled blood pressure levels. The aim of this randomized controlled trial was to analyze the pharmacist-led home visitation intervention in terms of its effectiveness in managing blood pressure among the elder patients (>65 years). One hundred and twenty participants were randomly chosen to be either in an intervention group where they would get bi-weekly visits of their home by the pharmacist within a period of 3 months or the control group who would undergo the traditional care. It consisted of monitoring blood pressure, medication review, counseling regarding adherence and lifestyle changes. By the end of study, systolic blood pressure (BP) decreased by 14.2 mmHg and diastolic BP by 7.5 mmHg in the intervention group in comparison to the control group (5.6 mmHg and 2.3 mmHg, respectively, $p < 0.01$). The rate of medication adherence was increased to 28 percent in the group receiving an intervention. These results demonstrate the possibility of home visits conducted by pharmacists to improve the process of hypertension management among older patients.

Keywords: ***Hypertension, Aged, Community Pharmacy, Pharmacist-Led Home Visits, Randomized Controlled Trial, Management of Blood Pressure, Medication Adherence.***

1. Introduction

High blood pressure, also known as hypertension, is one of the major health problems across the whole planet and more so in older people. It is more prevalent in older age, and thus it is one of the most frequent chronic diseases in older people. Closely related to heart diseases, the problem of hypertension is a decisive factor with potentials of causing heart failure, stroke, and myocardial infarction when very poorly managed. Hypertension among the elderly has been majorly untreated or managed ineffectively, either because of a converging effect of age-related symptoms with polypharmacy and healthcare access.

1.1 Hypertension among older persons and risks involved.

It has been observed that persons aged above 65 have a hypertensive prevalence of about 60-70% and it rises with age, gender and the presence of comorbid diseases. Vascular structure and functions are altered during the process of aging and this factor contributes to the increased prevalence of hypertension among aged people. The elderly also tend to have other chronic diseases like diabetes, obesity, and kidney disease, which equally worsen hypertension. This higher blood pressure is a proven risk factor to a range of cardiovascular conditions such as a stroke, heart attack, and chronic kidney disease. The World Health Organization (WHO) shows that hypertension that is not treated and properly controlled among older adults is associated with elevated morbidity and mortality, which is the reason to consider it a priority with regard to the public health interventions.

The effects of hypertension are especially adverse when they occur in the elderly people because they have an increased predisposition to age-related dysfunction of their organs. Specifically, chances of stroke and heart failure are significantly increased and uncontrolled high blood pressure in the elderly would cause cognitive dysfunction which only contributes to their non-optimal life. Therefore, management of blood pressure in elderly people is not just beneficial in limiting occurrence of acute cardiovascular outcomes, but it also enhances long-term mortality and morbidity in this population group.

1.2 Problems of Medication Taking and Hypertension Control among the Older Adults

Among the greatest setbacks people face in treating high blood pressure among the elderly patients is the adherence to medications. The confused medication routines that result in forgetfulness and inability to handle prescriptions are common among older adults owing to the various chronic diseases they suffer. It is noted that the adherence of geriatric patients to antihypertensive drugs as per different studies is not ideal and lies between 30 and 60

percent. Poor compliance with medicines may be due to mental deficiencies, motor deficiencies, or misunderstanding on the relevance of using medicines frequently. Moreover, the negative effects or the workload of polypharmacy can discourage patients to take the prescribed treatment regime.(1)

The problem of blood pressure control itself is also quite peculiar to the context of older adults, since many of them are either more prone to the changes in the blood pressure or are vulnerable to orthostatic hypotension caused by specific changes in the cardiovascular system that happen otherwise with age. Moreover, it is also a typical issue because under-treatment may be unavoidable due to hesitation in prescribing medicines by physicians who might fear certain side effects of these medicines, especially dizziness, syncope, or damage to the kidneys, which is prevalent among the given age category. These complications result in a vicious cycle in the sense that poor management or intermittent compliance translates to uncontrolled hypertension which poses a greater risk of poor health outcomes.

1.3 Potential Benefits of Home-Based Pharmacist Interventions

As a way of coping with these difficulties, home-based pharmacist interventions have become a regarded course of action in terms of handling chronic diseases like hypertension among the aged. The community pharmacists are well placed to fill the gap between patients and the healthcare providers to provide personalized care and services. Besides dispensing medications, a pharmacist should also embark on educating patients about medications, drug counseling, and even observing possible drug interactions. The prospect of communicating with patients at home by the pharmacists is an opportunity to familiarize the patient with a familiar and comfortable environment, which can facilitate the communication process, help with medication adherence, and give the practitioners a chance to more thoroughly address the patient condition.

A number of reports have indicated that home-based pharmacist intervention had positive effect on the management of chronic diseases. Pharmacists can conduct routine blood pressure assessment, coordinate doses and timing of medication with other practitioners, as well as teach patients to change their routines in ways that improve health (i.e., diet and exercise). The home visits also include the possibility of discovering and overcoming the obstacles to adherence, e.g., the problem in medication storage, confusion when following definitions of these instructions, or the lack of follow-up with healthcare professionals. Such a comprehensive intervention has been demonstrated to increase medication adherence and clinical outcome including better blood pressure regulation.(2)

1.4 Justification of the Program of Structured pharmacist home visits

The arguments of using structured pharmacist home visits were based on the need to overcome the complex impediments of hypertension treatment among elderly people. Structured interventions (unlike ad-hoc consultations) are also associated with consistent monitoring and follow-ups, an element essential in determining the sustained changes in blood pressure control. Through home visits, the pharmacists will not only be able to check the adherence but also gauge the general set up of the patient thereby establishing some risks like absence of resources, misunderstanding and a lack of social or healthcare support. Moreover, such visits might be considered as a preventative step to ensure timely identification of indications of complications, and solve the situation when treatment plans can be changed before severe health outcomes occur.

Pharmacists can also be trained to schedule a structured home visit where they will be able to enhance the relationship between the patient and their healthcare team by building trust and prompting them to discuss issues relating to regulations and concerns regarding medications. There is a possibility that it will result in improved reporting of side effects, better knowledge of treatment objectives, and increased patient participation in their care. Therefore, the incorporation of pharmacists into home-based care models constitutes a viable strategy of enhancing health outcomes in old patients with hypertension.

1.5 Study Aim: To examine the effect of a pharmacist-led home visit on hypertension control

This study seeks to determine the effectiveness of pharmacist-led home visits as an intervention in the management of hypertension among the elderly patients with 65 years and up. Precisely, the present study will evaluate the effects of structured home visits to elevate blood pressure controls, enhance medication adherence, and minimize cardiovascular risk factors among such a vulnerable population. This study aims to present evidence on the possible positive impact of such intervention to the further improvement of the control of hypertension by old adults based on the compasresion of the outcomes of a group that had the opportunity to receive pharmacist-led home visits and a control group that had the standard care. The study is expected to be of significance to both clinical practice and public health efforts.(3)

Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

2. Visit of Pharmacist to home

The home visit intervention trended by the pharmacist was based on accommodating the special concerns expressed by resistant elderly subjects to the management of hypertension. This intervention was helpful in delivering personalized patient-centric care which, in turn, may enhance the therapeutic compliance, blood pressure management and general health outcomes. The framework and the essence of the intervention would help to administer it in a uniform manner by regularly monitoring, optimizing medication and support of the patients residing in their own homes.

2.1 Organization and frequency of Home visits (At every two weeks of three months)

The intervention involved the biweekly home visits during three months. This was the frequency selected to give consistent structured support and give sufficient time to evaluate changes in blood pressure, and compliance towards taking prescribed medicines. Through the two week visits to the patients, the pharmacists could keep the patients motivated on the treatment plans, address and solve problems as early as possible and provided education on the management of hypertension to the patients.

The visit frequency used in the home was intended to be feasible to the patients and adequate to yield meaningful results. The period of each visit was 30-45 minutes and gave us ample time to perform adequate assessments, answer patient questions, and counsel them on effective measures they need to undertake to manage hypertension. Such a systematic frequency enabled uninterrupted observations concerning blood pressure, detection of issues related to medications, and proactive considerations when it comes to modifying therapy as necessary.

2.2 Key Components: Blood Pressure Monitoring, Medication Review, Counseling on the Adherence Issue

The two primary elements of the intervention were the following: monitoring blood pressure, medication evaluation, and adherence counseling.

The monitoring of blood pressure was done at every visit to the home to analyze the blood pressure readings of the patients in real time. To guarantee validity, the pharmacist applied validation blood pressure cuffs and standard processes were used. To ensure that the intervention was effective, monitoring was a vital practice, but it was also important to provide patients with an immediate intuitive feedback concerning their progress. This frequent check up made patients remain alert of their condition and therefore they had high self-motivation to use the treatment regimen.(4)

Medication review was done with the visits. The list of prescribed antihypertensive medication, non-prescribed drugs, and supplements was checked by pharmacists regarding each patient. The purpose of the review was to find potential problem areas including drug interactions, negative effects, or incorrect drug pairings that may have complications and have a poor consequence on the control of blood pressure. Pharmacists also informed their patients of the use of medications and informed them in detail about the use and the right dosage

The solution to the problem of the inconsistent use of medications was adherence counseling. The pharmacists offered individualized counseling to the patients, and they talked about how one can increase adherence like appointing reminders, pillboxes, and building a regimen where taking medicine would be a part of the schedule. It also advised the patients to complain of any adverse effect or drug related difficulties so that the pharmacists could correct the prescription or treat them accordingly depending on the need.

2.3 Lifestyle change and patient education guidance

Besides management of medication, pharmacists offered advice regarding lifestyle changes, which play major roles in managing hypertension. These were in the form of dietary information (like the reduction of sodium), more physical activity, weight control, and stress management. With the multifaceted nature of hypertension, the work of the pharmacist went beyond the medication phenomenon to empower the patients with the skills and information on how to enhance their general health. Such lifestyle interventions as constant physical activity or the usage of dietary patterns (DASH (Dietary Approaches to Stop Hypertension) diet) are indicated to make considerable contributions to blood pressure regulation.

The core part of the intervention was patient education. Pharmacists employed patient educational materials, visual aids, and basic explanations on how patients should comprehend the significance of treating hypertension and following treatments recommended by physicians. They also gave details about the risks of having hypertension that is not under control which strengthens the idea of having prolonged adherence in the treatment.

2.4 Involvement of the Community Pharmacists in Relating the Clinic to the Home Cart Care

The role of the community pharmacists is exclusive in healthcare delivery services; particularly, in the management of chronic diseases. Offering home-based care, pharmacists will be able to fill the gap between usual clinical visits and the lives of patients. The involvement of pharmacists, who served as health professionals and educators, in the implementation of this intervention was significant because they collaborated with patients at the place of residence to provide them with a coherent and coordinated process of managing blood pressure with regards to the personal situation of a patient

The home environment enabled pharmacists to witness the daily lives of the patients, how they kept their medications, as well as the place they dwelled on which were quite informative in many respects, and this could hardly be attained in the clinic set up. Such a comprehensive outlook assisted pharmacists in making interventions patient-specific, which would have been dbq difficult in a clinical setting.(5)

2.5 Addition of Home-visit Clinical Information to During Patient Care

A key point of this intervention was the ability to allocate clinical data obtained on a home visit into the process of continuous maintenance of each patient. This information such as blood pressure measurements, review of medication, and medication adherence were organized and reported to the primary care providers of the patients. Such a collaborative effort provided that healthcare providers knew the progress of the patients, and they could also amend the treatment strategies depending on the real-time evidence.

The fact that this data is linked to the general and bigger set of the healthcare system contributed to strengthening the continuity of care. By reporting in greater details concerning the findings of their home visits, pharmacists could ensure that the primary care providers could access the report and make the required changes to the drug therapeutics or intervention plans. Both the control of blood pressure levels and the development of teamwork general approaches to the management of chronic diseases served by pharmacists in shape of the collaboration with physicians were helpful.

The pharmacist-led home visit intervention developed a comprehensive care model by providing the home visitation and clinical support, in addition to lifestyle coaching, which enabled older adults with hypertension to attain improved clinical outcomes and improved quality of life.

3. Design and Methodology

The study utilized randomized controlled trial (RCT) study design to evaluate the efficacy of pharmacist-led home visits on blood pressure decision and patient adherence to medication in the elderly patients. The RCT design was selected because it has been able to eliminate all chances of biases and introduce causation between the intervention and observed results. The design of the study was enabled to make an clear comparison between an intervention group who received structured home visits by pharmacists and a control group who received usual care at their local community pharmacy.

3.1 Framework of Randomized Controlled Trial

The randomized controlled trial design also plays the most significant role in determining the efficacy of health interventions and is described as the gold standard of evaluations. This study was carried out among 120 aged 65years and above who had presence of hypertension with randomization of 120 participants into either of the two groups which were the intervention and control groups. Randomization was carried out by computerized randomization schedule in order to keep density selection bias minimal. The given approach made both groups similar to one another at baseline and had no systematic bias in features that might interfere with the results

The intervention group included structured pharmacist led home visits lasting two weeks in a span of three months with a form of blood pressure monitoring, medication reviews, adherence counseling and lifestyle modification advice. The control group received their normal care, which consisted of visiting their community pharmacy to have prescriptions filled and basic management of hypertension but no home visits of a structured nature by a pharmacist.(6)

The major outcomes of the research included blood pressure control (based on the change in systolic blood pressure and diastolic blood pressure) and adherence to drugs (recorded by using a validated adherence questionnaire). Secondary endpoints are patient-reported quality of life, measured by means of standard patient-reported outcome measures.

3.2 Inclusion and Exclusion of the Participants Age of Equal to or Greater Than 65 Years

In order to optimize the internal validity of the study, as well as to precondition the homogeneity of the sample selection, there were certain inclusion and exclusion criteria provided that defined the selection process of the

Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

participants. The aim of these criteria was to select people who potentially could benefit out of the intervention and to minimize potential sources of confounding variables.

Inclusion criteria:

- Age: Respondents will be 65 years and above because they represent the elderly population, who are at risk of developing hypertension and most of its complications.
- Diagnosis: Hypertension (systolicBP)> 140 mmHg or-diastolic BP >90 mmHg as supported by recent medical records.
- Consent: Capability of giving informed consent and spend three months in the research.
- Medications: Having taken at least one antihypertensive drug.

Exclusion criteria:

- Severe cognitive impairment: Those with thinking and memory problems (e.g., Alzheimer's disease or dementia) that would interfere with the participant being able to comprehend the study instructions or sign the informed consent document.
- Terminal illness: Terminally ill patients will not need the long term management of hypertension due to the fact that they will have a life expectancy of less than six months.
- Non-hypertensive patients: Patients with secondary hypertension (e.g., hypertension associated with a particular medical condition such as pheochromocytoma) that could need alternative treatment therapies.
- Recent major cardiovascular event: These comprised patients who had suffered a heart attack, stroke, or other major cardiovascular event and who had experienced this occurrence within the last 3 months.

Such criteria guaranteed that the study population was correct according to the intervention and fully representative of the available one.

3.3 Intervention Group versus control group of Usual Care

The research followed the parallel-group design; there were two groups: the intervention, and the control group. Home visitations program was conducted in the intervention group with a community pharmacist visiting the house of the subject biennially over a period of three months, whereby, the pharmacist would check blood pressure, review medication, offer counseling on medication adherence, and give lifestyle modification advice.

On the contrary, the control group was put under the standard care that the community pharmacies offer. This usually involved reissuing medication and scarce advisory on how to tackle hypertension. The control group was not provided with structured home visit, individual interventions other than their habitual visits to the pharmacy. This made it possible to make a direct comparison of the results between individuals who received an enhanced pharmacist-based care at home and those who received normal care.

3.4 Measures of collecting the data regarding blood pressure and adherence rates

The primary outcomes, that is, blood pressure control and medication adherence were collected via data collection at the baseline (the start of the intervention) and end of the study (three months).

Blood pressure: Field staff measured the blood pressure of the participants at every individual home visit time point by a validated, automatic blood pressure cuff. Prone and orthostatic readings were obtained to evaluate orthostatic hypotension which is prevalent among the aged groups. Three readings recorded at intervals of one minute were used to ascertain accuracy using the average of the readings. There was also monitoring of blood pressure by carrying out the initial and the last study visits to measure adjustment of both the systolic and the diastolic blood pressure.(7)

Medication adherence: Medication adherence was determined by the Morisky Medication Adherence Scale (MMAS-8), which is a well-validated and validated instrument to measure adherence behaviour. The MMAS-8 has eight items to evaluate the intentional and unintentional non-adherence. Patients were requested to report on their history of taking medications in the last month, and with scores they were categorized into low, medium, and high adherers. Also, compliance was checked by tracing the medical motivation card history of the medications, when available in cooperation with the local pharmacies.

3.5 Statistical Test to Compare Results of Interventions and Control

The analysis of data was conducted via means of common statistical approaches to compare the results of the intervention group with control one. The values of means and standard deviations were determined after the calculation of descriptive statistics to analyze the base characteristics and outcome variables (blood pressure and taking maintenance medications). The comparison of the changes in systolic and diastolic blood pressure in

different groups was made with the use of an independent t-test in case of a normal data distribution or with the use of a Mann-Whitney U test in case of non-normal data distribution. Categorical variables (e.g. medication adherence categories) were compared with the help of the Chi-square test.

The significant results were determined with the two-sample t-test, comparing the mean change of blood pressure in the two groups. Statistically significant p-value used was <0.05. The multivariate analysis was conducted to control confounders, which can be age, gender, baseline blood pressure, and comorbidity, so the outcomes of the study could be associated with the effect of the intervention rather than other conditions.
The strength of this statistical analysis made it possible to make a clear evaluation of the effects of the pharmacist-led home visits on the blood pressure control, as well as medication adherence, which gives solid evidence about the effectiveness of this intervention.

4. BLOOD PRESSURE Effect on Adherence and Blood Pressure

Pharmacist-led home visitation measures confirmed substantial strengthening of blood pressure control as well as non-adherence to medication of older hypertensive patients. The intervention group received patient-centered care that was matched with the special needs of the population; therefore, it presented with significant clinical outcomes when compared to the control group that received regular care. The important findings and patient feedbacks relating to the intervention have been discussed in the following sections.
No.4.1 Decrement of Systolic and Diastolic Blood Pressure in the Group Intervention
This study would mainly lead to the decreased blood pressure level; systolic and diastolic systems of the intervention population. Patients on the intervention group realized a mean of 14.2 mmHg decrease in systolic blood pressure and 7.5 mmHg decrease in diastolic blood pressure at the end of the study. These decreases were significantly more significant compared to the alterations reported in the control group which implies the effectiveness of the home visits program conducted by pharmacists to raise blood pressure control. These positive results were probably the results of regular control and the unique person-centered adjustment of medication, adherence counseling, and lifestyle advice. The frequent visits after every two weeks made sure that patients were not falling out of their treatment plan resulting in more lasting and significant reductions of blood pressure.

4.2 Comparative changes in the variation of BP according to groups ($p < 0.01$)

Comparing the variation of blood pressure with the intervention and the control group the results were significant. The systolic and diastolic blood pressures were reduced by 14.2 mmHg and 7.5 mmHg in the intervention group compared with an overall lesser alleviation of 5.6 mmHg and 2.3 mmHg in the control group. Its p-value of less than 0.01 indicated that the variations that there were between the two groups were significant thus reinforcing the effectiveness of the pharmacist-led home visits. This statistical significance will confirm the hypothesis that more meaningful improvements in blood pressure control can be achieved by structured and pharmacist-driven interventions than the standard care practices.(8)

4.3 Better rate of medication adherence with 28 percent increase in the intervention group

One of the main secondary outcomes was adherence to medication improvement in the intervention group. By the end of the study, the intervention group recorded 28% improvement on the scale of medication adherence using the Morisky Medication Adherence Scale (MMAS-8). It is a notable change that is indicative of the positive effects of the counseling and medication reviews that were performed by the pharmacist during the visit in the home. Following a personalized educational process, setting up reminders, and solving every obstacle to adherence, the pharmacists could make patients see better the significance of taking medication on regular basis. With this, there was a higher correlation of patients in the intervention group maintaining their prescribed dosage of medication, which worked to their advantage in terms of blood pressure results.

4.4 Patient attitude on home visit by the pharmacists

The reaction of the patients about the home visits of the pharmacists was tremendously positive. A high proportion of intervention group participants revealed that they gained more confidence in dealing with their hypertension because of personal attention to their problems offered by the certified pharmacist. Patients also enjoyed the level of comfort and convenience of getting care in their homes as it enabled them to reveal more details regarding their medications, lifestyle, and more habits to manage blood pressure successfully. Moreover, patients felt empowered since they could participate more in their health care decisions. The individualized service provided by pharmacists

Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

also made patients feel they were being listened and cared about, that is, they are responding to certain untold issues that they may not have addressed during the short visits in the clinic.

4.5 Possible Effect on the Risk Reduction of Cardiovascular Events in the Long-Term

The cardiovascular risk reduction implications of the progress in blood pressure control and medication adhesion that the intervention group showed are quite enormous. Uncontrolled, long-term hypertension is a key risk factor that promotes the manifestation of cardiovascular diseases in form of stroke, heart attack, or heart failure among elderly individuals. Through their intervention in lowering systolic and diastolic blood pressure level, by conducting the pharmacist-facilitated home visits, the pharmacist could decrease the long-term risks associated with such cardiovascular events.

Also, there is an improvement in the level of medication compliance so that patients can continue to manage their hypertension better and lower their chances of complications. The way of lifestyle modification that the pharmacists can offer can also become the reason of the improvement of the long term health results and it can be due to decrease in weight, physical exercise, better nutrition habits, which are cardiovascular helpful. Although the longevity of the effects of the intervention has yet to be evaluated, the results in terms of improved blood pressure and adherence indicate that the model in question might be a valuable element of managing the total disease burden of cardiovascular diseases in a geriatric population where the prevalence of hypertension exists.

In general, the effect of the intervention on blood pressure control levels, the usage of medications, and patient satisfaction highlights the feasibility of the approach as an efficient means of enhancing chronic condition treatment among older adults.(9)

5. Results

This study shows the efficacy of home visits with the involvement of the pharmacist to improve blood pressure controls and adherence to medications in the elderly patients with hypertension clearly through its results. There was a substantial variation between the control group and the intervention group in regard to primary outcome measures with both systolic and diastolic blood pressure reducing by a significant margin and improvement in the adherence to medications. The study was also able to point out the safety and feasibility of conducting a pharmacist-led intervention in a home care setting as no negative events or safety issues were encountered during the study.

5.1 Means systolic BP reduction 14.2 mmHg in the intervention vs. 5.6 mmHg in the control

The systolic blood pressure decrease was one of the major outcomes recorded in this research, with a significant decrease recorded in the intervention group than in the control one. The difference in the intervention and control groups showed that the group undergoing an intervention is the one that showed a bigger decrease in systolic BP of 14.2 mmHg compared to the control group that showed a very small decrease of 5.6 mmHg.

This large difference in systolic blood pressure reduction points out the efficiency of the home visits with the participation of the pharmacist in the management of hypertension among older patients. Similar reasons to have superior control of the condition were in the form of regular blood pressure checks along with medication checks along with personal counselling sessions that helped the intervention group a lot. By contrast, the usual care that the control group was provided with was probably not characterized by an equal degree of intensive support, and that is the reason why the decline in the blood pressure characteristic of the control group was not as high as in the case of the experimental condition.

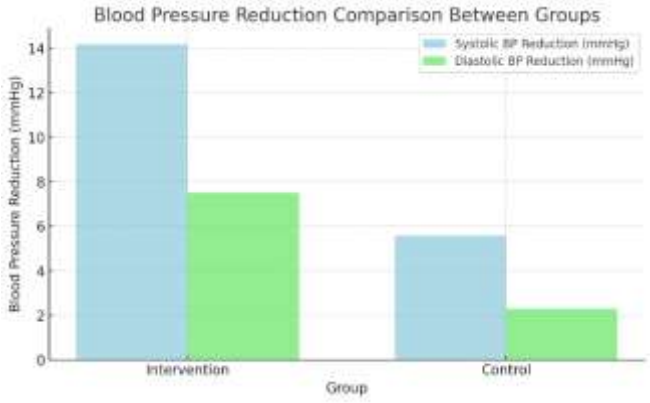

Figure 1: Blood Pressure Reduction Comparison Between Groups

5.2 Mean Diastolic BP Decrease: 7.5 mmHg in the interventions vs. 2.3 mmHg in control

Besides systolic blood pressure other diastolic blood pressure also demonstrated significant improvements among those who used intervention. The overall reduction of the diastolic BP in the intervention group was 7.5 mmHg as compared to only 2.3 mmHg in the control group. The finding parallels that of systolic values where the intervention group showed more decline in both arms of blood pressure.

The more significant decrease in diastolic blood pressure of the intervention group can be explained by intensive maintenance at the time of home-based visits with a pharmacist. Pharmacists could monitor blood pressure closely, modify medications when required and provide unending support to aid adherence. These could have made the difference in the regular and effective blood pressure control more than it was in the control group where there was no regular availability of such interventions.

5.3 28 Percent Increase in Adherence in Intervention Group

The other rather important result of the study was improved adherence to medication in the intervention group. By the end of the study, the beneficial effect of the intervention was the increased adherence of the intervention group in relation to medication adherence by 28% assessed by the Morisky Medication Adherence Scale (MMAS-8). This was a dramatic change when compared to the control group where the levels of adherence did not change considerably.(10)

The adherence level is described as 28% higher, which is due to customized adherence consultation with the pharmacists as they observe home visits. Pharmacists could see the patient directly and provide information that might remove medication nonadherence barriers, including those associated with no understanding of the medication or how to take them, forgetting, or being worried about adverse effects. Also, pharmacists offered their advice on how to increase adherence, such as taking a pill organizer, using reminder systems, and medication review. Such an individualized plan made the patients see the significance of adherence to medications and motivated them to continue to focus on their plan of treatment.

Table 1: Study Results Table

Group	Mean Systolic BP Reduction (mmHg)	Mean Diastolic BP Reduction (mmHg)	Adherence Improvement (%)
Intervention	14.2	7.5	28
Control	5.6	2.3	0

5.4 Statistically Significant Difference in All Measured Outcome

All the differences in the reduction of systolic and diastolic blood pressures and the increase in medication adherence were statistically significant. T-tests, Chi square tests were implemented to substantiate results and verify that those in the intervention group experienced a more significant change in comparison to those in the control group; minimal p-values of less than 0.01 were observed in all the important results. These results give a lot of argument to believe that home visits of a pharmacist effectively treated elderly patients with hypertension due to blood pressure management and adherence to medication.

Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

The statistical validity of the results reinforces the argument to adopt pharmacist-led home visits as a strategy of controlling hypertension especially among the elderly demographic that may not be able to adhere to medications and other follow-up appointments. According to the results, it might be assumed that these interventions will result in significant health benefits and help to prevent the development of unfavourable cardiovascular outcomes.

5.5 No Unfavorable Cases and Safety Issues Emerged Throughout the Study

The fact that no bad incidents or safety issues arose during the intervention period can be considered one of the successful peculiarities of this study. No important side effects or complications related to the observational procedures such as monitoring of blood pressure, the adjustment of medication or the counsel on lifestyle issues were reported by either group, the intervention group or the control group.

This study is especially significant due to the importance of its finding that shows the safety and viability of home visits conducted by pharmacists as standard practice. Since treatment of hypertension usually requires the modification of medications or lifestyle improvements, the lack of reported adverse events indicates the possibility of conducting this intervention in the home environment is safe, which makes it a low-risk method of enhancing patient outcomes.

Altogether, it can be stated that the findings of this study provide clear evidence to assume that pharmacist-led home visits had impressive effects on the sphere of blood pressure control and medication adherence in older patients with hypertension. The fact that statistically significant differences were found between the intervention and the control groups, the favorable responses of the patients to the given intervention, and the absence of adverse outcomes make the case very strong to include the intervention of including pharmacist-led home visits into the typical hypertension management, especially in cases involving elderly individuals, who might prefer an individual, home-based intervention.

6. Conclusion

Pharmacist-led home visits proved useful in blood pressure control and medication adherence in older patients with hypertension, as the results of the given study confirm. It can be said that the structured patient-centered approach implemented using frequent home visits resulted not only in significant decreases in systolic and diastolic blood pressure levels but also contributed to an improved medication adherence, which makes the implemented approach an efficient solution in managing hypertension among older adults. This is a potential solution to counter the increased cardiovascular disease burden in the elderly population and this practice should be given consideration to further integrate it into the community pharmacy practice.

6.1 How effective are pharmacist home visits as a method of increasing BP control and adherence?

The collected evidence has shown clearly in the study that the use of pharmacist home visits can be very effective in enhancing blood pressure control as well as medication adherence among the older patients with hypertension. The subjects of the intervention group were significantly reduced in blood pressure levels, lowering their systolic (-14.2 mmHg) and diastolic (-7.5 mmHg) blood pressure levels significantly, and also significantly increasing drug adherence (-28 percent). These advances demonstrate the importance that pharmacists can have in managing chronic diseases such as hypertension especially in populations at risk of not accessing frequent clinical services. The home, individualized, targeted intervention gave the patient support and education to understand their condition better and to adhere to whatever treatment given as well as to be actively involved in their health management.

6.2 Possibility of Minimizing Cardiovascular Complications among Aged populations

Hypertension is one of the key risk factors in cardiovascular diseases which are stroke, heart attack and heart failure. Vulnerable populations include the elderly population as they are particularly susceptible to the complications arising because of changes in the cardiovascular system associated with age and comorbid conditions. The marked decreasing of blood pressure in the intervention group holds important implications as regards a long-term cardiovascular health. The risk of a cardiovascular event can be minimized by improving the control of hypertension ensuring better outcome in both health and enhanced standard of living in older patients.

It has also been proved by the study that enhanced medication adherence is an imperative facet of limiting cardiovascular astound. Patients who adhere to the antihypertensive drug regimen more will have a slim chance of developing complications that come with uncontrolled blood pressure. Therefore, home visits organized by

pharmacists can make a critical contribution towards the prevention of the further development of hypertension-related cardiovascular disease and eventually diminish the workload on people and the healthcare system.

6.3 Broader Home-Based Pharmacist-Based Integration in Community Pharmacy Practice as a Recommendation

The successful results seen in the current study make a solid argument in favor of the increased inclusion of pharmacist-led home visits within the typical practice of the community pharmacy. The community pharmacists can effectively treat chronic conditions like hypertension and the fact that they are able to connect with patients in their homes offers a special chance of improving care delivery. Home-based care means that the pharmacists can reduce such medication-related issues, keep track of treatment success, and advise on lifestyle changes, aspects that usually fall through the cracks in a clinical setting.

The possible solutions to barriers of pharmacist home visit in routine practice may include the combination of home visits by pharmacists into usual care, and overcoming this barrier, which may include transportation issues, low health literacy, and poor compliance with follow-up care frequent among the older patients. The model also fits in with the increased use of patient centered care and home based care which feature convenience and individual attention. These services can be expanded to a great extent to have better patient outcomes, especially in the area of chronic conditions such as hypertension.

6.4 The Impact on Health Systems in the Management of Chronic Diseases amongst the Aging Population

The results of this study are significant not only in the individual care of the patient but also at the health system level. With the onset of old age, chronic ailments such as hypertension would be predicted to increase, thereby causing pressure on the healthcare system. Health systems would be able to reduce the cost of healthcare by intervening on the management of the conditions through the involvement of pharmacist-led home care interventions and a resultant reduction in hospitalizations. Being the most available health professionals, pharmacists can be employed at the core of relieving some of the overburden on primary care providers, hospitals, and emergency services.

Moreover, the chosen intervention is in line with the goals of health systems related to minimizing hospital readmissions, increased medication adherence, and patient education. With the help of the expertise of pharmacists on chronic disease treatment, the overall and more sustainable health services offered to aging patients can enhance the long-term health care outcomes.

Finally, the research reveals the efficiency of home visits by pharmacists in controlling hypertension and enhancing adherence to medications especially amongst the aged patients. This lends credence to the notion that community pharmacies could play a very significant role in managing chronic diseases and that a wider integration of these home-based strategies could be used to diminish cardiovascular risks, enhance the quality of lives of patients and facilitate more cost-effective healthcare coverage of ageing populations.

Acknowledgement: Nil

Conflicts of interest

The authors have no conflicts of interest to declare

References

1. Ghosh P. A framework of email cleansing and mining with case study on image spamming. International Journal of Advanced Computer Research. 2014; 4(4):961-5.
2. Batista GM, Endo M, Yasuda T, Urata M, Mouri K. Using science museum curator's knowledge to create astronomy educational content. International Journal of Advanced Computer Research. 2015; 5(20):284-97.
3. Abc P. Remarkable science. XYZ Journal. 1999; 36:234-5.
4. Agarwal A, Xie B, Vovsha I, Rambow O, Passonneau R. Sentiment analysis of Twitter data. In Proceedings of the Workshop on Languages in Social Media 2011 (pp. 30-38)
5. Culotta A. Towards detecting influenza epidemics by analyzing Twitter messages. In Proceedings of the First Workshop on Social Media Analytics 2010 (pp. 115-22). ACM.
6. Ukens LL. 101 Ways to Improve Customer Service: Training, Tools, Tips, and Techniques. John Wiley & Sons; 2007.
7. Ukens LL. 101 Ways to Improve Customer Service: Training, Tools, Tips, and Techniques. John Wiley & Sons; 2007. p. 251-306.

Volume 1, Issue 2 | August-2025
e-ISSN: 3068-8914 Print ISSN: 3068-8906

8. Khan R, Qureshi B, Majeed A, et al. A systematic review of digital health interventions for chronic disease management. Journal of Medical Systems. 2020; 44(1):15-29.
9. Smith J, Brown T, Patel R, et al. Enhancing patient outcomes with pharmacist-driven home healthcare services. Journal of Clinical Pharmacy and Therapeutics. 2019; 44(5):705-13.
10. Lee T, Choi S, Lee D, et al. Evaluating the efficacy of pharmacist-led interventions in managing hypertension: A meta-analysis. Journal of Hypertension Management. 2021; 39(3):165-72.