

Original Article

Empowering the Elderly in Hypertension Management: Blood Pressure Monitoring and Medication Adherence

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Abstract: Hypertension is a major non-communicable disease affecting the elderly and often goes undetected, leading to serious complications. This community engagement program aimed to empower older adults in managing hypertension through routine blood pressure checks and participatory health education focused on medication adherence. The activity was conducted with 40 older adults from the Bilansia community in Surakarta, who regularly gather for social and health-related events. A community-based participatory approach was applied, involving three main phases: preparation, implementation, and evaluation. Blood pressure measurements were conducted using calibrated devices, followed by interactive education sessions that included group discussions, practical demonstrations, and experience sharing among participants. Results showed that 80% of participants remained within the hypertensive range despite ongoing antihypertensive medication, indicating challenges in treatment adherence and lifestyle modification. Although no quantitative knowledge assessment was performed, participant engagement during discussions and reflections suggested increased awareness and motivation. The use of familiar, emotionally supportive community settings proved effective in promoting behavioral change. This initiative highlights the value of collaborative health promotion strategies within elderly communities, emphasizing the importance of sustained, culturally relevant, and socially engaging interventions to improve medication adherence and blood pressure control. Such models should be integrated into regular community programming to support national hypertension control efforts.

Keywords: Community-Based Health Promotion, Elderly, Health Education, Hypertension, Medication Adherence.

I. INTRODUCTION

Hypertension, or high blood pressure, is one of the most dangerous non-communicable diseases (NCDs), yet it often goes unnoticed. Often referred to as a "silent killer," hypertension develops without obvious symptoms but can lead to severe complications such as stroke, heart attack, kidney failure, and sudden death. It is also a major risk factor for various cardiovascular diseases and contributes significantly to global morbidity and mortality rates. Early detection and blood pressure control are therefore critical, especially among vulnerable groups such as the elderly, who experience physiological organ function decline and often have comorbid conditions (Mills et al., 2020).

Globally, hypertension affects more than 1.28 billion adults aged 30 to 79 years; however, only around 42% of cases are diagnosed and receive adequate treatment. Approximately two-thirds of all hypertension cases occur in low- and middle-income countries, where access to healthcare services and health education remains limited (World Health Organization, 2021). In Indonesia, according to the 2018 Basic Health Research (Riskesdas), the prevalence of hypertension among adults reached 34.1%, and declined to 30.8% by 2023 (Kemenkes RI, 2023). In Central Java Province, the 2023 Health Profile identified hypertension as the most prevalent disease among individuals aged over 15 years, with a reported prevalence of 38.2% (Dinas Kesehatan Provinsi Jawa Tengah, 2023).

One of the major challenges in managing hypertension among the elderly is their low level of awareness and medication adherence. Older adults often face several barriers, including limited access to healthcare services, inadequate understanding of the importance of routine medication, and concerns about potential side effects. Studies have shown that early detection through regular blood pressure monitoring can reduce the risk of cardiovascular complications by up to 40%. Nevertheless, the participation rate of elderly individuals in screening activities remains relatively low (Mills et al., 2020).

Participatory health education is a strategic approach for modifying health behaviors among the elderly, particularly in enhancing adherence to antihypertensive therapy. Rather than relying solely on one-way communication, this approach actively engages older adults in learning processes, discussions, and the exchange of experiences within their community. Through open social interaction, elderly individuals develop a sense of mutual support and recognition, which positively



influences their acceptance of medical information and motivation to follow therapeutic recommendations. Familiar settings, such as community meetings, provide an emotionally supportive context for learning, where health materials are delivered in simple, relevant language adapted to participants' daily realities. Evidence suggests that participatory education models can improve understanding, engagement, and treatment adherence by up to 25%, especially when implemented in a sustained, community-based manner (Chen et al., 2020).

Bilansia is a non-profit community organization comprised of elderly members in Surakarta City, which regularly conducts social, spiritual, and educational activities every two months. One of the primary goals of the community is to empower its members, particularly in aspects related to physical and mental health. Collaboration with communities such as Bilansia is both relevant and strategic in enhancing health awareness and behaviors among older adults, especially in the sustainable prevention and management of hypertension.

Based on the aforementioned background, this community engagement program entitled "Empowering the Elderly in Hypertension Management through Blood Pressure Monitoring and Medication Adherence Education" was carried out with the aim of increasing elderly individuals' awareness of the importance of early hypertension detection, while also fostering their understanding and adherence to taking medication consistently and correctly

II. METHODS

This community service activity adopted a community-based participatory approach, actively engaging elderly participants in both educational and health screening processes. The activity was conducted in a single structured session, comprising a blood pressure screening and an interactive health education session focusing on the importance of adherence to antihypertensive medication. The participants were members of the Bilansia elderly community in Surakarta, who regularly attend bi-monthly gatherings. A total of 40 older adults participated in the session, which was held on Thursday, May 8, 2025, from 4:00 to 5:30 PM at St. Peter's Catholic Church, Surakarta. The event coincided with Bilansia's regular community meeting, as the members are also part of the church congregation. The activity was carried out in three main stages:

A. Preparation

The preparation phase included the following activities:

- Coordination with the Bilansia community leaders to determine the schedule, venue, and technical arrangements for the activity.
- Development of educational materials tailored to the characteristics of older adults, including blood pressure infographics, medication guidelines, and healthy lifestyle tips.
- A brief training session for the implementation team on effective communication techniques with elderly participants.

B. Implementation

Blood pressure screening was conducted by healthcare personnel (faculty or students) using calibrated digital or analog devices. The results were recorded and handed directly to each participant, as shown in Table 1. Interactive education was delivered through small-group discussions, practical simulations on correct medication intake, and participant storytelling. Each participant received an educational leaflet as a reminder for home use.

Question-and-answer and reflection sessions allowed participants to share their experiences regarding hypertension and challenges with medication adherence, with direct feedback provided by facilitators.

C. Evaluation and Follow-Up

Evaluation was carried out in a summative manner through observation of participant engagement and activeness during the discussion sessions. Follow-up efforts included maintaining communication with community leaders and recommending the integration of health education into the community's regular meeting agenda.

III. RESULTS AND DISCUSSION

This community service activity involved 40 elderly participants from the Bilansia community in Surakarta City, with an average age of 62 years. All participants had a history of hypertension and reported regular use of antihypertensive medication. The results of the blood pressure screening indicated that 87,5% of participants (35 individuals) remained within the hypertensive category according to the JNC-7 and JNC-8 classifications, despite undergoing pharmacological therapy (Chobanian, 2003). The remaining 12,5% fell into the category of normal or pre-hypertension. These findings highlight that hypertension control among the elderly population remains a significant challenge, particularly in relation to medication adherence and lifestyle modification. Global data also reveal a similar pattern. Based on the analysis of data from over 100 million participants across 184 countries, the global prevalence of hypertension remains high, with low rates of blood pressure control—particularly in low- and middle-income countries (Guo et al., 2023).

Table 1 : Characteristics of Community Participants

Part Number	Age	Diastolic (mmHg)	Systolic (mmHg)	Hypertension Category
1	50	135	80	Prehypertension
2	60	155	95	Hypertension
3	61	150	100	Hypertension
4	78	170	100	Hypertension
5	45	138	80	Prehypertension
6	62	155	95	Hypertension
7	66	150	100	Hypertension
8	65	170	100	Hypertension
9	61	175	110	Hypertension
10	60	160	90	Hypertension
11	60	140	90	Hypertension
12	55	135	80	Prehypertension
13	56	140	90	Hypertension
14	64	150	90	Hypertension
15	62	160	100	Hypertension
16	63	160	100	Hypertension
17	64	145	100	Hypertension
18	54	130	80	Prehypertension
19	55	140	100	Hypertension
20	69	150	100	Hypertension
21	59	150	90	Hypertension
22	58	145	95	Hypertension
23	60	150	100	Hypertension
24	61	140	100	Hypertension
25	56	135	80	Prehypertension
26	62	150	100	Hypertension
27	63	160	90	Hypertension
28	64	155	95	Hypertension
29	65	150	90	Hypertension
30	66	160	100	Hypertension
31	61	150	90	Hypertension
32	62	150	90	Hypertension
33	62	150	95	Hypertension
34	63	150	90	Hypertension
35	65	140	90	Hypertension
36	68	145	100	Hypertension
37	71	155	95	Hypertension
38	67	150	90	Hypertension
39	68	150	95	Hypertension
40	69	150	95	Hypertension
Average	62	149,8	93,7	

Studies by (Adeloye et al., 2015; Kearney et al., 2005) highlight that increasing age is one of the primary determinants of hypertension, with its prevalence rising sharply after the age of 60. In the local context, data from the Central Java Provincial Health Profile indicate that hypertension is the most common condition reported by elderly patients during visits

to healthcare facilities (Dinas Kesehatan Provinsi Jawa Tengah, 2023). Therefore, hypertension control should be prioritized as a

To provide a more detailed overview of the blood pressure screening results, individual data are presented, including participant initials, age, blood pressure measurements, and blood pressure category classifications based on the JNC-7 guidelines. This presentation aims to illustrate the variation in blood pressure profiles among the elderly participants, while also emphasizing the importance of a personalized approach in the monitoring and educational management of hypertension.

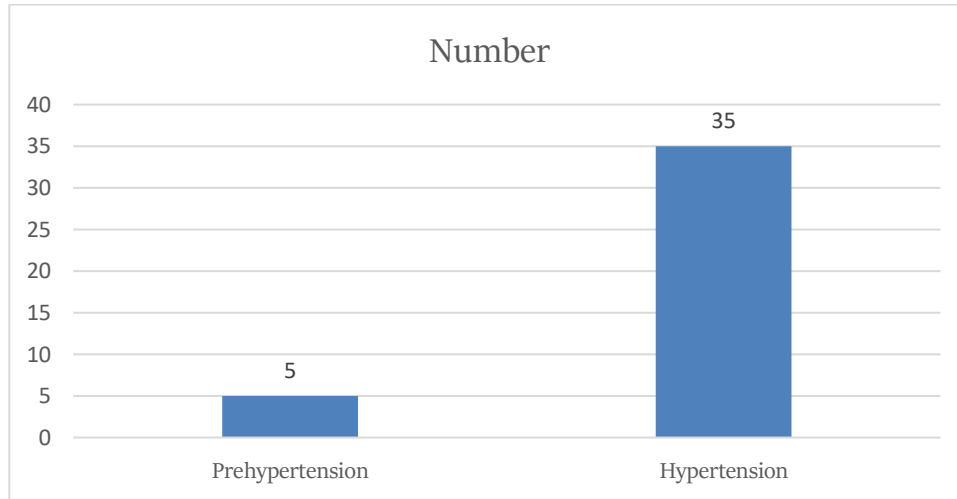


Figure 1 : Number of Hypertension

The educational session was conducted using an interactive method based on small group discussions. Although no quantitative assessment of knowledge was performed, participant engagement was evident through their enthusiasm in sharing personal experiences, asking questions, and actively participating in discussions. The education was delivered in simple language, supported by informative leaflets, and emphasized the importance of regular medication intake, routine blood pressure monitoring, and avoidance of hypertension triggers. Studies have shown that interpersonal and culturally relevant educational approaches are more effective in increasing patient awareness and adherence.

The importance of a participatory educational approach is further supported by findings from recent studies (Shahin et al., 2021). The importance of a participatory educational approach is further supported by findings that highlight the significant role of social support and emotional engagement in improving medication adherence among patients with hypertension. Education delivered in a supportive community environment—such as in this activity—provides a sense of safety and comfort for elderly participants to share their experiences and challenges. Health literacy and social support have a significant influence on patients' knowledge and adherence to hypertension treatment, both through direct and indirect pathways (Guo et al., 2023; Oktaviana & Rispawati, 2023; Walidah, 2017).

The community-based health education model for the elderly implemented in this activity aligns with the principle of empowerment in health promotion, which positions individuals as active agents of behavioral change (Amanak et al., 2019; Bosu, 2022). As a local community, Bilansia plays a central role in sustaining health messages through ongoing social interactions. Through this approach, older adults are not merely recipients of information, but also active participants in reflective processes and collective learning.

Overall, this activity demonstrates that community-based education combined with blood pressure monitoring can serve as a strategic approach to detect uncontrolled hypertension, raise awareness among older adults, and promote treatment adherence. This aligns with WHO recommendations and previous intervention studies, which emphasize that a combination of education, community engagement, and regular clinical monitoring is the most effective approach to reduce the burden of hypertension at the population level.

IV. CONCLUSION

The community service activity entitled “Empowering the Elderly in Hypertension Management through Blood Pressure Monitoring and Medication Adherence Education” was successfully conducted with the involvement of 40 older adults from the Bilansia community in Surakarta City. The results indicated that the majority of participants (80%) remained within the hypertension category despite undergoing pharmacological therapy, highlighting the need for non-pharmacological support through continuous education. The participatory education approach—through group discussions,

simulations, and experience sharing—effectively encouraged emotional engagement and fostered self-awareness in managing hypertension independently.

Collaboration with local communities such as Bilansia proved to be a strategic element in creating a supportive and sustainable learning environment for the elderly. This initiative demonstrated that community-based education can improve early detection of uncontrolled blood pressure and strengthen medication adherence behavior. For sustainability, similar programs are recommended to be integrated into regular community agendas and involve healthcare personnel as well as local leaders. This approach supports national strategies for hypertension control through promotive and preventive efforts at the community level

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