

Hypertension Self-Management Knowledge Before and Immediately After a Community Education Program Among Older Adults Attending a Posyandu



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Abstract: Hypertension requires sustained day-to-day management, but a brief community education program can directly evaluate only the outcomes it measures. This community service program described the immediate change in hypertension self-management knowledge among older adults in Suli Village, Central Maluku. Fifteen older adults were recruited through invitations at the Posyandu Lansia and participated voluntarily. The intervention consisted of one face-to-face education session delivered through an oral presentation supported by posters. Topics included medication adherence, salt restriction, healthy eating, physical activity, blood pressure monitoring, routine healthcare visits, and warning signs requiring professional care. Knowledge was measured immediately before and after the session using a 10-item program-specific questionnaire (score range, 0-10) developed from the educational content without formal content validation or psychometric testing. The mean score increased from 6.67 ± 1.40 at pre-test to 7.73 ± 0.80 at post-test. Eleven participants (73.3%) had higher post-test scores, while four (26.7%) had unchanged scores. The proportion in the operational good-knowledge category increased from 26.7% to 53.3%, whereas the proportion in the poor-knowledge category decreased from 26.7% to 0%. These descriptive findings show higher knowledge scores immediately after education. They do not establish knowledge retention, self-management behavior change, or improved blood pressure control.

Keywords: community service; health education; hypertension; knowledge; older adults; self-management

1. Introduction

Hypertension in older adults requires continuous management because cardiovascular risk increases with age and is often accompanied by comorbidities. The 2024 European Society of Cardiology (ESC) Guidelines place lifestyle modification, treatment adherence, and blood pressure monitoring among the integral components of hypertension management (McEvoy et al., 2024).

Much of hypertension management occurs outside healthcare facilities. Older adults may need to take medication as prescribed, restrict salt intake, remain physically active within their capacity, monitor blood pressure, and attend regular healthcare visits. Knowledge of these practices is a prerequisite for informed self-management, but knowledge alone does not demonstrate that the behaviors are performed or that blood pressure is controlled. A scoping review identified disease knowledge, medication adherence, blood pressure monitoring, and lifestyle modification as distinct outcomes of hypertension self-management interventions (Hany et al., 2024).

Hypertension self-management among Indonesian older adults has context-specific challenges. Khasanah et al. identified issues related to knowledge and beliefs about hypertension, behavioral changes after diagnosis, support for disease management, access to healthcare, self-management behavior, and medication adherence (Khasanah et al., 2024). These findings suggest that community education should provide practical information that is closely connected to older adults' daily activities.



Evidence syntheses provide a broader rationale for self-management support in older adults. A meta-analysis of 12 randomized controlled trials reported changes in blood pressure, self-efficacy, and medication adherence after multicomponent self-management programs (Van Truong et al., 2021). A network meta-analysis of 36 studies involving 3,531 older patients also evaluated self-management education among non-pharmacological approaches to blood pressure management (Li et al., 2022). These findings concern interventions and outcomes that extend beyond the knowledge assessment used in the present community program.

Educational interventions can be delivered face to face, through technology-supported formats, or with telephone assistance. A systematic review reported that these approaches have been used to address knowledge, medication adherence, diet, physical activity, and other self-management outcomes among older adults (Roza et al., 2025). An Indonesian health-coaching trial protocol similarly treats self-care management and self-efficacy as outcomes requiring repeated sessions and follow-up assessment (Irwan et al., 2024). This distinction supports evaluating a single-session community activity as an immediate knowledge intervention rather than as a test of sustained self-management or blood pressure control.

Suli Village was selected because it was geographically accessible, the local Posyandu Lansia served a relatively large older-adult population, and hypertension was commonly encountered among older adults attending the service. The program was coordinated through the Posyandu Lansia and focused on practical information about medication adherence, salt restriction, healthy eating, physical activity, blood pressure monitoring, and healthcare utilization. Its objective was to describe the immediate change in hypertension self-management knowledge from pre-test to post-test; self-management behavior, knowledge retention, and blood pressure control were not evaluated.

2. Materials and Methods

The community service program was conducted on June 6, 2026, in Suli Village, Central Maluku Regency, Maluku Province, Indonesia. It used a one-group pre-test-post-test descriptive evaluation to document immediate change in knowledge following education; it was not designed as an effectiveness study. Fifteen older adults attended the activity and completed both assessments.

Participants were recruited through invitations distributed at the Posyandu Lansia. Older adults who attended the activity and voluntarily agreed to participate in the education and evaluation were included. Recruitment was therefore based on attendance and willingness rather than random selection. A confirmed diagnosis of hypertension was not an eligibility requirement. Blood pressure was measured during the activity as a screening procedure, but a single measurement was not treated as diagnostic confirmation and was not analyzed as a program outcome.

The 10-item questionnaire was developed by the program team from the planned educational topics and was used solely for program evaluation. Each correct answer received 1 point and each incorrect answer received 0 points, producing a total score of 0-10. The questionnaire had not undergone formal psychometric validation. For descriptive reporting, scores were categorized as good (8-10), moderate (6-7), or poor (0-5). These operational categories were not based on validated cut-offs; the continuous score was therefore treated as the primary evaluation outcome.

The items were drafted directly from the material delivered during the education session. No separate expert content review, pilot testing, or psychometric validation was conducted.

Participants received face-to-face education through an interactive lecture, discussion, and question-and-answer session. Topics included hypertension, adherence to medication prescribed by healthcare professionals, salt restriction, healthy food choices, physical activity within individual capacity, regular blood pressure monitoring, routine healthcare visits, and warning signs requiring professional medical attention. The material used simple language and examples drawn from participants' daily routines.

The intervention consisted of one face-to-face education session; the exact duration in minutes was not documented. A member of the community service team delivered the material orally at the front of the group. Each participant received a poster and followed the poster content while listening to the explanation and discussion.

Participants completed the same 10 questions immediately after the education session. Data were summarized using means, standard deviations, medians, ranges, frequencies, and percentages. Changes were described using the pre-test and post-test summary scores and the number of participants whose scores increased, remained unchanged, or decreased. No inferential statistical test was performed.

3. Results

Table 1. Immediate Hypertension Self-Management Knowledge Scores Before and After Education

Assessment	Mean $\pm$ SD	Median	Minimum–Maximum
Pre-test	6.67 $\pm$ 1.40	7	5–9
Post-test	7.73 $\pm$ 0.80	8	7–9

Table 1 shows a descriptive increase in hypertension self-management knowledge immediately after the education session. The mean score increased by 1.06 points, from 6.67 $\pm$ 1.40 at pre-test to 7.73 $\pm$ 0.80 at post-test, while the median increased from 7 to 8. The higher minimum score and lower standard deviation at post-test indicate that participants' scores became more consistently concentrated at the upper end of the observed range. These descriptive results do not establish statistical significance because no inferential test is presented in this table.

Table 2. Distribution of Operational Knowledge Categories Before and After Education

Knowledge Level	Pre-test n (%)	Post-test n (%)
Good	4 (26.7)	8 (53.3)
Moderate	7 (46.7)	7 (46.7)
Poor	4 (26.7)	0 (0.0)
Total	15 (100)	15 (100)

Table 2 shows a descriptive shift toward higher knowledge categories after the education session. The proportion of participants with good knowledge increased from 26.7% (n = 4) to 53.3% (n = 8), while the proportion with poor knowledge decreased from 26.7% (n = 4) to 0%. The moderate category remained at 46.7% (n = 7). Thus, no participant was classified as having poor knowledge at post-test, although this table alone does not establish statistical significance.



Figure 1. Hypertension self-management education for older adults in Suli Village, Central Maluku, June 6, 2026:
(a) group education session & delivery of educational material and discussion.

4. Discussion

The findings showed a descriptive improvement in hypertension self-management knowledge immediately after the community education session. The mean score increased by 1.06 points, the median increased from 7 to 8, and the minimum score increased from 5 to 7. The lower standard deviation at post-test also suggests that participants' scores became more consistently concentrated within the upper part of the observed range. Similarly, the proportion classified as having good knowledge increased from 26.7% to 53.3%, while no participant remained in the poor category after the session. Nevertheless, these findings should be interpreted as an immediate descriptive change within the participating group. Because no inferential statistical test or comparison group was used, the results do not establish statistical significance or demonstrate that the education session alone caused the observed improvement. In addition, the knowledge categories were based on operational rather than validated cut-off points and should therefore be interpreted cautiously.

The direction of change is consistent with findings from an Indonesian community education program involving older adults with hypertension. Ayu et al. reported increased knowledge following a 60-minute program that combined an interactive lecture, discussion, and visual educational media (Ayu et al., 2025; Lesnussa et al., 2024; Nanlohy et al., 2025; Wahdini et al., 2025). The similarity in direction may indicate that face-to-face group education supported by visual materials is suitable for communicating hypertension self-management information to older adults. However, differences in participant characteristics, questionnaire content, program duration, and statistical analysis prevent a direct comparison of effect magnitude between the two programs. The present results should therefore be viewed as preliminary program-evaluation findings rather than confirmation of intervention effectiveness.

The educational format used in Suli Village may have supported participants' immediate understanding and recall. The material was explained orally, reinforced using posters, and followed by discussion, allowing participants to hear, view, and clarify the information provided. Reviews of hypertension self-management education have identified face-to-face group education, written or visual materials, telephone support, and technology-based approaches as commonly used delivery strategies (Hany et al., 2024; Liu et al., 2025). Nevertheless, because all educational components in the present program were delivered together, it is not possible to determine whether the oral presentation, poster, discussion, or their combination contributed most to the observed change. Figure 1 documents the delivery of the program but should not be interpreted as evidence of its effectiveness.

Knowledge represents only one component of hypertension self-management. Self-management also includes medication adherence, dietary modification, physical activity, home blood-pressure monitoring, healthcare attendance, and other lifestyle behaviors (Delavar et al., 2020; Konlan & Shin, 2023; Niriayo et al., 2025). Evidence from Indonesian older adults further suggests that self-management is influenced by health beliefs, family support, access to healthcare, and difficulties in maintaining treatment and lifestyle recommendations (Khasanah et al., 2024). Consequently, the absence of participants in the poor-knowledge category at post-test does not demonstrate that they subsequently adhered to medication, reduced salt intake, increased physical activity, regularly monitored their blood pressure, or achieved better blood-pressure control.

Systematic reviews and meta-analyses have reported improvements in outcomes such as blood pressure, self-efficacy, medication adherence, and self-care following hypertension self-management interventions among older adults (Li et al., 2022; Van Truong et al., 2021). However, those findings were generally derived from structured, multicomponent interventions delivered over longer periods. They cannot be used to infer that comparable behavioral or clinical outcomes occurred after the single education session in Suli Village. For example, an Indonesian health-coaching program was designed as an eight-week intervention with repeated contact and follow-up measurement of self-care and blood pressure (Irwan et al., 2024). This highlights the difference between evaluating immediate knowledge after one educational session and evaluating sustained behavioral or clinical changes through longitudinal assessment.

The immediate administration of the same questionnaire before and after education also creates the possibility of a testing effect. Participants may have remembered the questions or become more attentive to information that appeared in the pre-test. Therefore, the higher post-test scores may reflect a combination of immediate learning, short-term recall, and familiarity with the questionnaire. The results cannot establish whether the knowledge was retained after participants returned to their daily routines. A delayed post-test would be required to evaluate knowledge retention.

Several additional limitations should be considered. The program involved only 15 older adults who voluntarily attended the Posyandu Lansia, limiting the generalizability of the findings. Participant demographic and clinical characteristics were not collected separately, and blood-pressure measurement during the activity was used for screening rather than as confirmation of hypertension diagnosis or as an outcome measure. The 10-item questionnaire was prepared according to the educational material but was not subjected to expert content review, pilot testing, or psychometric validation. The exact duration of the education session was also not recorded. Despite these limitations, the findings provide preliminary descriptive evidence that a face-to-face education session supported by posters and discussion was followed by higher immediate knowledge scores among participating older adults. Future programs should document participant characteristics and session duration, use a validated knowledge instrument, include delayed assessments, and measure self-management behaviors and blood pressure separately.

5. Conclusions

Among 15 older adults participating in this community service program, hypertension self-management knowledge scores were descriptively higher immediately after education than before it (6.67 ± 1.40 vs 7.73 ± 0.80), and 11 participants (73.3%) had higher post-test scores. This finding is limited to immediate knowledge performance in the participating group. It does not establish knowledge retention, adoption of self-management behaviors, or improved blood pressure control.

Conflict of Interest

No conflicts of interest

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