

Improving Elderly Hypertension Knowledge Through Gema Cermat and Dagusibu at Dau Community Health Center

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Abstract : *Hypertension is a major non-communicable disease and is often referred to as a “silent killer” because it may occur without noticeable symptoms. Inadequate knowledge regarding long-term antihypertensive medication use, medication management, and lifestyle modification remains a challenge among patients with hypertension. This community service activity aimed to improve patients’ knowledge regarding hypertension management and safe medication use through the GEMA CERMAT program using the DAGUSIBU approach. This activity employed a pre-experimental one-group pretest-posttest design involving 30 patients with hypertension at Dau Community Health Center, Malang Regency, selected using purposive sampling. The intervention was conducted over four weeks through group health education, individual counseling, and reinforcement sessions using structured leaflet media. Knowledge was assessed using a five-item true/false questionnaire covering hypertension medication use, medication adherence, sodium intake, management of hypertensive conditions, and physical activity. Scores were converted to a 0–100 scale and analyzed using the Wilcoxon Signed-Rank Test. Most respondents were female (93.33%) and aged >61 years (50.00%). The mean knowledge score increased from 77.33 ± 13.63 at pretest to 99.33 ± 3.65 at posttest. The Wilcoxon Signed-Rank Test demonstrated a statistically significant difference between pretest and posttest knowledge scores ($Z = -4.562$; $p < 0.001$). Twenty-five respondents showed increased scores, while five respondents had unchanged scores, and no respondents experienced a decrease in scores. The GEMA CERMAT-DAGUSIBU health education intervention using leaflet-based group and individual counseling was associated with a significant improvement in hypertension-related knowledge among participants. Further studies involving a control group and longer-term assessment of medication adherence, lifestyle behavior, and blood pressure control are recommended to evaluate the sustained impact of the intervention.*

Introduction

Hypertension, or high blood pressure, is one of the non-communicable diseases (NCDs) that poses a major global health challenge and is often called the "Silent Killer" because its symptoms are often invisible, leaving sufferers unaware that they have been suffering from this condition for a long time. According to the World Health Organization (WHO, 2025), the estimated number of people with hypertension worldwide continues to rise, reaching more than 1.28 billion adults, with the largest caseload in developing countries.

In Indonesia, the prevalence of hypertension places this disease as one of the highest causes of morbidity in primary health facilities (Ministry of Health of the Republic of Indonesia [Kemenkes RI], 2014; Arum, 2019). This medical condition occurs when blood pressure on the walls of the arteries increases continuously and consistently, where the diagnosis is confirmed if the systolic blood pressure reading shows a figure of ≥ 140 mmHg and/or diastolic ≥ 90 mmHg on two measurements with an interval of 5 minutes in a condition of sufficient rest (Kemenkes RI, 2014; Arum, 2019).

Based on its cause, hypertension is classified into two types: primary (essential) hypertension, which accounts for 80–95% of cases with an unknown cause, and secondary (non-essential) hypertension, which accounts for 5–10% of cases and is triggered by other diseases such as kidney disorders. Given its position as a major risk factor for increased peripheral resistance, regular blood pressure checks are a crucial screening measure to prevent serious macrovascular and microvascular complications such as heart attacks, heart failure, stroke, and chronic kidney failure (Arum, 2019; Hapsari & Wijaya, 2021).

At the regional level, East Java Province ranks hypertension among the top three most common diseases in outpatient services. According to the latest Malang Regency Health Profile, heart disease and hypertension consistently rank among the top 10 chronic diseases at the primary care level (Malang Regency Health Office, 2025). One health facility facing significant urgency in handling these cases is the Dau Community Health Center in Malang Regency. As a working area with dynamic community characteristics, the Dau Community Health Center recorded a continuous increase in the number of patient visits with complaints of uncontrolled blood pressure and accompanying metabolic complications every month (Maorin & Merdikawati, 2024). The geographic challenges and the mixed-use suburban community in the Dau area demand a more extensive health promotion strategy directed at the target community.

Although pharmacological therapy for hypertension is widely available at community health centers (Puskesmas), successful blood pressure control is highly dependent on patient adherence and self-efficacy. A recent clinical study in the Dau Community Health Center (Puskesmas Dau) area showed that while some patients have self-efficacy that supports

adherence, long-term fluctuations in non-adherence are still common due to a lack of in-depth understanding of the details of medication use (Kusumaningrum et al., 2025). Many patients tend to unilaterally discontinue antihypertensive medication once their physical symptoms subside, and still have misperceptions about non-pharmacological management, such as limiting daily sodium intake and managing hypertensive crises at home (Kusumaningrum et al., 2025; Febrianti et al., 2025).

To minimize this knowledge gap, the Indonesian Ministry of Health is promoting the Smart Community Medicine Use Movement (GEMA CERMAT), which incorporates the basic concept of DAGUSIBU (Get, Use, Store, Discard) (Directorate of Pharmaceutical Services, 2022). Through the integration of the GEMA CERMAT and DAGUSIBU programs, pharmaceutical education is directed towards enabling the public to manage medicines independently and safely. This community service activity utilizes structured leaflets as the primary educational instrument. Leaflets were chosen for their practicality in providing concise visual information that is easily understood by age groups ranging from adults to the elderly. Through the implementation of leaflet-based counseling that was evaluated quantitatively using pre-test and post-test methods, this program aims to optimize drug knowledge and lifestyle compliance of hypertension patients in the Dau Community Health Center work area in a real and sustainable manner. Based on these problems and objectives, the hypothesis in this study is that there is a significant difference (increase) in the level of knowledge of hypertension patients before (pre-test) and after (post-test) being given a leaflet-based health education intervention using the DAGUSIBU method.

The novelty of this activity lies in the combination of a two-stage quantitative evaluation (pre-test and post-test) with a layered educational approach of group counseling in the second week reinforced by individual counseling in the third week so that the effectiveness of the program can be measured measurably, in contrast to several previous GEMA CERMAT-DAGUSIBU programs at elderly posyandu which generally only presented descriptive evaluations without comparative statistical tests (Gurning et al., 2023; Sari & Ramadhan, 2024).

Research Method

Activity Design

This community service activity used a pre-experimental design with a one-group pretest-posttest approach to evaluate the effectiveness of health education on patient knowledge levels. This design was chosen to directly measure the extent to which knowledge increases occur in the same subjects (self-comparison), so that the effectiveness of the educational material can be objectively assessed through the difference in pretest and posttest scores.

Time and Location

The activity was carried out for four weeks in July 2026 at the Dau Community Health Center

in Dau District, Malang Regency, East Java. The activity covered the community health center's working area, which includes the villages of Mulyoagung, Landungsari, Sumbersekar, Gadingkulon, Selorejo, Tegalweru, Petungsewu, Karangwidoro, Kalisongo, and Kucur, with a total population of approximately 68,817 people.

Target Participants

The community or patients with hypertension in the Dau Community Health Center area. Respondent characteristic data collected included name/initials, age, gender, and duration of hypertension.

Implementation Stages

1. Pre-test: Before the education began, participants were asked to fill out a characteristics questionnaire and 5 true/false questions regarding knowledge of hypertension medication (GEMA CERMAT & DAGUSIBU).
2. Educational Intervention: Providing face-to-face counseling regarding the recognition of hypertension, lifestyle modification, the urgency of adherence to taking medication (because the effect of the medication is only 24 hours and the disease cannot be completely cured but only controlled), as well as the DAGUSIBU principle which is in line with the GEMA CERMAT program using leaflet media.
3. Post-test: After the educational session was completed, participants completed the same questionnaire again to measure changes in their level of knowledge.

Evaluation Instrument (Questionnaire)

The instrument used to evaluate the level of respondents' knowledge is a structured questionnaire in the form of a closed questionnaire with True or False answer options. This questionnaire consists of two main parts, namely: (1) Demographic Characteristics, including the respondent's name/initials, age, gender, and duration of hypertension; and (2) Knowledge Statement, consisting of 5 statement items designed to measure understanding of educational materials, including where to get genuine drugs (DA aspect of DAGUSIBU), compliance with taking chronic medication, daily sodium/salt intake limits, emergency management of hypertensive crises, and recommendations for daily physical activity.

Each correct answer is given a score of 1, while an incorrect or unknown answer is given a score of 0, so that the raw score range that respondents can obtain is 0 to 5. Before being used in the post-test stage, the same questionnaire instrument was given in the pre-test stage as a baseline for respondent knowledge data.

Intervention Stages

The intervention was implemented in the following four stages: (1) Week 1 Situation analysis and pre-test, filling out a hypertension knowledge questionnaire by all participants; (2) Week 2 Group counseling, interactive education about hypertension, the mechanism of action of antihypertensive drugs, and the consequences of sudden drug withdrawal, using illustrated leaflets; (3) Week 3 Individual counseling, personal discussions between KKN students (accompanied by

pharmacists/health workers from the community health center) and each participant regarding knowledge barriers and solutions; (4) Week 4 Reinforcement and post-test, repetition of key material, questions and answers, and filling out a post-test questionnaire.

Data analysis

The data collected from the pre-test and post-test questionnaires were tabulated and cleaned first. To equalize the assessment scale, the raw scores (0–5) obtained by respondents were converted to a scale of 100 using the formula: Final Score = Total Raw Score (Number of Correct) x 20.

Based on the final score conversion results (range 0–100), the respondents' knowledge levels are grouped into 3 ordinal categories, namely: Good, if the final score is in the range of 80–100 (equivalent to answering 4–5 questions correctly); Sufficient, if the final score is in the range of 60–79 (equivalent to answering 3 questions correctly); and Poor, if the final score is in the range <60 (equivalent to answering 1–2 questions correctly).

Data analysis was conducted using IBM SPSS statistical software version 25.0. The data analysis steps include: (1) Descriptive Analysis, used to present data on the demographic characteristics of respondents (age, gender, duration of hypertension) and the frequency distribution of percentages of knowledge categories before and after the intervention; (2) Normality Test, conducted using the Shapiro-Wilk test (given the sample size $N = 30$, i.e. <30 respondents) to determine the distribution of knowledge value data; (3) Comparative Hypothesis Test, using the non-parametric Wilcoxon Signed-Rank Test (if the data is proven not to be normally distributed) to analyze the significant differences in the average knowledge score (mean $\pm$ standard deviation) between before (pre-test) and after (post-test) health education was given. The level of statistical significance used was set at $\alpha = 0.05$ (significant if p-value < 0.05).

The implementation of the activity has obtained permission from the Head of the Dau Community Health Center, and all respondents participated voluntarily after receiving an explanation regarding the purpose of the activity (verbal informed consent) before filling out the pre-test questionnaire.

Results and Discussion

Respondent Characteristics

The demographic characteristics of 30 respondents with hypertension in the Dau Community Health Center work area are presented in Table I.

Table I. Demographic Characteristics of Respondents (N = 30)

Characteristics	N	%
Man	2	6.67%
Woman	28	93.33%
30-40 years	0	0.00%
41-50 years	2	6.67%
51-60 years	13	43.33%

Characteristics	N	%
> 61 years	15	50.00%
Duration of Hypertension: Months	10	33.33%
Duration of Hypertension: Years	20	66.67%

Respondents (N = 30)

Knowledge Level Before and After Education

The distribution of respondents' knowledge levels before and after the educational intervention is presented in Table 2.

Table 2. Distribution of Respondents' Knowledge Level Before and After the Intervention

Knowledge Category	Pre-Test n	Pre-Test %	Post-Test n	Post-Test %
Good (80–100)	21	70.00%	30	100.00%
Enough (60–79)	9	30.00%	0	0.00%
Not enough (< 60)	0	0.00%	0	0.00%
Average	77.33		99.33	
Elementary School	13,629		3,651	
p-value	< 0.001			

(N = 30)

Statistical Test Results

I. Descriptive Analysis Results

Based on the results of descriptive analysis of the level of knowledge of hypertension patients, a summary of statistical data was obtained before (pre-test) and after (post-test) the educational intervention was given. Pre-Test: the average (mean) knowledge score of respondents before the intervention was 77.33 (Standard Deviation = 13.629), with the lowest score being 60 and the highest score reaching 100. Post-Test: after being given the educational intervention, the average (mean)

knowledge score of respondents increased significantly to 99.33 (Standard Deviation = 3.651), with the score range moving from the lowest 80 to the highest 100.

Table 3. SPSS Descriptive Analysis Results (Pre-Test and Post-Test)

Statistics	Pre-Test	Post-Test
Mean	77.33	99.33
Std. Error	2,488	0.667
95% CI Lower Bound	72.24	97.97
95% CI Upper Bound	82.42	100.70
5% Trimmed Mean	77.04	100.00
Median	80.00	100.00
Variance	185,747	13,333
Standard Deviation	13,629	3,651
Minimum	60	80
Maximum	100	100
Range	40	20
Interquartile Range	20	0
Skewness	0.170	-5,477
Kurtosis	-0.715	30,000

2. Normality Test Results

To determine the type of statistics used in the hypothesis test, a normality test was first performed. Given the small sample size ($N = 30$), the interpretation refers to the significance value of the Shapiro-Wilk test. The results of the Shapiro-Wilk test show that the significance value (Sig.) for the pre-test data is 0.000 ($p < 0.05$). Similarly, for the post-test data, the significance value (Sig.) is 0.000 ($p < 0.05$), so both data are declared not normally distributed.

Table 4. Results of the Shapiro-Wilk3 Normality Test. Results of the Comparative Hypothesis Test (Wilcoxon Signed-Rank Test)

Data	Test	df	Statistic s	Sig.
Pre-Test	Kolmogorov-Smirnov	30	0.278	0,000
Pre-Test	Shapiro-Wilk	30	0.799	0,000
Post-Test	Kolmogorov-Smirnov	30	0.539	0,000
Post-Test	Shapiro-Wilk	30	0.180	0,000

Based on comparative test analysis using Wilcoxon Signed-Rank Test to determine the difference in the level of knowledge of hypertensive patients before and after being given health education intervention, the following results were obtained.

Negative Ranks (decreased score): 0 respondents had a post-test score lower than the pre-test, which indicates that none of the patients experienced a decrease in their level of knowledge after the education intervention was carried out. Positive Ranks (increased score): 25 respondents showed a post-test score higher than the pre-test score, which indicates that the majority of respondents experienced a real increase in their level of knowledge after being given health education. Ties (score remains the same): there were 5 respondents whose post-test score was the same as the pre-test score (no change).

Table 5. Wilcoxon Signed-Rank Test Ranks

Category	N	Mean Rank	Sum of Ranks
Negative Ranks	0	0.00	0.00
Positive Ranks	25	13.00	325.00
Ties	5	-	-
Total	30		

Test

Based on the Test Statistics table, the calculated Z value was obtained at -4.562 with a significance value or Asymp. Sig. (2-tailed) of 0.000 ($p < 0.001$).

Table 6. Test Statistics Wilcoxon Signed-Rank Test

Test Statistics	Posttest – Pretest
Z	-4,562
Asymp. Sig. (2-tailed)	0,000

As a complement to the statistical significance measure, the effect size was also calculated using the formula $r = Z / \sqrt{N}$, resulting in $r = 4.562 / \sqrt{30} = 0.833$. Based on Cohen's (1988) criteria, an r value ≥ 0.5 is classified as a large effect, indicating that the GEMA CERMAT and DAGUSIBU educational interventions have a practically substantial impact, not only statistically significant, on increasing respondents' knowledge.

Discussion

Increasing patient knowledge regarding chronic disease management is one of the main indicators of successful health promotion implementation in primary care facilities. Based on the results of descriptive analysis of this community service program, a very significant jump in the average knowledge score was found, namely from a pre-test baseline score of 77.33 (SD = 13.629) increasing to 99.33 (SD = 3.651) in the post-test stage. The success of this increase in understanding was statistically proven through a non-parametric comparative Wilcoxon Signed-Rank Test which produced a z value of -4.562 with a significance level of $p < 0.001$. The significance value which is far below the alpha threshold (<0.05) absolutely rejects the null hypothesis (H_0) and accepts the alternative hypothesis (H_1), which confirms that the structured health education intervention based on the Smart Community Movement for Using Medicine (GEMA CERMAT) program has a significant positive

effect in improving the cognitive domain of respondents in the Dau Community Health Center work area (Gurning et al., 2023; Hapsari & Wijaya, 2021; Directorate of Pharmaceutical Services, 2022).

This massive increase in patients' cognitive understanding is inseparable from the specific, systematic, and functional design of the educational materials in the leaflets. During the intervention, respondents were provided with a thorough understanding of the urgency of adherence to antihypertensive medication (such as Amlodipine, Captopril, or HCT), which must be taken continuously every day. Researchers emphasized three key clinical principles: the duration of biological efficacy of most antihypertensive drugs, which lasts only 24 hours in the body; the fundamental nature of hypertension, which cannot be completely cured but can only be controlled by maintaining stable blood pressure; and the danger of fatal organ complications (a silent killer) if treatment is stopped unilaterally (Kusumaningrum et al., 2025; Siregar et al., 2022). Repeatedly conveying these key messages has proven effective in overcoming psychological misperceptions among patients who often stop taking medication unilaterally when physical symptoms subside (Hapsari & Wijaya, 2021; Kusumaningrum et al., 2025; Wulandari & Jannah, 2024). This is in line with the theory that conveying health education verbally supported by concise print media can optimally extend memory retention in middle-aged and elderly patients (Hapsari & Wijaya, 2021; Nuraisyah et al., 2023).

In addition to the limitations of the drug's pharmacology, this structured leaflet also significantly contributes to bridging patient understanding of the importance of daily lifestyle modifications or non-pharmacological therapies. Through easy-to-understand visual illustrations, respondents are provided with concrete guidance regarding limiting daily sodium intake to a maximum of 2000 mg and the obligation to engage in light aerobic physical activity for at least 30 minutes daily (Arum, 2019; Febrianti et al., 2025; Fitriani & Praditya, 2022). The leaflet's concise and focused information facilitates the motor memory of elderly patients to replicate these healthy lifestyle habits in their domestic family environment (Febrianti et al., 2025). This change in understanding is fundamental because behavioral modifications such as a low-salt diet and regular exercise have been clinically proven to reduce peripheral vascular resistance, thus synergizing with the pharmacological effects of drugs in stabilizing blood pressure in hypertensive patients (Arum, 2019; Widyaningrum & Utami, 2023).

The four-week periodic implementation of the program also optimized the effectiveness of the material received by respondents. The group education approach initiated in the second week provided an initial, collective theoretical understanding (Ministry of Health of the Republic of Indonesia, 2014; Supriyatni & Hermawan, 2024). This strategy was further reinforced through individual, interpersonal counseling in the third week, facilitated by pharmacists and community health center personnel (Kusumaningrum et al., 2025; Pratama & Lestari, 2023). These personal sessions provided a private space for patients to discuss psychological challenges, pill burden, and minor side effects they frequently experience independently at home. Through this persuasive approach, patients' self-efficacy in controlling their disease was solidified, ultimately encouraging long-term adherence to their ongoing therapy commitment (Kusumaningrum et al., 2025; Pratama & Lestari, 2023).

Another crucial point that constitutes a novel value in this community service program is the successful instilling of independent medication management skills through the DAGUSIBU (Get, Use, Store, Discard) principle (Directorate of Pharmaceutical Services, 2022; Gurning et al., 2023). Respondents now understand the essence of the "Get" aspect, namely the obligation to redeem

hypertension medication only through official service facilities such as Community Health Centers or Pharmacies to mitigate the risk of contamination by substandard or counterfeit drugs that are widely circulated in illegal grocery stores. In the "Store" and "Dispose" aspects, patient families are equipped with new psychomotor skills to store antihypertensive medications in their original containers at cool temperatures away from direct sunlight to maintain the drug's chemical stability, as well as procedures for safely disposing of expired medications at home (such as soaking tablets in water or destroying the packaging) to prevent misuse (Directorate of Pharmaceutical Services, 2022; Sari & Ramadhan, 2024). The combination of cognitive disease and psychomotor approaches to medication management proves that the integration of the GEMA CERMAT program is able to realize sustainable health independence for families of hypertension patients in suburban areas such as Dau District (Kusumaningrum et al., 2025; Directorate of Pharmaceutical Services, 2022).



Figure 1. Pre-test activity



Figure 2. Extension Activities with Leaflet Media



Figure 3. Post-Test Activity



Figure 4. Student Handover at Dau Community Health Center

Activity Limitations

This community service activity has several limitations that need to be considered in the follow-up program. First, the one-group pretest-posttest design without a control group makes it impossible to attribute knowledge gains solely to the intervention, as other factors, such as the testing effect, could potentially contribute. Second, the evaluation instrument, consisting of five true/false questions, has a relatively limited measurement range and is therefore susceptible to ceiling effects, as reflected in the 100% of respondents achieving the “Good” category on the post-test. Third, the evaluation only measured knowledge (cognitive) and did not objectively address behavioral changes or medication adherence (e.g., through pill counts or follow-up visit data), so the long-term impact of this activity on blood pressure control cannot be determined.

Conclusion

Based on the results of the implementation of community service activities and statistical data analysis that have been carried out, it can be concluded that the structured health education intervention based on the Smart Community Movement for Using Medicine (GEMA CERMAT) program and the DAGUSIBU principle (Get, Use, Save, Throw) using leaflets is significantly effective in increasing the level of knowledge of hypertension patients in the Dau Community Health Center work area. This is empirically proven by the jump in the average value of respondents' knowledge scores from the sufficient category during the pre-test (77.33 ± 13.63) to the very good category during the post-test

(99.33 $\pm$ 3.65). The effect of this intervention is strengthened by the results of the Wilcoxon Signed-Rank Test which shows a strong significance value ($Z = -4.562$; $p < 0.001$), which means that the process of transferring information through group education and individual counseling has succeeded in reducing patient misperceptions regarding long-term therapy and equipping them with independent skills in managing antihypertensive drugs in the domestic family environment.

As a follow-up, it is recommended that the Dau Community Health Center integrate the GEMA CERMAT-DAGUSIBU educational module into the routine agenda of the Chronic Disease Management Program (Prolanis), accompanied by periodic evaluations (e.g. every 3–6 months) to monitor knowledge retention as well as its impact on medication adherence and long-term patient blood pressure stability.

References

- Arum, Y. (2019). Hypertension in the productive age population (15-64 years). *Journal of Public Health Research and Development*, 3(3), 345-356.
- Malang Regency Health Office. (2025). Health profile of Malang Regency. Malang Regency Health Office.
- Directorate of Pharmaceutical Services. (2022). General guidelines for the Smart Community Movement for Using Medicine (Gema Cermat). Ministry of Health of the Republic of Indonesia.
- Febrianti, R., Lestari, P., & Kurniawan, A. (2025). The effectiveness of animated video education on knowledge of dietary approaches to stop hypertension in elderly cadres. *Malang Health Journal and Nursing Sciences*, 7(2), 112-121.
- Fitriani, D., & Praditya, A. (2022). The influence of leaflet media on knowledge of hypertension diet management in the elderly. *Jurnal Promkes: The Indonesian Journal of Health Promotion and Health Education*, 10(2), 145-152.
- Gurning, R., Simanjuntak, M., & Manurung, N. (2023). Community empowerment through Gema Cermat with the Dagusibu method at the elderly integrated health post (posyandu). *Journal of Nursing Community Service*, 5(1), 34-42.
- Hapsari, AF, & Wijaya, AY (2021). Knowledge, attitudes, and behavior towards the prevention and management of hypertension. *Journal of Community Health Service*, 1(1), 16-24.
- Ministry of Health of the Republic of Indonesia. (2014). Clinical practice guidelines for doctors in primary health care facilities. Ministry of Health of the Republic of Indonesia.
- Kusumaningrum, A., Octavia, R., & et al. (2025). Self-efficacy and medication adherence in elderly with hypertension at Dau Community Health Center, Malang Regency. *Journal of Professional Nursing (KEPO)*, 6(1), 185-192.
- Maorin, I., & Merdikawati, A. (2024). Application of Benson relaxation technique to reduce blood pressure in pregnant women with hypertension at Dau Community Health Center [Thesis, Brawijaya University]. Brawijaya University Repository.
- Nuraisyah, S., Rahmawati, E., & Aminah, S. (2023). The use of questionnaires and leaflets to measure the effectiveness of hypertension education in the Prolanis group. *Community Health Journal*, 9(2), 210-218.
- Pratama, WA, & Lestari, DP (2023). The effect of home pharmacy care pharmaceutical counseling on medication adherence in elderly hypertensive patients. *Indonesian Journal of Clinical Pharmacy*, 12(3), 189-198.

- Sari, MP, & Ramadhan, F. (2024). Dagusibu education on antihypertensive drugs for village-level health cadres. *Journal of Pharmaceutical Community Service*, 4(1), 12-21.
- Siregar, H., Lubis, A., & Nasution, S. (2022). Factors influencing unilateral drug discontinuation behavior in patients with chronic hypertension. *Journal of Health Epidemiology*, 14(1), 55-63.
- Supriyatni, T., & Hermawan, B. (2024). Small group health education strategies to improve prolanis compliance in community health centers. *Indonesian Journal of Health Administration*, 12(1), 76-85.
- Widyaningrum, N., & Utami, T. (2023). The relationship between the level of knowledge of a low-salt diet and the stability of systolic blood pressure in elderly hypertensive patients. *Scientific Journal of Nursing*, 18(2), 101-109.
- Wulandari, R., & Jannah, M. (2024). The role of family support in memory retention of daily medication intake in geriatric hypertensive patients. *Malang Nursing Journal*, 6(1), 44-53.
- World Health Organization. (2025, September 25). Hypertension. <https://www.who.int/news-room/fact-sheets/detail/hypertension>