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## Health education on the use of aromatherapy as an effort to control hypertension

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### ABSTRACT

Hypertension is a non-communicable disease with increasing prevalence and is a major risk factor for cardiovascular disease, especially in the elderly. Low knowledge, unhealthy lifestyles, and suboptimal stress management often lead to uncontrolled hypertension in the community. Housewives have the potential to be empowered as a socio-religious community in efforts to control hypertension. This community service activity aims to increase the knowledge and independence of subjects in controlling hypertension through health education and the application of complementary lavender aromatherapy therapy. The activity method uses a pretest–posttest design approach without a control group, with housewives as subjects who are members of the *Surah Yasin* reading group. The sample was taken by accidental sampling, with a total of 50 people. Respondents were given education about hypertension and trained to use lavender aromatherapy provided by the researcher, then their blood pressure was evaluated. The instruments used were questionnaires and sphygmomanometer aneroid. The results of the activity were analyzed descriptively, showing an increase in knowledge in the good category from 26% before the activity to 78% after the activity and a decrease in average systolic blood pressure of 9.36 mmHg and diastolic blood pressure of 5.68 mmHg. This activity shows that a community-based approach through health education and lavender aromatherapy has the potential to support promotive and preventive efforts in controlling hypertension in the community.

**Keywords:** hypertension, community service, lavender aromatherapy, complementary therapy

### Background

Hypertension or high blood pressure is a health problem in society, it is estimated that the prevalence of hypertension in the world is 1 billion people with 7.1 million deaths every year (1). Hypertension is a long-term condition with a prevalence of 50% in the elderly. Hypertension is a non-communicable disease (NCD) that is a major health problem both globally and nationally (2). The World Health Organization (WHO) reports that approximately 1.13 billion people worldwide suffer from hypertension, and this number continues to increase annually. Hypertension is known as a silent killer because it often does not cause symptoms but carries the risk of serious complications such as heart disease, stroke, and kidney failure (3). In Indonesia, the results of the 2018 Basic Health Research (Riskesdas) showed an increase in the prevalence of hypertension along with changes in people's lifestyles, such as a high-salt diet, lack of physical activity, and increased stress (4). This condition is exacerbated by low public

awareness of the need for regular blood pressure checks and adherence to treatment. Hypertension is a leading cause of premature death and reduces the quality of life, especially in the elderly (5).

Risk factors for increasing the prevalence of hypertension include aging and easily modifiable risk behaviors, such as unhealthy diet, harmful alcohol use, smoking, lack of physical activity, being overweight/obese and prolonged stress (6). Housewives as subjects who are members of the *Yasin* reading group in Bacem Village, Ponggok District, Blitar Regency, is a community with a majority of members aged late adulthood to elderly, 20 people (40%) suffer from hypertension, with a distribution of 25% stage 1 hypertension, 50% stage 2, and 25% stage 3. This figure indicates a fairly high prevalence of hypertension at the community level. The main problems faced by partners include low knowledge about hypertension, the assumption that increased blood pressure is a normal part of age, and low compliance with health controls and medication consumption. In addition, a high-salt diet (salted fish, blended vegetables, instant noodles), excessive coffee consumption, lack of physical activity, and unconscious stress contribute to worsening hypertension (7). Complaints such as dizziness, neck tension, and sleep disturbances are often experienced, but have not been followed by consistent lifestyle changes. Diet can have an impact on the incidence of hypertension. Research conducted. Research shows that dietary patterns influence the incidence of hypertension(8). Uncontrolled eating habits can increase blood pressure, such as the habit of consuming fatty foods, especially saturated fat and cholesterol. One way to prevent hypertension is to maintain a good diet, reducing high-fat and salt intake, and increasing high-fiber foods like fruits and vegetables (9).

Blood pressure tends to be high in older adults, putting them at greater risk of developing hypertension (high blood pressure). As we age, blood pressure increases because artery walls thicken, leading to a buildup of collagen in the muscle layer, which gradually narrows and stiffens the blood vessels (10). Hypertension management requires a comprehensive approach, encompassing both pharmacological and non-pharmacological approaches. Lavender aromatherapy was chosen because it is easy to implement, safe, affordable, and suitable for the needs of elderly people in the community (11). Lavender contains active ingredients such as linalool and linalyl acetate, which have a relaxing effect, reduce stress, improve sleep quality, and help lower blood pressure. Lavender aromatherapy works through the olfactory system, affecting the central nervous system, increasing alpha waves associated with relaxation(12). The use of this aromatherapy is effective in reducing common complaints experienced by hypertension sufferers, such as dizziness, tension, anxiety, and insomnia, without causing harmful side effects. Therefore, lavender aromatherapy is highly suitable as a community-based complementary therapy (13).

The high prevalence of hypertension in Housewives as subjects who are members of the *Surah Yasin* reading group, coupled with low levels of knowledge and healthy lifestyle habits, highlights the need for community empowerment-based interventions. Housewives as subjects who are members of the *Surah Yasin* reading group have significant potential due to their regular meetings, strong social ties, and strong support among members, making them an effective medium for health education and intervention. This community service activity is crucial as a promotional and preventive measure in controlling hypertension through health education and the application of complementary lavender aromatherapy. This program is expected to improve the knowledge, skills, and independence of partners in managing hypertension, reduce the risk of complications, and sustainably improve the quality of life for the elderly (14).

## Methods

This activity was a community service program using a pretest–posttest design without a

control group, conducted on Friday, December 12, 2025, at RT 07 RW 04 Bacem Village, Ponggok District, Blitar Regency, involving all members of the housewives as subjects who are members of the *Surah Yasin* reading group, selected through accidental sampling, resulting in 50 participants. The instruments used included an aneroid sphygmomanometer and stethoscope for blood pressure measurement and questionnaire. The procedure was carried out over three meetings within three weeks, beginning with health education on hypertension covering definition, risk factors, signs and symptoms, complications, and hypertension control through a healthy lifestyle, followed by pretest and posttest blood pressure measurements and the administration of lavender aromatherapy through inhalation using 2–3 drops of lavender oil, inhaled slowly for approximately 10–15 minutes in a relaxed sitting position in a quiet room. Data collection was conducted through direct observation of demographic data, blood pressure measurements before and after the intervention, and participants' knowledge levels before and after health education. The collected data were analyzed using descriptive analysis, presented as mean systolic and diastolic blood pressure values and frequency distributions of participants' knowledge levels before and after the activity.

## Results

The community service activities carried out in housewives as subjects who are members of the *Surah Yasin* reading group in Ponggok sub-district, Blitar Regency, have demonstrated significant program achievements. These achievements are the result of structured and collaborative program implementation between the implementation team and partners. The results of these activities are presented in detail in the following section as a form of evaluation and reflection on the program implementation that has been carried out. Data analysis in this community service activity was conducted descriptively to describe changes in the level of knowledge and blood pressure of participants before and after the intervention.

**Table 1. Demographic data**

Demographic data	Frequency	Presentation
<b>Age</b>		
Late Adulthood 36-45 Years	14	28.0%
Elderly < 60 years old	36	72.0%
<b>Work</b>		
Housewife	46	92.0%
Trader	2	4.0%
Farmer	2	4.0%
<b>Education</b>		
Junior High School	15	30.0%
Senior High School	35	70.0%
<b>Family history of hypertension</b>		
Yes	38	76.0%
No	12	24.0%

Based on the table above, it can be seen that of the 50 housewives as subjects who are members of the *Surah Yasin* reading group, the majority are elderly, including 72% (36) people in the elderly category and 28% (14) people in late adulthood. Based on their occupations, 92% (46) people work as housewives, 4% (2) people as traders and 4% (2) people as farmers. Based on their last education, it was found that 30% (15) graduated from junior high school and 70% (35) graduated from high school. Based on family health history, 76% (38) people have a family history of hypertension and 24% (12) people do not have a family history of

hypertension.

### Frequency table of blood pressure pretest posttest examination

**Table.2 Blood pressure pretest posttest examination**

Blood pressure	Pretest	Posttest	Difference
	Mean	Mean	
Systole	142.0200 mmHg	132.6600 mmHg	9.36
Diastole	88.4200 mmHg	82.7400 mmHg	5.68

Based on the table above, the results of the blood pressure study before and after the intervention were given, an average decrease in systolic blood pressure of 9.36 and diastolic blood pressure of 5.68 mmHg was obtained after carrying out complementary therapy in the form of lavender aromatherapy which was carried out for 3 meetings, showing the effectiveness of lavender therapy as a complementary therapy in controlling blood pressure in respondents.

### Frequency table of pretest posttest knowledge

**Table 3. Pretest posttest knowledge**

Level of knowledge	Pre-Test		Post-Test	
	F	%	F	%
Good	13	26%	39	78.0%
Enough	10	20%	11	22%
Not enough	27	54%	0	00.0 %

Based on the table above, it can be seen that before the intervention was carried out, the level of knowledge was good for 26% (13) people, sufficient for 20% (10) people, and insufficient for 54% (27) people. After the intervention for 3 meetings, the level of housewives in the good category increased by 78% (39) people and sufficient for 22% (11) people

### Discussion

#### Pretest posttest knowledge level

Based on the table above, it can be seen that the group of housewives as subjects who are members of the *Surah Yasin* reading group, before the health education regarding hypertension obtained data that had a good level of knowledge of 26% (13) people, sufficient as many as 20% (10) people, and the most was less with a total of 54% (27) people. After the health education regarding hypertension for 3 meetings, the level of knowledge of housewives as subjects who are members of the *Surah Yasin* reading group increased. In the good category, there was an increase of 78% (39) people and sufficient as many as 22% (11) people. This shows that there is an effective difference in the knowledge of housewives as subjects who are members of the *Surah Yasin* reading group before and after the health education regarding hypertension.

According to before receiving education, the majority of elderly people were in the poor knowledge category (85.57%), while after education, the majority were in the fair to good category (68.04% fair, 29.90% good). This indicates that education successfully drove changes in respondents' knowledge for the better(16). This improvement indicates that education successfully improved the elderly's understanding of the importance of hypertension treatment,

medication schedules, and the risk of complications if they do not comply with medication. These results align with research, which states that health education is effective in improving the knowledge of hypertension patients(17). According to showed that there was a relationship between knowledge and hypertension control efforts in the elderly with a p-value of 0.014 ( $<\alpha=0.05$ ). The OR results obtained showed that respondents with a low level of knowledge were 3.326 times more likely to make poor hypertension control efforts compared to respondents with a good level of knowledge. After education, it was shown that the majority of hypertension recurrence prevention efforts were in the good category with a total of 31 respondents (73.8%) (18).

Health education about hypertension plays a crucial role in increasing the knowledge of the housewives as subjects who are members of the *Surah Yasin* reading group, most of whom are adults and elderly. Through educational activities delivered simply and in a context relevant to everyday life, the women can understand the meaning of hypertension, its risk factors, signs and symptoms, and the potential impacts if left untreated. This understanding provides a crucial foundation for them to become more aware of their own and their families' health. In addition to increasing knowledge, hypertension health education for the housewives as subjects who are members of the *Surah Yasin* reading group also encourages changes in attitudes and behavior toward a healthier lifestyle. With adequate knowledge, the women can adopt a balanced diet, reduce salt consumption, engage in regular physical activity, and have their blood pressure checked regularly. The housewives as subjects who are members of the *Surah Yasin* reading group, which has strong social ties, also has the potential to become agents of health information dissemination in their surrounding community, so that the impact of education is felt not only individually but also broadly within the community.

### **Blood pressure pretest posttest**

Based on the table above, the results of the blood pressure study before and after the intervention were given, an average decrease in systolic blood pressure of 9.36 and diastolic blood pressure of 5.86 mmHg was obtained. The administration of lavender aromatherapy carried out for 3 meetings showed the effectiveness of lavender therapy as a complementary therapy in controlling blood pressure in respondents.

Based on research the study was conducted on April 11-14, 2025, in the Janti Community Health Center, it aimed to explore the effectiveness of lavender aromatherapy as a complementary approach in managing hypertension in the elderly (19). During the four days of therapy, encouraging changes were observed, both physiologically and psychologically. Daily blood pressure measurements showed a downward trend, especially in systolic blood pressure. On the first day, participants' blood pressure was recorded at 180/90 mmHg before therapy, and dropped to 170/90 mmHg after therapy. Similar decreases were seen in the following days; for example, on the third day, participants' blood pressure changed from 180/90 mmHg to 170/80 mmHg, and on the final day, it dropped further to 165/80 mmHg from 170/90 mmHg. Although not drastic, this consistent pattern of decline suggests that lavender aromatherapy has a calming effect that may contribute to stabilizing blood pressure in the elderly.

Lavender aromatherapy can be a beneficial non-pharmacological alternative to help lower blood pressure in women reciting housewives as subjects who are members of the *Surah*

*Yasin* reading group. Lavender aroma is known to have a relaxing effect that can calm the nervous system, reduce stress, and ease emotional tension. This relaxed state affects heart rate and blood vessel dilation, thus gradually lowering blood pressure (20). For women reciting housewives as subjects who are members of the *Surah Yasin* reading group who frequently experience fatigue or stress due to daily activities, lavender aromatherapy can be an easy-to-implement and safe supportive therapy. In addition to its physiological benefits, the use of lavender aromatherapy in women reciting housewives as subjects who are members of the *Surah Yasin* reading group, can also increase comfort and a calmer atmosphere during the activity. A conducive and relaxing environment can help women more easily accept the benefits of therapy and maintain stable blood pressure. With regular use and a healthy lifestyle, lavender aromatherapy has the potential to be part of promotive and preventive efforts in controlling hypertension in women reciting housewives as subjects who are members of the *Surah Yasin* reading group, especially as a complement to existing medical treatments. Limitations of this activity include the short duration of the intervention and the lack of a comparison group.



**Figure 1 Shows health education, blood pressure measurement and lavender aromatherapy treatment.**

## Conclusion and Recommendations

The Community Service Program implemented in Bacem Village, group in Neighborhood Association 07 Community Association 04 Bacem Village, Ponggok District, has yielded very positive results in efforts to control hypertension in the women's housewives as subjects who are members of the *Surah Yasin* reading group community through complementary therapy. This activity included health education and blood pressure checks. The results of the activity showed that: The Community Service Program in Bacem Village in Neighborhood Association 07 Community Association 04 District, Blitar Regency succeeded in improving hypertension control in the housewives as subjects who are members of the *Surah Yasin* reading group through health education, blood pressure checks, and the application of lavender aromatherapy. The administration of lavender aromatherapy during three sessions resulted in an average decrease in blood pressure, namely systolic by 9.36 mmHg and diastolic by 5.86 mmHg, health education has been shown to increase participants' knowledge, as indicated by an increase in the good knowledge category from 26% before the intervention to 78% after the intervention, thus encouraging positive behavioral changes in hypertension control. This intervention demonstrates that a combined educational and promotive approach

can increase public awareness of a healthy lifestyle and encourage positive behavioral changes in hypertension control.

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