

EDUCATIONAL INTERVENTION ON PUMPKIN PUDDING CONSUMPTION FOR HYPERTENSIVE ELDERLY: A COMMUNITY- BASED BLOOD PRESSURE REDUCTION PROGRAM IN PEUNAYAN VILLAGE

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ABSTRACT The target audience of this Community Partnership Program (PKM) consists of men and women suffering from hypertension in Peunayan Village, within the working area of the Nisam Community Health Center, totaling 20 individuals. The purpose of the activity is to reduce high blood pressure in the community through educational interventions on the provision of pumpkin pudding. The method used to address the problems faced by the target audience is community service activities conducted through educational sessions on providing pumpkin pudding at the Peunayan Village prayer hall (Menasah), Nisam Community Health Center, North Aceh. On the first day, before the educational session, a pre-test is conducted. On the second day, there is a demonstration on how to make pumpkin pudding, followed by a post-test. This activity took place from April 30 to May 2, 2025. After evaluation, there was a 70% increase in knowledge and a 76.6% increase in skills, successfully achieving the targeted outcomes. The expected outputs include a national publication with ISSN and e-ISSN, as well as obtaining intellectual property rights (IPR) for the educational module and leaflet on the provision of pumpkin pudding to elderly people with hypertension. The program has also been publicized through online media. This program is expected to benefit the community, especially the target audience, thereby contributing to the reduction of high blood pressure among the elderly in the Nisam Community Health Center working area.

KEYWORDS: *Pumpkin Pudding, High Blood Pressure Reduction, Elderly, Nisam Community Health Center Working Area.*

1. INTRODUCTION

Hypertension, also referred to as high blood pressure, is a disorder affecting the blood vessels that results in an impeded supply of oxygen and nutrients carried by the blood to body tissues in need. Hypertension is defined as a condition marked by an increase in systolic blood pressure (SBP) and/or diastolic blood pressure (DBP) $\geq 140/90$ mmHg.

The World Health Organization (WHO) states that hypertension is one of the most important contributors to stroke and heart disease, which together constitute the leading cause of death and disability worldwide. WHO data indicate that hypertension is estimated to cause 7.5 million deaths, representing 12.8% of total annual deaths. An individual is considered hypertensive if their blood pressure exceeds $\geq 140/90$ mmHg.

High mortality rates are associated with major risk factors, particularly elevated blood pressure. According to WHO (2013), approximately 40% of adults aged 25 and older worldwide have been diagnosed with hypertension, and this number is projected to increase by 60% by 2025. In 2015, WHO recorded 839 million hypertension cases globally, with projections reaching 1.15 billion by 2025—about 29% of the world's population. In Southeast Asia, hypertension kills an estimated 1.5 million people annually, with 1 in 3 individuals affected. Among both men and women, the prevalence has increased from 18% to 31% and from 16% to 29%, respectively.

In Indonesia, the prevalence of hypertension according to the 2020 Basic Health Research (Riskesdas) was 34.1% among adults over 18 years old, up from 25.8% in 2013—a rise of 8.3%. In Aceh Province in 2018, the prevalence remained relatively high at 25.1%, representing an increase of 2.5% compared to West Sumatra data in 2013.

Based on the 2018 Aceh Provincial Health Research and Development Coordination Meeting data, North Aceh Regency ranked 4th in the province with a hypertension prevalence of 31.2%, notably higher than the provincial average of 25.1%. Riskesdas 2020 reported a national decline in hypertension-related prevalence in children under five, dropping from 37.2% (2013) to 30.8% (2018)—a 6.4% decrease. However, prevalence among hypertensive mothers remained high at 29.9%, exceeding the 2019 RPJMN target of 28%.

In Aceh, the prevalence rate decreased significantly by December 2021. The Indonesian Ministry of Health's 2021 Indonesia Nutrition Status Survey (SSGI) reported a national hypertension prevalence of 24.4%, with Aceh at 33.2%, down from 37.9% in 2020—representing a 4.7% reduction.

Risk factors for hypertension include age, gender, heredity, obesity, smoking, alcohol consumption, excessive salt intake, stress, and hormonal imbalances. If left untreated, hypertension can lead to complications such as stroke, heart disease, and kidney damage.

Management can be pharmacological—using antihypertensive drugs—or non-pharmacological. While medication can control blood pressure, long-term use can be costly and cause side effects. Therefore, many communities turn to non-pharmacological interventions, including lifestyle modification, weight control, sodium restriction, low-fat diets, reduced alcohol intake, and consumption of potassium- and fiber-rich foods.

One such dietary intervention involves pumpkin (*Cucurbita moschata* Duch.), which is rich in potassium and fiber. In 100 grams, pumpkin contains approximately 220 mg potassium and 2.7 g dietary fiber—covering 6.2% of daily potassium needs (3,500 mg for hypertensive individuals) and 9.9% of daily fiber requirements. Pumpkin also contains antioxidants such as β -carotene, flavonoids, vitamin C, and vitamin E. The yellow or orange flesh color indicates high carotenoid content.

As a snack, pumpkin pudding offers high potassium and fiber levels, with one portion containing 317.2 mg potassium and 7.13 g fiber. In pudding form, pumpkin nutrients are more easily absorbed in the small intestine, and the soft texture facilitates chewing and swallowing—particularly for elderly individuals.

Pumpkin is widely cultivated in Indonesia, with relatively high production levels. According to the Food and Agriculture Organization, production fluctuated between 2010 and 2019, peaking at 603,325 tons in 2016, with a harvested area of 8,385 hectares in 2019.

A study by Dali (2017) found that daily pumpkin juice consumption for seven consecutive days among hypertensive individuals resulted in an average systolic BP reduction of 18 mmHg (from 156.37 mmHg to 138.67 mmHg) and an average diastolic BP reduction of 7.34 mmHg (from 96.67 mmHg to 89.33 mmHg).

In Peunayan Village, located within the working area of the Nisam Community Health Center, the number of hypertension cases increased from 18 in 2023 to 20 in 2024. This reflects a persistent health challenge in Aceh, where the annual prevalence of hypertension remains high at 37.9%. On a global scale, the prevalence is projected to rise from 26.4% to 29.2% by 2025. In 2022, the total number of hypertension cases in Aceh Province reached 897,116 (WHO, 2013).

According to WHO (2023), hypertension is the leading cause of premature death worldwide. Between 1990 and 2019, the number of adults aged 30–79 with hypertension doubled globally, rising from 650 million to 1.3 billion—32% in high-income countries and 34% in low-income countries. Among those diagnosed, only 54% were aware of their condition, 42% were receiving treatment, and just 21% had their blood pressure under control. By 2025, the number of people with hypertension is projected to reach 1.5 billion, with an estimated 10.44 million deaths annually due to hypertension and its related complications (Ministry of Health, 2023).

In the local context, several factors exacerbate the problem. Many women with hypertension have a low level of knowledge regarding the consumption of pumpkin pudding and its potential health benefits. Awareness about preparing pumpkin pudding as part of a healthy diet is limited, and creativity in presenting it in appealing forms is also lacking. Additionally, the absence of accessible information about the nutritional and therapeutic benefits of pumpkin pudding leaves this food underutilized in hypertension management. The high risk of heart disease among hypertensive women in the area further underscores the urgency of targeted interventions.

Based on the situation analysis, the key issues identified include a lack of knowledge among women with hypertension about consuming pumpkin pudding, limited awareness of its importance, and insufficient understanding of preparation methods and benefits. These factors contribute to the persistently high prevalence of hypertension in the community.

The community service team from the Aceh Health Polytechnic (Poltekkes Kemenkes Aceh), in collaboration with local health officers, agreed that the primary goal is to reduce the prevalence of hypertension among women in Peunayan Village. The planned intervention will focus on health education regarding the importance of pumpkin pudding for hypertensive women. The agreed priority issues are as follows:

1. Providing information on the health benefits of pumpkin pudding for hypertensive women.
2. Improving knowledge of the most suitable types of pumpkin pudding for hypertensive individuals.
3. Enhancing skills in preparing pumpkin pudding as a practical dietary approach to blood pressure control.

Based on this evidence, the authors conducted a community service program titled: "Education on Providing Pumpkin Pudding (*Cucurbita moschata* Duch.) to Elderly People with Hypertension as an Effort to Reduce High Blood Pressure in Peunayan Village, Nisam Community Health Center Working Area, North Aceh Regency, 2025."

2. METHOD

a. Target Audience

The target audience of this community service activity was women with hypertension in Peunayan Village, Nisam Community Health Center working area, North Aceh Regency. A total of 20 participants were involved. The intervention consisted of educational activities on providing pumpkin pudding to men and women with hypertension, aimed at reducing the prevalence of high blood pressure in the Nisam Community Health Center working area.

b. Location and Time of Implementation

The activities were carried out in Peunayan Village, Nisam Subdistrict, North Aceh Regency. The community service program was implemented over one year, from January to December 2025. Preparations began in January 2025 with official permits obtained from the District Health Office on January 24, 2025. An initial assessment was conducted at the Nisam Community Health Center on February 24, 2025. The main activities were held from April 30 to May 2, 2025, followed by a post-activity evaluation on May 22, 2025.

c. Method of Implementation

The educational activities were carried out over two days, from April 30 to May 2, 2025, in Peunayan Village. Each day's program lasted four hours, from 09:00 to 13:00.

On the first day, the opening ceremony was attended by the entire community service team, students, village midwives, health cadres, and the target participants. The event was officially opened by the Village Head (Geucik) of Peunayan, followed by remarks from the Head of the Nisam Community Health Center, accompanied by midwives and staff. The session was attended by health cadres and 20 women suffering from hypertension living in Peunayan Village, within the working area of the Nisam Community Health Center.

The first day began with a pre-test to assess participants' knowledge about the provision of pumpkin pudding and the preparation of pumpkin pudding biscuits for hypertensive women, along with blood pressure measurements. The community service focused on improving participants' knowledge and skills in making pumpkin pudding, with the goal of reducing high blood pressure. Knowledge levels were measured using a questionnaire, with assessments conducted by the community service team consisting of lecturers and students.

Educational material on the benefits of pumpkin pudding was presented by Ns. Yusnidaryani, SKM, S.Kep., M.Kes, while the session on pumpkin pudding preparation was delivered by Ns. Marlina, SST., S.Kep., M.Kes, Said Taufiq, M.Kes, Ns. Yuli Sartika Sari, S.Kep., M.Kep, and M. Jamil Fauzi, M.Kes. The demonstration of pumpkin pudding preparation was led by lecturers and students, namely Cut Dewi and Haiqal.

The program was implemented as planned over three days, with 100% attendance from the target participants. The hypertensive women showed great enthusiasm during both the educational and demonstration sessions. They actively asked a variety of questions and were highly engaged throughout the demonstration process.

Following the demonstration, a post-test was conducted. Participants appeared eager to complete the post-test sheets, having gained new knowledge and practical skills in making pumpkin

pudding. At the conclusion of the activity, the community service team provided participants with an informational leaflet on the benefits of pumpkin pudding. An evaluation was then conducted to compare the pre-test and post-test results, measuring changes in participants' knowledge regarding the educational material on pumpkin pudding and the skills demonstrated in its preparation after the intervention.

3. RESULT AND DISCUSSION

3.1 Results

Overall, there was an increase in knowledge among hypertensive women after the educational activity on the provision of pumpkin pudding and the demonstration of its preparation. The success of the activity was indicated by the high level of participation, especially from the target audience. To measure the effectiveness of the activity, observation sheets were used, and blood pressure measurements were taken directly from hypertensive women in the Nisam Community Health Center working area. These results were then compared with measurements taken before the participants were given pumpkin pudding.



Figure 1. Blood pressure measurements in the Nisam Community Health Center working area for hypertensive women.

The evaluation of this community service program referred to the achievement of the planned objectives. The measurement instruments were developed based on the specific objectives, in the form of a knowledge questionnaire on pumpkin pudding provision as well as on the method

of making pumpkin pudding for hypertensive women. Based on the results of the activity, the frequency distribution of the characteristics of hypertensive women was obtained as follows:

Table 1. Frequency Distribution of Characteristics of Women Suffering from Hypertension in Gampoeng in the working area of the Nisam Health Center in 2025

Characteristics of Respondents	Total	Persentase (%)
Age		
35-49 tahun	10	50
50-65 thn	10	50
Education		
Menengah	15	75
Tinggi	5	25
Work		
Tidak Bekerja	10	50
Bekerja	10	50
Before consuming yellow pumpkin pudding		
140/90mmhg	5	25
>140/90mmhg	15	75
After consuming the yellow pumpkin pudding		
140/90mmhg	15	75
>140/90mmhg	5	25
Jumlah	20	100

Based on the table above, it can be seen that from the 20 respondents, it can be found that the age of respondents is 35-49 years 10 people (50%), 50-65 years old (50%), secondary education 15 people (75%), higher education 5 people (25%), unemployed 10 people (50%), working 10 people (50%), mothers / gentlemen who in Gampoeng have a working area of the Nisam Health Center 140/90mmhg before consuming yellow pumpkin pudding 5 people (25%) and >140/90mmhg 15 people (75%), The number of mothers and gentlemen in Gampoeng who were in the working area of the Nisam Health Center was 140/90mmhg after consuming yellow pumpkin pudding 15 people (75%) and >140/90mmhg 5 people (25%).

Tabel 2. Distribusi Frekuensi ketrampilan Ibu-ibu yang menderita hipertensi dalam Pembuatan puding labu kuning. Di Gampoeng penayan wilayah kerja Puskesmas Nisam tahun 2025

Ketrampilan	Pre test	(%)	Post Test	(%)
Kurang	17	85	5	25
Mampu	3	15	15	75
Jumlah	20	100	20	100

Berdasarkan tabel di atas menunjukkan bahwa pembuatan puding labu kuning diGampoeng Peunayan wilayah kerja puskesmas Nisam setelah di dilakukan demontrasi kepada kategori mampu 15 orang (75%) dan pada kategori kurang mampu 5 orang (25%) sedangkan sebelum dilakukukan

demonstrasi Ibu-ibu yang menderita hipertensi yang mampu 3 orang (15%) dan kurang mampu 17 orang (85%).

3.2 Discussion

a. Knowledge

Education or counseling is an instructional method that can be used to improve knowledge. Knowledge, or the cognitive domain, plays a crucial role in shaping a person's actions (overt behavior) and decision-making when receiving new information. One important source of such information is health education. According to Suryaningsih (2012), the goal of health education is to increase knowledge. For women with hypertension in the Nisam Community Health Center working area, one such area of knowledge is the provision and preparation of pumpkin pudding.

After the educational intervention, knowledge about pumpkin pudding among hypertensive women improved, with 15 participants (75%) achieving a "good" category and 5 participants (25%) in the "poor" category, compared to pre-intervention results where only 10 participants (50%) were in the "good" category and the remaining 10 (50%) in the "poor" category.

The evaluation of this community service activity, which involved providing pumpkin pudding to hypertensive men and women, revealed that participants were enthusiastic from start to finish, supported by health cadres who assisted in implementing the program. During discussion and Q&A sessions, participants were able to respond to questions about hypertension symptoms and complications, and the team also provided tips on preparing healthy pumpkin pudding to preserve its nutritional content. The enthusiasm of participants led local health personnel to express interest in conducting similar activities regularly in the Nisam Community Health Center working area.

The health education delivered by the community service team utilized engaging media such as PowerPoint presentations and colorful leaflets, presented in simple, easy-to-understand language. This approach resulted in high enthusiasm from participants, evidenced by the large number of questions raised during the sessions, demonstrating strong curiosity and motivation to learn.

Another method used to enhance both knowledge and skills was the direct demonstration of pumpkin pudding preparation for hypertensive men and women.

b. Skills

The demonstration of pumpkin pudding preparation for hypertensive women was conducted on the second day, following the health education session on its benefits and preparation methods. This activity involved all 20 participants who attended the first day's session.

Prior to the demonstration, many hypertensive women in Peunayan Village were unable to prepare pumpkin pudding correctly. Following the demonstration, there was a noticeable improvement in skills, as well as changes in blood pressure measurements among participants who consumed pumpkin pudding.

According to Lisa and Putri (2019), demonstrating the preparation of pumpkin pudding significantly improves skills among hypertensive women, with a direct impact on their ability to prepare the pudding. In their study, before the demonstration (pre-test), the majority of respondents (90.3%) required improvement, and only 9.7% were able to prepare it. After the demonstration (post-test), 75% were able and proficient, while only 25% still needed improvement.

The preparation of pumpkin pudding serves the purpose of lowering high blood pressure among hypertensive men and women in the Nisam Community Health Center working area, making it both a dietary intervention and a health promotion tool.

4. CONCLUSION

The implementation of education on the provision of pumpkin pudding for elderly individuals with hypertension in Peunayan Village has proven effective in improving both knowledge and practical skills. Following the educational sessions and demonstrations, participants demonstrated a marked increase in their understanding of the health benefits of pumpkin pudding and the proper methods for its preparation. This improvement was accompanied by a significant rise in skill levels, with the majority of participants becoming capable of independently making the pudding.

Beyond the acquisition of knowledge and skills, there was also a positive change in participants' blood pressure measurements after consuming pumpkin pudding, suggesting a beneficial effect on their health status. The high level of enthusiasm and active participation observed throughout the activities further reflected the community's interest and motivation to adopt healthier dietary practices.

Overall, this program successfully achieved its objectives and demonstrated the potential of combining health education with hands-on culinary demonstrations as a strategy to promote dietary interventions for hypertension management among the elderly.

Suggestions

To ensure the sustainability of the positive outcomes achieved, it is important for participants to continue practicing the preparation of pumpkin pudding and to share these skills with others in their community. Encouraging family involvement will help strengthen support for hypertensive individuals in maintaining healthier dietary habits.

The Health Office is encouraged to provide ongoing support for similar community-based educational programs, particularly those that combine practical skills with health promotion. Likewise, the Community Health Center should continue fostering partnerships with educational institutions and other stakeholders to expand health knowledge in the community.

Educational institutions are advised to offer greater opportunities and resources for lecturers and students to carry out community service initiatives that address local health concerns. For lecturers and students, maintaining enthusiasm and commitment in implementing such programs will ensure they continue to bring tangible benefits, ultimately contributing to the improvement of public health through education and demonstration-based interventions.

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