



## EDUCATION ON HYPERTENSION DIET AND THE USE OF ROSELLA FLOWERS (*Hibiscus Sabdariffa*) AS ADDITIONAL FOOD FOR HYPERTENSION PATIENTS

Gilang Akbar Shobirin<sup>1\*</sup>, Diah Pitaloka Putri<sup>2</sup>, Nita Hasna Luthfiah<sup>3</sup>,  
Zerly Agrisdian<sup>4</sup>, Widhya Endah Pratiwi<sup>5</sup>, Vendi Eko Kurniawan<sup>6</sup>

<sup>1-6</sup> College of Health Sciences of Husada Jombang

\* Correspondence

Gilang Akbar Shobirin

College of Health Science Husada Jombang, Indonesia, postal code: 61481

Email: [shobirinakbar.gilang@gmail.com](mailto:shobirinakbar.gilang@gmail.com)

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### ABSTRACT

Currently, hypertension is still a major problem for the elderly because its prevalence is increasing. Roselle flowers (*Hibiscus sabdariffa*) can be used as one of the main ingredients in making snacks (pudding) because roselle flowers have good nutritional content, including antioxidants. The implementation of this community service activity aims to provide education on the hypertension diet and the use of roselle flowers (*Hibiscus sabdariffa*) as an alternative snack for hypertension sufferers. This activity was carried out on February 25, 2024 at Perumda Candimulyo, Jombang Regency. The target for carrying out activities is the elderly with a total of 23 people. A series of community service activities, including health and anthropometric examinations, hypertension diet education, education on making and distributing roselle (*Hibiscus sabdariffa*) pudding. The method for implementing this activity is health education using the group discussion method. The media used in delivering this activity is leaflets. Community service activities take place in an orderly and smooth manner. By carrying out this activity, it is hoped that the elderly can adopt a healthy eating pattern so they can control blood pressure while at home.

Keywords: *Hibiscus sabdariffa*, Hypertension, Elderly,

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### INTRODUCTION

Currently, non-communicable diseases are still a major public health problem because morbidity and mortality

rates are increasing every year. One of the non-communicable diseases that often occurs in Indonesian society is hypertension (Lukitaningtyas, 2023;

Sudayasa, 2020). Hypertension is a non-communicable disease characterized by a person's blood pressure increasing above normal. A person is declared to be suffering from hypertension if blood pressure is  $\geq 140/90$  mmHg and occurs during several measurements (Mills et al., 2016). Hypertension is currently common in elderly people.

The incidence of hypertension in the world is estimated to reach 1.28 billion, which occurs between the ages of 30-79 years. And 46% of hypertension sufferers are unaware that they have the disease (World Health Organization, 2023). The incidence of hypertension in Indonesia in 2018 was 55.2% aged 55-64 years, 63.2% aged 65-74 years and 69.5% aged  $\geq 75$  years (Kementerian Kesehatan RI, 2018).

Several risk factors for hypertension include age and gender. Men have a higher risk of hypertension. However, after the age of 65 years, women are more at risk of experiencing an increase in blood pressure due to hormonal factors (Ayu et al., 2022). Other factors that can cause hypertension are obesity, smoking, alcohol consumption and foods high in sodium (Singh et al., 2017; Yunus et al., 2023). Hypertension that occurs over a long period of time can cause disease complications, including heart disease, stroke, kidney failure and other degenerative diseases (Guasti et al., 2022; Zhang & Cai, 2022).

In the elderly, hypertension management is very necessary to reduce morbidity and mortality rates. Management of hypertension in the elderly can be done using pharmacological and non-pharmacological methods. Pharmacological management can be done by administering medication, while non-pharmacological therapy can be done by adjusting diet (Verma et al., 2021).

Eating management for hypertension sufferers is by increasing intake of potassium, magnesium and fiber. Apart from that, eating arrangements for hypertension sufferers also limits the amount of sodium and saturated fat and cholesterol intake (Utami, 2021). In the elderly, the use of roselle flowers as an alternative food ingredient is aimed at lowering blood pressure in the elderly. Roselle flowers contain several good nutrients to help reduce blood pressure because they contain high levels of flavonoids and potassium (Khoiria, 2023; Salami & Afolayan, 2021). Roselle flowers (*Hibiscus sabdariffa*) contain, among other things, carbohydrates, amino acids, flavonoids, tannins, phenols, triterpenoids, quercetin, anthocyanins, beta-carotene. Roselle also has good effects on health, such as antiseptic, diuretic, stamina enhancer, antihypertensive, anticholesterolemic, antibacterial and antioxidant (Gilang, 2020).

Based on the description above, this community service activity was carried out by using roselle flowers (*Hibiscus sabdariffa*) as an alternative snack for hypertension sufferers.

## OBJECTIVES

### *General Purpose*

Based on the description above, this community service activity was carried out by using roselle flowers (*Hibiscus sabdariffa*) as an alternative snack for hypertension sufferers.

### *Special Purpose*

The specific objectives of implementing this community service activity are:

1. Identifying the age, gender and blood pressure of community service participants;
2. Educating community service participants about hypertension diets; and
3. Educating participants on how to make roselle flowers (*Hibiscus sabdariffa*) into pudding.

## PLAN OF ACTION

### Strategy Plan

Preparations made before community service activities are as follows:

1. Conduct a survey regarding the most common problems at the activity location (Perumda Candimu, Ulyo, Jombang Regency);
2. Carrying out a literature study on the main ingredients used to reduce hypertension;
3. Conduct a study on the types of snack food processing that will be provided during community service activities;
4. Carry out trials of making pudding with different doses to get pudding with a suitable taste; and
5. Carrying out a hedonic test (acceptance) of rosella pudding targeting students and lecturers in the Nutrition Study Program.

### Implementation

The stages of implementing activities are as follows:

1. Opening;
2. Health examination (blood pressure) and anthropometry (weight and height);
3. Providing education on hypertension diet and distributing roselle (*Hibiscus sabdariffa*) pudding to participants;
4. Discussion and Q&A; and
5. Closing.

### Setting

Implementation of community service activities was carried out on February 25, 2024 at Perumda Candimulyo, Candimulyo Village, Jombang Regency.

### Target

The sample for community service activities is the elderly ( $\geq 59$  years) who live in Perumda Candimulyo, Candimulyo Village, Jombang Regency.

## RESULTS AND DISCUSSION

The results of community service activities carried out at Perumda Candimulyo targeting the elderly ( $\geq 59$  years) are as follows:

### 1. Subject Characteristics

Characteristics of subjects who participate in community service activities include data on age, gender and blood pressure. Data on subject characteristics was obtained by direct interview when starting a health examination. The subject characteristic data can be seen in the following table:

**Table 1.** Characteristics of Participant based on Age, Gender, and Blood Pressure in the elderly at Perumda Candimulyo, Candimulyo Village, Jombang Regency on February 25, 2024 (n = 23).

Characteristics of Participant	Frequency (f)	Percentage (%)
<b>Age</b>		
Pre-Elderly	10	43.4
Young Elderly	13	56.6
<b>Total</b>	<b>23</b>	<b>100.0</b>
<b>Gender</b>		
Male	18	78.3
Female	5	21.7
<b>Total</b>	<b>23</b>	<b>100.0</b>
<b>Blood Pressure</b>		
1st Stage of Hypertension	15	65.3
	8	34.7

2nd Stage of Hypertension	23	100.0
<b>Total</b>		

Sources: Primary Data, 2024.

Based on Table 1 above, it can be seen that the subjects who participated in community service activities were mostly young elderly at 56.6 years. The young elderly group ranges in age from 60-69 years. The average elderly who attended this activity was 62 years old.

Based on the data in the table above, it can be seen that the majority of subjects who participated in community service activities were women, totaling 18 participants (78.3%).

Based on blood pressure categorization, it was found that the majority of subjects had blood pressure classified as second grade hypertension, as many as 15 participants (65.3%).

## 2. Providing hypertension diet education

Communication is very important in changing a person's life behavior. According to Azrimaidaliza et al. (2018), improving the quality of life for hypertension sufferers requires information regarding proper food management. According to Maharjan (2020), he also stated that education about hypertension diet is very necessary to increase awareness and regulate appropriate diet.

In community service activities carried out at Perumda Candimulyo, educational activities or providing information were delivered by resource persons from the Nutrition Study Program, STIKes Husada Jombang. This education was carried out through group counseling using leaflet media. The material presented in this activity contains dietary requirements, diet goals, food management (food ingredients that are recommended and prohibited for people with hypertension), as well as examples of menus that can be consumed by elderly

people with hypertension. The implementers of community service activities also conveyed information about the DASH (Dietary Approach to Stop Hypertension) diet.



**Picture 1. Hypertension dietary education**

The results of previous research by Rahmawati et al. (2022) shows that health education about hypertension influences a person's knowledge and attitudes in controlling blood pressure. Based on these results, it was proven that subjects who were given education experienced a decrease in blood pressure compared to subjects who were not given education. Another study by Fitriah et al. (2023), also stated that providing education on the DASH diet to people with hypertension has been proven to reduce blood pressure.

According to Istiqomah et al. (2022), health education delivered to elderly people who experience hypertension will have a better effect on knowledge about eating patterns. Health education can improve knowledge, attitudes, behavior so that it can motivate a person to receive health information and become more knowledgeable and better in behavior (Komalasari, 2020).

Health education activities regarding hypertension diet management are going well. This was evident from the enthusiasm of the participants who actively

asked and answered the evaluation results provided by the resource person at the end of the education session. During the discussion and Q&A activities, participants who were able to answer the evaluation results correctly were given prizes as appreciation for having listened carefully to the information from the resource person.

### 3. Distribution of roselle (*Hibiscus sabdariffa*) pudding

One of the last series of community service activities is providing education and distributing snacks made from roselle flowers (*Hibiscus sabdariffa*). The processed roselle flower (*Hibiscus sabdariffa*) is processed into pudding. Pudding is a high fiber food which is good for the health of the elderly and is combined with roselle flowers (*Hibiscus sabdariffa*) so that it can increase the content of the pudding for the better, especially as a snack for hypertension sufferers.

The health education begins with an introduction to roselle fruit, its benefits and nutritional content, followed by an explanation of how to make pudding and the mixture used. At the end of the health education activity, participants received roselle (*Hibiscus sabdariffa*) pudding as well as a brochure on how to make roselle (*Hibiscus sabdariffa*) pudding.

The roselle (*Hibiscus sabdariffa*) pudding given to the subject was red. The red color is produced by roselle flowers (*Hibiscus sabdariffa*). The sweet and sour taste of pudding is obtained from a combination of sugar and the sour taste of roselle flowers (*Hibiscus sabdariffa*).

Roselle flowers (*Hibiscus sabdariffa*) have a good effect on health, one of which is hypertension. This is proven by pre-clinical research by Susilawati (2018) which shows that giving dried roselle can reduce systolic and diastolic blood pressure in mice. In another

study conducted by Oktafiani Putri et al. (2022) also stated that hypertension sufferers who consumed roselle were proven to have an effect on reducing systolic blood pressure.



**Picture 2. Puding Rosela *Hibiscus sabdariffa*)**

The mechanism of rosella flowers (*Hibiscus sabdariffa*) in lowering blood pressure is from the content of antioxidants (anthocyanins) which have the ability to maintain the elasticity of blood vessel walls. The more elastic the blood vessel walls are, the smaller the systemic resistance will be so that the body does not need high energy or pressure. to circulate blood. Pressure can also be influenced by the amount of fluid volume in the body. Another mechanism of rosella flowers in controlling blood pressure is by regulating cardiac output and peripheral vascular resistance, thereby reducing blood pressure and antihypertensive activity (Jiménez-Ferrer et al., 2012; Yusni & Meutia, 2020).

## CONCLUSION

Community service activities attended by the elderly take place in an orderly and smooth manner, this can be seen from the activeness of the elderly in participating in each series of activities. It is hoped that with this activity the elderly



can adopt a healthy eating pattern so they can control blood pressure while at home.

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