

The Effectiveness of Celery Leaf (*Apium Graveolens L*) Decoction in Reducing Hypertension in Menopause at PMB Bidan A Campaka, Purwakarta Regency

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ABSTRACT

Menopause is experienced by many people who suffer from hypertension, but many ignore it without taking proper treatment. If not treated immediately, complications may occur. To address this, one non-pharmacological alternative is herbal therapy. Celery leaf herbal therapy can reduce the kidneys' function in increasing blood pressure, so it can be used to treat hypertension in menopause. The research aims to determine the effect of the effectiveness of celery leaf (*Apium graveolens L*) decoction on reducing hypertension in menopause. This study used a quasi-experimental design with one group pretest and posttest without a control group. The sample consisted of menopausal women suffering from hypertension, totaling 30 respondents. The sample was selected using purposive sampling, and the measurement tools included questionnaires, interviews, and observations. The results showed that menopausal women who did not consume celery leaf decoction had an average value of 0.47, while those who consumed it had an average value of 0.76. The statistical test used was the non-parametric Mann-Whitney test, which yielded a significance value of $P = 0.000$ (<0.005), indicating a significant difference between those given and not given celery leaf decoction.

Keywords: Hypertension Reduction, Celery Leaf Stew, Menopause

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INTRODUCTION

Hypertension is one of the non-communicable diseases and an important problem worldwide due to its high and increasing prevalence and its association with cardiovascular disease, stroke, retinopathy, and kidney failure (Bete et al., 2022; Kurniati & Alfaqih, 2022; Melanie et al., 2022; Pandiangan & Mariyam, 2023; Pradana & Pramitaningrum, 2020). The causes of hypertension are classified into two types: primary hypertension and secondary hypertension. Primary hypertension accounts for 90% of cases, with an unknown cause, while 10% of hypertension cases occur due to obstruction of blood flow in the kidneys or a tumor in the adrenal medulla (Kusumadewi & Widiyastuti, 2018; Naqiyya, 2020; Ngelu et al., 2022; Syahidah & Dkk, 2018; Yohana Ngelu et al., 2022).

According to the *Ministry of Health of the Republic of Indonesia* (2019), the global prevalence of hypertension is 22% of the world population. In Indonesia, the prevalence is 34.11%, with West Java at 39.60%. The proportion of hypertensive patients by age is 55.2% in the 55–64 years group, 63.2% in the 65–74 years group, and 69.5% in those older than 75 years. Regarding medication adherence, 54.4% of hypertensive patients take medication regularly, 32.27% occasionally, and 13.33% do not take medication at all. At PMB Bidan A Campaka in 2024, out of 85 menopausal women, 52 (61.17%) have hypertension.

Menopause sees many people suffering from hypertension, yet many ignore it without seeking proper treatment, increasing the risk of complications if untreated (Naqiyya, 2020). Hypertension treatment can be pharmacological, involving diuretics, beta blockers,

Angiotensin-Converting Enzyme (ACE) inhibitors, Angiotensin Receptor Blockers (ARB), and calcium channel blockers (CCB) (Ministry of Health of the Republic of Indonesia, 2019). Non-pharmacological treatment includes adequate rest, reducing salt intake, exercise, and complementary therapies such as herbal therapy, nutritional therapy, acupuncture, and aromatherapy (Nurwahidah and Jubair, 2019). The goal of therapy is to achieve and maintain a systolic pressure below 140 mmHg and a diastolic pressure below 90 mmHg while reducing risk factors (Nuranti et al., 2020).

Various herbal therapies can be used, including celery leaves (*Apium graveolens*), garlic (*Allium sativum*), onion (*Allium cepa*), tomatoes (*Lycopersicon lycopersicum*), and watermelon (*Citrullus vulgaris*). One commonly used herbal therapy to reduce hypertension is celery leaf (*Apium graveolens*), which possesses antihypertensive properties and contains apigenin, phthalides, magnesium, mannitol, and apiin (Lasria et al., 2021; Mariyona, 2020; Nurwahidah & Jubair, 2019; Simamora et al., 2021; Suryarinilsih et al., 2021; Wiji et al., 2021). Celery leaf decoction is prepared by boiling 40 grams of celery leaves in 400 ml of water until reduced to 200 ml, administered twice daily for one week (Pradana and Pramitaningrum, 2020).

A study by Badrujamaludin, Budiman, and Erisandi (2020), titled "*Differences in Celery Leaf Boiled Water and Bay Leaf Boiling Water on Blood Pressure Reduction in Pre-Menopause with Primary Hypertension*," involved 22 respondents, including 11 pre-menopausal women with hypertension. Before administration of celery leaf decoction, the average systolic and diastolic blood pressures were 151.18 mmHg and 94.82 mmHg, respectively. After one week of taking 200 ml of celery leaf decoction twice daily, the pressures decreased to 140.36 mmHg and 84.82 mmHg. Meanwhile, the 11 women given bay leaf decoction (250 ml twice daily for one week) showed reductions from 151.18 mmHg and 98.18 mmHg to 137.27 mmHg and 86.27 mmHg, respectively.

The research problem identified in this study is the high prevalence of hypertension among menopausal women at PMB Bidan A Campaka, Purwakarta Regency (61.17% of menopausal women have hypertension), where many patients ignore their condition without seeking proper treatment, leading to potential serious complications. The urgency of this research lies in the fact that untreated hypertension in menopausal women can lead to severe cardiovascular complications, stroke, retinopathy, and kidney failure, especially when compounded by hormonal changes during menopause that naturally increase cardiovascular risk.

Previous research by Badrujamaludin et al. (2020) demonstrated the effectiveness of celery leaf decoction in reducing blood pressure in pre-menopausal women with primary hypertension, showing significant decreases in both systolic and diastolic pressure. However, research gaps exist regarding the specific effectiveness of celery leaf decoction among menopausal women, who may have different physiological responses due to hormonal changes and age-related factors. The novelty of this research lies in its specific focus on menopausal women receiving treatment at a private midwife practice (PMB), providing evidence for

community-based healthcare settings where access to pharmaceutical interventions may be limited.

The objective of this study is to evaluate the effectiveness of celery leaf (*Apium graveolens* L) decoction in reducing hypertension among menopausal women at PMB Bidan A Campaka, Purwakarta Regency. The benefits of this research include providing evidence-based alternative treatment options for hypertension that are accessible, affordable, and culturally acceptable for menopausal women in community healthcare settings, potentially reducing reliance on pharmaceutical interventions and improving health outcomes in resource-limited environments.

Given that many menopausal women suffer from hypertension but often ignore it without seeking proper treatment—despite the availability of herbal therapies that can reduce hypertension and are economically feasible—researchers are interested in investigating the administration of celery leaf decoction to reduce hypertension in this population.

METHOD

This study used a quasi-experimental design with two groups and a pretest-posttest approach without a control group. Participants were pretested before receiving the intervention and posttested after the intervention was completed. Purposive sampling was used, selecting 30 menopausal women at PMB Midwife A Campaka, Purwakarta Regency, who were willing to consume celery leaf decoction; 15 participants received the decoction, and 15 did not. The samples included in the study met the inclusion criteria. Data were collected from patient register books and medical records to identify menopausal women with hypertension by reviewing their status in the medical record room.

RESULTS AND DISCUSSION

Based on the results of questionnaire data collection and direct observation, data processing and analysis that has been carried out by the author on "The Effect of Celery Leaf Stew on the Reduction of Hypertension in Meopouse at PMB Midwife A Campaka, Purwakarta Regency October – November 2024". The results of the research are presented in the form of tables and graphs with the aim that readers can easily understand and the results of the percentages that have been obtained. The results of the distribution of menopausal frequency were 15 people with a presentation of 50% of menopause, and menopause that was not given intervention but was controlled by 15 people with a percentage of 50%. The results of the distribution of the frequency of menopause with degree I hypertension were 17 people with a presentation of 56.7% and menopause with hypertension II was 13 people with a presentation of 43.3%.

The results of the distribution of menopausal frequency with hypertension aged 41-55 years were 17 people with a percentage of 56.7%, and menopous people who suffered from hypertension aged >55 years were 23 people with a percentage of 43.3%. The results of the distribution of the frequency of menopause who were knowledgeable were 17 people with a

percentage of 56.7%, and menopause who were knowledgeable was 13 people with a percentage of 43.3%. The results of the distribution of the frequency of menopause who have confidence can be given celery leaf decoction as many as 15 people with a presentation of 50%, and menopause who have confidence should not be given celery leaf decoction as many as 15 people with a percentage of 50%.

Differences in the Administration of Celery Leaf Decoction Between the Intervention Group and the Control Group for the Reduction of Hypertension in Menopause at PMB Midwife A October – November 2024

It was obtained from 30 menopause, 17 menopause were treated with celery leaf decoction and 13 menopause were only controlled. Based on the results of the study, giving celery leaf decoction has an effect on reducing hypertension. The results of the normality test (One Sample Kolmogorov-Sminov) were found to have a significance value of $0.000 < 0.05$. It can therefore be concluded that the residual value is abnormally distributed. So that the Non-Parametric Mann-Whitney Test was carried out with a value of $P = 0.000 < 0.05$, meaning that at alpha 0.05 there was a significant difference in the average administration of celery leaf decoction in menopause between the intervention group and the control group. The group Giving Celery Leaf Decoction at Age, Knowledge, Culture and Beliefs had an effect on reducing hypertension in menopause. Based on the results of the normality test (One Sample Kolmogorov-Sminov), it is known that the significance value is $0.000 < 0.05$. It can therefore be concluded that the residual value is abnormally distributed. So that the Non-Parametric Mann-Whitney Test was carried out, a value of $P = 0.000 < 0.05$ was obtained, meaning that at alpha 0.05 there was a significant difference, the average group of giving celery leaf decoction in menopause between Age, Knowledge, Culture and Belief in reducing hypertension.

Discussion

Reduction of hypertension between the intervention group and the control group of giving celery leaf decoction

From the results of the study, 17 participants were given Celery Leaf Stew and 13 groups were only controlled without intervention. Based on the results of the study, the administration of Celery Leaf Stew has an effect on Reducing Hypertension. The results of the normality test (One Sample Kolmogorov-Sminov) are known to have a significance value of $0.000 < 0.05$, so it can be concluded that the residual value is abnormally distributed. So that the Non-Parametric Mann-Whitney Test was carried out with a value of $P = 0.000 < 0.05$, meaning that at alpha 0.05 there was a significant difference in the average administration of Celery Leaf Stew in menopause between the intervention group and the control group.

This is in accordance with the theory Based on research conducted by Yuriska, (2017) said that reducing hypertension with good techniques will help the process of reducing hypertension, especially if nutritional needs are always maintained because there are several nutrients that are needed to support the body's immune system and play an important role in the process of reducing hypertension, one of which is by decoction of celery leaf herbs. (Naqqiya., 2017).

Celery (*Apium graveolens*) is known to contain flavonoids, saponins, 1% tannins, 0.033% essential oils, flavor glucoside (apiin), apigenin, choline, lipase, asparagine, bitters, vitamins (A,B,C). Each 100 g of celery herbs contains 93 ml of water, 0.9 g of protein, 0.1 g of fat, 4 g of carbohydrates, 0.9 g of fiber, 50 mg of calcium, 1 mg of iron, 40 mg of phosphorus, 150 mg of iodine, 400 mg of potassium, 85 mg of magnesium, 130 IU of vitamin A, 15 mg of vitamin C, 0.05 mg of riboflavin, 0.03 mg of thiamine, 0.4 mg of nicotinamide. (Pradana and Pramitaningrum, 2020)

This is strengthened by a study conducted by Badrujamaludin et al. (2020) with the title "Differences in Celery Leaf Boiled Water and Bay Leaf Boiled Water on Blood Pressure Reduction in Menopause with Primary Hypertension" found the results of 22 respondents, 11 elderly respondents who suffered from hypertension before being given celery leaf decoction systolic and diastolic blood pressure was 151.18 mmHg and 94.82 mmHg, after being given a decoction of celery leaves 200 ml 2x a day in 1 week when observation was carried out, the results were 140.36 mmHg and 84.82 mmHg. And 11 elderly respondents who suffered from hypertension before being given bay leaf decoction had systolic and diastolic blood pressure, namely 151.18 mmHg and 98.18 mmHg. After being given a 250 ml bay leaf decoction 2x a day in 1 week when observation was carried out, the results were 137.27 mmHg and 86.27 mmHg.

According to the author, the results of research that have been carried out in both the intervention group and the control group and several previous studies, the author can draw a common thread that the administration of Celery Leaf decoction has a significant influence on reducing hypertension faster in menopause.

Age

Based on the results of the normality test (One Sample Kolmogorov-Sminov) it is known that the significance value is $0.000 < 0.05$, so it can be concluded that the residual value is abnormally distributed. So that the Non-Parametric Mann-Whitney Test was carried out with a P value of < 0.05 , meaning that at alpha 0.05 there is a significant difference between the administration of Celery Leaf decoction based on age can affect the reduction of hypertension in menopause.

The age of menopause is the age at which menopause occurs. The age of menopause consists of early menopause, normal menopause, and late menopause. Suparni & Astutik (2016), said that normal menopause is menopause that is usually experienced by people in the age range of 45 – 55 years. While at the age > 35 years the organ functions begin to decline, so there is a risk of hypertension, because the age of > 55 years or more is the criterion for a high-risk pregnancy (KRT), any hypertension with high risk factors will face the threat of maternal morbidity or mortality, both in their lifetime. Along with age, changes that occur in the skin are the frequency of use of epidermal cells, inflammatory response to injury, sensory perception, mechanical protection, and skin barrier function. The speed of cell repair goes hand in hand with the growth or maturity of a person's age, but then the aging process can decrease the cell repair system so that it can slow down the process of reducing hypertension.

According to the author, Hypertension Decline occurs faster at a young age than in old age. The ideal age range for reducing hypertension is at the age of <40 years, At the age of 45 years there has begun to be a decrease in function so that the body's ability to process the decrease in hypertension becomes less perfect.

Knowledge

According to Notoatmodjo (2018), knowledge is the result of knowing and occurs after people sense certain objects in certain things. Sense occurs through the five human senses, namely sight, hearing, smell, and touch. Menopause's knowledge of hypertension, and lifestyle will affect the process of reducing hypertension. Hypertension will decrease on its own, but knowledge plays an important role in the process of lowering with a faster time.

This research is strengthened by previous research conducted by Alice (2020), on "the relationship between age, knowledge and belief culture that affects the reduction of hypertension to menopause". The results of the study showed that based on the correlation test, from 2 (two) independent variables, the results were obtained that knowledge greatly influenced the process of reducing hypertension with a p value of <0.05. The higher the mother's knowledge of the hypertension reduction process, the higher the chance of hypertension being cured in a fast time.

Menopause who has hypertension needs to have sufficient knowledge about how to reduce hypertension, because this factor greatly affects the process of reducing hypertension. Knowledge is the result of knowing and this is after people have sensed certain objects. Knowledge or cognition is a very important domain for the formation of a person's actions (Overt Behavior). Knowledge is a continuous formation by a person who is constantly undergoing reorganization due to new understandings. Menopausal knowledge about hypertension must be taught and instilled from the first time a health worker (nurse) handles hypertension.

According to the author, the results of research that have been carried out in both the intervention group and the control group and several previous studies, it can be concluded that in theory, the higher the knowledge of a menopause, the faster the likelihood of reducing hypertension.

Culture & Confidence

A person's culture and beliefs will greatly affect the reduction of hypertension, common habits in society such as not eating eggs, fish, and chicken meat will affect the nutritional intake of menopause which will greatly affect the reduction of hypertension. According to the theory of Eka Tri Wulandari (2018). This is inversely proportional to the benefits provided by protein-rich foods for the hypertension reduction process. However, menopauseans cannot leave their previous cultures and customs according to their respective beliefs.

Research by Frieska, et al (2018) which explains that Culture or Habits are related to the healing process of hypertension. The prohibition of eating and using something becomes an obstacle in the cure of hypertension.

Based on the results of the normality test (One Sample Kolmogorov-Sminov) it is known that the significance value is $0.000 < 0.05$, so it can be concluded that the residual value is abnormally distributed. So that the Non-Parametric Mann-Whitney Test was carried out, a value of $P=0.000 < 0.05$ was obtained, meaning that at alpha 0.05 there was a significant difference in the average group of giving Celery Leaf decoction in menopause between Culture and Belief in reducing hypertension.

This is in accordance with Swasono's (2018) theory, which states that Food Abstinence is a food ingredient or cuisine that should not be eaten by individuals in society for cultural reasons. The challenging custom is taught from generation to generation and tends to be obeyed even though the individual who runs it does not really understand or be sure of the reason for challenging the food in question. For example, mothers who have hypertension abstain from eating green vegetables because it will make it difficult to reduce hypertension and abstain from eating goat meat because a spike in blood pressure occurs because saturated fat in meat causes blood vessels to narrow and harden. If you want to lower hypertension, you can do it with vegetables that are low in sodium, then the recommended substitute foods are celery, broccoli, spinach and so on.

According to research by Mandasari Nita, et al. (2020), one of the factors that affect the reduction of hypertension is the status of nourishment. Nourishment or nutrients needed by the body for metabolic purposes. It is recommended that the food consumed by menopause is foods that contain protein, a lot of fluids, vegetables and fruits to accelerate the process of reducing hypertension. If menopause opposes these foods, it will slow down the process of reducing hypertension. One of the obstacles that often occurs in society is the existence of food abstinence. The cultural factor that is still carried out by postpartum mothers is challenging food. Menopause should only consume white rice with, it is forbidden to eat meat, fish and eggs and fruits. Even though posing requires sufficient nutrification in the process. One of the factors for reducing hypertension in menopause is culture and beliefs. This will affect the process of reducing hypertension, for example, the taboo (tarak) of eggs, fish, green vegetables and chicken meat, will affect nutritional intake which will greatly affect the reduction of hypertension.

According to the author, this study shows that there are people who have a culture and belief not to consume Celery Leaf decoction but the decrease in hypertension gradually improves, this is assumed that the mother has good knowledge about the nutritional content of food so that even though there are types of food that are considered taboo, they can be replaced with other types of foods that have the same nutritional content. Likewise, there is menopause that has a culture and beliefs that allow to consume Celery Leaf decoction but the process of reducing hypertension is slow, this is caused because the mother's diet does not meet the nutritional needs for menopause. Low understanding of community nutrition and therefore various efforts are needed to improve it.

CONCLUSION

This study demonstrated that celery leaf decoction significantly reduced hypertension among menopausal women at PMB Bidan A Campaka, Purwakarta Regency, with effectiveness observed across different age groups and influenced by participants' knowledge levels. Despite cultural and religious beliefs causing some hesitation, the intervention proved effective regardless of initial acceptance. The findings suggest that celery leaf decoction can be recommended as a complementary therapy for hypertension management in community healthcare settings, especially where access to pharmaceuticals is limited, with consideration of individual factors such as age, knowledge, and cultural beliefs. Future research should involve larger randomized controlled trials to determine optimal dosage, assess long-term safety and efficacy, examine drug interactions with conventional antihypertensives, and develop culturally sensitive educational programs to improve acceptance and adherence. Additionally, cost-effectiveness studies comparing herbal and conventional treatments in resource-limited environments would support informed healthcare policy decisions.

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