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Family Nursing Intervention Based on Celery Herbal Therapy (*Apium Graveolens*) In Lowering Blood Pressure in Hypertension Patients: A Case Study in Bulukumba

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Abstract

Hypertension is a non-communicable disease that is a leading cause of morbidity and mortality worldwide. Hypertension management is not limited to pharmacological therapy but can also be achieved through non-pharmacological approaches, including herbal-based complementary therapies. One plant with potential as an antihypertensive is celery (*Apium Graveolens*). This study aims to determine the effectiveness of family nursing care through the provision of celery leaf decoction in reducing blood pressure in hypertensive patients. This study used a case study design with a family nursing care approach. The subject of the study was a 65-year-old hypertensive patient who lives in Bulukumba Regency. The intervention provided was health education and complementary therapy of celery leaf decoction for 7 consecutive days. Blood pressure measurements were carried out daily before and after the intervention to evaluate changes in blood pressure. The results showed a gradual decrease in blood pressure during the intervention period. The initial blood pressure of 165/90 mmHg decreased to 145/80 mmHg on the 7th day. In addition, there was an increase in family knowledge and involvement in hypertension management, as indicated by the family's ability to carry out therapy independently. The conclusion of this study shows that family nursing care through the provision of celery leaf decoction is effective in reducing blood pressure and increasing the role of the family in managing hypertension. This intervention can be an alternative non-pharmacological therapy that is simple, safe, and easy to implement at the community level.

Keywords: hypertension; herbal therapy; celery; family nursing; blood pressure

Introduction

Hypertension, or high blood pressure, is a non-communicable disease (NCD) that is a major global health problem. The World Health Organization reported in 2023 that more than 1.28 billion adults worldwide have hypertension, and this number is projected to increase to 1.5 billion by 2025. Although hypertension is a preventable and controllable condition, it contributes to approximately 10–11 million deaths annually, making it the leading cause of death globally. However, only about 20% of sufferers are able to effectively control their blood pressure, indicating the still low success rate of hypertension management globally, especially in developing countries including Indonesia (WHO, 2023).

Nationally, the results of the 2023 Indonesian Health Survey showed that the prevalence of hypertension among the population aged 18 years and above reached 39.4%. The prevalence in women (45.9%) was higher than in men (32.8%). Furthermore, the prevalence

of hypertension in urban areas (41%) was slightly higher than in rural areas (37%), and tended to increase with age (SKI, 2023). Regionally, South Sulawesi Province also showed a relatively high prevalence of hypertension, approaching the national average of around 23–25%. This condition is exacerbated by limited access to adequate health information and services, particularly in rural areas, and low public understanding of comprehensive hypertension management, including non-pharmacological approaches and the role of the family in care (South Sulawesi Provincial Health Office, 2021).

At the district level, data from the Bulukumba District Health Office shows that the estimated number of hypertension sufferers aged 15 years and above reached 113,344, consisting of 57,249 males and 56,095 females (Health Office, 2021). This data indicates that hypertension is a significant public health problem in Bulukumba Regency. More specifically, preliminary data collection in Barugariattang Village, Bulukumba District, in 2025 showed that there were 69 hypertension sufferers spread across three hamlets: Kaseseng Hamlet (30 people), Lembange Hamlet (23 people), and Mallenreng Hamlet (16 people). This data indicates that hypertension is not only a problem at the macro level but also occurs at the community level.

Hypertension management is not only carried out through pharmacological therapy, but also through non-pharmacological approaches, including a low-salt diet, regular physical activity, reduced alcohol and cigarette consumption, and the use of herbal-based complementary therapies. Herbal therapy is a widely used alternative because it is relatively safe and has minimal side effects when used appropriately. Several herbal plants that have been studied for their antihypertensive effects include celery (*Sweet celery*), sweet starfruit, cucumber, rosella, cat's whiskers, and sambiloto (Handono, 2024).

Celery (*Sweet celery*) is known to contain active ingredients such as magnesium, phthalides, apigenin, potassium, and asparagine, which play a role in lowering blood pressure. Magnesium and phthalides function to relax blood vessel muscles, apigenin helps prevent vasoconstriction, while potassium and asparagine have diuretic effects that can reduce blood volume (Handono, 2024). Research by Muzakar and Nuryanto (2022) showed that giving boiled celery leaves can reduce systolic blood pressure by an average of 20.32 mmHg and diastolic by 7.09 mmHg.

In the context of community and family nursing, family involvement plays a crucial role in the management of chronic diseases such as hypertension. Therefore, family-based nursing interventions utilizing herbal therapies, such as celery leaf decoction, are a relevant and contextual approach. In addition to providing physiological benefits in lowering blood

pressure, this intervention also has the potential to improve family participation in care, adherence to therapy, and the quality of life of patients with hypertension.

Based on this description, research on family nursing interventions through the administration of celery leaf decoction is crucial, particularly in Bulukumba Regency. This research is expected to provide scientific evidence regarding the effectiveness of family-based herbal therapy in lowering blood pressure and serve as a basis for developing a community nursing intervention model based on local wisdom and family empowerment.

Case Illustration

Patient DescriptionA family assessment was conducted on Mrs. N, a 65-year-old woman with a high school education. The client lives in Mallenreng Hamlet, Barugariattang Village, Bulukumpa District, Bulukumba Regency. Mrs. N is Muslim, of Bugis ethnicity, and speaks Bugis as the primary language of communication at home. The client works as a housewife. The distance from the client's residence to the nearest health care facility, the Tanete Community Health Center, is approximately 7 km, with the usual means of transportation being a motorbike.

The results of the physical status assessment showed that Mrs. N was 145 cm tall and weighed 49 kg. Her vital signs were blood pressure of 165/90 mmHg, pulse rate of 88 beats/minute, body temperature of 36.1°C, and respiratory rate of 26 breaths/minute. These data indicate that the client is experiencing hypertension with blood pressure above normal values. The client stated that she had been suffering from hypertension for approximately two years. Her primary complaint was pain and tension in the back of her neck. Based on a pain assessment using the PQRST method, the following data were obtained:**P (Provoking factor)**: pain appears when the client is active;**Q (Quality)**: the pain feels like being stabbed;**R (Region)**: localized on the back of the neck;**S (Severity)**: pain scale 5 (moderate pain);**T (Time)**: pain that comes and goes.

Regarding disease management, the client admitted to rarely taking antihypertensive medication regularly. Furthermore, the family stated that the client frequently consumed foods high in salt. The family was unaware of non-pharmacological treatment options, including herbal therapies, that could help lower blood pressure. The assessment also showed that clients and their families lacked sufficient understanding of hypertension, including its causes, prevention, and management. Furthermore, utilization of healthcare facilities remained low. Clients and their families rarely visited healthcare facilities for routine check-ups, due to busy schedules at home and the relatively long distances to healthcare facilities. The advanced age of the clients and their partners also posed a barrier to optimal access to healthcare.

Table 1. Patient Characteristics

Name	Mrs N
Age	65 years
Gender	Female
Weight	49 kg
Medical Diagnosis	Hipertention
Nursing Diagnosis	Ineffective family health management related to the family's inability to recognize family health problems (SDKI 2017)
Current condition	Vital signs 165/90 mmHg Pulse rate: 88 beats/minute Respiratory rate: 26 times/minute Temperature: 36.1°C
Current medical history	Mrs. N said she had hypertension for the past 2 years, the client often complained of pain and tension in the back of the neck area. P: The client said feeling scared and tense in the neck area during activities, Q: like being stabbed, R: area back of neck, S: scale 5, T: comes and goes. The client said he rarely consumes antihypertensive drugs, and the client's family said the client often consumed foods containing salt. The client's family does not know how to treat herbs to lower blood pressure. The client and family were unable to recognize hypertension problems well and lack of information about the disease suffered. Clients and families also rarely come to health service centers to get maximum treatment because of being busy at home and the distance between the house and the health center or hospital is quite far while the client and family or husband are old enough to have to travel far all the time

Steps for Observation and Determination of Nursing Care

1. Preparation Stage

Prior to data collection, the researcher obtained ethical approval from the institution, namely STIKES Panrita Husada Bulukumba, as evidenced by the Health Research Ethics Committee approval letter Number: 003467/KEP/STIKES Panrita Husada Bulukumba/2025. After obtaining ethical approval, the researcher approached the clients and their families to explain the purpose, benefits, and procedures of the study. Furthermore, written informed consent was obtained from the clients and their families as a form of willingness to participate in the study. Thus, the entire research process was carried out in accordance with the ethical principles of research, namely respecting autonomy, maintaining confidentiality, and ensuring the safety of respondents.

2. Determination of Nursing Care

Based on the results of the assessment that has been carried out, priority nursing diagnoses are determined referring to the Indonesian Nursing Diagnosis Standards : **Ineffective family health management is related to the family's inability to recognize health problems.** This diagnosis was established based on data showing low family knowledge regarding hypertension, non-compliance with treatment, and lack of utilization of health services. Nursing care planning is developed based on the Indonesian Nursing Intervention Standards, with a focus on increasing family knowledge and involvement in hypertension management. The key interventions selected include:

Health education related to hypertension, including understanding, risk factors, signs and symptoms, complications, and the importance of adherence to therapy and **Complementary therapy**, namely giving boiled celery leaves as a non-pharmacological effort to help lower blood pressure.

The celery leaf decoction intervention was chosen based on the ease of access to the ingredients, the simple preparation method, and its potential effectiveness in lowering blood pressure. This intervention also takes into account the client's socioeconomic and cultural background, making it more applicable and sustainable at the family level.

3. Nursing Implementation

Nursing actions are implemented according to the established plan. Before the intervention is administered, the nurse revalidates the client's condition to ensure the intervention matches the client's actual needs. Implementation includes: Providing gradual health education to the client and family, Demonstrating how to make and administer celery leaf decoction, and Assisting the family in implementing complementary therapies at home. All nursing actions are systematically documented to monitor the client's condition and the effectiveness of the interventions provided.

Observation result

The implementation of nursing care was carried out for 7 consecutive days with a health education approach and complementary therapy in the form of giving boiled celery leaves.

Day 1, education was provided to the client and family regarding hypertension, including the definition, causes, risk factors, and methods of controlling hypertension, both pharmacologically and non-pharmacologically. Next, the nurse explained the purpose, benefits, and procedure for administering celery leaf decoction as a complementary therapy. After that, an initial blood pressure measurement was taken as baseline data, followed by the administration of celery leaf decoction intervention according to standard operating procedures (SOP). After consumption, blood pressure was remeasured after approximately 30 minutes. The client and family were advised to continue therapy regularly for 7 days.

Day 2 Blood pressure monitoring was performed before the intervention, followed by administration of celery leaf decoction according to standard operating procedures. Blood pressure was re-evaluated approximately 30 minutes after ingestion. Re-education was provided to ensure client and family compliance in independently implementing the therapy.

Day 3 The intervention focused on increasing family independence in therapy. Clients and families were directly taught how to prepare and administer celery leaf decoction. Blood

pressure measurements were taken before and after the intervention to monitor response to therapy.

Day 4 to day 6 Routine blood pressure monitoring was performed before and after administering the celery leaf decoction. The client and family were able to carry out the intervention independently with minimal supervision from the nurse. Reinforcement education was continued to improve adherence and consistency of therapy.

Day 7 A final evaluation of the intervention results was conducted. Blood pressure measurements were taken before and after therapy. The client and family were provided with educational reinforcement to continue therapy independently at a regular intensity as part of long-term hypertension management. Overall, the observation results showed a decrease in the client's blood pressure after receiving celery leaf decoction therapy for 7 consecutive days. This decrease indicates that herbal-based complementary therapy combined with family health education can have a positive effect on blood pressure control. The results of the blood pressure changes are presented in Figure 1.

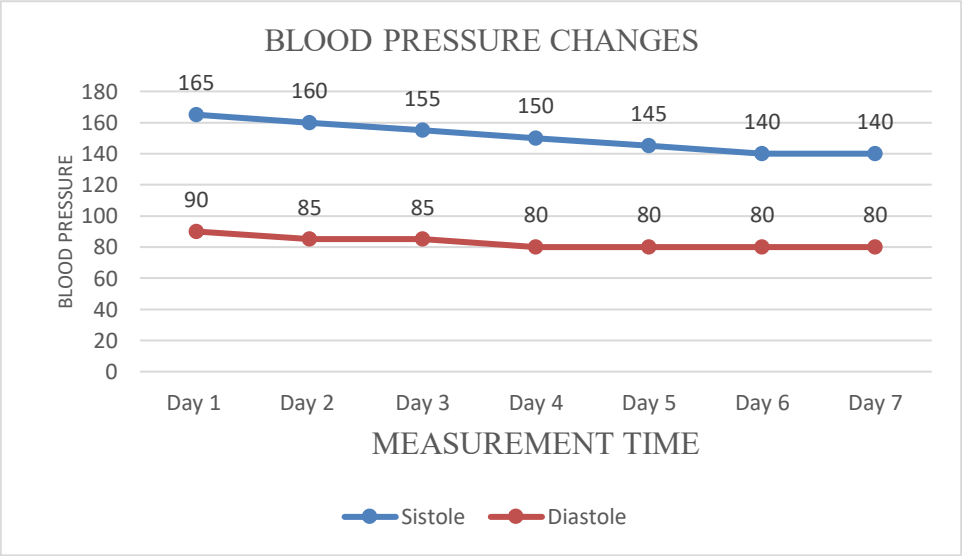

Figure 1. Changes in blood pressure after giving boiled celery leaves

Discussion

The study results showed that providing family nursing interventions in the form of health education and complementary therapy, such as celery leaf decoction, for 7 days had a positive impact on reducing the client's blood pressure. This decrease occurred gradually, indicating a physiological response to the intervention. Physiologically, the antihypertensive effect of celery leaves (*Sweet celery*) related to the content of active compounds such as ***phthalides, flavonoids (apigenin), magnesium, and potassium***. *Phthalides* play a role in relaxing vascular smooth muscle, resulting in vasodilation, while potassium and asparagine

have diuretic effects that can reduce blood volume (Handono, 2024). This mechanism contributes to lowering both systolic and diastolic blood pressure.

The results of this study align with those of Muzakar and Nuryanto (2022), which showed that celery leaf decoction can lower systolic blood pressure by an average of 20.32 mmHg and diastolic by 7.09 mmHg. This suggests that celery-based herbal therapy has the potential to be an effective complementary therapy in the management of hypertension. In addition to celery's natural pharmacological properties, the success of this intervention was also influenced by a family-centered nursing approach. Gradually providing health education increased the family's knowledge and awareness of the importance of hypertension management. Family involvement in the care process has been shown to improve client adherence to therapy.

This approach aligns with family nursing theory, which emphasizes that the family is the primary support system for maintaining an individual's health. When families have adequate knowledge and skills, their ability to care for sick family members increases, thus improving overall health. However, this study has limitations: it involved only one subject, making the results less generalizable. Furthermore, there was no control group to more objectively compare the effectiveness of the intervention.

Conclusion

Providing family nursing care through health education and complementary therapy in the form of celery leaf decoction for 7 days has shown effective results in lowering blood pressure in hypertensive patients. The reduction in blood pressure occurred gradually, both in systolic and diastolic values, indicating a physiological response to the active ingredients in celery leaves and the success of the structured and sustained intervention.

Furthermore, this intervention also had a positive impact on increasing family knowledge and involvement in hypertension management. Families gained a better understanding of the disease, were able to administer therapy independently, and demonstrated increased adherence to treatment. Thus, a family-based nursing approach combined with herbal therapy can be an effective, simple, and applicable alternative intervention for hypertension control at the community level.

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