Indonesian Journal of Nursing Case Studies (IJNCS)

Volume 1, Nomor 1, 2026
E ISSN: xxxx-xxxx P ISSN: xxxx-xxxxx

Case Study

Family Nursing Care In Hypertensive Patients With Nursing Problems Knowledge Deficit Medication Adherence With Health Promotion Interventions And Cucumber Water Infusion

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Article History
Received : 17 November 2025
Revised : 25 May 2026
Accepted : 20 June 2026

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Cite this as:
Ubudiyah, M., Valvolina, N., Suhariyati (2026). Family Nursing Care In Hypertensive Patients With Nursing Problems Knowledge Deficit Medication Adherence With Health Promotion Interventions And Cucumber Water Infusion. Indonesian Journal of Nursing Case Studies (IJNCS). 1(1)

ABSTRACT

Background: Hypertension is one of the non-communicable diseases with high prevalence in Indonesia and is a major risk factor for serious complications such as stroke and heart disease. A lack of patient and family knowledge regarding hypertension management often leads to uncontrolled blood pressure. Health education interventions and nonpharmacological therapies, such as cucumber infused water , have been used as alternative approaches to lower blood pressure. This study aims to evaluate the effectiveness of health promotion and cucumber-infused water in improving knowledge and treatment adherence among families dealing with hypertension
Case Presentation: Three female patients aged 52–63 years with a history of chronic hypertension in Gempolpading Village showed symptoms of spinning dizziness and neck pain. All three have a high-salt diet, do not routinely carry out health control, and experience a deficit in knowledge about complications and hypertension management. Initial blood pressure was in the range of 153–168/100 mmHg, indicating uncontrolled hypertension.
Nursing Intervention: The intervention was carried out for seven days in the form of daily cucumber infused water and health education to patients and families. Education includes the definition of hypertension, risk of complications, low-salt diet, medication adherence, and the use of health services. Blood pressure monitoring and complaint evaluation are carried out daily. All three patients showed a positive response with a consistent decrease in blood pressure to reach 120–126/75–78 mmHg on day seven
Conclusion: Combining family health education and cucumber-infused water effectively lowers blood pressure and improves patient behavior. This comprehensive approach serves as a valuable model for community nursing practice and future non-pharmacological research.

KEYWORDS: Complementary Therapies; Cucumber; Family Nursing; Health Education; Hypertension

INTRODUCTION

Hypertension is one of the non-communicable diseases with a high prevalence in the world and is the main risk factor for serious complications such as heart disease, kidney failure, and stroke. WHO reports that around 22% of the world's population has hypertension, while in Indonesia the prevalence reaches 34.1% [1]. The incidence rate tends to increase with age, lifestyle changes, and a lack of public knowledge about hypertension prevention and management [2].

In East Java, the prevalence of hypertension reached 36.3%, and Lamongan Regency recorded 24.76%. An initial survey conducted by researchers in December 2023 at Polindes Gempolpading showed that most people were in the pre-hypertensive to level 2 hypertension category, indicating that there are still blood pressure control problems at the family level. This condition indicates the need for nursing interventions that focus on improving knowledge and changing health behaviors [3].

In family nursing practice, health education and lifestyle management are important interventions to lower blood pressure. One of the most studied non-pharmacological approaches is the consumption of cucumber infused water containing potassium, which plays a role in lowering blood pressure through the mechanism of inhibiting renin release and increasing sodium excretion. Several studies show that cucumbers can help lower blood pressure due to their electrolyte content [4].

In addition to nutritional therapy, health promotion has an important role in improving patient knowledge and adherence to hypertension treatment. Education provided in a structured manner can help families understand risks, prevention, and appropriate management so as to support the achievement of controlled blood pressure [5].

Based on this context, this case is important to study because it shows how the combination of health promotion interventions and the administration of cucumber infused water can help overcome the problem of knowledge deficit and medication adherence in hypertensive patients. The study is also relevant to family nursing practice, particularly in developing effective, holistic, and sustainable intervention strategies for hypertensive patients in the community.

CASE PRESENTATION

Patient Information

This case involved three female patients who lived in Gempolpading Village, Pucuk District, Lamongan Regency. All three have a history of hypertension and primary to secondary education. The first client, Mrs. S (52 years old), worked as a farmer and a housewife. He came with complaints of spinning dizziness and pain in the neck with an initial blood pressure of 168/100 mmHg. The second client, Mrs. T (63 years old), is a housewife and farmer who also has a history of hypertension and does not understand the complications of her disease; blood pressure initially reached 178/90 mmHg. Meanwhile, the third client, Mrs. Y (54 years old), has been suffering from hypertension for five years but has not been regularly treated, and comes with a blood pressure of 170/90 mmHg. All three patients complained of similar symptoms, namely dizziness and neck pain that appeared repeatedly, accompanied by a high-salt diet habit and a lack of awareness of the importance of health control.

Clinical Findings

The results of the physical examination in all three patients showed vital signs consistent with hypertension. Blood pressure is in the high category, with an increased pulse in certain clients. Follow-up examinations identified lifestyle factors as the main triggers, including the consumption of salty, fatty foods, as well as the habit of not carrying out routine checks to health facilities. In addition, in-depth interviews revealed a knowledge deficit about hypertension, both in terms of causes, danger of complications, and how to manage it.

Timeline

The patient's clinical journey lasts for one week, starting from March 25 to 31, 2025. The first day was focused on a thorough assessment and provision of initial education about hypertension. On that day, patients also began to be given cucumber infused water as part of nonpharmacological therapy. The following days were filled with assistance related to dietary changes, reducing salt consumption, and monitoring daily blood pressure. Improvement began to be seen on the fourth day, and by the seventh day all patients experienced a significant drop in blood pressure. At the end of the week, the patients' blood pressure was in the systolic range of 120–126 mmHg and diastolic range of 75–78 mmHg, indicating a positive therapeutic response.

Diagnostic Assessment

Diagnostic assessments are carried out through daily blood pressure checks, vital signs assessment, and interviews regarding medical history. The diagnosis is established based on a consistent increase in blood pressure as well as the subjective complaints experienced by the patient. These examinations aim to assess the severity of hypertension, evaluate risk factors such as diet and medication non-adherence, and determine appropriate nursing interventions. A complete physical examination is carried out to ensure there are no acute complications, while a family assessment is carried out to see the family's ability to support the treatment process. Describe the nursing interventions implemented, including medications, therapy, and patient education.

Therapeutic Intervention

Nursing interventions in hypertension patients in this study were designed based on the Indonesian Nursing Intervention Standards (SIKI) with a focus on the Promotion of Health Efforts Behavior (I.12472). Interventions are directed at modifying risky health behaviors through identifying behaviors that need improvement, creating a supportive environment for health, orientation to the use of health services, and providing education about healthy lifestyles. Education includes increasing the consumption of vegetables and fruits, regular physical activity, limiting the consumption of high-salt foods, and avoiding exposure to cigarette smoke in the home environment. This approach is aimed at increasing the capacity of patients and families to self-manage hypertension and support the control of modifiable risk factors.

The implementation of the intervention was carried out through a systematic educational approach using modules as a health education medium. The material includes an understanding of hypertension, risk factors, complications, disease management, medication adherence, and lifestyle modifications. The implementation

was carried out from March 25-31, 2025 and was evaluated for seven days through the reinforcement of the information that had been provided and observation of changes in patient and family behavior. Based on the results of the evaluation, patients and families showed an increase in understanding of hypertension and began to implement behavioral changes, especially through reducing the consumption of salty foods and implementing a healthier diet.

As a complementary component, the intervention was combined with the administration of cucumber (Cucumis sativus L.) infused water. It is important to emphasize that cucumber infused water is not an intervention nomenclature in SIKI, but a complementary action that is integrated in the implementation of nursing care. The water infusion procedure uses 100 g of cucumber and 250 mL of water, with a soaking process for 12 hours before consumption. Giving is done once a day for seven days, in the morning or three hours after meals; The provision of the time for giving refers to Fauziah (2021). Thus, operationally, the research intervention can be categorized as a combination of SIKI-based nursing interventions in the form of Behavioral Promotion of Health Efforts (I.12472) and health education with complementary interventions in the form of giving cucumber infused water for seven days.

Follow-up and Outcomes

During the follow-up process, all three patients showed improvements both physically and behaviorally. Blood pressure, which was originally in the category of severe hypertension, gradually decreases until it reaches the normal–prehypertension range at the end of the week. Complaints of dizziness and neck pain were significantly reduced, and patients reported feeling refreshed and able to sleep better. The education provided also has a positive impact on families, who are beginning to be able to remind patients about healthy diets, adherence to taking medications, and the importance of regular health control. Overall, the combination of educational interventions and cucumber infused water has been shown to be effective in improving family understanding and ability to manage hypertension, as well as providing real clinical results on lowering patients' blood pressure.

RESULTS

Table 1 shows that three female patients diagnosed with chronic hypertension participated in this case study. Their ages ranged from 52 to 63 years, and all resided in Gempolpading Village, Pucuk District, Lamongan Regency. All patients had primary to secondary educational backgrounds and were married. Two patients worked as farmers and housewives, while one patient was a housewife. All participants had unhealthy lifestyle behaviors characterized by excessive salt intake, irregular health check-ups, poor medication adherence, and insufficient knowledge regarding hypertension management. At baseline, their blood pressure ranged from 153/100 mmHg to 168/100 mmHg, indicating uncontrolled hypertension.

Table 1. Demographic Characteristics of Patients

Variable	Client 1 (Mrs. S)	Client 2 (Mrs. T)	Client 3 (Mrs. Y)
Age (years)	52	63	54
Sex	Female	Female	Female
Occupation	Farmer and Housewife	Farmer and Housewife	Housewife*
Education	Primary–Secondary Education	Primary–Secondary Education	Primary–Secondary Education
Marital Status	Married	Married	Married
Residence	Gempolpading Village, Pucuk District, Lamongan Regency	Gempolpading Village, Pucuk District, Lamongan Regency	Gempolpading Village, Pucuk District, Lamongan Regency
Duration of Hypertension	Not specified	Not specified	5 years
Initial Blood Pressure	160/100 mmHg	153/100 mmHg	168/100 mmHg
Main Complaints	Dizziness, neck pain	Dizziness, neck pain	Dizziness, neck pain
Family History of Hypertension	Not reported	Not reported	Not reported
Dietary Habit	High-salt diet	High-salt diet	High-salt diet
Medication Adherence	Poor	Poor	Poor
Routine Health Check-up	No	No	No
Nursing Problem	Knowledge deficit related to hypertension management and medication adherence	Knowledge deficit related to hypertension management and medication adherence	Knowledge deficit related to hypertension management and medication adherence

The intervention administered over seven days showed significant clinical outcomes in all three patients. All patients experienced a significant reduction in blood pressure after receiving a combination of health education and cucumber infused water . This change was also followed by an improvement in subjective complaints such as dizziness and neck pain. In addition, there is an increase in the ability of patients and families to recognize risk factors for hypertension, implement a low-salt diet, and monitor blood pressure independently.

Overall, these results suggest that simple education-based interventions and nonpharmacological therapies can have a positive impact on blood pressure control in hypertensive patients. These findings reinforce the relevance of family nursing practices in improving knowledge, adherence, and healthy behaviors through sustainable educational and supportive approaches.

Table 2 Blood Pressure After Nursing Implementation

Day	Patient 1	Patient 2	Patient 3
1.	160/100 mmHg	153/100 mmHg	168/100 mmHg
2.	150/90 mmHg	146/90 mmHg	163/100 mmHg
3.	143/87 mmHg	143/88 mmHg	150/95 mmHg
4.	140/87 mmHg	138/87 mmHg	145/90 mmHg
5.	132/85 mmHg	130/85 mmHg	138/85 mmHg
6.	130/80 mmHg	125/80 mmHg	130/80 mmHg
7.	126/78 mmHg	120/76 mmHg	125/75 mmHg

DISCUSSION

In the third case, hypertension patients showed that the main problem that arose was not only high blood pressure, but also low understanding of patients and families about the disease, complications, and how to manage it. All three patients had an unhealthy lifestyle, especially high consumption of salt and fat, as well as non-adherence to treatment. The assessment data showed that the family did not know the health problems optimally, did not understand the risk factors, and did not know how to manage the pain and hypertension suffered (for example, ignorance about the symptoms and complications of hypertension in Mrs. S, Mrs. T, and Mrs. Y).

These findings are in line with the literature that states that hypertension is affected by modifiable factors, such as eating habits, physical activity, and stress, as well as non-modifiable factors such as age, gender, and genetics (Mayasari et al., 2019). Several studies also show that an unhealthy lifestyle is a major trigger for the increasing prevalence of hypertension, especially in the adult and elderly populations. This is strengthened by data on the three patients who had uncontrolled consumption patterns and rarely had health checkups, so that blood pressure was not monitored and complaints often recurred [6].

The nursing diagnoses that emerged in all three patients, namely discomfort disorders and risky health behaviors, were closely related to the family's lack of knowledge about the patient's condition. This can be seen from complaints of pain in the nape of the head, dizziness, as well as the inability of the family to make appropriate treatment decisions (for example, in clients who only take medication from the store without blood pressure monitoring) [7].

The nursing intervention provided, which is a combination of health education and the administration of cucumber infused water , has been shown to provide a clear change in the patient's health status. Improvement in blood pressure on the seventh day showed a positive effect of the intervention. Objective data recorded a significant decrease in blood pressure in all patients, e.g. from 160/100 mmHg to 126/78 mmHg in client 1; and similar trends in client 2 and client 3. These results are consistent with the research of Lestari [8]. which shows that cucumber infused water can significantly lower systolic and diastolic blood pressure through potassium and electrolyte content that help regulate the renin–angiotensin system [9].

According to research conducted by Siti Widyaningrum [10].it is stated that there is a relationship between diet and the incidence of hypertension. With regular consumption of cucumber water infusion, it is recommended for sufferers of high blood pressure, because cucumber water infusion can be a viable option to treat hypertension [11].Educational interventions also play an important role in changing family health

behaviors. After being given health promotions, patients and families begin to understand dietary restrictions, the importance of health control, and how to modify the environment to better support health. This can be seen from changes in diet, reduced consumption of salty and fatty foods, and increased use of health services by families (e.g., changes in eating behavior in clients 1, 2, and 3) [12].

This case confirms that the family nursing approach has a vital role in the management of chronic diseases such as hypertension. Comprehensive educational interventions not only help lower blood pressure, but also form new, more adaptive health behaviors [13]. Nurses can utilize simple methods such as cucumber infused water as complementary therapy to improve patient adherence to hypertension management [14].

In this case, it also shows the family's ability to recognize problems, make decisions, perform simple treatments, and modify the environment, showing that education is not only aimed at the patient, but also at the family system as a whole[15].. This is in line with the concept of family nursing which emphasizes that all family members have a role in managing health together [16].

Some of the challenges that arise in this case include: 1) Initial lack of understanding of patients and families about the disease, complications, and management, so that interventions take longer to produce change. 2) Culturally strong eating habits, especially the consumption of salty and fatty foods, so changes in eating behavior require a gradual approach. 3) Lack of utilization of health facilities, mainly due to unfamiliarity, distance, or negative perceptions of health services. 4) Non-adherence to treatment, because the use of over-the-counter drugs is more often chosen than official drugs from health facilities.

This case makes an important contribution to nursing practice, especially in Demonstrating the effectiveness of a combination of educational interventions and nonpharmacological therapies in lowering blood pressure [17]. Illustrating that the increase in family knowledge is directly proportional to the increase in disease management ability [18]. Reinforcing the concept that health behavior change can be achieved through active communication, ongoing education, and family support. It is a practical proof that cucumber infused water is a complementary therapy that is safe, inexpensive, and can be used in a community context [19].

This case adds to the scientific evidence that the family nursing approach can be applied effectively to chronic conditions such as hypertension, and can serve as a reference for future evidence-based nursing research and practice

CONCLUSION

This case study showed that a combination of health promotion and administration of *cucumber infused water* consistently lowered blood pressure in three hypertensive patients within seven days. In addition to clinical improvement, there has been a significant increase in family knowledge, decision-making ability, and more adaptive changes in health behaviors. These findings confirm that the family nursing approach has an important role in the control of chronic diseases, particularly hypertension, which are strongly influenced by lifestyle and health behaviors.

In the context of nursing practice, this intervention is relevant to be applied to communities with low levels of education and limited access to health services. Family

nursing plays an important role in building family capacity to be able to prevent complications, monitor blood pressure, and make appropriate treatment decisions.
Nurses working in primary health care centers are encouraged to integrate structured family health education with regular blood pressure monitoring and appropriate complementary non-pharmacological interventions, such as cucumber-infused water, into routine hypertension management programs. Strengthening family involvement and promoting sustainable lifestyle modifications may improve treatment adherence, prevent complications, and contribute to better long-term blood pressure control at the community level.

Acknowledgments

The author would like to thank the patient's family in Gempolpading Village, Pucuk District, Lamongan Regency who have been willing to cooperate and give permission to conduct nursing assessments and interventions. Thank you also to the health workers of Polindes Gempolpading who facilitated the data collection process and assistance during the case study.

Conflict of Interest

The author states that there is no conflict of interest.

Funding

This research does not receive specific grants from funding institutions in the public, commercial, or nonprofit sectors.

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