

*Original article*

Implementation of DASH (Dietary Approaches to Stop Hypertension) Education in Hypertension Patients with Knowledge Deficit Nursing Problems

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Abstract

Introduction: Hypertension is defined as an elevation in blood pressure beyond the normal limit, specifically exceeding 140/90 mmHg. The increase in blood pressure is attributed to indirect causes related to dietary habits and lifestyle, leading to a deficiency in knowledge. A knowledge deficit refers to a lack of cognitive information or non-adherence to recommended dietary and lifestyle modifications. Consequently, educational interventions are implemented to enhance understanding of appropriate lifestyle and dietary patterns. One non-pharmacological therapy that may be provided is education on the DASH (Dietary Approaches to Stop Hypertension) diet. This study aim was to provide an overview of DASH (Dietary Approaches to Stop Hypertension) education for hypertensive patients with the nursing diagnosis of knowledge deficit, by offering a clearer understanding of the importance of DASH (Dietary Approaches to Stop Hypertension) in hypertensive patients.

Method: A descriptive design was used, which is a design intended to improve a knowledge deficit.

Results: There was an effect on the knowledge deficit, resulting in an increase in knowledge and a change in blood pressure. This was evidenced by Client 1, who was able to answer 8 questions correctly on the questionnaire, with a percentage indicating 'Good,' while Client 2 was only able to answer 6 questions correctly, with a percentage indicating 'Fair,' due to factors such as age, education, and environment. Both clients appeared to understand the low-salt diet, and their blood pressure improved.

Conclusion: Based on the results of the study involving two respondents, there was an effect on their knowledge deficit regarding DASH (Dietary Approaches to Stop Hypertension) as well as a change in their blood pressure.

Keywords: Hypertension, Knowledge Deficit, DASH (Dietary Approaches to Stop Hypertension) Education.

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INTRODUCTION

Aging involves changes in the body's organs, including alterations in cardiovascular function. Hypertension affects all aspects of an individual's life as they age, encompassing physical, psychological, biological, and social changes, all of which are influenced by increasing life expectancy (Sumarni et al., 2021). One consequence of these changes is an elevation in blood pressure, or hypertension. The normal range for blood pressure is 120–140 mmHg for systolic pressure and 80–90 mmHg for diastolic pressure. Therefore, an individual is diagnosed with hypertension when their blood pressure exceeds 140/90 mmHg (Nopriani et al., 2023).

Hypertension increases due to indirect causative factors, including age, sex, and dietary errors such as excessive consumption of salt or sodium, as well as fast food (Annisa et al., 2022). Proper management of hypertensive patients aims to prevent an increase in blood pressure by correcting erroneous behaviors or unhealthy lifestyles. These include smoking, excessive salt intake, insufficient physical activity or lack of exercise, excessive stress, overweight or obesity, and blood pressure control (Rahayu, 2019).

According to the World Health Organization (WHO), in 2020 the number of deaths due to hypertension reached 22,995 people (Nopriani et al., 2023). Meanwhile, in 2025, the World Health Organization estimates that the prevalence of hypertension will increase, affecting approximately 1.6 billion people (Manto & Islamiaty, 2020).

According to the Health Research and Development Agency based on data from the 2018 Basic Health Research (Riskesdas), the prevalence of hypertension in Indonesia was 34.1% (Hayati & Irianty, 2021). According to data from the South Sumatra Health Profile for 2020, the number of hypertension sufferers in

South Sumatra Province was 1,993,269 people. Among these, the city of Palembang contributed the highest number, with 337,260 individuals suffering from hypertension.

A knowledge deficit is a factor that contributes to the formation of an individual's behavior. Behavioral conformity plays a role in supporting the treatment process of hypertensive patients, particularly regarding adherence to recommended behaviors. This indicates that there is still a lack of knowledge about hypertension, which can impact the incidence of the condition. One of the risk factors triggering hypertension is an unhealthy lifestyle, such as poor stress management, insufficient physical exercise, and unhealthy eating habits—including high fat and high salt intake but low fiber consumption (Tentang et al., 2023). A knowledge deficit refers to a lack of cognitive information or non-adherence to dietary and lifestyle recommendations. Therefore, DASH education is provided to enhance knowledge regarding lifestyle and dietary patterns (Yelvita, 2022).

In this context, the role of the nurse as an educator involves teaching health to individuals, families, and at-risk groups. The Dietary Approaches to Stop Hypertension (DASH) approach aims to prevent or reduce blood pressure by reducing the consumption of salt, sugar, meat, and fat. Therefore, DASH diet education is needed for the community, particularly for the elderly (Simorangkir et al., 2022).

Therefore, education on the Dietary Approaches to Stop Hypertension (DASH) is necessary, as it represents an intervention for regulating a balanced nutritional pattern in the management of hypertensive patients. This non-pharmacological therapy, also referred to as a dietary approach, can be implemented to regulate eating patterns by promoting healthy foods and reducing excessive salt consumption. One such intervention involves providing DASH education to hypertensive patients to improve their awareness scores regarding the dangers of hypertension, using a clear and structured method (Fitriyani et al., 2022). According to a study by Adquisiciones et al. (2019), there is a significant effect of DASH education on knowledge levels following the educational intervention.

METHOD

This research method employed a descriptive design, which is a design used to describe or address a knowledge deficit in hypertensive patients through a programmatic approach using DASH education. The subjects of this study were individuals with hypertension and a lack of knowledge among the elderly. The inclusion criteria were as follows: elderly individuals residing at the Tresna Werdha Harapan Kita Nursing Home in Palembang with a nursing diagnosis of knowledge deficit, elderly individuals aged 45–60 years, elderly individuals with hypertension, and elderly individuals who were able to participate in the intervention. The exclusion criteria for this study were as follows: elderly individuals aged 45–60 years with visual impairments, and elderly individuals with hypertension accompanied by hearing impairments.

The data collection instruments used by the author were as follows:

1. **Assessment Form:** The assessment used in this case study consisted of a form containing patient biodata and the chief complaint.
2. **Teaching Unit Plan (*Satuan Acara Penyuluhan/SAP*):** The teaching unit plan was a planning document for the educational session on DASH education, which included the main topic of the educational activity and the educational materials.
3. **Knowledge Questionnaire:** The questionnaire used in the case study consisted of several questions administered directly to the respondents regarding DASH education for the nursing diagnosis of knowledge deficit.
4. **Leaflet:** The leaflet was a printed sheet of paper folded into 2 to 3 pages, accompanied by the use of images, used to convey information and recommendations regarding DASH education for the nursing diagnosis of knowledge deficit.
5. **Sphygmomanometer:** The sphygmomanometer was a device used to measure blood pressure to determine whether it was normal or elevated.

The data collection method used in this scientific paper employed a pre-test and post-test design, which involved gathering assessment data, the results of questionnaire completion, and the implementation of direct education for patients who lacked knowledge about DASH, both before and after the DASH education intervention. The data presentation format in this scientific paper is based on the results of observation sheets from the implementation of DASH (Dietary Approaches to Stop Hypertension) education, conducted before and after the educational intervention for the knowledge deficit problem, presented in a narrative format.

RESULTS

First Client: Mrs. "P"

Nursing Intervention for the Diagnosis of Knowledge Deficit in the Case of Mrs. "P". On the first day at 09:00 WIB, the purpose of the procedure was explained. The duration of the DASH (Dietary Approaches to Stop Hypertension) education intervention was 30 minutes. The client was able to understand and agreed to participate in the education, and a leaflet was provided. Prior to the educational activity, blood pressure was measured, with the following results: BP: 150/90 mmHg, pulse: 90 beats/minute, respiratory rate: 21 breaths/minute, temperature: 36.5°C. Subsequently, the knowledge level was assessed using a questionnaire, yielding a score of 2, with a percentage indicating "poor." Based on the assessment results, the client demonstrated a lack of knowledge; the client appeared confused and did not understand how to complete the questionnaire regarding DASH (Dietary Approaches to Stop Hypertension). The DASH education intervention was then conducted for approximately 30 minutes. After the education was provided, a reassessment of knowledge was performed using the same questionnaire, yielding a score of 3, indicating slight improvement compared to before the education was provided.

Day Two: Tuesday, April 30, 2024, at 09:10 WIB. A knowledge level assessment was conducted. Prior to the activity, blood pressure was measured, with the following results: BP: 145/88 mmHg, pulse: 84 beats/minute, respiratory rate: 22 breaths/minute, temperature: 36.7°C. Before the education was provided, the client obtained a score of 2, with a percentage indicating "poor"; the client still did not understand the low-salt diet. Subsequently, DASH (Dietary Approaches to Stop Hypertension) education was provided for 30 minutes. On the second day, the client began to appear to understand and was able to explain what DASH (i.e., a low-salt diet) means, and gradually started to recognize the causes, signs, and symptoms of hypertension in individuals with poor dietary and lifestyle habits, although the client still appeared somewhat confused and required guidance from the author. After the education was provided, the client was asked whether there were any questions regarding the low-salt diet. A reassessment of knowledge level was then conducted by completing the questionnaire, yielding a score of 5 ("fair"), indicating that the client's knowledge level regarding the low-salt diet was fair and had begun to improve compared to the previous day.

Day Three: Wednesday, May 1, 2024, at 09:00 WIB. Prior to beginning the activity, a knowledge level assessment was conducted by completing the same questionnaire. Before the activity, blood pressure was measured, with the following results: BP: 135/80 mmHg, pulse: 85 beats/minute, respiratory rate: 22 breaths/minute, temperature: 36.6°C. A score of 6 was obtained, with a percentage indicating "Good," meaning the client demonstrated good knowledge. DASH (Dietary Approaches to Stop Hypertension) education was then provided for 30 minutes. During the low-salt diet education session using a leaflet, the client appeared to have begun to understand and required only minimal guidance from the author to explain what the low-salt diet is, its causes, signs and symptoms, benefits, and preventive measures. After completing the education, a reassessment of knowledge level was conducted, yielding a score of 8, with a percentage indicating "Good."

Second Client: Mrs. "I"

Nursing Intervention for the Second Client. The nursing intervention for the second client was the same as for the first client. At 09:30 WIB, the purpose of the procedure and the duration of the intervention were explained. The client appeared cooperative and willing to participate in the implementation of DASH (Dietary Approaches to Stop Hypertension) education. A knowledge level assessment was conducted to determine the client's baseline knowledge. Prior to the activity, blood pressure was measured, with the following results: BP: 160/95 mmHg, pulse: 95 beats/minute, respiratory rate: 22 breaths/minute, temperature: 36.5°C. Subsequently, the same questionnaire as that given to the first client was administered, yielding a score of 1, with a percentage indicating "poor." Based on the assessment results, the client demonstrated a lack of knowledge; the client appeared confused and did not know how to complete the questionnaire. Therefore, DASH (Dietary Approaches to Stop Hypertension) education was provided. After the education was completed, a reassessment of knowledge level was conducted using the same questionnaire, yielding a score of 3, still with a percentage indicating "poor." No change was observed on the first day.

Day Two: Tuesday, April 30, 2024, at 09:40 WIB. Prior to the activity, a knowledge level assessment was conducted. Before the activity, blood pressure was measured, with the following results: BP: 155/90 mmHg, pulse: 90 beats/minute, respiratory rate: 21 breaths/minute, temperature: 36.7°C. A score of 2 was obtained, with a percentage indicating "Poor," similar to the first day. Subsequently, DASH (Dietary Approaches to Stop Hypertension) education, also referred to as the low-salt diet, was provided. Although the client still required substantial guidance from the author, the client demonstrated a willingness to learn

and listen to the information regarding the low-salt diet for hypertensive patients. After the low-salt diet education was provided, the client appeared able to slightly explain what the low-salt diet is, its causes, and the signs and symptoms resulting from the influence of poor dietary and lifestyle habits in hypertensive patients. A knowledge level assessment was then conducted, yielding a score of 4, with a percentage indicating "Fair," which was an improvement compared to the first day.

Day Three: Wednesday, May 1, 2024, at 09:30 WIB. On the third day, the same procedure was followed. A knowledge level assessment was conducted using the questionnaire. Prior to the activity, blood pressure was measured, with the following results: BP: 140/90 mmHg, pulse: 90 beats/minute, respiratory rate: 22 breaths/minute, temperature: 36.5°C. A score of 4 was obtained, with a percentage indicating "Fair." Subsequently, DASH (Dietary Approaches to Stop Hypertension) education was provided to the client. During the education session, the client began to understand and was able to briefly explain what the low-salt diet is, its signs and symptoms, benefits, and management strategies regarding poor dietary and lifestyle habits in hypertensive patients. After the education was provided for 30 minutes, a reassessment of knowledge level was conducted, yielding a score of 6, with a percentage indicating "Fair." The results showed improvement compared to the previous day, although the percentage of knowledge level remained in the "Fair" category.

Observational Results from Respondent 1 and Respondent 2:

Table 1. Recorded results from the respondents

NO	Date/Day	Respondent 1 (Mrs. "P")		Respondent 2 (Mrs. "I")	
		Pre-Test	Post-Test	Pre-Test	Post-Test
1	Monday, April 29, 2024	Before education: score 2 (Poor)	After education: score 3 (Poor)	Before education: score 1 (Poor)	After education: score 3 (Poor)
2	Tuesday, April 30, 2024	Before education: score 2 (Poor)	After education: score 5 (Fair)	Before education: score 2 (Poor)	After education: score 4 (Fair)
3	Wednesday, May 1, 2024	Before education: score 6 (Fair)	After education: score 8 (Good)	Before education: score 4 (Fair)	After education: score 6 (Fair)

DISCUSSION

Hypertension is defined as a condition in which blood pressure exceeds the normal limit. The normal range for blood pressure is 120–140 mmHg for systolic pressure and 80–90 mmHg for diastolic pressure. Therefore, an individual is diagnosed with hypertension when their blood pressure exceeds 140/90 mmHg (Nopriani et al., 2023). Symptoms of hypertension typically appear only after damage has occurred to organs such as the heart, kidneys, brain, and eyes. However, hypertension is often associated with symptoms including headache, dizziness or migraine, difficulty sleeping, a feeling of heaviness in the neck, weakness, and fatigue (Ma et al., 2019). Proper management of hypertensive patients aims to prevent an increase in blood pressure by correcting incorrect or unhealthy behaviors, such as smoking, excessive salt consumption, insufficient physical activity or lack of exercise, and excessive stress (Rahayu, 2019). For Client 1 and Client 2, DASH (Dietary Approaches to Stop Hypertension) education is necessary to improve their knowledge as individuals with hypertension. Furthermore, aging involves changes in the body's organs, including alterations in cardiovascular function. Hypertension affects all aspects of an individual's life as they age, including physical, psychological, biological, and social changes, all of which are influenced by increasing life expectancy. Therefore, education must be provided to enhance their knowledge (Sumarni et al., 2021). The scoring criteria are as follows: a percentage score of 0–3 indicates "Poor," 4–6 indicates "Fair," and 7–10 indicates "Good."

Knowledge Deficit (D.0111, *Indonesian Nursing Diagnosis Standards/SDKI*) is defined as a condition in which an individual lacks or does not possess cognitive information relevant to a specific subject. According to Budiman & Riyanto (2020), several factors can influence this condition, including: Education – an effort to develop abilities; the higher the level of education, the more information a person receives. Environment – everything that surrounds an individual; the environment significantly influences the process of knowledge acquisition for individuals within that setting. Age – affects a person's cognitive capacity and thought patterns; consequently, knowledge may diminish with age. The intervention provided to both clients was DASH (Dietary Approaches to Stop Hypertension) education for 30 minutes. This is consistent with the intervention implemented, as one approach to providing knowledge to hypertensive patients is DASH education, enabling them to control their dietary patterns and lifestyle correctly so that blood pressure does not increase. The knowledge assessment scores for both cases before the DASH education intervention differed: Mrs. "P" obtained a score of 2, with a percentage indicating "Poor," while

Mrs. "I" obtained a score of 1, with a percentage also indicating "Poor." This finding is consistent with Budiman (2019), who stated that the more errors made in completing the questionnaire, the lower the individual's knowledge level.

Following the results of the knowledge deficit assessment and blood pressure measurement, Mrs. "P," aged 62 years, obtained a score of 2, with a percentage indicating "Poor," and a blood pressure reading of 150/90 mmHg, pulse: 90 beats/minute, respiratory rate: 21 breaths/minute, temperature: 36.5°C. Mrs. "I," aged 70 years, obtained a score of 1, with a percentage indicating "Poor," and a blood pressure reading of 160/95 mmHg, pulse: 95 beats/minute, respiratory rate: 22 breaths/minute, temperature: 36.5°C. Both clients met the established inclusion and exclusion criteria. This finding is consistent with Purwono et al. (2020), who stated that women over 45 years of age are at higher risk of developing hypertension. Subsequently, the researcher will provide an informed consent form as an agreement to conduct further assessment and intervention.

Based on the results of the assessment conducted on both clients prior to the implementation of DASH (Dietary Approaches to Stop Hypertension) education, it was found that Client 1 and Client 2 both complained of the same condition, namely hypertension, and both reported dizziness and headache. Client 1 stated experiencing dizziness and headache, tended to underestimate her condition, and reported a preference for consuming salty foods and fast food such as snacks or chips, as well as a lack of daily exercise. Client 2 appeared quiet, held her head, and stated that she felt dizzy and experienced vertigo when standing up from a seated position. When asked, the client responded that she did not know the cause and attributed her symptoms solely to her advanced age. Information obtained from her peers indicated that the client enjoys eating salty foods and does not like to exercise. It has been stated that a lack of cognitive information or non-adherence to dietary and lifestyle recommendations will lead to the development of hypertension (Yelvita, 2022).

The researcher therefore re-explained the low-salt diet education, emphasizing the importance of increasing fruit and vegetable consumption, during the subsequent meeting with the clients. In both clients, knowledge regarding the low-salt diet improved after the educational intervention. Client 1 achieved a score of 8, with a percentage indicating "Good," while Client 2 achieved a score of 6, with a percentage indicating "Fair." This finding is consistent with Adquisiciones et al. (2019), who reported a significant effect of DASH education on knowledge levels following the intervention. Client 2 was only able to answer 6 questions correctly due to factors such as age, education level, and environment, which resulted in a "Fair" percentage. These results are in line with research on Dietary Approaches to Stop Hypertension (DASH) education conducted by Fitriyani et al. (2022).

According to Adquisiciones et al. (2019), there is a significant effect of DASH education on knowledge levels following the educational intervention. Therefore, the researcher concludes that in elderly individuals with hypertension who experience a knowledge deficit, there is an observable effect before and after the provision of education to address the knowledge deficit, with an improvement in their knowledge. This is reflected in the percentage scores: Client 1 achieved a "Good" result, accompanied by a reduction in dizziness and an increased sense of comfort with her condition; Client 2 achieved a "Fair" result, with a reduction in dizziness and headache.

CONCLUSION

Based on the study conducted over three days, from April 29, 2024, to May 1, 2024, which involved the implementation of DASH (Dietary Approaches to Stop Hypertension) education for the knowledge deficit in elderly individuals with hypertension, specifically Mrs. "P" and Mrs. "I" at the *Tresna Werdha Harapan Kita* Nursing Home in Palembang, the researcher concludes the following: based on the results of the study involving two respondents, there was an effect on the knowledge deficit, and a change was observed in their knowledge regarding DASH (i.e., the low-salt diet) as well as in their blood pressure. This is evidenced by the improvement in knowledge, as reflected in the percentage scores: Client 1 achieved a "Good" result, accompanied by a reduction in dizziness and an increased sense of comfort with her condition; Client 2 achieved a "Fair" result, with a reduction in dizziness and headaches. The client reported that her condition had improved compared to previously. However, in Client 2, factors such as age, education level, and environment resulted in her ability to answer only 6 questions correctly, with a percentage indicating "Fair."

REFERENCE

Adquisiciones, L. E. Y. D. E., Vigente, T., Frampton, P., Azar, S., Jacobson, S., Perrelli, T. J., Washington, B. L. L. P., No, Ars, P. R. D. a T. a W., Kibbe, L., Golbère, B., Nystrom, J., Tobey, R., Conner, P.,

- King, C., Heller, P. B., Torras, A. I. V., To-, I. N. O., Frederickson, H. G., ... SOUTHEASTERN, H. (2019). Pengaruh pemberian pendidikan kesehatan tentang diet dash terhadap tingkat pengetahuan penderita hipertensi. *Duke Law Journal*, 1(1).
- Budiman & Riyanto, (2020). Faktor penyebab yang mempengaruhi defisit pengetahuan.
- Dewi, N. M. I. M. (2020). Gambaran Kualitas Tidur pada Lansia di Desa Mambang Kecamatan Selemadeg Timur Kabupaten .Poltekkes Denpasar Repository, 1–13.
- Dinkes Prov sumsel. (2022). Membangun Sumsel Yang Sehat Sumsel Yang Maju Untuk Semua. Profil Kesehatan Provinsi Sumsel 2021,
- Hayati, R., & Irianty, H. (2021). Preventif Hipertensi dan Diabetes Mellitus pada Usia Produktif di Kelurahan Sungai Besar. *Jurnal Abdimas Kesehatan (JAK)*, 3(3), 329. <https://doi.org/10.36565/jak.v3i3.272>
- Ma, L., Luo, J., Hiramoto, T., Onumata, Y., Manabe, Y., Takaba, H., Corporation, E., Energy, A., Flory, P. J., Æ, I., Sato, T., Geometry, R., Analysis, G., Muraki, M., Nakamura, K., Geometry, R., & Analysis, G. (2019). Definisi Hipertensi. *Proceedings of the Institution of Mechanical Engineers, Part J: Journal of Engineering Tribology*, 224(11), 122–130.
- Manto, O. A. D., & Islamiaty, I. N. (2020). Efektivitas Pendidikan Kesehatan Pada Pasien Hipertensi Studi Narrative Review. *Journal of Nursing Invention E-ISSN 2828-481X*, 1(2), 130–137. <https://doi.org/10.33859/jni.v1i2.45>
- Nopriani, Y., Wiryansyah, O. A., & Apriani, S. (2023). Pengaruh Edukasi tentang Diet DASH terhadap Skor Kesadaran Bahaya Hipertensi Tahun 2023. *Community Development Journal*, 4(2), 1990–1995.
- Nurarif, & Kusuma. (2020). BAB 2 Pengaruh Hipertensi terhadap perilaku hidup pada lansia. *Jurnal Ilmiah Ilmu Keperawatan*, 1(2011), 8–25.
- Simorangkir, L., Ginting, A., Karo, M. B., Saragih, I. S., Ginting, A. A. Y. B., Saragih, H., Siringo-ringo, M., & Ginting, N. (2022). The Effectiveness of Family-Based Dash Education on Older People's Blood Pressure at the Public Health Center of Kutalimbaru. *Society*, 10(2), 653–664. <https://doi.org/10.33019/society.v10i2.457>
- Sugiono. (2019). Desain Penelitian, Hipotesis, Definisi-Oprasional, Analisa Data. 45–66.
- Sumarni, E., Mamlukah, M., Suparman, R., Ropii, A., Lukman, M., Jamaludin, J., & Sudrajat, C. (2021). Analisis Pengaruh Terapi Senam Anti Stroke Sebagai Upaya Non Farmakologi Menurunkan Tekanan Darah Pada Lanjut Usia (Lansia) Dengan Hipertensi Ringan. *Journal of Public Health Innovation*, 1(2), 133–141. <https://doi.org/10.34305/jphi.v1i2.300>
- Tentang, P., Dash, D., & Penderita, P. (2023). Efektivitas edukasi diet dash terhadap tingkat pengetahuan tentang diet dash pada penderita hipertensi. 10(1), 11–17.
- Yelvita, F. S. (2022). Asuhan keperawatan pada pasien diabetes dengan masalah keperawatan defisit pengetahuan.