DASH DIET MANAGEMENT IN ELDERLY PATIENTS WITH HYPERTENSION

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Abstract

Background: Hypertension is a very serious medical condition, given the high incidence of hypertension which is increasing. Not a few elderly people also experience hypertension, so good blood pressure control is needed in the elderly. Dietary management that needs to be considered, especially in elderly patients, one of which is the DASH diet, which reduces sodium and consumes lots of fruits and vegetables to lower blood pressure by regulating daily diet. Objective of this literature review is to conduct a study of DASH diet management on blood pressure in the elderly with hypertension. The methods used are based on the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) stages of identification, screening, eligibility, and inclusion. Articles were searched using the PubMed database, ScienceDirect, and Google Scholar in 2019. The results obtained were 5 articles that have been reviewed and selected using the PRISMA method stages. The duration of the DASH diet intervention varied, ranging from 6 days to a maximum of 3 months. Seven DASH diet models were identified, namely reducing sodium, increasing fiber, low-fat protein, low-fat milk, vegetables, fruits, and grains. The conclusion is that people with hypertension should maintain and improve their compliance with the DASH diet so that it can be applied daily, and reduce their consumption of drinks and foods that can increase hypertension.

Keywords: *DASH diet management; elderly; hypertension;*

INTRODUCTION

A person who has reached the end of their life is considered elderly, or simply old age. According to Aswardi (2023), the elderly are divided into three categories: pre-elderly, which are people aged between 60 and 69 years; old, which includes those aged between 70 and 79 years; and elderly, which are residents over 80 years of age. Based on data from the Central Statistics Agency (BPS) in 2019, Indonesia has 25.6 million elderly residents. There are 270.2 million people living in Indonesia, 26.4 million of whom, or 9.78%, are elderly according to the 2020 population census. Currently, there are around 27.1 million elderly people in Indonesia, which is almost 10% of the country's total population. It is estimated that 33.7 million people, or 11.8% of the population, will enter old age by 2025 (Indonesian Ministry of Health, 2021). Aging is a process that these elderly people will go through.

Inayah et al., (2022) states, "In human life, aging is a natural process. At this stage, the condition of elderly patients will deteriorate. They are unable to perform daily tasks due to physical, mental, and social limitations. This stage is also known as the decline stage. Hypertension is one of the most common health problems affecting the elderly. High blood pressure in the elderly can put them at risk of heart attack, stroke, and kidney failure. Elderly people whose memory has begun to decline really need the support of their families to help remind them and provide full support. In general, as researched by (Rasiman & Noviany,2022) , the low level of public knowledge about hypertension has a negative influence, accompanied by a reluctance to regularly check blood pressure at health services such as community health centers. Therefore, health education using engaging media is necessary for the elderly to

improve their literacy and understanding of hypertension (Chajaee et al., 2018). Stabilization of blood pressure and improvement in quality of life are the expected outcomes of this.
World Health Organization (2023) If a person's systolic blood pressure is greater than or equal to 140 mmHg and their diastolic blood pressure is greater than or equal to 90 mmHg, they are said to have hypertension. Hypertension is a medical condition dubbed the "Silent Killer" due to its extreme severity. Hypertension is defined as an abnormality or condition in which blood pressure is excessively and consistently elevated in many examinations (Wulandari et al., 2023).

WHO data in 2015 showed that there were 1.13 billion people with hypertension, up from 594 million in 1975. The WHO (2023) estimates that 1.28 billion people worldwide suffer from hypertension. Worldwide, adults aged 30 to 79 years suffer from hypertension. One of the provinces with the highest incidence of hypertension is South Kalimantan with a prevalence of 44.1%, while Papua has the lowest incidence rate of 22.2%. According to data from the Ministry of Health of the Republic of Indonesia ( )(2022))the presentation of hypertension services in Riau province has increased. In 2021, it was 22.8%, and in 2022, it increased to 33.1%, exceeding the set target.

With 5,148 cases, hypertension was the fourth most common condition causing hospitalization at the Riau Provincial Hospital in 2018. Rokan Hilir Regency had the highest rate at 72.5%. The data obtained from districts/cities is still low because it is only based on hypertension patients who visit community health centers, while patients who visit other health facilities have not been recorded. The increase in hypertension cases is directly proportional to a person's age. The prevalence of hypertension is 29% in the 25–44 age group, 51% in the 25–64 age group, and 65% in the >65 age group. The percentage of hypertension cases in the elderly over 65 years of age requires good blood pressure control in the elderly (Warjiman et al, 2020) .

Blood pressure control in elderly patients is achieved by taking antihypertensive drugs. According to Ainurrafiq et al.,(2019) , continuous use of antihypertensive drugs can lead to potential drug-related problems. Problems related to medication are undesirable situations that patients may face. This may be caused by the pharmacological therapy administered to patients, which may or may not have an impact on their condition. Examples of such conditions include drug interactions, non-compliance, or allergies to prescription drugs. Over a long period of time, treatment can cause drug side effects that can damage certain organs.

Puspita et al., (2019) also revealed that hypertension can occur due to non-compliance in controlling the desire to smoke and drink coffee, as well as consuming salted fish and foods such as fried foods and foods that contain high cholesterol such as shellfish (Laili & Purnamasari, 2019) stated that a healthy lifestyle modification is necessary. According to (Nelwan et al.,2019) errors in dietary patterns are one of the risk factors for high blood pressure. Practices such as consuming high-fat foods, fast food, foods with preservatives, and foods that are too high in salt or sodium (Indonesian Ministry of Health Regulation No. 14 of 2014) constitute a series of unhealthy dietary patterns. According to a survey by the National Commission on the Elderly, high consumption of salty foods is associated with the prevalence of hypertension among the elderly.

Excess sodium is one of the manageable risk factors for hypertension, according to Alhamidi et al. (2022). The primary ion present in extracellular fluid is sodium. The volume of extracellular fluid increases with high sodium levels. This indicates that the body may retain fluid, which can increase blood volume and force the heart to work harder, leading to elevated blood pressure. If you consume more than 1500 mg of salt per day, you are at risk of developing

hypertension. Therefore, it is important to control your daily eating habits. The DASH diet has been proven in various trials to be effective in lowering blood pressure.

Older adults can effectively follow the DASH (Dietary Approaches to Stop Hypertension) diet management program. In order to lower blood pressure and increase awareness of the daily eating habits of older adults, this program can also be implemented with an emphasis on increasing the self-efficacy of older adults in reducing the risk of hypertension. With an emphasis on locally grown foods, the DASH diet management program also pays attention to the food intake of people with hypertension. According to research, this is beneficial for elderly people with hypertension in their daily lives by giving them greater confidence when choosing foods with lower sodium content and when assessing foods (Seangpraw et al., 2019), stating that elderly people with hypertension who underwent the DASH program for 3 months helped lower blood pressure and prevent complications.

Astuti et al., (2021) , added that proper implementation of the DASH diet has a significant impact on the blood pressure of the elderly. This is because the DASH program emphasizes fruits and vegetables and limits salt intake, thereby helping older adults with hypertension lower their blood pressure. The DASH diet follows a balanced nutritional pattern that improves health. The DASH diet has many beneficial effects on blood sugar levels, body fat percentage, and waist circumference. In 2019, Kawulusan et al. The DASH diet is a recommended diet for lowering blood pressure by limiting foods high in cholesterol and saturated fat. Increasing the consumption of nutrient-rich foods, particularly minerals (potassium, calcium, and magnesium) in fruits, protein, and fiber, is the main goal of this diet.

METHODS

The literature review used the PRISMA (*Preferred Reporting Items for Systematic reviews and Meta-Analyses*) method. Data were searched using the predetermined *keywords hypertension AND DASH management AND elderly.* Three *databases* were used to search for journal articles: *PubMed, ScienceDirect,* and *Google Scholar.*

Table 1. ***Journal Article*** **Databases**

No.	Database	Search strategy
1.	PubMed	"hypertension" AND "DASH management" AND "elderly"
2.	Science Direct	“hypertension” AND “DASH management” AND “elderly”
3.	Google Scholar	“hypertension” and “DASH diet management” and “elderly”

PRISMA is a small set of evidence-based recommendations intended to help authors publish systematic reviews and meta-analyses that evaluate benefits. PRISMA emphasizes how authors can ensure that researchers report their findings completely and transparently. The search steps are broken down into several procedures, including:

1. *Identification* of publications to be included in the meta-analysis;
2. *Screening*, filtering or selecting data;
3. *Eligibility*, deciding which papers will form the basis of the literature review; and Inclusion, combining and presenting the findings.

RESULTS

Based on the results from 3 databases, namely Pubmed with 62 articles, Science Direct with 518 articles, and Google Scholar with 892 articles, there were a total of 1,472 articles.

After selection, five journal articles were found through the identification, screening, eligibility, and inclusion process using the PRISMA (Preferred Reporting Items for Systematic Review and Meta Analyses) technique. We reviewed and identified seven DASH (Dietary Approaches to Stop Hypertension) diet program models that can be used: reducing sodium intake, increasing fiber, increasing low-fat milk and protein, increasing vegetables, increasing fruits, and increasing whole grains. Based on a review of research findings (, Seangpraw et al., 2019), educating the public about the DASH diet was more successful in lowering blood pressure. Elderly people in the intervention group experienced a decrease in diastolic and systolic blood pressure within three months after the intervention (P<0.001). The type of DASH diet used in this intervention involved increasing the consumption of fruits, vegetables, whole grains, and low-fat protein sources while reducing salt intake (1,500 mg/day or ⅓ teaspoon, not to exceed 2,300 mg/day). Systolic blood pressure, before intervention: 149.74 mmHg, after intervention: 139.87 mmHg, 3-month follow-up: 138.32 mmHg. Diastolic blood pressure, before intervention: 86.77 mmHg, after intervention: 79.63 mmHg, 3-month follow-up: 80.60 mmHg.

Nurmayanti & Kaswari, (2022) further claim that a low-salt diet has a greater effect in reducing sodium intake. Consuming too much salt can increase cellular sodium levels and disrupt fluid balance in the body. Blood pressure can rise due to narrowing of blood vessels, forcing the heart to pump blood harder. The DASH diet also includes foods high in potassium, calcium, and magnesium because these minerals reduce endothelial dysfunction and increase smooth muscle relaxation in the arteries (Wardani & Sudaryanto, 2023). Increase your consumption of fruits, vegetables, whole grains, and low-fat protein sources, as suggested by Van Den Brink et al. (2019).

Dewi et al. (2019) found that blood pressure can be lowered by changing eating habits, particularly by consuming more fruits, vegetables, and low-fat dairy products. An ANOVA test was used to compare blood pressure variations before and after the DASH diet. The average systolic blood pressure was 170 mm Hg at baseline, 151.5 mm Hg at the end of 14 days, and 143.5 mm Hg at the end of 28 days without treatment. After the intervention, blood pressure decreased significantly in all samples (p = 0.0005). Conclusion: The DASH diet significantly lowers blood pressure in hypertensive patients at the Pahandut Palangka Raya Community Health Center. Hypertensive patients are advised to consume more foods high in potassium, calcium, and magnesium and less sodium.

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CONCLUSION

Based on findings from five research publications, it was determined that elderly hypertensive patients benefited from DASH diet management intervention in the form of education. The provision of DASH diet education varied in duration, ranging from 6 days, 14 days, and up to 3 months. Increasing patients' knowledge about the effective implementation of a good diet can control blood pressure, so it can be optimized with the DASH diet, based on the idea that consuming a balanced diet will lower blood pressure and reduce the likelihood of problems.

The DASH diet program that can be implemented is a low-salt diet or reducing sodium intake (1,500 mg/day or ⅓ teaspoon, not to exceed 2,300 mg/day), increasing the amount of low-fat milk to two to three servings per day, and the amount of fruits and vegetables to eight to ten servings per day. The DASH diet education intervention was found to significantly lower systolic and diastolic blood pressure ($p < 0.001$) compared to the control group in this study. The intervention was conducted over a three-month period.

The DASH diet can be recommended as an alternative for maintaining daily eating patterns in elderly patients with hypertension. In addition, the role of the family in providing support to the elderly is also needed. Families who receive education in caring for the elderly have been shown to increase their knowledge and help manage hypertension. Regular health education is needed for hypertensive patients, as well as further research to better understand the eating patterns and habits of patients.

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