

Literature Review: Impact of the DASH Diet on Blood Pressure Control in Hypertensive Patients

Antônio Comelio Co'e¹, Eduardo Correia², Remegia Natalina Dos Santos Sarmento³,
Angela Maria do Rosario da Silva Amaral Pinto⁴, Puji Lestari⁵

¹Bachelor Nursing Program, Universitas Ngudi Waluyo, antoniocomelio99@gmail.com

²Bachelor Nursing Program, Universitas Ngudi Waluyo, chaylor220@gmail.com

³Bachelor Nursing Program, Universitas Ngudi Waluyo, rennysantos26@gmail.com

⁴Bachelor Nursing Program, Universitas Ngudi Waluyo,
angelitomaiamarguesgoveialeite@gmail.com

⁵Bachelor Nursing Program, Universitas Ngudi Waluyo, pujilestari@unw.ac.id

Email Correspondence: antoniocomelio99@gmail.com

Article Info	Abstract
Article History Submitted, 2026-05-13 Accepted, 2026-06-24 Published, 2026-06-30	Hypertension is a major non-communicable disease affecting approximately 1.28 billion adults worldwide and is a primary risk factor for cardiovascular disease, stroke, and kidney failure. The DASH (Dietary Approaches to Stop Hypertension) diet is a non-pharmacological intervention recognized as effective in controlling blood pressure through increased consumption of fruits, vegetables, low-fat dairy, and whole grains while limiting sodium and saturated fat. This systematic literature review aims to analyse the impact of the DASH diet on blood pressure control in hypertensive patients based on evidence from national and international nursing journals published between 2020–2025. Literature searches were conducted through PubMed, Google Scholar, Frontiers in Nutrition, Cambridge Core, JMIR, Scopus, Gizi Indonesia, and Jurnal Manajemen Asuhan Keperawatan using keywords: DASH diet, hypertension, blood pressure, systematic review, nursing. Eleven articles meeting inclusion criteria were analysed using the PRISMA approach. Results showed that the DASH diet consistently reduced systolic blood pressure by 1.29–6.74 mmHg and diastolic blood pressure by 0.76–3.54 mmHg. Effects were enhanced by sodium restriction and feeding-based interventions. Digital health interventions and community nursing education significantly improved patient adherence to DASH. In conclusion, the DASH diet is an evidence-based dietary strategy that should be integrated into nursing care plans for hypertensive patients in both clinical and community settings.
Keywords: DASH Diet, hypertension, blood pressure	

Introduction

Hypertension is the most prevalent non-communicable disease (NCD) worldwide and is a major risk factor for cardiovascular disease, stroke, and kidney failure. According to the World Health Organization (WHO, 2023), an estimated 1.28 billion adults worldwide suffer from hypertension, with two-thirds of these living in low- and middle-income countries. In Indonesia, the 2018 Basic Health Research (Riskesdas) data recorded a prevalence of hypertension among the population aged 18 years and older of 34.1%, making hypertension a national priority health issue.

Hypertension management includes pharmacological and non-pharmacological approaches. A scientifically proven non-pharmacological intervention is dietary modification through the implementation of the DASH (Dietary Approaches to Stop Hypertension) Diet. The DASH diet emphasizes high consumption of fruits, vegetables, low-fat dairy products, and whole grains, while limiting sodium, saturated fat, added sugars, and red meat. This diet was developed to lower blood pressure and has been recommended by various international clinical guidelines, including those of the American Heart Association (AHA) and the Joint National Committee (JNC).

The role of nurses in educating, monitoring, and supporting dietary adherence in hypertensive patients is crucial. However, evidence-based practice (EBP) regarding the effectiveness of the DASH diet still needs to be systematically compiled for optimal implementation in nursing practice, particularly in community and outpatient settings. Several international studies have demonstrated significant blood pressure reduction through the

implementation of the DASH diet (Guo et al., 2021; Onwuzo et al., 2023), but evidence from national contexts and from a nursing care perspective remains limited.

Therefore, this systematic literature review (SLR) was prepared with the aim of comprehensively analysing the impact of implementing the DASH diet on blood pressure control in hypertensive patients based on the latest national and international nursing journals from 2020–2025, to support the development of evidence-based nursing practice.

Methods

This study used the Systematic Literature Review (SLR) method with the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) approach. Literature sources were obtained from several national and international electronic databases, including: PubMed/MEDLINE, Google Scholar, Frontiers in Nutrition, Cambridge Core, JMIR (Journal of Medical Internet Research), Scopus, and national journal portals such as Gizi Indonesia, Jurnal Manajemen Asuhan Keperawatan, and Nutri-Sains: Jurnal Gizi, Pangan dan Aplikasinya. The search was conducted in the period January–April 2025 with a publication year range of 2020–2025. Keywords used in the search include: "DASH diet", "Dietary Approaches to Stop Hypertension", "blood pressure control", "hypertension", "randomized controlled trial", "systematic review", "meta-analysis", "nursing intervention" (English); and "Diit DASH ", "Tekanan Darah", "Hipertensi", "Kontrol Tekanan Rarah", "Intervensi Keperawatan" (Indonesian).

Inclusion criteria included: (1) articles published between 2020 and 2025; (2) discussing DASH diet interventions or DASH-like eating patterns in hypertensive patients; (3) measuring systolic and/or diastolic blood pressure as the outcome; (4) study design in the form of RCT, quasi-experimental, systematic review, meta-analysis, or literature review; (5) articles in Indonesian or English; (6) full text available. Exclusion criteria included articles outside the publication year range, articles without full text access, articles that did not measure blood pressure as the primary outcome, and duplicate articles. Of the 579 articles identified through various databases, screening was performed based on title and abstract. After careful eligibility assessment using inclusion and exclusion criteria, 11 articles met the criteria and were analysed in this review. Data extraction included: author name and year, title, study design, sample size, intervention, and reported primary outcome.

Results and Discussion

Based on the selection process using the PRISMA flow, 11 articles were analysed, consisting of 6 reputable international journals and 5 accredited national journals. A summary of the characteristics of the included articles is presented in Table 1 below.

Table 1. Literatre Review Result

No	Researchers	Research methods	Results
1.	Effects of the Modified DASH Diet on Adults with Elevated Blood Pressure or Hypertension: A Systematic Review and Meta-Analysis, Guo et al. (2021)	Systematic Review & Meta-Analysis.	Decrease in systolic BP –3.26 mmHg (p=0.006) and diastolic BP –2.07 mmHg (p=0.01) significantly
2.	The Effects of DASH Diet on Metabolic Risk Factors in Patients with Chronic Disease: A Systematic Review and Meta-Analysis of RCTs, Lari et al. (2021)	Systematic Review & Meta-Analysis	The DASH diet is effective in reducing systolic and diastolic blood pressure and metabolic risk factors in various chronic conditions.
3.	DASH Diet: A Review of its Scientifically Proven Hypertension Reduction and Health Benefits, Onwuzo et al. (2023)	Literature Review	Reduction in systolic BP by 6.74 mmHg and diastolic by 3.54 mmHg; greater effect in subjects with higher baseline BP
4.	The Use of DASH Mobile Apps for Supporting Healthy Diet and Controlling Hypertension in Adults: Systematic Review, Alnooh et al. (2022)	Systematic Review	The DASH app improves dietary adherence and lowers BP; effectiveness varies and requires further study.
5.	Blood Pressure Impact of Dietary Practices Using the DASH Method: A Systematic Review and Meta-Analysis, Jiao et al. (2025)	Systematic Review & Meta-Analysis	Systolic BP decreased by 1.29–4.6 mmHg; diastolic by 0.76–1.1 mmHg; total and LDL cholesterol decreased significantly
6.	Implementation of the DASH Diet Recommendations Compared to a Low-Salt Diet Based on	RCT (Randomized Trial)	The delta of systolic and diastolic reduction in the DASH

	Nutritional Counselling for Reducing Blood Pressure in Hypertension Patients, Astuti et al. (2021)		group was significantly greater than the RG diet (p<0.05)
7	Application of the DASH Diet Pattern to Blood Pressure in Hypertension Patients in Kalikangkung Village, Semarang, Fitriyana & Wirawati (2022)	Descriptive Case Study (Quasi Experiment))	Subject I: 156/100→140/95 mmHg; Subject II: 155/100→140/90 mmHg; proven to lower BP
8	The Blood Pressure Control Effect of the Sodium-Restricted DASH Diet: A Systematic Review, Kim et al. (2024)	Systematic Review	Feeding study reduced systolic BP by -7.7 to -2.4 mmHg; education alone was not consistently significant
9	Differences in Effectiveness of Low-Salt Diet and DASH Diet in Reducing Blood Pressure in Hypertension Patients, Susanti (2024)	Quasi Experiment (Wilcoxon Test)	Both were effective in lowering systolic BP; the low-salt diet was more significant on diastolic; DASH was superior on systolic.
10	Effects of a Digital Intervention to Improve DASH and Blood Pressure Among US Adults, Miller et al. (2024)	2-Arm Parallel RCT (12 months)	DASH scores improved significantly; systolic BP decreased more in the DHI group than in controls (6 and 12 months)
11	The Relationship Between Knowledge Level about DASH and Diet Adherence Level: A Literature Review, Wardani & Sudaryanto (2023)	Literature Review	The level of knowledge of the DASH diet is significantly associated with dietary compliance and BP control (p<0.05)

The Effectiveness of the DASH Diet in Lowering Blood Pressure

All analysed studies demonstrated that the DASH diet had a positive impact on blood pressure control in people with hypertension. In a literature review of 17 RCTs with a total of 2,561 participants, Onwuzo et al. (2023) found a significant reduction in systolic blood pressure of 6.74 mmHg and diastolic blood pressure of 3.54 mmHg. These findings reinforce the DASH diet's position as a first-line non-pharmacological intervention recommended by various international clinical guidelines.

Guo et al. (2021) in a meta-analysis of 10 RCTs found that the modified DASH diet significantly reduced systolic (-3.26 mmHg; 95% CI -5.58 to -0.94 mmHg; p=0.006) and diastolic (-2.07 mmHg; 95% CI -3.68 to -0.46 mmHg; p=0.01) blood pressure. A recent systematic review of 8 selected articles from 579 (Jiao et al., 2025) confirmed a reduction in systolic blood pressure of 1.29–4.6 mmHg and diastolic blood pressure of 0.76–1.1 mmHg, accompanied by a significant reduction in total cholesterol and LDL cholesterol, and an increase in HDL cholesterol. The consistency of these effects across studies confirms the biological mechanism of the DASH diet through electrolyte balance—particularly increased potassium, calcium, and magnesium intake and sodium restriction.

The Effect of Sodium Restriction on the Effectiveness of the DASH Diet

Several studies have emphasized that adding sodium restriction to the DASH diet produces a stronger antihypertensive effect. Kim et al. (2024) in a systematic review found that a feeding study (an intervention involving direct food provision) resulted in a reduction in systolic blood pressure of -7.7 to -2.4 mmHg, significantly greater than an education-based intervention alone. A study by Astuti et al. (2021) in Indonesia compared the DASH diet with a low-salt diet through nutritional counselling and found that the DASH group showed a significantly greater delta reduction in diastolic blood pressure (p<0.05). These findings indicate that the comprehensive DASH approach provides broader benefits than simply salt restriction.

DASH Diet Adherence and the Role of Nursing Interventions

The main challenge in implementing the DASH diet is long-term adherence. Alnooh et al. (2022) found that a DASH-based mobile application has the potential to improve dietary adherence and lower blood pressure. This finding was supported by Miller et al. (2024) in a 12-month RCT (n=301), which showed that a digital health intervention (DHI) significantly improved DASH adherence scores and reduced systolic blood pressure more than the control group. In the context of community nursing, Wardani and Sudaryanto (2023) found a significant relationship between DASH diet knowledge and dietary adherence and blood pressure control (p<0.05), confirming that community-based nursing education is an effective promotive strategy.

Implementation of the DASH Diet in the Context of Indonesian Nursing

Fitriyana and Wirawati (2022) demonstrated through a descriptive case study that implementing the DASH diet for 5 days with 3 meals per day was able to reduce blood pressure from 156/100 mmHg to 140/95 mmHg (Subject I) and from 155/100 mmHg to 140/90 mmHg (Subject II). These results are consistent with international findings and demonstrate the practical relevance of the DASH diet in community nursing care settings in Indonesia. Susanti (2024) compared the DASH diet with a low-salt diet and found that both were effective in reducing systolic blood pressure, but the choice of intervention needs to be tailored to the patient's clinical condition and individual characteristics.

Conclusion and Suggestions

Based on an analysis of 11 national and international journal articles from 2020–2025, it can be concluded that the DASH diet has consistently been shown to be effective in reducing systolic (1.29–6.74 mmHg) and diastolic (0.76–3.54 mmHg) blood pressure in hypertensive patients with a significant level of significance. The addition of sodium restriction enhances the antihypertensive effect, especially in interventions based on direct food provision. The DASH diet shows superiority over a low-salt diet in reducing diastolic blood pressure. Digital interventions and community nursing education have been shown to significantly improve patient adherence to the DASH diet.

Recommended suggestions: (1) community nurses and community health centers need to integrate DASH diet education into hypertension management programs as part of evidence-based nursing practice; (2) the development of DASH diet-based digital educational media (video, mobile applications, WhatsApp) needs to be improved to support patient compliance; (3) larger-scale RCT studies in Indonesia are needed to confirm the effectiveness of the DASH diet adapted to local dietary patterns; (4) interprofessional collaboration (nurses, nutritionists, doctors) in developing a comprehensive DASH diet plan is highly recommended.

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