

The effectiveness of DASH diet nutrition education in improving adherence among hypertension patients through the use of leaflet media

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Abstract. Background: Chronic hypertension significantly contributes to cardiovascular diseases, a leading cause of mortality worldwide. The DASH diet has proven effective in lowering blood pressure among individuals with hypertension. Objective: This study aimed to evaluate the effectiveness of DASH diet education, delivered through lectures and leaflets, on dietary compliance among hypertensive patients at Puspaindah Posbindu, Tasikmalaya City, in 2023. Methods: This quasi-experimental study employed a one-group pretest posttest design. Result: The findings revealed a significant effect ($p < 0.001$) of DASH diet education on dietary compliance among hypertensive patients. It was concluded that DASH diet education delivered through lectures and leaflets positively influenced dietary adherence in this population.

1 Introduction

Hypertension is characterized by a systolic blood pressure of ≥ 140 mmHg and a diastolic blood pressure of ≥ 90 mmHg, measured during two sessions with a five-minute interval while the individual is at rest (Mardalena, 2017). Elevated blood pressure arises when the heart exerts greater effort to circulate blood, meeting the body's increased demand for oxygen and nutrients [1].

Data from the 2018 Basic Health Research (Riskesdas) indicates that approximately 34.1% of the Indonesian population suffers from hypertension, an increase from 25.8%

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reported in the 2013 Riskesdas. West Java Province ranks second in Indonesia for the prevalence of hypertension among adults aged ≥ 18 years, with a rate of 39.6% [2].

Data from the Tasikmalaya City Health Office indicates that 50,521 individuals in Tasikmalaya City suffered from hypertension in 2022, an increase of 12,550 cases compared to 37,971 individuals in 2021. At Kahuripan Health Center, 2,339 hypertension cases were recorded in 2022, marking a significant rise from 1,867 cases in 2021. Posbindu Puspaindah, one of the community health posts (posbindu) under the jurisdiction of the Kahuripan Health Center, is an active health post with a high prevalence of hypertension cases. A total of 46 individuals, primarily pre-elderly to elderly patients, were recorded as having hypertension.

The increasing incidence of hypertension is strongly associated with poor dietary adherence among hypertensive patients. Effective dietary management is essential to mitigate the risk of complications [3]. Lifestyle changes have resulted in reduced consumption of fresh vegetables and fiber, coupled with increased intake of salt and fat [4].

The lecture method is widely used in education to disseminate information and is suitable for a diverse audience, regardless of their educational background [5]. Educational activities often incorporate media or teaching aids to enhance message delivery, with leaflets serving as a commonly utilized medium. Leaflets are visual tools that provide concise information on a specific topic. They are made of lightweight, portable paper, making them easy to read and distribute [6].

Over the past two decades, the Dietary Approaches to Stop Hypertension (DASH) diet has emerged as a key guideline for healthy eating [7]. The DASH diet emphasizes the consumption of fiber-rich fruits and vegetables while limiting salt intake [8]. Its application in hypertensive patients has been shown to effectively reduce both systolic and diastolic blood pressure [9].

Interviews conducted at Posbindu Puspaindah revealed that 7 out of 10 hypertensive patients prefer salty foods and do not monitor their salt intake. They find bland food unappealing. Furthermore, they consume fried snacks nearly every day. Therefore, it can be concluded that these patients are not adhering to the dietary guidelines they should follow, underscoring the need for education intervention. This study aims to evaluate the impact of DASH diet education, delivered through lectures and leaflets, on dietary adherence among hypertensive patients at Posbindu Puspaindah in Kahuripan Village, Tawang District, Tasikmalaya City.

2 Materials and methods

This study utilized a quasi-experimental design with a one-group pre-test and post-test approach, lacking a control group. Data on the dependent variable were collected before and after the intervention, conducted during the subsequent Posbindu meeting scheduled for the following month. The independent variable was the DASH diet education. This research was conducted from December 2022 to November 2023. The educational intervention was delivered by the researcher at the start of the meeting, lasting one hour. The sample was purposely selected from the Posbindu with the highest number of hypertensive patients within the Kahuripan Community Health Center area and comprised 47 individuals diagnosed with primary hypertension. The instruments utilized in this study included respondent characteristic forms, validated and reliable diet adherence questionnaires, a list of foods containing specific nutrients, leaflets used as DASH diet education media, and informed consent forms. The questionnaire data represented the respondents' compliance level. Data processing was performed using SPSS software version 25.0, involving editing, scoring, data entry, cleaning, and tabulating. The analysis was conducted using the Wilcoxon test with a significance level of 5%.

3 Results and discussion

Table 1. Respondents characteristics

Variable	Frequency (n)	Percentage (%)
<u>Age (year)</u>		
18-39	7	14.9
40-59	21	44.7
>60	19	40.4
<u>Gender</u>		
Male	4	8.5
Female	43	91.5
<u>Education</u>		
Elementary School	27	57.4
JHS (Junior High School)	6	12.8
SHS (Senior High School)	13	27.7
Diploma	1	2.1
<u>Occupation</u>		
Retired	1	2.1
Laborer	2	4.3
Unemployed	44	93.6
Total	47	100

Table 2. Statistical data on respondents' dietary compliance scores

Variable	Mean	SD	Min	Max
Pre-test	64.9	7	51.2	75
Post-test	68.2	5.5	53.6	79.8

Table 2 demonstrates a significant increase in the majority of respondents' diet adherence scores. The normality test results revealed that one of the diet adherence scores was not normally distributed; therefore, a nonparametric statistical test, the Wilcoxon test, was applied. The research findings showed that the average diet adherence score increased from 64.9 before the educational intervention to 68.2 afterward. This indicates an improvement in the respondents' diet adherence scores. The increase in knowledge may be attributed to the provision of DASH diet education through lecture methods and leaflet media. Hypertension diet compliance is often low prior to receiving health education about the condition [10].

The analysis results reveal an increase in the average final diet compliance score compared to the initial score, indicating an improvement in respondents' knowledge. This improvement may be attributed to the DASH diet education delivered through lectures and leaflets. Providing health education to the community is an essential step in enhancing knowledge and behavior at the individual, group, or community level, empowering individuals to recognize and adopt healthy eating practices [11]. The measurement of diet compliance aims to evaluate the extent to which individuals adhere to their dietary regimen and serves as a benchmark for comparing compliance levels before and after the intervention.

Based on the Wilcoxon statistical test, the result was $p=0.000$ ($p < 0.05$), indicating that DASH diet education delivered through lectures and leaflets significantly impacted the dietary adherence of primary hypertension patients at Posbindu Puspaindah, Tawang District, Tasikmalaya City. This finding aligns with studies demonstrating that health education delivered to adolescent girls through lectures and leaflets can enhance their understanding of anemia prevention [12]. Another study also highlighted the impact of health education using lecture methods and visual media, such as leaflets, on the dietary compliance of hypertension patients [10].

The lecture method combined with visual media is considered engaging and effective for knowledge retention because it engages both visual and auditory senses, enabling

respondents to absorb information more efficiently. Furthermore, this combination facilitates faster information delivery, as it is presented directly and can be reviewed later.

The educational material was delivered through lecture methods and leaflets. This approach involved explaining and providing information on a topic using leaflets to a target group, enabling them to acquire knowledge about the DASH diet. During the lecture, respondents listened attentively to the material presented and reviewed the content on the leaflets. This allowed them to understand the definition, goals, recommendations, portion sizes of DASH diet foods, and the foods to be recommended, limited, or avoided by hypertensive patients. The respondents' attention to the educational material will enhance their knowledge of the DASH diet, thereby influencing their attitudes.

In addition to the lecture method, this study also utilized leaflets as an educational medium. Leaflets were employed to simplify the information conveyed. Furthermore, this use of media aimed to prevent participants from feeling bored and to assist them in retaining the material. Health education using leaflets has also been shown to impact mothers' knowledge of the nutritional status of toddlers [13]. The increased knowledge among respondents in this study was influenced by the use of leaflets, which facilitated better retention of the material presented.

The use of leaflets as an educational medium is effective in enhancing knowledge and changing attitudes [11]. This increase in knowledge and attitudes subsequently influences an individual's behavior. With the presence of leaflets, respondents are better able to understand the material presented.

Leaflets can present information in the form of sentences, images, or a combination of both, to convey messages [14]. Visual or printed media play an important role in the educational process because they can be seen and touched directly, thereby attracting attention and making the content easier to understand and remember [15].

Higher knowledge about nutrition impacts attitudes and habits regarding food consumption [16]. Nutrition education is closely related to efforts aimed at providing nutritional information to communities, groups, and individuals. Through this information, the target audience can gain better health insights, which positively influence their daily behavior.

Based on the above explanation, it can be concluded that there was an increase in the diet compliance scores of respondents as a result of the DASH diet education using lectures and leaflets. This demonstrates that DASH diet education through lectures and the use of leaflets has an impact on the dietary compliance of primary hypertension patients at Posbindu Puspaindah, Tasikmalaya City. It is hoped that the information provided in the educational activities will motivate respondents to consistently implement efforts to prevent hypertension through the DASH diet in their daily lives. The delivery of material regarding the DASH diet is crucial, given the increasing number of hypertension cases each year, prompting the community to adopt a healthy lifestyle to prevent hypertension.

This research had several limitations, including the reliance on respondents' honesty in completing the DASH diet questionnaire regarding their food consumption, which could impact the research results. However, the researcher minimized potential bias by asking more in-depth questions to ensure the responses accurately reflected the respondents' eating habits. Additionally, the researcher could not control other interventions received by the respondents during the study that may have influenced their diet compliance.

4 Conclusion

In conclusion, DASH diet education through lectures and leaflet media positively impacts the dietary adherence of hypertensive patients at Posbindu Puspaindah, Tasikmalaya City, in

2023. Therefore, the DASH diet education program should be implemented more widely and regularly in other healthcare facilities.

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