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THE UTILIZATION OF FLASHCARD AND GROUP ACTIVITY THERAPY ON EDUCATION RELATED TO THE DASH KNOWLEDGE AMONG HEALTH CADRES

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ABSTRACT

Introduction: Analyzing the influence of Dietary Approaches to Stop Hypertension (DASH) education using flashcard media and group activity therapy on the level of knowledge of integrated health post or Posyandu (Pos Kesehatan Terpadu) cadres in Banjarejo Village, Ngantang District, Malang Regency, East Java Province, Indonesia.

Method: The pre-experimental with pretest-posttest used as research design. The research was elaborated at Banjarejo Village Sport Center, Ngantang District, Malang Regency, East Java, Indonesia. Data collection on June 2024. The population was 63 health cadres from five Posyandu, selected using purposive sampling with a sample size of 42 people. The DASH knowledge questionnaire used as instrument with parameters Understanding DASH, Objectives, Types, Examples of types of food, Principles of the DASH diet, how to process food, benefits of the DASH diet, Composition, examples of processed foods DASH Diet and the concept of the DASH diet. Flashcard and interactive games used in the process of data collection. Data analysis used the marginal homogeneity test.

Results: The results showed that before being given education about DASH with flashcard media, most of the Posyandu cadres had knowledge in the poor category (57.1%) and after being given education, the knowledge of Posyandu cadres was in the good category (52.4%). The results of the marginal homogeneity test obtained a p value = 0.001 (<0.05)

Conclusion: There is an influence of DASH education with flashcard media and group activity therapy on the level of knowledge of health cadres in Banjarejo Village, Ngantang District, Malang Regency. This research not only provides significant scientific contributions on knowledge, but also has a positive impact in increasing empowerment capacity to maintain the health of population against hypertension

Keywords: DASH, empowerment, flashcard media, group therapy, hypertension, knowledge

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INTRODUCTION

Hypertension is a high blood pressure disease that occurs when blood pressure increases abnormally and occurs continuously. According to (Mills, Stefanescu, & He, 2020) hypertension or high blood pressure occurs when pressure in the blood vessels increases beyond the normal limit set, which is systolic ≥ 140 mmHg, diastolic ≥ 90 mmHg and/or

current use of antihypertensive medication. The Global Report of Hypertension by (WHO, 2023) states that one of the very serious medical conditions known as "The Silent Killer" is Hypertension, so it requires serious attention from each individual. This is because hypertension can attack anyone without showing clear symptoms in the body also it may

increase the excess risk of cardiovascular disease and death (Verdecchia, Angeli, & Reboldi, 2018).

According to data from the Joint National Committee for Prevention, Detection, Evaluation, and Treatment of High Blood Pressure VII, there are almost 1.3 billion or one third of the world's population suffering from hypertension (WHO, 2023). Meanwhile, the results of Indonesia Basic Research in Health shows the prevalence of hypertension is 34.1% equal by 63 million among total of Indonesia residence (Lukitaningtyas & Cahyono, 2023). The East Java Health Office (2021) also stated that the prevalence of elderly people with hypertension in East Java reached 35.6% and there were around 154,106 people in Malang Regency who had received health services with a percentage of hypertension in the elderly of 21.9%. The increase in the prevalence rate of people with hypertension continues to increase every year, this can be seen from WHO data which shows that people with hypertension will reach 1.5 billion people in 2025, it is estimated that around 9.4 million people will die each year due to the effects of hypertension and its complications (WHO, 2023).

One of the factors that can cause high blood pressure is a change in diet. This is because the quality of food and drinks consumed affects nutritional intake, which will affect a person's health. Riskesdas data, (2018) shows that in Indonesia the number of elderly people with hypertension reaches 95.4% due to the adoption of unhealthy diets, which are the main factors and contribute to the risk of hypertension. This is due to the lack of knowledge of elderly hypertensives about dietary approaches to stop hypertension (DASH), as well as the lack of knowledge obtained from various sources of information, especially from health supporters such as integrated health post cadres.

Knowledge about the DASH diet is not widely understood by the community, including Posyandu cadres. In a study by (Prabasari, Juwita, & Marcello, 2021) was stated that 82.5% of Posyandu cadres felt that they lacked knowledge and information about the DASH diet and only focused on providing information about healthy foods to maintain the health of the elderly, without introducing the concept of the DASH diet which can help manage hypertension in the elderly. This is due to the lack of knowledge and understanding of the cadres regarding the DASH diet.

Efforts made in community empowerment as a way to avoid hypertension include providing education about healthy eating patterns or the DASH diet to hypertension sufferers (Devi & Putri, 2021). (Kurniawan, 2021) stated that providing education

about DASH by health students had an effect on the knowledge and attitudes of hypertension patients, after being given an intervention with education, the majority (73.2%) of respondents had good information, and the majority (77.6%) had a positive attitude. This shows a positive influence of health education about the DASH diet on the knowledge and attitudes of hypertension sufferers, especially if the information is delivered directly by health cadres. Increasing the knowledge of posyandu cadres about the DASH diet is also very important, because posyandu cadres have an important and close role and can be sustainable in providing health education and counseling to the community including information about healthy eating patterns, and healthy lifestyles that can overcome the risk of hypertension. (Prabasari et al., 2021) stated that after being given training and coaching for elderly Posyandu cadres in implementing non-medical therapy with the DASH diet for preventing hypertension, it showed an increase, with (81.9%) having sufficient knowledge, and no participants having insufficient knowledge.

Health education activities in an effort to increase the knowledge of posyandu cadres about the DASH diet require media. Media is a tool to convey messages in educational activities (Stellefson, Paige, Chaney, & Chaney, 2020). One of the media that can be used is flashcards. Flashcard media generally contain images, text, or symbols to help remember or guide understanding of certain materials. The size of the card is 10 x 15 cm, and can stimulate interest and thought, facilitate the learning process through comprehension and application (Senzaki, Hackathorn, Appleby, & Gurung, 2017). Based on research by (Antini, Yuliantini, Jumiyati, Simbolon, & Okfrianti, 2020) regarding the effect of nutritional counseling with flashcard media on knowledge, DASH diet intake (sodium, fiber, and potassium) in hypertension sufferers with the intervention group and control group, the results of the study showed that there was an effect of nutritional counseling on knowledge, sodium intake, and potassium in the intervention group, while in the control group there was no effect of knowledge, sodium intake, fiber and potassium on hypertension sufferers.

In a preliminary study conducted on August 10, 2023, on 12 Posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency, it was found that 8 Posyandu cadres did not know what the DASH diet was and did not know that the DASH diet was recommended for people with hypertension, 2 other cadres said that the DASH diet is the recommended food for a hypertension diet but also still do not know

how to treat hypertension with the DASH diet. The cadres said that every time a Posyandu was held, the Posyandu cadres only advised the elderly to consume healthy foods but did not provide clear information about what types of food should be consumed and how much and had never been given education about DASH to elderly people with hypertension because the cadres also did not know and did not understand DASH. From this problem, the researcher was interested in conducting a study entitled "The Effect of Dietary Approaches To Stop Hypertension (DASH) Education with Flashcard Media on the Level of Knowledge of Posyandu Cadres in Banjarejo Village, Ngantang District, Malang Regency".

METHOD

Study design, samples and sampling

This research is quantitative with the research design using Pre-Experimental with pre-test and post-test questionnaires. The research was conducted in Banjarejo Village, Ngantang District, Malang Regency with the research population being all Posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency totaling 63 people. The sample in this study was Posyandu cadres in five posts around Banjarejo Village, Ngantang District, Malang Regency (Pos Laju 1, Pos Laju 2, Pos Babeh, Pos Turus and Pos Selobrojo) who had never received information about DASH totaling 42 people. The sample was taken using purposive sampling. The analysis in this study used the marginal homogeneity test to determine the results of the comparison of the average (mean) between pre and post.

Variables and measurements

The level of knowledge about dietary approaches to stop hypertension in this study was measured through an interview process or the use of a questionnaire that aims to ask research respondents about the material on the definition of DASH, the purpose of DASH, types of DASH diets, examples of types of DASH foods, principles of the DASH diet, how to process DASH diet foods, benefits of DASH, composition of DASH, examples of processed DASH diet foods, and the concept of the DASH diet which is the focus of the measurement. Knowledge can be assessed by interview or questionnaire or questionnaire that asks about the content of the material (Notoatmodjo, 2018). In this study knowledge is measured as (1) Excellent (scored >75% - 100%); (2) Sufficient (scored 51% - 75%); (3) Poor (scored 0 - 50%).

Other factors that influence knowledge and measured in this study includes (1) Level of education. Education is an effort to improve a

person's character so that the person can have good abilities. This education influences a person's attitude and behavior to mature through teaching. (2) Information, Information is knowledge gained from learning, experience, or instruction. This information can also actually be found in everyday life because we can find this information around our environment, be it family, relatives, or other media. (3) Age, as a person gets older, changes occur in the psychic and psychological (mental) aspects. Physical growth can generally be categorized into four types of changes, namely changes in size, changes in proportion, loss of old characteristics, and the emergence of new characteristics. This process is caused by the maturation of the function of body organs. Meanwhile, in the psychological and mental aspects, the level of maturity and maturity of a person's thinking tends to increase with age.

Intervention

The intervention was carried out by providing education about Dietary Approaches to Stop Hypertension (DASH) using flashcard and group therapy. Flashcards are a set of image-based cards, approximately 10 cm x 15 cm in size, designed to convey specific information. The images on these cards can either be derived from printed photographs or manually drawn. Each card includes descriptive text related to the image, typically placed on the reverse side and read aloud by the user. These visual aids are presented as part of a sequential message delivery, aiming to facilitate the retention of key information by the target audience or client through visualization (Oomen-Early & Early, 2015). The flashcard written in Bahasa Indonesia and developed by the researcher to increase the participant understanding and participation.

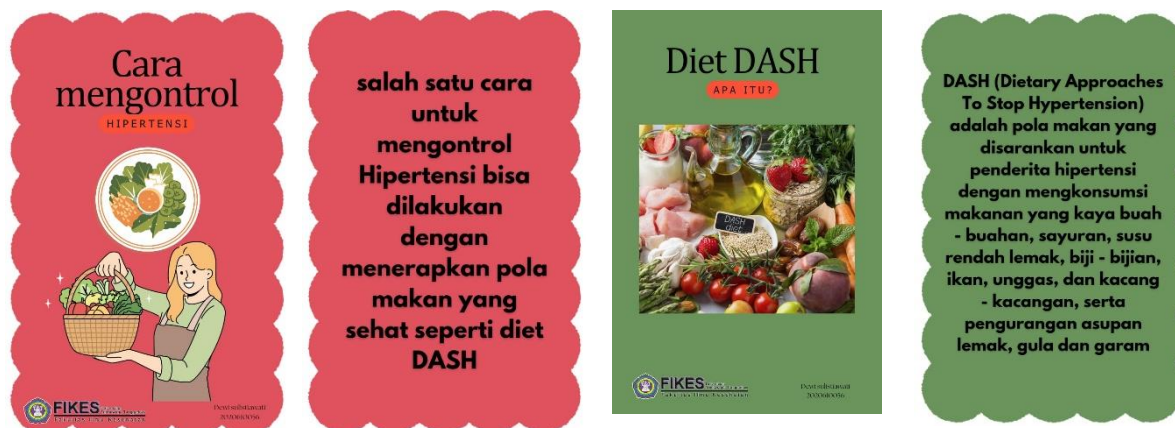


Figure 1. Sample of DASH flashcard

Selected study participant invited into Banjarejo Sport center in June 29th, to join the health education process. Pre-test held after the opening session and whole participant filled in the informed consent. The activity coordinator initiated the research activity by outlining its objectives and explaining the methodology and procedures to be followed. In total of 42 participants divided into four groups, each consisting of 11 individuals and each group was accompanied by a facilitator to guide the process. The facilitators sequentially explained each section of the images, following the instructions provided on the back of the cards. After completing the educational session, the facilitators conducted a question-and-answer session. After discussion session, all respondents were brought together into a single group, forming a large circle for collective discussion. The group activity begins here, using a flower-passing game accompanied by music, participant asked to danced while passing the flower around. When the music stopped, the participant holding the flower was asked a question by the activity coordinator, based on the content of the flashcards previously presented by the facilitators. The participant then answered the question. The activity ended by post-test questionnaire filling.

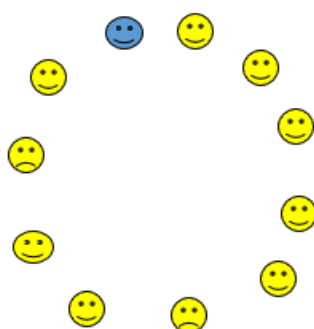


Figure 2. Study setting

Note:

-  : Participants
 : Facilitators

Data Analysis

Data analysis using IBM SPSS Statistics 30.0, using the marginal homogeneity test to determine the results of the comparison of the mean between pre and post intervention, where the test uses a significance level of 5% ($\alpha = 0.05$) with the following interpretation: If the results of the marginal homogeneity test obtained a p value ≤ 0.05 , then H1 is accepted, namely that there is an influence of Dietary Approaches To Stop Hypertension (DASH) education with flashcard and group therapy on the level of knowledge of Posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency.

Ethical clearance

The research has received an ethical certificate form the Health Research Ethics Commission of Muhammadiyah Lamongan University with No. 306/EC/KEPK-S1/05/2024.

RESULTS

Characteristics of study participants

Table 1. The characteristics of respondents

Characteristics	Frequency (f)	Percentage (%)
Age		
23 - 30 y.o	6	14,3
31 - 40 y.o	19	45,2
41 - 55 y.o	17	40,5

Educational History		
Elementary	13	31,0
Junior High School	18	42,8
Senior High School	10	23,8
Bachelor degree	1	2,4
Occupation		
Housewives	29	69,0
Public sector	6	14,3
Farmers	5	11,9
Merchant	2	4,8
Experience in receiving DASH		
DASH	42	100,0
None		
Ownership of informative media		
Smartphone	39	92,9
Television	3	7,1
Total	42	100

Source: primary data (2024)

Based on the table above, most of the Posyandu cadres are in the age range of 31 – 40 years old (N =19 , 45.2%), almost half of the Posyandu cadres finished junior high school education (N = 18, 42.8%), most of the cadres working as housewives (N = 29, 69.0%), all cadres have never received information about DASH (N = 42, 100%) and almost all posyandu cadres have smartphone (N = 39. 92.9 %).

Univariate statistics

Table 2. Level of Knowledge Before and After Participating in Dietary Approaches to Stop Hypertension Education with Flashcard and Group Therapy in Banjarejo Village, Ngantang District, Malang Regency.

Category	DASH Knowledge Level				The marginal homogeneity result
	Pre-Test		Post-Test		
	F	%	f	%	
Excellent	6	14.3	22	52.4	< 0.001
Sufficient	12	28.6	17	40.5	
Poor	24	57.1	3	7.1	
Total	42	100	42	100	

Source: primary data (2024)

Based on Table 2, it shows that before being given Dietary Approaches To Stop Hypertension (DASH) education with flashcard media and group therapy, most of the Posyandu cadres had knowledge about DASH in the poor category (N = 24, 57.1%) and after being given education the knowledge of majority Posyandu cadres was in sufficient category (N=22, 52.4%). The results of Marginal homogeneity obtained a p-value = 0.001 (<0.05), which there is an influence of Dietary Approaches To Stop Hypertension (DASH) education with flashcard media and group therapy on the level of knowledge of Posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency.

DISCUSSION

Before being given Dietary Approaches to Stop Hypertension (DASH) education with flashcard media and group therapy, most Posyandu cadres had knowledge in the poor category. The poor knowledge of Posyandu cadres can be seen from the results of the questionnaire answers, namely that most Posyandu cadres did not know that DASH does not recommend consuming high-sodium foods such as salt, and recommends the use of sugar or sweeteners > 5 tablespoons per day. Almost all cadres also did not know that dried fruit snacks and non-fat yogurt are recommended in the DASH diet.

The lack of knowledge of Posyandu cadres is influenced by educational factors. Almost half of Posyandu cadres have junior high and elementary school education. Elementary and junior high school education levels are education that is still classified as low because it is still the first and middle stages of education, the level of education affects a person in receiving information. People with higher levels of education will find it easier to receive information than people with lower levels of education (Moody & Sasser, 2020). Researchers argue that Posyandu cadres with low education will find it difficult to receive and obtain existing information so that knowledge will decrease. In line with research conducted by (Suprayitna, Fatmawati, & Prihatin, 2023) which states that the level of education can affect respondents' knowledge with a result of p = 0.001, meaning that there is an effect of the level of education on respondents' knowledge.

After being given education on Dietary Approaches Stop Hypertension (DASH) with flashcard media and actively group therapy, most of the Posyandu cadres had good knowledge of DASH as many as 22 people. The good knowledge of Posyandu cadres about DASH can be seen from the results of the questionnaire answers that some Posyandu cadres know that DASH is a recommended diet for people with hypertension, half of the Posyandu cadres know that fish and skinless chicken are foods that have low fat content for people with hypertension, almost half of the cadres know that cassava and potatoes are foods that contain potassium in their starch (Campos & Ortiz, 2019). Potassium works as a vasodilator in reduce the tension in blood vessels and arteries along with niacin it effective to lower blood pressure in appropriate way of cook (Fu, 2021).

Factors that support the level of knowledge of Posyandu cadres regarding DASH are education with flashcard media regarding Dietary Approaches to Stop Hypertension (DASH). Flashcard media has proven effective in making it easier for cadres to understand and remember the main information about DASH, flashcards also contain attractive images and concise material with easy-to-understand points so that the learning process is more flexible. The

results of (Furqan, 2023) show that flashcards are effective in improving students' memory and understanding because the information is presented in a structured and concise manner, which encourages deeper understanding. In addition, according to (Saputri & Prasetyarini, 2024), flashcards have a higher visual appeal compared to other educational media such as booklets or posters, flashcards often combine simple images and text, so they can increase interest and focus on learning.

Based on the research results, it was found that most of the Posyandu cadres had good knowledge, as many as 22 people, namely 52.4%. This data shows that the provision of flashcard media in health education has an effect on increasing knowledge of Posyandu cadres regarding DASH, which is proven that before being given education with flashcard media, the knowledge of Posyandu cadres was mostly in the poor category and after being given education, the cadres' knowledge became sufficient. The increase in Posyandu cadres' knowledge regarding DASH was due to the delivery of information or education with flashcard media. Flashcard media is a media that can increase the knowledge of Posyandu cadres. (Bryson, 2012) said that the use of flashcard media will facilitate the process of receiving knowledge, because the picture card media will directly display original, practical, interesting and easy-to-remember images.

The use of flashcard media in health education such as the DASH program has been proven to be effective in increasing the knowledge of Posyandu cadres. This study is in line with the results of research conducted by (Lestari, Gusmuliana, & Septia Utami, 2023), which states that flashcard media can facilitate the process of receiving knowledge and help strengthen memory because of the attractive and easy-to-remember visualizations. This study is also in line with previous research. There is an effect of flashcard media on respondents' knowledge additionally it become innovative way of improving adherence of medication for hypertensive or other patient with chronic diseases with a p value = 0.0069 (Yeung et al., 2017).

The results of this study indicate that the use of flashcard media in DASH education is very effective in increasing the knowledge of posyandu cadres. With attractive visualization, cadres can more easily understand and remember information related to healthy eating patterns to prevent hypertension. The use of educational methods such as flashcards not only makes learning more enjoyable but also increases the motivation of cadres to apply the knowledge in daily practice. Education aimed at posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency also has the potential to have a positive impact on the wider community,

considering the strategic role of cadres in health education. Based on the results of the study, it is hoped that the education program about DASH will not only be limited to posyandu cadres, but also involve the general public. This can be done through counseling at posyandu or community activities, so that more people are educated about the importance of healthy eating patterns (Ndejjo et al., 2021).

The study implementation was limited on repetition there are still 17 respondents with a level of knowledge in the sufficient category and 3 respondents with knowledge in the insufficient category after intervention. It is recommended to prolonged the intervention and evaluate the knowledge in specific time series study.

CONCLUSION

Before being given education about Dietary Approaches to Stop Hypertension (DASH) with flashcard media, most of the posyandu cadres had knowledge in the poor category. After being given education about Dietary Approaches to Stop Hypertension (DASH) with flashcard media, most of the posyandu cadres had knowledge in the good category. The results of the marginal homogeneity test showed the influence of education about Dietary Approaches to Stop Hypertension with flashcard media on the level of knowledge of posyandu cadres in Banjarejo Village, Ngantang District, Malang Regency with a value of $p = 0.001 (< 0.05)$.

It is recommended to Posyandu Cadres to be able to start implementing the education method using flashcard media to provide education about the DASH pattern to prevent hypertension to people with hypertension. For Puskesmas (Pusat Kesehatan Masyarakat) or primary health care center in sub-district level who working in a complementary manner to deliver community-based health services (Anita, Febriawati, & Yandrizal, 2016) may conduct regular training and increase the empowerment capacity of cadres in Posyandu (Pos Pelayanan Terpadu) as a village-level health post managed by community volunteers or cadres, to mobilize participation and address health concerns especially on hypertension, and develop into other chronic or infectious diseases at the village level or rural area (Yani, Shah, Retno, & Luqman, 2023).

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