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# The influence of health education on dietary approaches to stop hypertension (DASH) on knowledge and attitude of hypertension patients

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## The influence of health education on dietary approaches to stop hypertension (DASH) on knowledge and attitude of hypertension patients



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### ABSTRACT

**Introduction:** The high cases of hypertension are increasing due to the lack of public knowledge in the management of eating patterns. This revolves around cultural, environmental, and educational factors that can affect knowledge and attitudes in people with hypertension. The aim of this study is to determine the effect of health education on knowledge and attitudes of hypertension patients.

**Method:** This study used a one group pre-post test design. The study was conducted in one village in Java region of Indonesia, which involved 56 respondents, selected by purposive sampling. The research instruments used were knowledge and attitude questionnaire sheets. Statistic analysis by utilizing Wilcoxon sign rank test to determine the difference between pre and post test with a significance value of  $p < 0.05$ .

**Results:** The results of the knowledge variable before and after being given health education with a  $p$ -value = 0.000, and for the attitude variable with a  $p$ -value = 0.000. This shows that there is a difference in average between the results of knowledge and attitudes of hypertensive patients before and after being given health.

**Conclusion:** Health education about the DASH diet affects knowledge and attitudes in patients with hypertension.

**Keywords:** Health education, Knowledge, Attitude, DASH diet.

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### INTRODUCTION

Hypertension is a common health problem in society. Hypertension can be caused by various factors, namely age, lifestyle, ethnicity, gender, drugs, and stress. In the current modern era, it will have an impact on lifestyle changes in Indonesian society, where an unhealthy lifestyle is a factor that can affect hypertension.<sup>1</sup> Patients with hypertension need to pay attention to eating patterns, both the frequency and type of food eaten, otherwise it will have an effect on increasing blood pressure in people with hypertension.<sup>2</sup>

At this time what is happening in the community describes an unhealthy eating pattern in people with hypertension, such as still consuming instant food which makes the consumption of fresh vegetables and fiber decrease, then the consumption of foods that are high in salt, fat and coconut milk which can affect the stability of blood pressure. This happens

due to lack of knowledge about healthy eating patterns that can affect attitudes and behavior in people with hypertension.<sup>3</sup>

Data the World Health Organization (WHO) in 2018 shows that around 1.13 billion people in the world suffer from hypertension.<sup>4</sup> Meanwhile, in Indonesia, based on the results of the 2016 national health indicator survey, the prevalence of hypertension increased to 32.4%. In 2018 there was an increase in the prevalence of hypertension in the population aged 18 years by 34.1%.<sup>4</sup> Meanwhile, according to the Sidoarjo Diskes survey data in 2018, the percentage of hypertension in Sidoarjo was 35.33% or around 134,015 occupations.<sup>5</sup> Based on the results of interviews and observations conducted by researchers in Berbek Village 03 Waru Sidoarjo 10 people with hypertension found that there are still many residents who consume fried foods, salted fish and offal, this is due to economic and cultural factors in addition to knowledge factors,

and observations It was found that 3 respondents had sufficient knowledge about hypertension diet and the remaining 7 had less knowledge.

The high cases of hypertension are increasing due to the lack of public knowledge in the management of eating patterns, this is due to cultural, environmental, and educational factors that can affect knowledge and attitudes in people with hypertension.<sup>3</sup> An unhealthy diet is one of the risk factors for high blood pressure

Knowledge is the lowest level for changing attitudes, attitudes and behavior, if it is not based on sufficient knowledge, it will not last long in one's life, and if there is no balance of attitudes and behavior in a sustainable manner, sufficient knowledge will not be meaningful for life.<sup>6</sup>

The level of education, experience, information and culture can influence perceptions and attitudes towards one's health. By obtaining the correct

information, it is hoped that the community can reduce the risk of degenerative diseases by carrying out a healthy lifestyle, to minimize the occurrence of hypertension. Therefore, it is necessary to use the right materials and methods to provide hypertension health education, which aims to increase awareness and understanding of the DASH diet in people with hypertension.<sup>7</sup>

Education will affect the ability to receive information about hypertension. Sufficient knowledge becomes the starting point for people with hypertension to change their knowledge, attitudes, and behavior according to their diet. According to Yuliana,<sup>8</sup> the lifestyle factor is one of the factors causing hypertension, different from age, gender and genetics. To prevent hypertension, it is necessary to maintain a regular lifestyle, so as not to cause other, more dangerous comorbidities. High blood pressure can be controlled through a healthy lifestyle, by following a healthy diet for people with hypertension, namely a diet low in salt, fat and cholesterol and a healthy lifestyle, such as diligently exercising, and avoiding cigarettes and alcohol.

Health workers are able to provide information and education to the public, especially for people with hypertension about the DASH diet. Through this health education, it is hoped that it will increase knowledge and attitudes of people with hypertension, especially in Berbek Village, RW 03. Therefore, as a health worker, it is important to have an active role in providing education and counseling guidance on the DASH diet, which is expected to help reduce the incidence of hypertension in the village. Berbek RW 03 Waru Sidoarjo.

## METHOD

The design of this study was pre-experimental with a one-group pre-test post-test design approach. The population in this study was residents who had hypertension in Berbek Village RW 03 Waru Sidoarjo as many as 62 respondents, with a total sample of 56 respondents. The sampling technique used was purposive sampling. The independent variable in this study was the DASH diet health education and the dependent variable in this study

was knowledge and attitudes towards hypertension sufferers. The instrument used was a questionnaire. The analysis used the Wilcoxon Signed Rank Test with a significant level of  $\alpha = 0.05$ . This research has gained ethical approval from Faculty of Nursing and Midwifery, Universitas Nahdlatul Ulama Surabaya, Indonesia (321/EC/KEPK/UNUSA/2022).

## RESULTS

The results of the study on the effect of DASH diet education on knowledge and attitudes of hypertension sufferers in Berbek village RW 03 Waru Sidoarjo obtained from 56 respondents. The research results are presented in the form of tables and narratives. Table 1 shows that of 56 respondents, almost half of them are

25 respondents (45%) aged 51-60 years. Based on table 2 shows that the majority of 56 respondents (69.6%) female.

Based on table 3 shows that some of the 56 respondents Most of them are 29 respondents (51.8%) have secondary education (Secondary Education). Based on table 4 shows that from 56 respondents almost half of them are 31 respondents (56%) have a job as a housewife (IRT).

Table 5 shows that before the intervention was given, the majority of the 56 respondents were 31 respondents (55.4%) had a pre-test in the less category. The attitude variable shows that of the 56 respondents, most of them, namely 36 (64.4%) respondents have a pre-test in the less category. Meanwhile, based on table 5.4 Post-test above on the knowledge variable after being given the intervention,

**Table 1.** Frequency distribution of respondents by age in Berbek Village RW 03 Waru Sidoarjo

No.	Age	Frequency (n)	Percentage
1	31-40	4	7%
2	41-50	19	34%
3	51-60	25	45%
4	61-65	8	14%
Total		56	100%

Source: Primary data, June 2021

**Table 2.** Frequency distribution of respondents by gender in Berbek Village RW 03 Waru Sidoarjo

No.	Gender	Frequency (n)	Percentage
1	Male	17	30.4%
2	Female	39	69.6%
Total		56	100%

Source: Primary data, June 2021

**Table 3.** Frequency distribution of respondents based on education in Berbek Village RW 03 Waru Sidoarjo

No.	Level of Education	Frequency (n)	Percentage
1	Elementary Education	25	44.6%
2	Secondary Education	29	51.8%
3	Higher Education	2	3.6%
Total		56	100%

Source: Primary data, June 2021

**Table 4.** Frequency distribution of respondents by occupation in Berbek Village RW 03 Waru Sidoarjo

No.	Occupation	Frequency (n)	Percentage
1	Private	17	30%
2	IRT	31	55%
3	Entrepreneur	6	11%
4	Civil Servant	2	4%
Total		56	100%

Source: Primary data, June 2021

**Table 5.** Distribution of the level of knowledge and attitudes of respondents before and after being given health education about the DASH diet in Berbek Village, RW 03 Waru Sidoarjo

No	Variable	Pre-test						Post-test					
		Good		Enough		Poor		Good		Enough		Less	
1	Knowledge	N	%	N	%	N	%	N	%	N	%	N	%
		0	0%	25	44.6%	31	55.4%	41	73.2%	15	26.8%	0	0%
		Total		N = 56		100%		Total		N = 56		100%	
2	Attitude	Good		Less		Good		Less					
		N	%	N	%	N	%	N	%				
		20	35.7%	36	63.3%	44	78.6%	12	21.4%				
Total		N = 56		100%		Total		N = 56		100%			

Source: Primary data, June 2021

**Table 6.** Analysis of the influence of knowledge and attitudes on hypertension sufferers before (pre-test) and after (post-test) given health education in Berbek Village RW 03 Waru Sidoarjo

Variable	P Value	Standard
Knowledge pretest - posttest	0.000	< 0.05
Attitude pretest - posttest	0.000	< 0.05

Source: Primary data, June 2021

it shows that of the 56 respondents, most of them, namely 41 respondents (73.2%) have a post-test in the good category. In the attitude variable after being given the intervention, almost all of the 56 respondents, namely 44 respondents (77.6%) had a post-test in the good category.

Based on table 6 obtained from the results of the Wilcoxon signed rank test found that the knowledge p value of 0.000 was smaller than  $\alpha = 0.05$ , while for the attitude variable, the p value of 0.000 was smaller than  $\alpha = 0.05$ . Because the value is less than 0.05 then (H<sub>0</sub>) is rejected and (H<sub>a</sub>) is accepted, which means that there is an average difference between the results of pre-test and post-test so that it can be said that there is an effect of health education through leaflets on knowledge and attitude in patients with hypertension in Berbek Village RW 03 Waru Sidoarjo.

## DISCUSSION

### Pre-Test Knowledge of the DASH Diet

Based on Table 5 pre-test on the knowledge variable before the intervention was given showed that of the 56 respondents, most of them, namely 31 respondents (55.4%) had a pre-test in the poor category. From the results of the study, most of the respondents had a low level of knowledge, the researchers assumed that the education of the respondents could affect the level of knowledge and attitudes. This is because

in table 4 shows the average secondary education (51.8%) and basic education (44.8%) a person's level of education will have an effect when responding to any object. This is in line with the theory that the higher a person's education level, the more knowledge he has.<sup>9</sup> On the other hand, due to lack of education, the development of one's attitude towards newly introduced values can be hampered.

One of the factors that influence knowledge includes several factors such as education, occupation, age, interests and environment.<sup>9</sup> The researcher argues that the lack of knowledge of the respondents is influenced by the lack of information obtained from the respondents. This is related to work, based on table 4 shows that most of the respondents are housewives (IRT) as many as 31 respondents (56%). In this study, most of the respondents' occupations were housewives. A housewife is a woman who is engaged in taking care of the house and various household problems. So much thought that it can affect knowledge because of the lack of sources of information that can be obtained.

Table 1 shows that of the 56 respondents, almost half of them are 25 respondents (44.6%) aged 51-60 years. Knowledge of people with hypertension can be influenced by several things, such as age, the older a person is, the better the proccological development process.

In addition, age also affects a person's memory. This is in accordance with the opinion that with the increasing age of the individual, the ability to grasp and a person's way of thinking will develop, and the knowledge gained will be better.<sup>10</sup> However, at a certain age or approaching old age, a person's ability to remember or receiving knowledge will decrease.

This is in line with the theory that that knowledge is influenced by many factors, one of which is age.<sup>11</sup> Age describes physical, psychological, and social maturity that affects the teaching process. This means that age is one of the factors that affect the acquisition of information, and the acquisition of information will ultimately affect the growth of one's knowledge.

### Post-Test Knowledge of the DASH Diet

Table 4 The post-test above on the knowledge variable after the intervention was given shows that of the 56 respondents, most of them, namely 41 respondents (73.2%) had a post-test knowledge value in the good category. from low category to good category, in this case respondents know about the management of the DASH diet by knowing what types of food are recommended for people with hypertension.

Health education can be carried out in health care settings or door to door, while the media used are posters, LCD projectors and leaflets. The media can make it easier for someone to understand the material to be delivered. According to the researcher's assumption, the use of leaflet media supports increasing the knowledge of the informants. The content of the leaflet is consistent with the material presented during the counseling and all-important

points of the leaflet are listed in. The leaflet not only summarizes the entire material presented but also displays interesting pictures so that it can make it easier for someone to understand the content of the material. The researcher argues that knowledge that is in the less category after being given health education about the DASH diet becomes better, due to the provision of health education using the leaflet method that is packaged in a simple and easy to understand way by respondents and the way the material is delivered using easy-to-understand language, so that information what is conveyed can be well received by listeners.<sup>11</sup>

According to Notoatmodjo, there are several levels of knowledge, one of which is application.<sup>12</sup> Based on table 5 shows that the majority of the 56 respondents (69.6%) are female. Researchers argue that gender has an effect on the application of the DASH diet. In this study, most of the respondents were female who worked as IRT who had free time so it was easy to apply the DASH diet. Compared to the male gender, most of the male respondents work as private employees and entrepreneurs whose time is spent working so they get tired easily and can cause stress, so that it can affect the application of the DASH diet. This can be a trigger factor for consuming foods or drinks that are not recommended for consumption in people with hypertension, such as consuming coffee, cigarettes, and alcohol.<sup>12</sup>

#### **Pre-Test of Attitudes about the DASH Diet**

Based on table 4 pre-test on the attitude variable before the intervention was given showed that of the 56 respondents, most of them, namely 36 (64.4%) of the respondents had a pre-test in the less category. In this case, most of the respondents have knowledge in the less category, which affects the respondent's attitude. According to Uswatun,<sup>13</sup> when doing an activity, if there is good experience or knowledge, a positive attitude will be formed. Acquiring this knowledge requires serious effort through education or other educational processes. The subject's behavior is in accordance with the new knowledge, awareness, and attitude to the stimulus. Researchers argue

that lack of knowledge will produce a negative, but on the contrary if knowledge is good then the attitude will be positive.

#### **Post-Test of Attitudes about the DASH Diet**

Table 5 the post-test above on the attitude variable after being given the intervention showed that of the 56 respondents, almost all of them, namely 44 respondents (77.6%) had a post-test attitude score in the good category. In the event that most of the respondents' attitudes that previously had not been given education in the negative category increased to the positive category, the respondents agreed that consuming instant food, offal and coconut milk could increase blood pressure in people with hypertension. According to Azwar,<sup>14</sup> attitudes are influenced by many factors, two of which are the influence of others and the influence of the mass media. The influence of others will play a role in shaping one's attitude, for example in the lives of people living in rural areas during the COVID-19 pandemic, they will follow the opinions given by community leaders and health workers. The influence of the media also plays a role in the formation of one's views and beliefs. Information can be provided through mass media, which will provide a new cognitive basis for the formation of a person's attitude.

This is in line with a research theory that health education affects attitudes about emergency management of febrile seizures if the information provided is clear, simple, and given directly by health workers in language that is easy to understand and easy for respondents to grasp.<sup>15</sup> The more often information is given, the easier it is to affect the emergency management of febrile seizures. As well as the effect of information previously obtained by respondents in the Flamboyant Room, Mitra Keluarga Hospital, Surabaya.

#### **The Effect of Health Education on Respondents' Knowledge**

Based on table 5 shows that of the 56 respondents before being given health education intervention about the DASH diet, almost 31 respondents (55.4%) had a pre-test knowledge score of less and almost half of 25 respondents (44.6%) had a pre-test knowledge value. -test enough. After

being given health education, it was found that almost all 41 respondents (73.2%) experienced an increase in knowledge of post-test scores to be good and a small part of 15 respondents (26.8%) had knowledge levels with sufficient post-test scores. The results of the Wilcoxon sing rank test with SPSS for Windows with a significance of = 0.05 obtained the value of  $P = 0.000$  ( $P < 0.05$ ) because the value is less than 0.05 then (Ho) is rejected and (Ha) is accepted which means there is an average difference between the results of pre-test and post-test knowledge so that it can be said that there is an effect of health education through leaflets on knowledge of hypertension sufferers in Berbek Village RW 03 Waru Sidoarjo.

This opinion is in line with the theory that there are several factors One of the factors that can affect knowledge is education.<sup>12</sup> Education is meant in a formal sense is a process in which educators provide educational materials/materials to the target to achieve behavior change. Education focuses on the guidance given by one person to another so that the other person can develop towards a certain goal. Knowledge is the result of knowing, which occurs after people perceive an object.<sup>12</sup> Sensing is generated through the human senses, namely sight, hearing, and touch. Most of human knowledge is obtained through the eyes and ears. The knowledge of the informants was obtained from health education as a learning process. Health education is an effort that is planned to achieve the health goals expected by health education actors to maintain and improve conducive health.<sup>16</sup>

This is in line with Noatmodjo that a person's knowledge is influenced by various factors including age and educational history.<sup>12</sup> The results of the study by Budiman & Riyanto A states that a person's knowledge is influenced by the level of education.<sup>17</sup> Education becomes the theoretical basis of individuals obtained through formal education. This is in line with the theory that knowledge is a form of receiving information from the five senses.<sup>12</sup> Someone who is open to science will have a stronger interest in receiving information. Knowledge requires memory to store information in cognitive form.

According to the results of the study by Saputri,<sup>11</sup> increased knowledge can be influenced by many factors, one of which is health workers who have good information experience, can explain health education materials in a simple and easy-to-understand way by participants. Examples of recommended, restricted, and fasted foods for hypertensive patients, as well as vegetables and fruits. This is effective in explaining the problems faced by respondents in managing hypertension diet.

The researcher argues that there is an effect of health education on respondents' knowledge due to the information provided in a clear, simple and easy way by the respondents. Information about the DASH diet provided by researchers has an important role to increase knowledge in people with hypertension. Health education materials about the DASH diet include what the DASH diet is, the goals of the DASH diet, what foods should be avoided and recommended for consumption for people with hypertension. The process of exposure to health education that can broaden the horizons of respondents in regulating their diet. This increase in insight made the respondents when the post-test test was carried out on the respondents to experience a significant increase in knowledge. The existence of a significant influence of health education on the knowledge of the respondents may also be related to the education of the respondents. Most of the respondents had a history of secondary education. The higher the level of education, the easier it will be to receive new information to increase knowledge.<sup>12</sup> However, as for factors that can increase knowledge, it can be influenced by researchers or health education providers, by facilitating educational media that is packaged in a simple way so that it is easy for respondents to understand, as well as how to deliver health education well and explain in easy-to-understand language so that respondents are easy to understand. understand what the researcher is saying.

#### **Effect of Health Education on Respondents' Attitudes**

Based on table 5 shows that of the 56 respondents before being given health

education on the DASH diet, almost all of them, namely 36 respondents (64.3%) had pre-test and almost a small part, namely 20 (35.7%) respondents have a good pre-test. After being given health education, almost all 44 respondents (78.6%) experienced an increase in the attitude of the post-test to be good and a small part of 12 respondents (21.4%) still experienced a level of knowledge with post-test. The results of the Wilcoxon sign rank test with SPSS for Windows with a significance of  $\alpha = 0.05$  obtained the value of  $P = 0.000$  ( $0.000 < 0.05$ ) because the value is smaller than 0.05 then ( $H_0$ ) is rejected and ( $H_a$ ) is accepted, which means that there is an average difference between the results of pre-test and post-test so that it can be said that there is an effect of health education through leaflets on attitudes in hypertension sufferers in Berbek Village, RW 03 Waru Sidoarjo.

According to Azwar,<sup>14</sup> a person's attitude can be influenced in various factors, two of which are the influence of other people who are considered important and the mass media. In general, a person tends to be positive or consistent with the attitudes of people who are considered important. This tendency is mainly motivated by the desire for affiliation and the desire to avoid conflict with people who are considered important. The environment and other people around us are one of the factors that can influence attitudes. Someone who is considered important, or someone who is considered special in a particular field can influence the formation of a person's attitude, Azwar explains the influence of mass media can affect a person's attitude, in this case the mass media can provide messages and information suggestively that can shape the opinions and beliefs of others.<sup>14</sup> The existence of new information in something that is introduced will provide new knowledge for a person in the formation of attitudes. If the messages given are strong enough, it will have a good impact on someone in assessing something so that a certain attitude direction is formed.

Mubarak<sup>10</sup> says attitude is a person's feelings and thoughts in responding to a particular object and attitude is not an action or activity, but taking action or a tendency to act in behavior in response

to a particular object. Maulana<sup>18</sup> explains that there are several factors that influence a person's attitude change, namely internal, external, psychological and motivational factors. The influence of external factors or interactions with other people include situations, experiences, norms and drivers. The formation and change in attitudes can be obtained from group interactions and the mass media from the incident, a person gets information and experience and will eventually form a feeling, belief and tendency to behave. There are several ways of forming attitudes, including adoption, integration, generalization, and trauma.

The researcher argues that the effect of health education on changes in respondents' attitudes is due to personal influences and media influences. Personal influence arises because of the educational profession as a health worker. Health workers have an image that is considered by respondents as people who understand and are experts in the field of health, because of this assumption respondents will tend to believe that what is conveyed is something important to be responded to positively. While the influence of the media is intended that health education is assumed to be a media of factual health education information delivered objectively according to the attitude of the education provider, consequently affecting the attitude of respondents who act as recipients of media information. Health education provides educative messages that lead to respondents' opinions, especially about the DASH diet in people with hypertension. The messages that have been conveyed about the DASH diet will form a new perception for respondents to form a new positive perspective on the treatment of hypertension.<sup>18</sup>

#### **CONCLUSIONS**

We found influence of knowledge and attitudes before and after being given education about the DASH diet on patients with hypertension in Berbek Village RW 03 Waru Sidoarjo. The DASH diet messaging that have been shared will help respondents establish a new, favorable opinion of the diet.

### CONFLICT OF INTEREST

No conflict of interest was involved in the making of this article.

### AUTHORS' CONTRIBUTION

All authors contributed equally to the research and writing of this article.

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