



HEALTH EDUCATION AS AN EFFORT TO INCREASE KNOWLEDGE AND CONTROL BEHAVIOR OF HYPERTENSION IN HYPERTENSIVE ELDERLY

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ABSTRACT

Elderly people experience various health problems, especially those related to the aging process such as hypertension, cancer, mental disorders and other degenerative diseases which are increasing. Health education is a planned effort to change the behavior of individuals, groups, or communities from unhealthy to healthy behavior. The aim of the research was to determine the effect of health education on knowledge about hypertension and behavior to control hypertension in hypertensive elderly at Posyandu for the Elderly at Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta. This type of research is pre-experimental research with a one group pretest posttest approach. The population in this study was 60 elderly people. The sample was carried out using a purposive sampling method. The number of respondents in the study was 30 in accordance with predetermined criteria. Data was taken using a questionnaire sheet. The instrument knowledge questionnaire about hypertension in the elderly with results validity test results were > 0.361 and reliability results 0.938. In the behavioral questionnaire, the validity test results were > 0.361 and the reliability results were 0.904. Data were analyzed using the Wilcoxon statistical test. Based on the bivariate test of hypertension education with increased knowledge, a sig value of $0.000 < 0.05$ was obtained and health education with hypertension control behavior was 0.000. So it can be concluded that there is a significant influence of health education on knowledge and behavior of controlling hypertension in the elderly at Posyandu Lansia Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta.

Keywords: behavioral; education; elderly hypertension; knowledge

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INTRODUCTION

An elderly person is (elderly) someone who has reached the age of 60 years or above (Dahlia & Doyoharjo, 2020). Naturally, humans will experience the process of aging or becoming old (Mujiadi & Rachmah, 2022). Judging from the health aspect, the elderly group will experience biological, psychological and social changes (Ricco Habil & Berlianti, 2023). Therefore, the elderly have the right to provide access to health services that comply with standards, safety and quality in order to keep the elderly living healthy, high-quality and productive lives in accordance with human dignity (Undang-Undang Nomor 17 Tahun 2023 Tentang Kesehatan, 2023). Aging is a condition of progressive decline in body function that occurs in humans with clinical signs such as a decrease in fitness levels, a progressive decrease in the ability to maintain homeostasis and organ function, a lower ability to adapt to environmental conditions, a loss of complex physiological processes and anatomical structures of the body, and increased risk of death (Xing et al., 2023). In physiological changes, there is a decrease in the body's immune system in the face of disturbances from

inside and outside the body. One of the most common health problems experienced by the elderly is the cardiovascular system (Hayatusyifa, 2020).

Problems with the cardiovascular system that tend to occur in the elderly include hypertension. Hypertension, or high blood pressure, is a condition in which blood pressure in the body's arteries continuously increases, causing blood pressure above 120/80mmHg. Increased blood pressure can increase the risk of heart disease, stroke and other health problems (Pratiwi, 2022). Hypertension is often referred to as the silent killer, because it is a deadly disease, without any prior symptoms as a warning to the sufferer. When these symptoms appear, these symptoms are often considered normal disorders, so that sufferers are late in realizing that the disease is coming (Jabani et al., 2021). Hypertension according to Kemkes RI, (2016) is a condition where the blood vessels have persistent systolic blood pressure ≥ 140 mmHg or diastolic blood pressure ≥ 90 mmHg. Until now, hypertension is still a major world health problem. Based on WHO data (2018), it shows that around 26.4% of the world's population has hypertension. This figure is likely to increase to 29.2% in 2025. Meanwhile in Southeast Asia, the incidence of hypertension reaches 36%. From the latest riskesdas results in 2018, the prevalence of hypertension was 34.1% (Alatas, 2019).

Prevalence of hypertension in DIY according to Riskesdas (2018) is 35.1% or higher when compared to the national figure (34.1%). This prevalence places DIY in 5th place as a province with high cases of hypertension. Hypertension has always been in the top 10 diseases as well as the top 10 causes of death in DIY for the last few years. In 2022, data will be obtained for 51,612 elderly people suffering from hypertension, in one of the Bantul districts, Sewon sub-district, there will be 4,431 elderly people suffering from hypertension (UPTD Puskesmas Piyungan, 2023). The Ministry of Health has made efforts to promote health through communication, information and education through 'CERDIK' behavior, namely regular health checks, getting rid of cigarette smoke, diligent physical activity, a healthy diet with balanced calories, adequate rest, and managing stress which is applied in all regions. is in Indonesia (Masitha et al., 2021).

If the elderly receive good health education about hypertension, then the elderly's knowledge in preventing and controlling hypertension will be good. However, it will be different if the health education received by the elderly is poor, then their knowledge in preventing and controlling hypertension will be poor. Controlling hypertension and preventing complications is influenced by several factors, including public knowledge about hypertension. Knowledge regarding hypertension management is currently still lacking. Low knowledge is influenced by education, information sources and experience. Sources of information about hypertension are obtained through Health Education, information from family and friends and electronic media. If your level of knowledge is good, you will be able to change your life behavior to control hypertension by stopping smoking, exercising regularly, improving your hypertension diet, reducing stress and avoiding unhealthy lifestyles. To find out the problems that exist at the research site, interviews were conducted on October 3 2023 with posyandu cadres, regarding the number of elderly people suffering from hypertension, data was obtained from 60 elderly people, 30 of whom had hypertension and also conducted interviews with elderly people at the Posyandu for the Elderly at Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta. The results of interviews with 15 people, including elderly people, said that at their current age, their blood pressure tends to be high, they often experience dizziness, and some complained of frequent tingling in the feet and hands and changes in vision. They said they didn't know what hypertension was and what to do when they had high blood pressure. Apart from that, the elderly said that there had never been any health education about

hypertension. Looking at the background above, the aim of this research is to determine the effect of hypertension health education on knowledge and behavior of controlling hypertension in hypertensive elderly at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta.

METHOD

This type of research is experimental quantitative research using a pre-experimental design (one group pretest and posttest). A pretest using a questionnaire was carried out to determine knowledge and behavior before being given treatment, namely education. Next, respondents were given health education treatment. In the final stage, respondents were given a questionnaire again as an evaluation of the posttest results 1 month after education. The population in this study were all elderly people with hypertension at the Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta Elderly Posyandu. The population in this study was 60 people. Data was taken during observation on October 3 2023. Sampling in this study was non-probability sampling using a purposive sampling technique. The inclusion criteria are elderly people suffering from hypertension, willing to be respondents, and not on bed rest. Meanwhile, the exclusion criteria are elderly people who are uncooperative, do not participate in activities fully and have hearing problems based on records at the posyandu. This research was carried out at Posyandu for the Elderly at Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta. The instrument used in this research to collect data used a knowledge questionnaire about hypertension in the elderly which was adopted from research Septianingsih, (2018) with results > 0.361 and reliability results 0.938. In the behavioral questionnaire, the validity test results were > 0.361 and the reliability results were 0.904. Bivariate analysis uses the Wilcoxon Test. This research has passed the ethics committee of STIKes Surya Global Yogyakarta with No.7.29/KEPK/SSG/II/2024.

RESULTS

Respondent Characteristics

This study used 30 respondents to determine the effect of hypertension health education on hypertension knowledge and hypertension control behavior in elderly people with hypertension at the Matahari Kepek Timbulharjo Sewon Bantul Yogyakarta Elderly Posyandu. The characteristics of respondents in this study describe the description of the respondent's identity according to the research sample that has been determined. One of the purposes of describing the characteristics of respondents is to provide an overview of the samples in this research. In this study, the characteristics of respondents are explained using tables, including age, gender, education and type of work for the elderly. To clarify the characteristics of the respondents in question, they are presented in the following table:

Table 1.
Characteristics of Respondents for the Elderly at the Matahari Kepek Timbulharjo Sewon Bantul Elderly Posyandu (n=30)

Respondent Characteristics	Category	f	%
Age	60-70	16	53,3
	70-80	13	43,3
	>80	1	3,3
Gender	Male	15	50,0
	Female	15	50,0
Education	Elementary school	14	46,7
	Junior High School	9	30,0
	Senior High School	5	16,7
	College	2	6,7

Respondent Characteristics	Category	f	%
Type of work	Farmer	3	10,0
	Trader	4	13,3
	Housewife	9	30,0
	Laborer	8	26,7
	Self-employed	4	13,3
	Civil servant	2	6,7

2, the majority of respondents were in the 60-70 year age range, amounting to 16 respondents (53.3%), the average gender number of men and women was 15 respondents each (50.0%). Based on the education level, the majority were elementary school, 14 respondents (46.7%), characteristics based on type of work, the majority were housewives, 9 respondents (30.0%).

Frequency Distribution of Knowledge and Behavior of Hypertension Elderly Before and After Being Given Health Education

Table 2.
Frequency Distribution of Knowledge and Behavior of Hypertension Elderly Before and After Being Given Health Education

Variable		Sebelum Edukasi		Sesudah Edukasi	
		f	%	f	%
Knowledge	Good	6	20,3	29	96,7
	Enough	14	46,7	1	3,3
	Not enough	10	33,3	0	0
Behavior	Good	7	23,3	26	86,7
	Enough	8	26,7	4	13,3
	Not enough	15	50,00	0	0

Normality test

The data normality test table is data from the results before and after providing health education on knowledge and behavior to control hypertension in elderly people with hypertension at the Matahari Kepek Timbulharjo Bantul Elderly Posyandu.

Table 3.
Data Normality Test Results Before and After Intervention

Variabel	Category	p-value
Before intervention	Knowledge	0,002
	Behavior	0,001
After intervention	Knowledge	0,000
	Behavior	0,000

Table 3 shows the results of the data normality test to determine whether the data is normal or not. Test the normality of this data using the Shapiro-Wilk test because the number of respondents was <50. The results obtained before providing health education on knowledge were 0.002 and behavior was 0.001. The results after providing health education, knowledge is 0.000 and behavior is 0.000. The conclusion in the data normality test was that the value of $p < 0.05$ was concluded to be not normally distributed, so the Wilcoxon test was determined to analyze the relationship between the variables.

Bivariate Analysis

This research was conducted to determine the effect of health education on knowledge and behavior in elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. The following are the test results using the Wilcoxon Test:

Table 4.
Results of the Wilcoxon Test on the Effect of Health Education on the Knowledge of Elderly People with Hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu Bantul Yogyakarta

Knowledge	Mean	Minimum	Maximum	Std Deviasi	Nilai P
Pretest	63.3333	50.00	88.89	12.34517	0,000
Posttest	90.3687	72.22	100.00	6.67369	

Table 4 above, it shows that the significant value is 0.000 (<0.05), which means that there is a significant difference in the data on the influence of health education on knowledge among elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. So H_a is accepted and H_o is rejected, meaning that statistically it shows that there is an influence of health education on the knowledge of elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta.

Table 5.
Results of the Wolcoxon Test on the Effect of Health Education on Behavior in the Elderly with Hypertension at Matahari Kepek Elderly Posyandu Timbulharjo Bantul Yogyakarta

Behavior	Mean	Minimum	Maximum	Std Deviasi	Nilai P
Pretest	63.3347	50.00	96.15	13.31260	0,000
Posttest	123.1470	72.22	144.44	22.46390	

Table 5 above, it shows that the significant value is 0.000 (<0.05), which means there is a significant difference in the data on the influence of health education on behavior in elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. So H_a is accepted and H_o is rejected, meaning that statistically it shows that there is an influence of health education on the behavior of controlling hypertension in the elderly with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta.

DISCUSSION

The majority of respondents were in the age range of 60-70 years. This age is included in the elderly who are vulnerable to health such as vulnerability to health diet and attitudes towards physical activity. The average number of research respondents between men and women was 15 respondents each. The majority of respondents' education was in the low category, namely elementary school and worked as housewives. Low education means they are less concerned with health information, plus at their age they find it difficult to think about complex things.

Elderly Knowledge Before Being Given Health Education.

Based on the research results, it is known that the majority of respondents had sufficient knowledge, 14 respondents (46.7%) before being given health education about hypertension. This is because they had previously received information regarding hypertension, but there were several respondents who still did not understand the knowledge about hypertension. The results of this research are the same as research conducted by Wardani et al., (2018) stated that the level of health education knowledge regarding knowledge of the elderly at the Posyandu for the Elderly in Manisrenggo Village before counseling was carried out for the elderly was in the sufficient category (43%). Knowledge is the ability to receive, store and use information that is influenced by experience and skills which are learning new facts or information and reminding (Nofindra, 2019). According to research assumptions, elderly people at Posyandu Lansia Matahari Kepek Timbulharjo Bantul, Yogyakarta, in this case received information in the fairly good category, meaning that elderly people were able to understand knowledge about hypertension, although not completely well.

The results of this research are in line with research conducted by Damayanti & Adiaksa, (2024) who stated that the lack of information about preventing hypertension in the elderly makes attitudes and behavior less good in preventing hypertension. Seeing this, it is necessary to emphasize health workers to provide optimal counseling and assessments need to be carried out before and after being given health education. The number of respondents who have insufficient knowledge is based on many factors such as age, education, occupation, experience, beliefs and social culture. In research Ramadhana & Meitasari, (2023) says that the higher a person's education, the greater a person's desire to obtain information, in contrast to someone who has a low level of education, whose knowledge of information is also low. In connection with the majority of respondents not knowing about preventing and controlling hypertension using the CERDIK method, there are several potential supports in terms of demographic data, one of which is the respondent's education. Judging from the demographic data, most respondents' education is elementary school, we know that the higher a person's education, the better the person's curiosity and vice versa. According to the researchers' assumptions, the majority of respondents in this study had sufficient knowledge, because some elderly people had received information about hypertension, however, some still did not understand this. So there is a need for preventive behavior from cadre managers or nurses to educate the elderly through health education related to hypertension.

Elderly Knowledge After Being Given Health Education

Based on the research results, it shows that the significant value is 0.000 (<0.05), which means that there is a significant difference in the data on the influence of health education on the knowledge of elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. The results of this research are in line with the research conducted Wardani et al., (2018) stated that after conducting counseling about the influence of health education on the knowledge of the elderly at the Posyandu for the Elderly, Manisrenggo Village, there was an increase from 43% in the fair category to 52% in the good category, namely 12 people. The information about preventing hypertension obtained by the elderly improves behavior in preventing hypertension and controlling hypertension, thus increasing the knowledge and awareness of the elderly in implementing behavior to control hypertension. The results of this research are in line with the research conducted Ni Putu et al., (2023) stated that the majority of respondents after being given good health education were 57 (85.1%) respondents. It can be interpreted that hypertension health education has a significant effect on the knowledge of elderly people with hypertension. The success of health education can also be supported by the existence of tools or media to help facilitate the delivery of the message or material that you want to convey. One of the health education media used by researchers is leaflet media. Leaflets are a visual medium used to convey messages or material through images, colors and writing.

Hypertension Control Behavior Before Being Given Health Education

Based on the results of the research above, the majority of elderly people's behavior was not good, amounting to 15 respondents (50.0%) before being given health education about hypertension. Some respondents behaved poorly because they had not complied with and familiarized themselves with preventative and control measures against hypertension in their daily lives. According to research Sintia et al., (2022) that improving the behavior of the elderly is very important to maintain growth in old age, if respondents are diligent in having their health checked and monitored regularly then respondents can know what is happening and can prevent it early so that it does not result in excessive complications. In line with research Ayuningsih et al., (2023) The low level of knowledge and behavior of the elderly regarding healthy living has an impact on the high prevalence of hypertension. Apart from

that, diet and physical activity also have a significant relationship with the behavior of the elderly in controlling hypertension. In line with research Harmanto et al., (2022) with the title the influence of health education on increasing knowledge, attitudes and behavior of elderly people with hypertension in the Binongko Community Health Center area shows that health education for hypertension was given to elderly people totaling 90 respondents to measure changes in behavior before and after using an individual approach method such as individual guidance in their respective homes. -each. Before being given health education using individual counseling methods about hypertension to the elderly, the behavior of the elderly was in the poor category, meaning that the level of education and knowledge of the respondents, most of whom had not attended school, had an effect on behavior. The lower the respondent's understanding, the less positive their behavior is towards their own health, as well as towards risk factors for hypertension such as lack of physical activity, smoking, excessive salt consumption and so on. According to view Ledoh et al., (2024) that the risk factors for hypertension include smoking, lack of physical activity, alcohol consumption, the habit of drinking coffee, the habit of consuming foods containing lots of salt and the habit of consuming fatty foods.

Hypertension Control Behavior After Being Given Health Education

Based on the research results, it shows that the significant value is 0.000 (<0.05), which means that there is a significant difference in the data on the influence of health education on behavior in the elderly at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. So it was concluded that there was an influence of health education on knowledge in elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta. This indicates that providing health education will increase a person's knowledge and behavior in intervening in their illness by controlling and preventing an increase in blood pressure that exceeds normal limits. The results of this study are in line with Rusminarni et al., (2021) which proves that there is an influence of hypertension health education on changes in respondents' knowledge about hypertension control behavior such as regulating diet by limiting intake of salt, fat, alcohol, stopping smoking, and controlling body weight, doing physical activity, resting and sleeping.

From the results of the research conducted, it was found that efforts were made to reduce the incidence of hypertension and complications that occur due to hypertension, one of which was by providing counseling or health education to hypertensive clients. With health education, it is hoped that hypertension sufferers can modify their lifestyle behavior, such as limiting salt intake, stopping smoking, reducing stress, doing active activities/exercising regularly, and reducing weight so that blood pressure drops. On research Harmanto et al., (2022) that the increase in respondents' understanding after being given treatment is very closely related to the increase in respondents' behavior obtained from the results of guidance by researchers through health education.

The Influence of Health Education on Increasing Knowledge and Behavior of Hypertension Control in Hypertensive Elderly

This health education is provided by providing health education using the printed media method in the form of leaflets, where the researcher gives a pretest first before starting health education to find out the extent of the elderly's ability to understand hypertension, then the researcher provides health education for approximately 15 minutes, then provides the opportunity to the elderly to ask questions before ending the health education, after that the researchers gave a posttest to find out whether there was an effect of health education on knowledge about hypertension and behavior in elderly with hypertension at the Matahari

Kepek Timbulharjo Elderly Posyandu, Bantul, Yogyakarta 30 days later. Based on the results of the bivariate test, it is known that the sig value for the effect of health education on knowledge among elderly people with hypertension is $0.000 < 0.05$, so it can be concluded that there is a significant effect of health education on knowledge among elderly people with hypertension at the Matahari Kepek Timbulharjo Bantul Yogyakarta Elderly Posyandu.

Providing education can increase knowledge, change people's mindset that health is something of value for survival, enable communities, groups or individuals to independently apply healthy living behavior through various activities, and support the development and proper use of health service infrastructure (Gedeona, 2015). In line with the results of community service from Lidiana et al., (2023) the results of statistical tests obtained a value of $p = 0.001$, so it can be concluded that there is a significant difference between the knowledge of residents before the health service was carried out using leaflets and the knowledge of residents after the health service was carried out using leaflets. This means that knowledge increases after providing Pankes through leaflets so that people can understand the information well. According to research results Hermanto dkk (2022) shows that the results of health education are an effective form of health promotion, because people can easily obtain information.

Based on the bivariate test using the Wilcoxon test in this study, it is known that the sig value for the influence of health education on behavior in elderly people with hypertension is $0.000 < 0.05$, so it can be concluded that there is a significant influence of health education on behavior in elderly people with hypertension at the Matahari Health Center Kepek Timbulharjo Bantul Yogyakarta. In line with research Damayanti et al., (2021) stated that the low knowledge and behavior of the elderly regarding healthy living has an impact on the high prevalence of hypertension, apart from that, diet and physical activity also have a significant relationship with the behavior of the elderly in controlling hypertension. Health education is a planned effort to spread messages, instill confidence, so that people are not only aware, know and understand, but are also willing and able to carry out recommendations that are expected to improve health status, prevent disease, maintain health status, maximize function and function. the role of sufferers and families in overcoming health problems (Ardiani et al., 2019).

Providing health education has the main aim of changing behavior by improving knowledge (cognitive), attitudes and practices (gaining access to health information, using information) so that it can be used to improve or maintain health. Health education will increase public awareness of the importance of protecting the environment and themselves to stay healthy. A healthy environment will really help the people who live in it feel comfortable, calm and happy so they can enjoy life (Chaniago et al., 2023). According to the Knowledge and Behavior Model theory, knowledge is an essential factor that can influence behavior change, and individuals can gain knowledge and skills through the learning process. In this way, community knowledge that still needs to be corrected and community behavior that is still negative can be pursued through learning activities through education by the authorities. Someone who already knows about certain information, then he will be able to determine and make decisions on how he should deal with it. When a person has information about hypertension, he is able to determine how he should behave towards hypertension. This is in accordance with Solon et al., (2018) that health education will be able to improve better lifestyle behavior for hypertensive clients in the process of healing hypertension. When individuals receive health education related to hypertension, it will increase their knowledge

and knowledge in taking preventive measures. When knowledge is good, individuals will behave well so that good behavior can be realized.

CONCLUSION

Based on the results of research and discussion on the influence of health education on knowledge, attitudes and behavior in elderly people with hypertension at the Matahari Kepek Timbulharjo Bantul Yogyakarta Elderly Posyandu, it was concluded that the majority of respondents had sufficient knowledge, 14 respondents (46.7%) before being given health education. Meanwhile, the results after being given health education were that the majority of respondents had good knowledge, 29 respondents (96.7%). The majority of elderly respondents behaved poorly, amounting to 15 respondents (50.0%) before being given health education, and 26 respondents (86.7%) behaving well after being given health education. The test results show that there is an influence of health education on knowledge and behavior in elderly people with hypertension at the Matahari Kepek Timbulharjo Elderly Posyandu Bantul Yogyakarta with a p-value of 0.000.

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