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THE RELATIONSHIP BETWEEN THE LEVEL OF KNOWLEDGE ABOUT HYPERTENSION AND EFFORTS TO PREVENT HYPERTENSION COMPLICATIONS IN THE ELDERLY

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ABSTRACT
Hypertension is one of the non-communicable diseases caused by multifactorial and is one of the causes of mortality in the world. Based on information from the Surakarta City Health Office in 2023, it was stated high blood pressure cases in Surakarta City touched 67.355 cases. The goal of this study is to ascertain how attempts to prevent hypertension issues in the elderly at the Gambirsari Health Center relate to the degree of knowledge on hypertension. This kind of study is quantitative with a correlative descriptive method through a cross sectional approach. The population in this study was all elderly with high blood pressure who visited the Gambirsari Health Center, while the study sample was collected using a simple random sampling technique totaling 87 people. Data collection will be carried out in August 2024. The data was analyzed using the chi square test. The finding of the chi square statistical test obtained a value of p = 0.000 (p value < 0.05) so that H0 was rejected. The study's conclusion is that there is a relationship between the level of knowledge about hypertension and efforts to prevent hypertension complications in the elderly at the Gambirsari Health Center. Therefore, The findings of this study can serve as a reference for future scholars with different methods and as a reference for health facilities in developing relevant programs for hypertension patients.

Keywords: elderly; hypertension; knowledge; prevention

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INTRODUCTION

Hypertension is one of the main health issues in the world that continues to increase in prevalence. This is because Hypertension is a noncommunicable disease, which is a *silent killer* for sufferers. According to WHO (2023), More than 1 billion people worldwide suffer from hypertension from the ages of 30-79, most of whom live in low- and middle-income countries. Serious side effects from this illness include heart disease, stroke, kidney failure, eye impairment, and even early death. In Indonesia, the frequency of high blood pressure is also a major difficulty in the health sector. Overall hypertension cases in Indonesia reached 34.1% in 2018, then dropped to 30.8% in 2023 (Kementerian Kesehatan Indonesia, 2024). Meanwhile, according to the report Dinas Kesehatan Jateng (2023), hypertension cases occupy the first position with 72% of the total 15 types of NCDs. In the city of Surakarta, hypertension still occupies the largest proportion of all reported NCDs, which is 67,355 cases or 78.65% (Dinas Kesehatan Kota Surakarta, 2023). The elevated prevalence of high blood pressure cases can be caused by age factors, one of the biggest sufferers is the elderly group.

In a person who has stepped on the elderly, tissue regeneration to maintain its normal function is lost and is unable to attack viruses and bacteria that induce into the body or repair damaged tissue. Personal changes, including physical, social, emotional, psychological, and social changes, are capable of affecting older people. Therefore, the elderly have a higher risk of

developing hypertension. There are various strategies that can be done by the elderly to experience increased awareness of what high blood pressure is and how to manage it so that it does not recur. One of them is to increase knowledge.

Knowledge is as meaningful as an individual's reliably remembering or recognizing names, words, sources of inspiration, patterns (Notoatmodjo in Martina et al., 2021). Knowledge is acquired through smell, hearing, taste, sight and touch. According to Notoatmodjo in Wijayanti et al (2023), There are six strata of knowledge including knowledge, comprehension, application, analysis, synthesis, and evaluation. This is impacted by intricate elements like the economy, environment, education, experience, behavior and social conditions. Based on studies carried out by Sombili et al (2023) and Gusty et al (2022), They interpreted the importance of the educational strata of the community and their behavior to prevent hypertension. Therefore, knowledge is like a human activity.

Notoatmodjo in Wahyuningsih & Arsi (2021) explained that health behavior is related to efforts to maintain and improve health aimed at protecting oneself from disease, as well as efforts to find a cure when sick. Broadly speaking, health behaviors are divided into two, namely, healthy behaviors and sick behaviors. Bad lifestyle behavior is among the risk factors for high blood pressure. Poor lifestyle behaviors such as smoking, alcoholic beverages, lack of activity and exercise, sleep habits, and diet (Sonhaji et al., 2023). A person's behavior can be measured by conducting interviews, surveys, or observations. The purpose of this study is to analyze the relationship between the level of knowledge about hypertension and efforts to prevent hypertension complications in the elderly at the Gambirsari Health Center.

METHOD

This research is an example of quantitative research with a correlational descriptive method. The research design used is a *cross sectional* approach. This study was undertaken at the Gambirsari Health Center, Surakarta City, Central Java. Data collection will be carried out in August 2024. The research's population is 627 people, which is the average number of hypertensive patients who visit the Gambirsari Health Center every month in 2023, while the study's sample is 87 people. Sampling in this study uses *the Simple Random Sampling technique* by paying attention to inclusion and exclusion criteria. The independent variable is the level of knowledge about hypertension, which is tested using the Hypertension Knowledge Level Scale questionnaire instrument, translated by Ernawati et al (2021) consists of 16 *Guttman* scale questions that have been modified in *favourable* and *unfavourable types*. The parameters of the knowledge category are divided into three, namely the level of good knowledge (score >75%), the level of enough knowledge (score 56% - 75%), and the level of insufficient knowledge (score <56%).

The dependent variable was the effort to prevent hypertension complications, which was examined using a questionnaire instrument that consisted of 14 questions on the Likert scale in *favourable* and *unfavourable forms*. The category parameters of efforts to prevent hypertension complications are divided into two, namely good efforts (t count > t mean) and less efforts (t count < t *mean*). Each questionnaire question is valid. The researcher tested the validity and reliability of *the Hypertension Knowledge Level Scale* instrument and found that 16 valid questions had an alpha cronbach value of 0.759. Then for the questionnaire on efforts to prevent hypertension complications, it was found that 14 valid questions had an alpha cronbach value of 0.956. The data was analyzed using descriptive statistics that included the demographics and characteristics of the respondents, namely age, gender, education, and occupation. Then for bivariate analysis, the researcher used the Chi Square test to ascertain

the relationship between the two variables. The FK UMS Research Ethics Commission granted ethical approval for this study.on June 19, 2024 with letter number 5253/B.1/KEPK-FKUMS/VII/2024.

RESULT

Based on the results of the study, it was found that the characteristics of most of the respondents, namely 83 (95.4%) are *elderly*, as many as 65 (74.7%) are female, as many as 27 (31%) are high school/vocational education, as many as 30 (34.5%) are IRT/not working.

Table 1.
Respondent characteristics (n= 87)

Respondent characteristics	f	%
Age		
Elderly (60-74 years old)	83	95,4
Old (75-90 years old)	4	4,6
Gender		
Man	22	25,3
Woman	65	74,3
Education		
No School	5	5,7
SD	23	26,4
SMP	22	25,3
SMA/SMK	27	31,1
Diploma/Perguruan Tinggi	10	11,5
Work History		
Farmer	8	9,2
PNS	10	11,5
IRT/Not Working	30	34,5
Swasta	14	15,1
Merchant	11	12,6
Laborer	14	16,1

According to univariate analysis, out of the 87 respondents, as many as 36 (41.4%) had sufficient knowledge about hypertension and as many as 47 (54%) had good efforts to prevent complications.

Table 2.
Univariate Analysis (n= 87)

Variable	f	%
Level of Knowledge About Hypertension		
Good	21	24,1
Enough	36	41,4
Bad	30	34,5
Efforts to Prevent Hypertension Complications		
Good	47	54
Bad	40	46

The findings of the bivariate study comparing attempts to prevent problems from hypertension and the degree of knowledge about hypertension demonstrated that responders with a good level of knowledge about hypertension had good efforts to prevent hypertension complications as many as 19 respondents and 2 people with bad ones. Then, respondents with a sufficient level of knowledge about hypertension had good efforts to prevent hypertension complications as many as 19 respondents and 17 people who had bad ones. Meanwhile, respondents with low levels of understanding about hypertension made fewer steps to prevent hypertension problems and had less efforts to prevent hypertension complications with 9 respondents and 21 people with bad ones. The Chi Square statistical test yielded a value of $p = 0.000$ ($p < 0.05$) so that the result of the research hypothesis taken was H0 rejected, which means There is a relationship between the level of knowledge about hypertension and attempts to prevent hypertension issues in the elderly at the Gambirsari Health Center.

Table 3.
Bivariat Analysis (n= 87)

Level of Knowledge	Preventive Efforts		Total	p *Value*
	Good	Bad		
Good	19 (90,5%)	2 (9,5%)	21 (100,0%)	0,000
Enough	19 (52,8%)	17 (47,2%)	36 (100,0%)	
Bad	9 (30,0%)	21 (70,0%)	30 (100,0%)	

DISCUSSION

The characteristics of the elderly with hypertension in this study were dominated by the elderly/*elderly* age group in the age range of 60-74 years as many as 83 respondents (95.4%). Hypertension in the elderly is often caused by various physiological factors related to the aging process. Some factors include, namely changes in the elasticity of blood vessels. As we age, the elasticity of blood vessels decreases so that they become stiffer. As a result, vascular resistance increases which causes blood pressure to become higher, especially systolic pressure (Makawekes et al., 2020). The next factor is a decrease in kidney function. As we age, kidney function will decrease so that the kidneys become less effective in regulating fluids and electrolytes. This condition can lead to sodium and fluid retention which then increases blood volume and blood pressure (Titami et al., 2022). The next factor is cormorbidity and lifestyle. In old age, many elderly people experience other conditions, such as diabetes and cardiovascular diseases that can worsen hypertension. Lifestyles such as a high-salt diet, lack of physical activity, and smoking also play a role in accelerating the development of hypertension in this age group (Pratiwi et al., 2020). The results of this study are in line with the research conducted by Lawalata et al (2021) at the Halong Health Center shows that 50.7% of the elderly who experience hypertension are 60-74 years old. Other research by Amalia & Sjarqiah (2023) at the Jakarta Sukapura Islamic Hospital also noted that the young elderly group (60-60 years old) was the most suffering from hypertension with a percentage of 45.8% of the total respondents.

The elderly with hypertension in this study were dominated by women as many as 65 respondents (74.7%). Women are more susceptible to hypertension related to several factors, including hormonal and psychological factors. In hormonal factors, it is explained that before menopause, the hormone estrogen functions to protect blood vessels, maintain their elasticity, and help control blood pressure. However, after menopause, estrogen levels drop drastically which reduces the protection of blood vessels. As a result, systolic blood pressure tends to increase in postmenopausal women (Fitria & Prameswari, 2021). On psychological factors, women tend to respond to stress in a more intense way compared to men which leads to an increase in blood pressure. Psychosocial stress often affects women which also plays a role in increasing the risk of hypertension (Lawalata et al., 2021). This research is in line with the research conducted by Citra & Anjani (2023) in a South Jakarta Village shows that as many as 123 people (70%) The elderly with hypertension are women. Other research by Fredy et al (2020) in Buku Village, it was also explained that the female elderly suffered from hypertension as many as 39 people (78%).

In this study, the majority of the elderly had a high school/vocational education history of 27 people (31%). In theory, adults with higher levels of education have better health and life expectancy compared to their less educated counterparts (Raghupathi & Raghupathi, 2020).

Older people with higher levels of education tend to have a better understanding of health issues, so they are more likely to adopt healthy behaviors. Not only that, but seniors who have higher education tend to have better critical thinking skills that allow them to evaluate health information more effectively, understand risks, and make better choices. Education can form a positive attitude towards health. Older people who have higher education are often more open to lifestyle changes and disease prevention. This research is in line with the research conducted by Muryani et al (2020) at the Ngaglik II Health Center, it was shown that the majority of elderly people with hypertension had a high school/vocational education of 16 people. Other research that is also in line with the Lani (2021) in the Simpur Health Center area, which also mentioned that the majority of elderly people with hypertension were respondents with high school/vocational education, as many as 27 people (44%).

The most employment history in the elderly respondents in this study was 30 people (34.5%). An unemployed person or an IRT is more susceptible to developing hypertension in the elderly through a variety of factors, including stress, physical activity, diet, and access to health care. This research is in line with the research conducted by (Oktavia et al., 2023) at the Manado City Shoulder Health Center which stated that the elderly with hypertension were dominated by the elderly who did not work or IRT as many as 48 people (60.8%). Other research by Rosadi et al (2023) at the Ayu Health Center in Jambi City, it was also mentioned that almost half of the research respondents were IRTs as many as 14 people (41.2%).

The results of the *chi square test* between the variable of the level of knowledge about hypertension and efforts to prevent hypertension complications showed a p value of 0.000 (p *value* < 0.05) so that the result of the research hypothesis taken was H0 rejected, which means that there is a relationship between the level of knowledge about hypertension and efforts to prevent hypertension complications in the elderly at the Gambirsari Health Center. This research is in line with the research conducted by Mujiran et al (2019) said that there was a meaningful relationship between the level of knowledge of respondents about hypertension and the attitude of preventing hypertension complications in the elderly of Prolanis participants at the Jenawi Health Center UPT of Karanganyar Regency. According to the researcher, this is because most of the respondents are Prolanis members who have a history of high school education and have more sources of information so that the better the level of knowledge, the better the prevention attitude. This is supported by research conducted by Rodiyyah & Tohri (2020) who mentions that knowledge is very important because a person with good knowledge makes them behave right and avoid wrong habits.

Other research conducted by Sulastri et al (2021) which states that there is a relationship between the level of knowledge about hypertension and the behavior of preventing the occurrence of hypertension complications which means that with different knowledge can take different preventive measures for hypertension complications. Other supporting research conducted by Yulidar et al (2023) which mentioned a significant relationship between the knowledge of hypertension patients and hypertension prevention behaviors because in realizing good hypertension prevention behaviors, sufficient knowledge and family support are needed. Other research conducted by Wati et al (2023) who stated that there was a relationship between knowledge about hypertension and attitudes to prevent the occurrence of hypertension complications at the Janti Health Center in Malang City as evidenced by the results that most of the respondents had less knowledge about hypertension and less attitude towards the prevention of hypertension complications. This research is supported by research Sombili et al (2023) who mentioned that hypertension elderly patients with good knowledge will improve the behavior of preventing hypertension recurrence more by behaving positively.

According to the researcher, the relationship between the level of knowledge about hypertension and efforts to prevent hypertension complications in the elderly at the Gambirsari Health Center is inseparable from the characteristic factors of respondents living in urban areas, the correlation between knowledge and health behavior, awareness and adherence to treatment, as well as qualified health facilities and health workers.

CONCLUSION

Based on the research that has been carried out, it can be concluded that the characteristics of elderly respondents with hypertension at the Gambirsari Health Center are mostly in the age range of 60-81 years with the most sufferers being women, having a high school/vocational education background, and not working/IRT. The study respondents had a level of knowledge about hypertension in the moderate category and efforts to prevent hypertension complications in the good category. There was a significant relationship between the level of knowledge about hypertension and efforts to prevent hypertension complications in the elderly at the Gambirsari Health Center where the better the level of knowledge of the respondents, the better the efforts to prevent hypertension complications.

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