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The Relation Between the Knowledge Level of Hypertension Patients and the Prevention Behavior of Hypertension Complications at Puskesmas Gunungsari in 2024

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ABSTRACT
Hypertension is the third leading cause of death in Indonesia, affecting all age groups, and the number of cases continues to increase every year. It is estimated that by 2025, 194 million deaths worldwide will be caused by hypertension and its complications. This research aims to analyze the relationship between the level of knowledge of hypertensive patients and the behavior of hypertensive patients in preventing complications of hypertension at Puskesmas Gunungsari in 2024. This research used an observational analytic design method with a cross-sectional approach that was approved by the Ethics Committee of the UGJ Faculty of Medicine (Ethics Number: 75/EC/FKUGJ/V/2024). The population of this research were hypertensive patients who visited the Gunungsari Health Center, with a sample size of 56 people selected by consecutive sampling. Data were analyzed using univariate and bivariate analysis with the Spearman Test. The results of the research analysis showed a significant relationship between the level of knowledge of hypertensive patients and the behavior of hypertensive patients in preventing complications of hypertension, with a p-value of 0.002 ($p < 0.05$). The implications in this research highlight the importance of patient education in managing hypertension and preventing its complications. Health centers can use these insights to design targeted educational interventions to improve patient outcomes and reduce the burden of hypertension-related complications.

Keywords: Hypertension, Hypertension Knowledge, Hypertension Complication Prevention Behavior.

INTRODUCTION

Hypertension is a systolic blood pressure ≥140 mmHg and diastolic blood pressure ≥90 mmHg hypertension as a precursor disease such as stroke, heart failure, diabetes, and kidney disease (Siswanto et al., 2015). Hypertension is included in non-communicable diseases, diseases that cannot be transmitted from one individual to another, non-communicable diseases that will certainly continue to increase every year, and become the number one in the world (Tulchinsky et al., 2023). One of the cardiovascular diseases, hypertension, is the number one cause of death every year (Rahayu et al., 2021). Hypertension causes degenerative diseases until death, hypertension is often called a silent killer disease or a silent killer that can attack anyone.

Complications caused by hypertension if left untreated will affect the cardiovascular, nervous and renal systems. High blood pressure will make atherosclerosis increase causing coronary heart disease and stroke (Hasina et al., 2024); (Azizah et al., 2022), (Yulidar et al., 2023).

Based on WHO shows that worldwide 35.32% have hypertension at the age of 30-70 years. There was a two-fold increase from 1990 and 2019, from 650 million to 1.3 billion. According to WHO data, the prevalence in Southeast Asia reached 36.29% (Organization, n.d.). The number of people with hypertension continues to increase every year, it is estimated that by 2025 there will be 194 million people will die from hypertension and its complications (Wiranto et al., 2023). Hypertension is the third leading cause of death in Indonesia for all ages, the mortality rate in Indonesia due to hypertension is 427,218 deaths (Gaol & Simbolon, 2022). Data from the 2018 Basic Health Research Riskesdas showed that the prevalence of hypertension in Indonesia was 34.1%, an increase compared to the prevalence of hypertension Riskesdas in 2013 of 25.8%, making Indonesia ranked 5th in the world (T. Riskesdas, 2019); (Lubis et al., 2023). The prevalence of hypertension from Riskesdas in 2018 shows hypertension rates at the age of more than 18 years, 31.6% at the age of 31-44 years, 45.3% in the 45-55 age group and 55.2% at the age of 55-64 years. The prevalence of hypertension in West Java is 39.60%, ranked 2nd after South Kalimantan at 44.11%. Based on Riskesdas data in 2018, the estimated number of people with hypertension in Cirebon City was 93,688 and the percentage who received health services according to standards was 12.31% (L. P. J. B. Riskesdas, 2019).

Based on the health of Cirebon City in 2022, one of the non-communicable diseases in Cirebon City is hypertension whichis ranked 2nd after ARI, the estimated number of people with hypertension aged >15 years (Opendata.cirebonkota.go.id, 2023); (Dewi, 2022) Gunungsari Health Center is one of the health centers in Cirebon City, which is located in Kesambi sub-district. According to data and information on the number of hypertension cases at Puskesmas Gunungsari due to hypertension in 2023 there were 602 cases out of 1058 cases of non-communicable diseases at Puskesmas Gunungsari (Puskesmas, 2023).

There are several approaches to preventing complications of hypertension including implementing a good lifestyle in everyday life, providing education about hypertension treatment compliance, improving patterns or lifestyles, always checking health regularly, sticking to a diet with balanced nutrition, exercise, avoiding cigarette smoke and managing stress (Sari & Putri, 2023); (Suprayitno & Huzaimah, 2020).

Knowledge is an indicator of people's understanding of an object, low knowledge of hypertension disease makes the number of people with hypertension higher, therefore an understanding of hypertension disease knowledge is needed. Knowledge is influenced by the level of education, sources of information and experience that can be obtained from oneself and others (Almomani et al., 2022). Knowledge provides information to someone who learns it so that if applied in his life it will change one's behavior and behavior. Behavior to prevent hypertension is good by monitoring blood pressure regularly, quitting smoking, increasing

physical activity, eating foods high in fiber and low in salt (Ramadhan, 2020); (Oktaviani et al., 2022).

Several previous studies have found factors associated with hypertension. Conducted by Setiandari Elsi in 2022 there is a relationship between occupational and genetic knowledge of hypertension prevention behavior. Whereas in a research conducted by Nurhanani in 2020 there was a relationship between the level of compliance with taking antihypertensive drugs at age, employment status with the level of knowledge regarding taking antihypertensive drugs, but at the level of knowledge of hypertension and the level of knowledge regarding hypertension control there was no relationship with the level of compliance with taking antihypertensive drugs (LO, 2022); (Nurhanani et al., 2020).

Based on the above background, the purpose of this research is to analyze the relationship between the level of knowledge of hypertensive patients and the behavior of preventing hypertension complications at Puskesmas Gunungsari in 2024. This research aims to provide important information on how knowledge can influence patient behavior in preventing hypertension complications, which in turn is expected to help improve the quality of life of hypertensive patients and reduce the burden of complications due to hypertension. The benefit of this research is to contribute to the development of health education programs at the primary care level such as Puskesmas. By understanding the relationship between knowledge and preventive behavior, this research can serve as a basis for health workers to design more effective interventions to improve patient compliance with hypertension management.

RESEARCH METHOD

This research used an analytic survey research design with a cross sectional approach. This research was conducted at Gunungsari Health Center in June-July 2024. Data collection was carried out using primary data obtained through questionnaires. The questionnaire contained information about the characteristics of respondents as well as questions related to knowledge about hypertension and behavior to prevent complications of hypertension. After the data was collected, it was analyzed to see the frequency distribution of all variables and used the crosstab method to determine the relationship between the independent and dependent variables. Data analysis was performed using the Sperman test.

Research Population

The population in this research were hypertensive patients who came to the Gunungsari Health Center. The sample of this research was 56 respondents, the sampling method used consecutively.

Univariate Analysis

Univariate analysis was conducted to describe the characteristics of respondents according to gender, age, education and occupation, as well as independent and dependent variables.

RESULT AND DISCUSSION

Characteristics of Hypertension Patients Based on Age

Table 1. Distribution of Hypertension Patients Based on Age at Puskesmas Gunungsari in 2024 Based on Age at Puskesmas Gunungsari in 2024

Age	Total	Presentation
Late adulthood (34-45 years old)	4	7,1%
Early elderly (46-55 years old)	19	33,9%
Late elderly (56-65 years old)	25	44,6%
Elderly (>65 years old)	8	14,3%
Total	56	100%

Based on the table above, it can be seen that most of the ages in this research were 56-65 years old as many as 25 people (44.6%).

Characteristics of Hypertension Patients Based on Gender

Table 2. Distribution of Hypertension Patients Based on Gender at Gunungsari Health Center in 2024

Gender	Total	Presentation(%)
Male	18	32,1 %
Female	38	67,9%
Total	56	100%

Based on the table above, it can be seen that the majority of patients are female as many as 38 people (67.9%).

Characteristics of Hypertension Patients Based on Education

Table 3. Distribution of Hypertension Patients Based on Education At Gunungsari Health Center in 2024

Education	Total	Presentation (%)
Not Graduated From Elementary School	6	10,7%
Elementary	10	17,9%
Junior High	14	25%
High School	22	39,3%
Higher Education	4	7,1%
Total	56	100%

Based on the table above, it is known that the frequency distribution of respondents based on high school education is mostly 22 people (39.4%).

Characteristics of Hypertension Patients Based on Occupation

Table 4. Distribution of Hypertension Patients Based on Occupation At Gunungsari Health Center in 2024

Jobs	Total	Presentation
IRT	31	55,4%
Not Working	4	7,1%

Jobs	Total	Presentation
Private Employee	19	33,9%
ASN	2	3,6%
Total	56	100%

Based on the table above, it is known that the frequency distribution of respondents based on the occupation of the majority of housewives is 31 people (55.4%).

Characteristics of Hypertension Patients Based on Knowledge

Table 5. Distribution of Hypertension patients based on knowledge at Gunungsari Health Center in 2024

Hypertension Patient Knowledge	Total	Presentation (%)
Good	33	58,9
Simply	18	32,1
Less	5	8,9
Total	56	100

Based on the table above, it is known that the frequency distribution of hypertensive patients based on hypertension knowledge is mostly good as many as 33 people (58.9%)

Characteristics of Hypertension Patients Based on Hypertension Complication Prevention Behavior

Table 6. Distribution of Hypertension Patients Based on Preventive Behavior Complications of Hypertension at Gunungsari Health Center in 2024

Hypertension Complication Prevention Behavior	Total	Presentation(%)
Good	29	51,8
Simply	24	42,9
Less	3	5,4
Total	56	100

Based on the table above, it is known that the frequency distribution of hypertensive patients based on hypertension complication prevention behavior is mostly good as many as 29 people (51.8%).

Bivariate Analysis

Bivariate analysis aims to determine the relationship between the independent and dependent variables using the Sperman statistical test following the results of the analysis below

Table 7. Relationship between Knowledge Level of Hypertension Patients with Hypertension Complication Prevention Behavior at Gunungsari Puskesma in 2024

			Hypertension Complication Prevention Behavior					
			Good	Simply	Less	Total	S_r	P-value
Knowledge Level of Hypertension Patients	Good	N	22	10	1	33	0.411	0.002
		%	66.7%	30.3%	3.0%	100.0%		
	Simply	N	7	11	0	18		

			Hypertension Complication Prevention Behavior					
			Good	**Simply**	**Less**	**Total**	**S_r**	**P-value**
		%	38.9%	61.1%	0.0%	100.0%		
	Less	N	0	3	2	5		
		%	0.0%	60.0%	40.0%	100.0%		
Total		N	29	24	3	56		
		%	51.8%	42.9%	5.4%	100.0%		

Based on the table above, the results of hypothesis testing using the Spearman method show a p-value of 0.002 ($p < 0.05$), which indicates a relationship between the level of knowledge of hypertensive patients and hypertension complication prevention behavior. In addition, the Spearman correlation value (Sr) of 0.411 indicates a fairly strong relationship between the level of knowledge of hypertensive patients and the behavior of preventing complications of hypertension.

Several factors influence the level of knowledge of respondents including age and education. In this research, the age group of 56-65 years was the most dominant. As individuals age, they experience changes in their psychological and psychological aspects that can affect their knowledge. In addition, the level of education also plays an important role; the higher a person's level of education, the more receptive they are to information. Information regarding hypertension, such as symptoms, causes, and treatment, can be obtained from various sources such as health workers, print media, and family environment. Good knowledge in respondents in this research was largely influenced by education level, with the majority of respondents being high school graduates (22 people or 39.3%). A higher level of education generally makes it easier for someone to absorb and understand new information, thus increasing their knowledge. Conversely, a low level of education can hinder the development of knowledge and the acceptance of new information (Sumarni et al., 2023); (Pariati & Jumriani, 2021); (Yulidar et al., 2023).

Most respondents have good preventive behavior, which reflects actions that can be observed and have positive goals, whether they realize it or not. The behavior of respondents in this research shows their understanding of hypertension and its application in preventing complications. Factors that influence behavior include sociopsychological, cognitive, and intellectual aspects. Many patients with hypertension have taken treatment and avoided the causes of hypertension, and show awareness of the importance of maintaining health through lifestyle changes, such as limiting consumption of fatty foods, avoiding stress, reducing salt consumption, and exercising regularly. It can be concluded that increasing patient knowledge about hypertension contributes to the adoption of better behavior in controlling hypertension, so that blood pressure can be kept under control (Nugraha et al., 2021); (Tampubolon & Sibuea, 2022).

Information about hypertension can be obtained from various sources such as health workers, print media, and the family environment. Various sources of information make it easier for a person to access the necessary information regarding the symptoms, causes, and treatment of hypertension. Knowledge is an individual's understanding of a topic that can influence the behavior they take. Individuals' perceptions influence their level of knowledge. For hypertension patients, knowledge plays a crucial role in improving hypertension complication prevention behavior. The more knowledge a person has, the better the behavior, and vice versa. Therefore, increasing patients' knowledge about hypertension can encourage them to adopt better behaviors in controlling hypertension, so that blood pressure remains under control.

In bivariate analysis using the Spearman test, this research showed a significant relationship between the level of knowledge of hypertensive patients and hypertension complication prevention behavior, with a p-value of 0.002 ($p < 0.05$). The Spearman correlation value of 0.411 indicates a fairly strong and positive relationship (unidirectional). With these results, the null hypothesis (H0) is rejected and the alternative hypothesis (Ha) is accepted, because the p-value <0.05. This research is in line with the findings of Sumani et al.'s research, which showed that increased knowledge of hypertensive patients encourages better attitudes and can help prevent hypertension. The research found a p-value of 0.025, which indicates a significant relationship between knowledge and the incidence of hypertension in productive age.

In addition, the chi-square test resulted in a p-value of 0.003, indicating a significant relationship between attitude and the incidence of hypertension in productive age (Sumarni et al., 2023). This research is also supported by the results of (Akinlade, 2016) research on the relationship between knowledge, occupation, and genetic factors (family history of hypertension) on hypertension prevention behavior. The research showed that hypertension prevention behavior was better in respondents with high knowledge than those with low knowledge. The relationship between employment and hypertension prevention behavior showed that respondents who worked had better prevention behavior. Meanwhile, in the genetic aspect, respondents with a family history of hypertension showed higher preventive behavior. This research reported significant p-values for all three variables: knowledge (0.028), occupation (0.002), and family history of hypertension (0.005) (LO, 2022).

CONCLUSION

The conclusion in this research shows that there is a significant relationship between the level of knowledge of hypertensive patients and the behavior of preventing complications of hypertension at Puskesmas Gunungsari in 2024. The majority of patients have a good level of knowledge (58.9%) and good hypertension complication prevention behavior (51.8%). The results of the analysis with the Spearman test showed a p value of 0.002 ($p < 0.05$) and a correlation value of 0.411, which indicates a fairly strong relationship between the level of knowledge and complication prevention behavior. These findings underscore the importance of

patient education in improving their knowledge related to hypertension to encourage better behavior in preventing disease complications.

The future contribution of this research is to provide a scientific basis for the development of health education programs at the primary care level such as Puskesmas. This research can serve as a reference for health workers to design education-based interventions that are more effective in increasing patient awareness and adherence to hypertension management. In addition, further research can explore other factors that influence preventive behavior, such as the influence of the social environment or digital health technology, to expand the scope and impact of hypertension prevention strategies.

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