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Analysis of the Implementation of the Hypertension Control Program Using Linear Regression Test

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Abstract. *Hypertension is a condition that is often encountered. Hypertension is a condition when blood pressure rises. Risk factors that can cause hypertension are age, race, gender, lifestyle, sodium consumption, smoking, alcohol consumption, stress level, and education. The urgency of this research is that the number of hypertension patients at the Purwodiningratan Surakarta Health Center experiences a spike every year. Based on a preliminary study at the Community Health Center, data was obtained that the number of hypertension patients in the last five year period experienced a spike, then fell, then spiked again. The objective problem of this research is the increase in hypertension patients, so it is necessary to research the relationship between knowledge, attitudes and family support and efforts to control hypertension. The importance of this research is a manifestation of efforts to control hypertension which continues to experience a surge using interview methods and distributing leaflets with the aim of a community approach. The aim of the research is to analyze the magnitude of the impact of the hypertension control program using the swallow method (interviews and leaflets). The research approach used cross sectional. The sample was 77 hypertensive patients at the Community Health Center. The sampling technique used the accidental sampling method based on inclusion and exclusion criteria. The statistical test uses a linear regression test at a significance level of 0.05.*

Keywords *: Hypertension, health center, linear regression*

1. INTRODUCTION

This research has a background, namely that one of the non-communicable diseases which is the most prominent health problem today is hypertension (Ministry of Health, 2019). The results of Basic Health Research (Riskesdas) (Ministry of Health, 2021) state that the prevalence rate of hypertension in people aged > 18 years in Indonesia is 34.1%. This prevalence comes from the results of blood pressure measurements, if blood pressure is >140/90 mmHg. This prevalence figure is higher than the previous year, namely in 2019 at 25.8%. The 2022 Central Java Province Health Profile [4] states that the prevalence of hypertension in Central Java in 2022 is 41.6%, while in the 2021 Riskesdas (Ministry of Health, 2021) it is 39.6%, which is an increase compared to the 2019 Riskesdas results of 29.4% (Ministry of Health, 2019).

Surakarta is one of the cities in Central Java Province with a hypertension prevalence of 19.2% (Health Service, 2021). Based on data from the Surakarta City Health Service in 2023 [5] which states that the highest prevalence of hypertension occurs in Surakarta, especially in

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the working areas of the Purwodiningratan Community Health Center (10.6%), Sibela Community Health Center (6.7%) and Ngoresan Community Health Center (5.8%). %).

Purwodinigratan Community Health Center is one of the community health centers in Surakarta which is ranked first in the prevalence of hypertension in 2023. Based on the results of a preliminary study at the community health center, data was obtained that the number of hypertension patients over the past five years has increased, then decreased, then increased again. Patients with hypertension at the Purwodiningratan Community Health Center in 2023 will consist of 5 age groups, namely the 20-44 year age group with 70 sufferers, the 45-54 year age group with 95 sufferers, the 55-59 year old with 120 sufferers, the 60-69 year age group as many as 30 sufferers and 20 sufferers aged > 70 years (Purwodiningratan Surakarta Health Center, 2023). The age group that experiences the highest hypertension is the 55-59 year age group, which is included in the elderly (senior) category. An initial study conducted on 15 elderly people with hypertension at the Purwodiningratan Community Health Center, Surakarta, revealed that 80% of elderly people had insufficient knowledge regarding the meaning, symptoms, causes and complications of hypertension, 60% of elderly people tended to have a negative attitude towards controlling hypertension, 53% of elderly lack of support from family, and 73% of elderly people have poor behavior in controlling hypertension. Hypertension control behavior can be seen using the theory of individual behavior according to Ayu (2022) which is influenced by 3 main factors, namely predisposing factors including age, gender, education, knowledge and attitude. Supporting factors (enabling factors) include affordability and availability of medicines.

Strengthening factors include family support and health workers. This is supported in research [Maharani, 2017; Anggraeni, 2019; Ayu, 2022; Sari, 2016; Sartik, 2017 and Artiyaningrum, 2016 who said that there is a significant relationship between knowledge about hypertension and blood pressure control in the elderly and research by Daeli, 2017; Maulidina, 2019; Jehani, 2022; Tumanduk, 2019 who said there was a significant relationship between the attitude of hypertensive patients and efforts to control hypertension and in research by Imran, 2017; Arisandi, 2020; Lisiswanti, 2016 and Sunarti, 2019 said that there is a relationship between family support and compliance with hypertension control in the elderly.

2. RESEARCH METHOD(S)

The first stage of this research is the literature study stage of the results of previous research carried out by Arini (2020) which is a beginner's research as a comparison for research carried out by researchers in the future. The second stage was initial observation and survey at

the research location (Purwodiningratan Community Health Center). From the results of the second stage, the researchers obtained data on the number of hypertensive patients at the Purwodiningratan Community Health Center as a sample of 77. The third stage was the implementation of quantitative descriptive research. In this third stage, researchers conducted interviews with 77 hypertension patients using a cross-sectional design and a sampling technique using accidental sampling. The interview aims to approach patients through small outreach and distributing leaflets about hypertension. The fourth stage is the correlative test. In this fourth stage, the research data is analyzed univariately in the form of a frequency distribution table, then the fifth stage is a bivariate test using a linear regression test at a significance level of 0.05.

3. FINDINGS AND DUSCUSSION

FINDINGS

a. Interview Result Data

1) Data on Respondent Characteristics

Table 1. Characteristics of Respondents at Community Health Centers

	Variable	F	%
a. Age			
	45	9	11,69
	46	6	7,790
	47	8	10,39
	48	6	7,79
	49	7	9,09
	50	8	10,39
	51	7	9,09
	52	8	10,39
	53	8	10,39
	54	10	12,99
Total		**77**	**100**
b. Gender			
	Man	33	42,86
	Woman	44	57,14
Total		**77**	**100**
c. Level of Education			
	No School	2	2,59
	Elementary School	10	12,99
	Junior High School	15	19,48
	Senior High School	41	53,25
	College	9	11,69
Total		**77**	**100**

Description: Research Data for 2024

Based on table 1, it can be concluded that the highest number of respondents was 54 and the lowest were 46 and 48 years old. The highest respondent was female and the respondent's highest level of education was high school.

2) Research Variable Data

Table 2. Frequency Distribution of Research Variable Data at Community Health Centers

No	Variable	F	%
a. Knowledge			
1	Not Enough	20	25,97
2	Good	57	74,03
Total		**77**	**100**
b. Attitude			
1	Negative	27	35,06
2	Positive	50	64,94
Total		**77**	**100**
c. Family Support			
1	Not Enough	33	42,86
2	Good	44	57,14
Total		**77**	**100**
d. Efforts to Control Hypertension			
1	Not Enough	22	28,57
2	Good	55	71,43
Total		**77**	**100**

Description: Research Data for 2024

From table 2 it can be concluded that there are more respondents who have a good level of knowledge regarding hypertension control compared to respondents who have less knowledge. Respondents had more positive attitudes regarding hypertension control compared to respondents who had negative attitudes. There were also more respondents who had good family support regarding hypertension control compared to respondents who had less family support.

b. Data Analysis (Linear Regression Test)

1) Linear Regression Test Results Between Knowledge Variables and Hypertension Control Efforts

Table 3. Linear Regression Test Results Between Knowledge Variables and Hypertension Control Efforts

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.196	.058		3.393	.001
	Knowledge	.327	.111	.323	2.953	.004

Table 4. OR Value Between Knowledge Variables and Efforts to Control Hypertension

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.323[a]	.104	.092	.433

Based on Figure 1 and Figure 2, it can be explained that there is a relationship between knowledge and efforts to control hypertension in the elderly with a p-value = 0.004 (<α=0.05). The OR results obtained show that respondents with a poor level of knowledge are 32,300 times more likely to make poor efforts to control hypertension than respondents with a good level of knowledge.

2) Linear Regression Test Results Between Attitude Variables and Efforts to Control Hypertension

Table 5. Linear Regression Test Results Between Attitude Variables and Efforts to Control Hypertension

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	.200	.063		3.198	.002
	Attitude	.244	.106	.258	2.315	.023

Table 6. OR Value Between Attitude Variables and Efforts to Control Hypertension

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.258[a]	.067	.054	.442

Based on figures 3 and 4, it can be concluded that there is a relationship between attitude and efforts to control hypertension in the elderly with a p-value = 0.023 (<α=0.05). The OR results obtained show that respondents with a negative attitude are 25,800 times more likely to make less efforts to control hypertension than respondents with a positive attitude.

3) Linear Regression Test Results Between Family Support Variables and Hypertension Control Efforts

Table 7. Linear Regression Test Results Between Family Support Variables and Hypertension Control Efforts

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	.205	.068		3.030	.003
	Efforts to Control Hypertension	.189	.103	.207	1.837	.070

Table 8. OR Value Between Family Support Variables and Hypertension Control Efforts

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.207[a]	.043	.030	.448

Based on Figure 5 and Figure 6, it can be concluded that there is no relationship between family support and efforts to control hypertension in the elderly with a p-value = 0.070 (>α=0.05). The OR results obtained show that respondents with poor family support are 20,700 times more likely to make less efforts to control hypertension than respondents with good family support.

4. DUSCUSSION

Relationship between knowledge and efforts to control hypertension

The results of the analysis using the linear regression test stated that there was a relationship between knowledge and efforts to control hypertension in the elderly with a p-value = 0.004 (<α=0.05). The OR results obtained stated that respondents with a poor level of knowledge were 32,300 times more at risk of making efforts to control hypertension than respondents with a good level of knowledge.

The knowledge of respondents will be able to influence decisions taken regarding hypertension control efforts being implemented. Respondents who have good knowledge and actions are because the respondents already have good knowledge regarding hypertension so that it can be a means of helping respondents in controlling hypertension. The more the respondent understands about their illness, the more they will understand the actions that must be maintained or replaced with others (Hardhina, 2023). Insufficient knowledge about hypertension can occur due to a lack of information obtained by respondents, seen from the majority of respondents' last level of education, namely High School, where the higher the respondent's education, the easier it will be to absorb information or insight and the more knowledge and insight they have. (Sundari, 2023).

Tursina (2022) states that knowledge is an important aspect in shaping a person's behavior. Respondents' high knowledge regarding hypertension control will have an impact on respondents to carry out better actions. Actions taken on the basis of knowledge will be eternal (Hernanda, 2020).

The results of this study support the theory, where respondent knowledge is an important aspect in deciding on efforts to control hypertension. Knowledge is related to efforts to control hypertension. Lack of knowledge causes respondents not to adopt a healthy lifestyle and carry out routine blood pressure checks. This can trigger an increase in blood pressure which can cause complications (Hakim, 2023).

This research is also in line with research by Anggreani and Nasution (2019) which shows that there is a significant relationship between knowledge and controlling hypertension in the elderly with a p-value of 0.009 < 0.05. This is also in line with research by Daeli (2017), that there is a relationship between knowledge and efforts to control hypertension with a p-value of 0.001 < 0.05.

Relationship between attitude and efforts to control hypertension

The results of the analysis from the linear regression test stated that there was a relationship between attitude and efforts to control hypertension in the elderly with a p-value = 0.023 (<α=0.05). The OR results explain that respondents with a negative attitude are 25,800 times more likely to make less efforts to control hypertension than respondents with a positive attitude.

Tursina (2022) says that attitude is a person's closed response to a particular stimulus or object. Indirect attitudes can be seen, they can only be interpreted through closed behavior. More information can influence and increase knowledge, thereby creating awareness which will ultimately act in accordance with the knowledge gained from learning and experience (Astuti, 2021).

Attitudes arise from the respondent's knowledge. The more information obtained about hypertension can raise respondents' awareness so that they are willing to take a positive attitude in responding to the condition of the disease they suffer from. Respondents with negative attitudes tend to have poor efforts to control hypertension and have no willingness to change this unfavorable behavior. Things like this can happen because the knowledge obtained is still lacking and they do not understand the importance of information about hypertension.

This research is in line with research by Jehani (202) that a p-value of 0.000 < 0.05 shows a significant relationship between respondents' attitudes and efforts to control hypertension. Research by Anggreani and Nasution (2019) states that there is a relationship between attitude and blood pressure control in the elderly with a p-value of 0.004 < 0.05.

Relationship between family support and efforts to control hypertension

The results of the analysis using the linear regression test stated that there was no relationship between family support and efforts to control hypertension in the elderly with a p-value = 0.070 (>α=0.05). The OR results stated that respondents with poor family support were 20,700 times more likely to make efforts to control hypertension than respondents with good family support.

Indonesian Ministry of Health (2016) states that there are several roles of family members towards the elderly, which include providing love and providing time and attention, being patient and wise towards the behavior of the elderly. As a family, we should give the elderly the opportunity to stay together without considering it as a burden, remind and accompany the elderly when they go for health checks at health services, provide healthy food,

help meet their needs such as recreation or picnics and also finances and communicate frequently.

Family support is the most important factor in the process of controlling hypertension with the aim of preventing complications from the disease. Family support is related to efforts to control hypertension. It can be seen from the research results that many respondents did not receive assistance when undergoing health checks at health services and were not invited to exercise regularly. Things like this can trigger the action of not or rarely checking blood pressure regularly and also exercising regularly because of lack of attention from the family. Poor family support can result in respondents not having their blood pressure checked (Tamba et al, 2022).

This research is not in line with research by Imran (2017) which states that there is a relationship between family support and compliance with hypertension control in the elderly with a p-value of 0.004 < 0.05. This is also in line with research by Saraswati, Abdurrahmat and Novianti (2018) which states that the p-value is 0.012 < 0.05, meaning there is a relationship between family social support and controlling hypertension.

5. CONCLUSION AND RECOMMENDATION

a. There is a relationship between knowledge and efforts to control hypertension with a p-value = 0.004 (<α=0.05). The OR results obtained show that respondents who have a poor level of knowledge are 32,300 times more at risk of making efforts to control hypertension than respondents with a good level of knowledge.
b. There is a relationship between attitude and efforts to control hypertension in the elderly with a p-value = 0.023 (<α=0.05). The OR results obtained show that respondents with a negative attitude are 25,800 times more likely to make efforts to control hypertension than respondents with a positive attitude.
c. There is no relationship between family support and efforts to control hypertension in the elderly with a p-value = 0.070 (>α=0.05). The OR results obtained show that respondents with less family support are 20,700 times more likely to make efforts to control hypertension than respondents with good family support.

Speech Thank You

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