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The Influence Of Sms Gateway On Hypertension Diet Behavior And Enhancement Of Blood Pressure In Prolanis Participants In UPT Talun Health Center Blitar District

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ABSTRACT
Hypertension can be caused by unhealthy living habits such as consuming high salt, obesity, stress, smoking and alcoholic drinks. Foods that contain high sodium, high cholesterol, high fat, and high purines will enter the circulatory system which results in the emergence of plaque in blood vessels and thickens the blood so that blood circulation is not smooth which results in increased blood pressure. The purpose of this study was to determine the effect of SMS Gateway on dietary behavior and blood pressure improvement in prolanis participants at UPT. Talun Health Center, Blitar Regency. The design of this study was pre-post with control design with cross sectional approach. The population studied was all prolanis participants who had hypertension at the UPT. Talun Community Health Center in Blitar District, with an accidental sampling technique obtained a sample of 24 respondents who were divided into two control and treatment groups. The independent variable is SMS gateway, the dependent variable is dietary behavior and blood pressure. Data collection using questionnaires and observations. Data analysis using the Mann Whitney test and independent sample t test ($\alpha = 0.05$). The results showed that after giving SMS gateway there were differences in dietary behavior between the treatment and posttest control groups with a significance of 0.004, there was a difference in systolic blood pressure between the treatment and posttest control groups with a significance of 0.002, and there were diastolic blood pressure differences between the treatment and post control groups. test with a significance of 0.024. The technique of giving SMS gateway is proven to be able to help respondents to pay attention to their diets, so that it is useful in efforts to control blood pressure through eating patterns and types of food.

Keywords : Prolanis, blood pressure, dietary behavior

INTRODUCTION
Hypertension is an increase in systolic blood pressure of more than 140 mmHg and diastolic blood pressure of more than 90 mmHg at two measurements with an interval of five minutes in a state of sufficient rest / calm (Ministry of Health Republic of Indonesia, 2013). Hypertension is called the silent killer because the symptoms are often without complaint. Usually, patients do not know if they have hypertension and only after complications occur (Ministry of Health, Republic of Indonesia, 2018).

According to the World Health Organization (WHO) in 2015 showed around 1.13 billion people worldwide suffer from hypertension. This means that 1 in 3 people in the world are diagnosed with hypertension, only 36.8% of them take medication. The number of people with hypertension in the world continues to increase every year, it is estimated that in 2025 there will be 1.5 billion people affected by hypertension. It is also estimated that every year there are 9.4 million people die from hypertension and complications. Data from the results of the Regional Health Research (Riskesdas) in 2013 the prevalence of hypertension in the population aged 18 years and over in Indonesia is 25.8% and according to the results of the National Health Indicator Survey (Sirkesnas) in 2016 increased to 30.9%.

Based on data from Blitar District's health profile in 2017 there were 25,417 sufferers of hypertension aged 18 years. Whereas in 2018 there were 50,883 hypertension sufferers throughout Blitar Regency. Based on annual report data from UPT. Talun Health Center in 2017 the number of hypertension sufferers was 406 patients, and in 2018 there was an increase in the number of hypertension sufferers as many as 1,657 patients. At UPT. Puskesmas Talun hypertension ranks 4th (fourth) of the 10 most diseases that are served at the Puskesmas. From the results of preliminary studies that researchers conducted on prolanist activities at the UPT. Talun Health Center on January 29, 2019, there were 26 prolanis participants who had hypertension, of the 26 prolanis participants, 21 of whom had high blood pressure.

Hypertension is caused by living habits or high salt consuming behavior, obesity, stress, smoking and alcoholic drinks (Padila, 2013). Hypertension can recur due to irregular diets such as eating foods that contain high sodium, high cholesterol, high fat, and high purines will enter the circulatory system and can cause plaque in blood vessels and high sodium levels can thicken the blood so that blood flow is not smooth and will result in increased blood pressure. So in giving the right diet is one of the main factors that are appropriate for controlling hypertension, because hypertension is a disease that cannot be cured but can only be controlled (Susriyanti, 2014).

In most elderly (elderly) usually often suffer from hypertension, in addition to pharmacology one way to prevent hypertension is to make dietary arrangements including a diet of vegetables and fruits that contain lots of dietary fiber (30 grams / day) and minerals (potassium, magnesium and calcium) while salt intake is limited (Andry, 2013). If the elderly do not know the pattern of regulating their daily diet, it will be at risk of complications due to hypertension suffered such as Cerebrovascular Accident (CVA). The right menu settings for elderly people with hypertension can be in four ways. The first way is a low-salt diet, which consists of a light diet (consumption of salt 3.75-7.5 grams per day), Medium (1.25-3.75 grams per day) and weight (less than 1.25 grams per day). Second is a diet low in cholesterol and limited fat. The third way is through a high-fiber diet, and the fourth way is by a low-calorie diet, especially for overweight elderly (Utami, P, 2009).

METHODS

This study design was pre-post with control design with cross sectional approach. The population studied was all prolanis participants who had hypertension at the UPT. Talun Health Center in Blitar Regency, with accidental sampling technique obtained a sample of 24 respondents who were divided into two control groups and treatment groups. The independent variable is SMS gateway, the dependent variable is dietary behavior and blood pressure. Data collection using questionnaires and observations. Data analysis using the Mann Whitney test and independent sample t test ($\alpha = 0.05$).

RESULT

Characteristics of Subjects

Table 1. Respondent characteristics in this study include age, education, gender, occupation, before and after diastolic and systolic blood pressure.

No	Characteristics	Treatment		Control	
		Σ	%	N	%
1	**Age (year)**				
	45-55	1	8,3	2	16,
	56-65	3	25	5	7
	66-75	6	50	3	41,
	>75	2	16,7	2	7
					25
					16,
					7
2	**Education**				
	No school	1	8,33	1	8,3
	Elementary school	6	50	5	41,
	Middle school	4	33,38,	4	7
	University	1	33	2	33,
					3
					16,
					7
3	**Gender**				
	Man	1	9,09	6	50
	Female	11	91,6	6	50
4	**Work**				
	Farmers	0	0	3	25
	Private	5	50	1	8,3
	Civil servants	2	16,6	1	3
	TNI / POLRI	1	8,3	3	8,3
	Labor	3	25	2	3
	Does not work	1	8,3	2	25
					16,
					6
					16,
					6
5	**Systolic Blood Pressure (before)**				
	140	1	8,33	5	41,
	145	4	33,3	1	6
	150	6	50	2	8,3
	155	1	8,3	4	16,
					6
					33,
					3
6	**Systolic Blood Pressure (after)**				
	125	2	16,6	0	0
	130	5	41,6	0	0
	135	2	16,6	0	0
	140	0	0	5	

	145 150	0 3	0 25	1 2	41, 6 8,3 16, 6
7	**Diastolic Blood Pressure (before)**				
	90 95	6 6	50 50	10 2	79, 3 20, 7
8	**Diastolic Blood Pressure (after)**				
	80 85 90 95	3 6 2 1	25 50 16,6 8,3	0 3 7 2	0 25 58, 3 12, 6
	Total	**12**	**100**	**12**	**10 0**

Mann-Whitney Test for Late Systolic Blood Pressure

Late Systolic Blood Pressure	**Mean**	**Median**	**Modus**	**SD**	***P Value***	**N**
Treatment	135	130	130	9,53	*0,002*	12
Control	145,5	142,5	140	6,43		12

Based on the table above it is known that the mean (average) value of final systolic blood pressure is higher in the control group that is equal to 145.5 mmHg. In the Mann-Whitney test with the help of a computer program, the value of p value = 0.002 (<0.05) was obtained, so it can be concluded that there is a significant difference in the average systolic blood pressure after treatment (final / post-test) between the experimental groups and control group.

Table 3. Mann-Whitney Test for Late Diastolic Blood Pressure

Late Diastolic Blood Pressure	**Mean**	**Median**	**Modus**	**SD**	***P Value***	**N**
Treatment	85,41	85	85	4,50	*0,024*	12
Control	89,58	90	90	3,34		12

Based on the table above it is known that the mean (average) value of final diastolic blood pressure is higher in the control group that is equal to 89.58 mmHg. In the Mann-Whitney test with the help of a computer program the p value = 0.024 (<0.05) is obtained, so it can be concluded that there is a significant average difference in the diastolic blood pressure values after treatment (final / post-test) between treatment groups and control group.

DISCUSSION

A. Differences in Hypertension Diet Behavior in the Treatment and Control Groups

Independent test results of the t-test obtained the results that the initial dietary behavior (pre-test) probability value of 0.570 (p> 0.05), so it can be concluded that there is no significant

difference between the average value of initial dietary behavior / pre-test (before giving SMS gateway) to the treatment group and control group.

While the Mann Whitney test results on the behavior of the final diet / post test (After giving the SMS gateway) obtained a probability value of 0.004 ($p < 0.05$), so it can be concluded that there is a significant difference between the average value of the final diet behavior / post-test (after giving SMS gateway) to the treatment group and control group.

SMS gateway allows us to send and receive SMS from / to mobile devices / cellular phones to devices other than cellular phones. The SMS gateway application is used to handle or manage SMS messages from users with certain rules so that they can send / receive SMS messages from / to various media (Painem, 2010).

SMS reminder is one of the services contained in the SMS gateway. SMS reminder will send SMS automatically depending on the situation, conditions, triggers that have been determined by the system. SMS reminder serves as a reminder of a condition that is set on the system. The SMS reminder is integrated with the SMS gateway where the SMS gateway manages the sending of messages, retrieval of data from the database which then messages are sent automatically as reminders through the SMS reminder feature. The user can set the time when the message is sent and the contents of the message automatically.

The results showed there were dietary differences between the two groups, where the average patient who received an SMS, his diet behavior was better so that the SMS could be as an ingredient for respondents to always pay attention to his diet.

B. Systolic Blood Pressure Differences in the Treatment Group and Control Group

Mann-Whitney test results at the beginning (pre-test) systolic blood pressure of the treatment group and the control group obtained a probability value of 0.799 ($p > 0.05$), so it can be concluded that there is no significant difference between the average initial systolic blood pressure values / pre-test (before giving SMS gateway) to the treatment and control groups. This means that both groups have an initial state of blood pressure that is almost the same.

Whereas in the final test (post-test) with the Mann-Whitney test, systolic blood pressure probability value of 0.002 ($p < 0.05$), so it can be concluded that there is a significant difference between the average value of final / post-systolic blood pressure test (after giving SMS gateway) to the treatment group and the control group.

The results showed there were differences in systolic blood pressure between the two groups, where the average respondent who received an SMS about a diet that should be avoided / restricted could help respondents in carrying out their diets.

C. Differences in Diastolic Blood Pressure in the Treatment and Control Groups

Mann-whitney test results at the initial (pre-test) diastolic blood pressure in the experimental and control groups obtained a probability value of 0.178 ($p > 0.05$), so it can be concluded that there is no significant difference between the average initial diastolic blood pressure values / pre-test (before giving SMS gateway) to the treatment group and control group. This means that both groups have an initial state of blood pressure that is almost the same.

While in the final test (post-test) with the Mann-Whitney test, diastolic blood pressure was 0.024 ($p < 0.05$), so it can be concluded that there is a significant difference between the average value of the final diastolic blood pressure / post-test (after giving SMS gateway) to the treatment group and control group.

The results showed there were differences in diastolic blood pressure between the two groups, where the average respondent who received an SMS about a diet that should be avoided / restricted could help respondents in carrying out their diets.

CONCLUSION

1. The results of the statistical test of dietary behavior between the treatment group and the post-test control group with a significance (0.004) smaller than α (0.05), in conclusion accept H1: There are differences in hypertensive diet behavior between the treatment group and the control group.
2. Results of systolic blood pressure statistical tests between the treatment and post-test controls with a significance (0.002) smaller than α (0.05), conclusions accept H1: There are differences in systolic blood pressure between the treatment and control groups.
3. Diastolic blood pressure statistical test results between the treatment group and the post-test control group with a significance (0.024) smaller than α (0.05), conclusions accept H1: There are differences in diastolic blood pressure between the treatment group and the control group.

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