



## EFFECT OF HEALTH COACHING BASED ON HEALTH BELIEF MODEL THEORY TO PHYSICAL ACTIVITY IN ELDERLY WITH HYPERTENSION

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### ABSTRACT

**BACKGROUND :** Most people with hypertension assume that consumption drugs can control their blood pressure. In fact, lifestyle factor such as physical activity contribute to the burden of account for substantial morbidity, mortality, and rising in hypertension, highlyly the much for prevention afford to curb public health epidemic. Health coaching was one way for the nurse to improve motivation and patient's beliefs concerning their disease so that they would show good compliance behavior. Objective of this study was to analyze the effect of health coaching toward physical activity.

**SUBJECT AND METHODE :** This study used quasy experiment design with pre-post test control group design. Sample collection technique was by purposive sampling. The amount of sample was 26 person for each group. There were two variables, the dependent and independent variables, the dependent variable was physical activity and the independent variable was health coaching. The location in the work Pandanwangi Public Health Center and the time was April 4<sup>th</sup> – June 7<sup>th</sup>, 2019. Statistic analysis used Wilcoxon Signed Rank Test and Mann Whitney.

**RESULTS :** Health coaching has effect toward physical activities. Difference test in treatment group using Wilcoxon obtain p value 0,025, while differece test with Mann Whitney obtain p value 0,000.

**DISCUSSION :** There is physical activity differences between treatment and control group. furthermore, physical activity as a management of hypertension. It is expected hypertension patients should be always doing physical activity that has been recommended.

Keywords : health coaching, hypertension, physical activitys, dietary, blood pressure

### INTRODUCTION

Ignorance of hypertensive patients about the dangers and complications of hypertension makes patients with 1<sup>st</sup> grade hypertension rise to grade 2<sup>nd</sup> hypertension. Hypertension patients assume that taking medication alone is enough to control their blood pressure. In patients with first-degree hypertension who are able to regulate their behavior such as controlling diet and exercise, it is less likely to increase their degree of hypertension. When someone is diagnosed with hypertension, health workers will ask the patient to adjust his lifestyle. Starting from adjusting eating patterns, natrium intake, limiting coffee and alcohol consumption, increasing physical activity or sports, stopping smoking, managing stress or anger conditions, and following treatment programs. Counseling that has been given so far by health workers does not have a visible effect on changes in compliance behavior of hypertension sufferers because there is no feedback or opportunity for hypertensive sufferers to express what information they really need about their health. Changes in behavior using coercive strategies also cannot be applied to rural communities. Another strategy that can be carried out by force or regulation, but so far there has never been a law in the community both written and unwritten that focus on health issues. Therefore of information and assistance in changing compliance behavior was chosen as an intervention for the hypertension community.

In fact, not all patient with hypertension can adjust their lifestyle. Related to following the advice of health workers, hypertensive patients will conduct an assessment of their health conditions. The difference will appreciation of the disease suffered by hypertensive patients, related to the patient's assessment of the threat of a disease. Based on the Health Belief Model, the likelihood that someone will take precautionary



measures depends on the results of their beliefs or health assessments (Priyoto, 2014). Patients will take actions to prevent, reduce, or control the condition of health problems based on the seven components of the expected health belief model. Behavior compliance can be interpreted as an effort made by the patient in the form, following medical rules, following a diet or lifestyle changes in accordance with medical advice (Sarafino, 2011).

From the results of a preliminary study conducted in the Pandanwangi Public Health Center, the number of hypertension sufferers was 1060 visitors. In fact shows that 23.7% of the population aged 10 years and over smoke every day. Consumption of salt and salty foods in the community is still high, which is 15 grams per person per day, far from the recommended maximum limit of 6 grams per person per day, and as many as 24.5% of people over the age of 10 consume salty food every day. As many as 93.6% of the population consumed less fruits and vegetables (Ministry of Health, 2013). The result shows the proportion of physical activity of the population which is classified as less active in Indonesia by 26.1%. From all provinces in Indonesia there are 22 provinces whose physical activity of the population is classified as less active with a proportion above the national average, including in East Java Province by 33.9% (Ministry of Health, 2013). As well as data from NHANES 2007-2010, there were 47.5% of hypertension sufferers who did not control their blood pressure (American Heart Association, 2013). Hypertensive patients who have poor compliance behavior can increase the degree of hypertension and lead to complications including myocardial infarction, stroke, kidney failure, and death if not detected early and treated appropriately (James, et al., 2014).

The results of studies on the use of health coaching techniques in several previous studies varied including: providing positive experiences for participants, giving maximum results perceived by Priyoto (2014), namely perceived vulnerability (Perceived susceptibility), perceived danger / pain (Perceived severity) ), perceived benefits (Perceived benefit), perceived obstacles (Perceived barrier), modification variables (Modifying variables), cues to action (Cues to action), and one's beliefs about the ability he has to do something (Self Efficacy). This HBM component is perfect for overcoming behavioral problems that have consequences for health problems (for example: consumption of unhealthy foods, lack of physical activity). HBM has been widely adapted and successfully applied in the design of health interventions (Orji, Mandryk, & Vassileva, 2012).

## METHODS

This study used quasy experiment design with pre-post test control group design. Sample collection technique was by purposive sampling. The amount of sample was 26 person for each group. There were two variables, the dependent and independent variables, the dependent variable was physical activity and the independent variable was health coaching. The location in the area Pandanwangi health public care and the time was April 4<sup>th</sup> – June 7<sup>th</sup> , 2019. Statistic analysis used Wilcoxon Signed Rank Test and Mann Whitney.

## RESULT AND DISCUSSION

Pandanwangi Public Health Center in Malang is the First Level Health Health BPJS in Malang with Non-Inpatient type, located at Jalan Laksamana Adi Sucipto No. 315, Pandanwangi, Blimbing, Malang City, East Java, with the working area of the Pandanwangi Public Health Center. Health service facilities available at the Pandanwangi Health Center include: Medical, Dental, MCH (Mother and Child Health) Centers, Pharmacies, Laboratories, and Emergency Room (Emergency Unit).

The management of hypertension patients at the Pandanwangi Public Health Center in Malang according to the public health center operational standards in December 2018 namely when new patients are found with blood pressure reaching 140/90 mmHg patients are given education and are encouraged to make lifestyle changes both in dietary settings, increased physical activity, weight loss, limiting even quitting smoking, and stress management for one month. Furthermore, patients are asked to come back to the



health center control, if blood pressure is obtained at a fixed or increased value then proceed to the treatment program. When blood pressure drops, lifestyle arrangements continue at home and are asked to return the following month.

The results of general data analysis that researchers got in this study based on gender, age, education, occupation, history of hypertension, and history of kidney disease are as follows:

Table 4.1 Results of general data analysis (Source: Primer Data, 2019)

Respondent characteristic	Intervention group		Control group		Total	
	f	%	f	%	n	%
<b>Gender</b>						
Male	8	30,8%	6	23,1%	14	26,9%
Female	18	69,2%	20	76,9%	38	73,1%
<b>Age</b>						
36-45	4	15,4%	0	0%	4	7,7%
46-55	22	84,6%	26	100%	48	92,3%
<b>Education</b>						
Elementary school	6	23%	12	46,1%	18	34,6%
Junior high school	10	38,5%	6	23,1%	16	30,8%
Senior high school	10	38,5%	6	23,1%	16	30,8%
Bachelor	0	0%	2	7,7%	2	3,8%
<b>Occupation</b>						
Housewife	12	46,2%	16	61,5%	28	53,8%
Private employee	12	46,2%	4	15,4%	16	30,8%
Civil servants	0	0%	4	15,4%	4	7,7%
Entrepreneur	2	7,6%	2	7,7%	4	7,7%
<b>Hypertension history</b>						
Yes	10	38,5%	10	38,5%	20	38,5%
None	16	61,5%	16	61,5%	32	61,5%
<b>Kidney diseases history</b>						
Yes	0	0%	0	0%	0	0%
None	26	100%	26	100%	52	100

Based on table 4.1, it can be seen that in the treatment group in this study the majority were female, with 18 respondents (69.2%) with almost 46-55 years of age (84.6%) and almost half of the education level, namely junior high and high school. with the same number each of 10 respondents (38.5%), almost half of the types of work are housewives and private employees with the same number each of 12 respondents (46.2%), and most have a history of hypertension (61.5%). Whereas in the control group almost all respondents were female as many as 20 respondents (76.9%), with a total age range of 46-55 years (100%), the level of education was almost half as elementary as 12 respondents (46.1%), type Most occupations as housewives were 816 respondents (61.5%), and most had a history of hypertension (61.5%).

Table 4.2 Physical Activity *pre test post test* intervention group and control group in area Pandanwangi Public Health Center

category	Intervention group		Control group		Mann Whitney	
	Σ	%	Σ	%		
Pre Test	Mild	14	53.8	12	46.1	α=0.985
	Moderate	6	23.1	10	38.5	
	Heavy	6	23.1	4	15.4	
Post Test	Mild	0	0	12	46.1	α=0.000
	Moderate	8	30.8	10	38.5	



Heavy	18	69.2	4	15.4
	Z = -4.463		Z = -2.236	
	$\alpha=0.0000$		$\alpha=0.025$	

Based on table 4.2 above, it was found to regulate eating behavior in the treatment group of 16 respondents migrating in the moderate and severe categories and none of the respondents were in the poor category. Whereas in the control group physical activity carried out by the permanent group.

While in the control group there were no significant changes because the results obtained were the same. from the table above it can be stated that the value of  $\alpha = 0.000$  means that  $H_0$  is rejected or the hypothesis is accepted so that there is a difference between the treatment group and the control group on the physical activity of hypertensive patients given health coaching with the theory of health belief model approach.

Based on table 4.5, the test results obtained with Wilcoxon in the treatment group were found to be different between the pre-test and post-test physical activities after the health coaching action. The results of the post test in the treatment group did not get one respondent in the less category, this indicates an increase in the category, respondents migrated in the moderate and severe categories. During the research process the booklet filling process of physical activity has largely been filled in correctly according to the column, organized, neat, routine, and filled in consciously not feeling burdensome. Some respondents who are not good at writing, took the initiative to ask for help from the family to write down the physical activities they do every day. Respondents themselves also felt helped by filling out this booklet because it could automatically regulate what activities were carried out.

Changes in behavior in this study are physical activities including daily activities and heavier activities with about 30 minutes carried out every day based on DASH activity. In this study, most respondents regularly fill in the booklet for attaining behavior change because they feel helped, respondents can also manage their physical activity. Respondents who are more concerned about their disease are more likely to accept changes in physical activity that must be done to reduce the increase in the degree of hypertension and complications. In this study, most respondents regularly fill out booklets because they find it helpful, respondents can also see what activities have been carried out during the 3 week filling process. Health coaching conducted in this study by increasing the understanding and confidence of patients about the disease that the danger of hypertension that threatens is very dangerous and even lead to death if not followed up with changes in physical activity behavior. Increase respondents' confidence and enthusiasm that there is still time and be able to make changes. Activities undertaken include the selection of recommended physical activities and regular monitoring of physical activity by involving the family.

Based on table 4.4, the test with Wilcoxon in the control group showed no difference in physical activity in the control group before and after the health coaching intervention. The absence of this difference can be seen from the still number of each category at the time of the pre test and post test. This can occur because a person will behave in accordance with the knowledge he has, changes in physical activity also depend on the quality of stimuli or stimuli provided, meaning that the quality of the communication source also determines the success of physical activity changes (Notoatmodjo 2014)

There is no increase in changes in physical activity in the control group because there is no interaction between respondents in the treatment and control groups that can increase respondents' knowledge in the control group. The results of observations of changes in physical activity of the control group were still obtained by respondents with less behavior categories. This can occur because respondents did not get assistance in regulating physical activity.

The results showed the data that most of the sex of the respondents were women with postmenopausal age. As mentioned Udjianti (2011) that several factors supporting the occurrence of hypertension are the sex of women with postmenopausal age. In line with the study of Martiningsih (2011) who analyzed the factors associated with the occurrence of hypertension, it was found that more than half of the study respondents were women with age mostly above the age of menopause. Also reported by Thomas (2007) that the percentage of the incidence of hypertension increased in women over 49 years.



After the age of 45 years, the walls of the arteries will experience thickening due to the accumulation of collagen in the myovascular system, so that the blood vessels will gradually become stiff. Systolic blood pressure increases because the flexibility of large blood vessels decreases with age until the seventh decade while diastolic blood pressure rises until the fifth and sixth decades and then settles or tends to decrease. Along with increasing age, it will cause some physiological changes, such as increased peripheral resistance and catecholamine activity, decreased sensitivity to blood pressure regulation namely baroreceptor reflexes and the role of the kidneys has also been reduced where renal blood flow and glomerular filtration rate have decreased. This causes the kidneys to not be able to eliminate the salt load adequately resulting in salt and water resistance which will cause an increase in plasma volume (Sherwood 2011). In addition, if the kidney filtration rate decreases, apartus granular cells in the kidneys will release the hormone renin which will activate angiotensinogen in the plasma into angiotensin I which then passes through the pulmonary circulation and is converted by Angiotensin Converting Enzyme (ACE) to angiotensinogen II which is a strong vasoconstrictor. In addition, angiotensin II will stimulate the release of aldosterone from the adrenal cortex which will cause an increase in sodium retention resulting in an increase in plasma osmolality which is then offset by an increase in water absorption. This will cause an increase in cardiac output which will then increase arterial blood pressure (Guyton 2007).

The prevalence of hypertension in men is less than in women. But women are protected from cardiovascular disease before menopause. Women who have not experienced menopause are protected by the hormone estrogen which plays a role in increasing levels of High Density Lipoprotein (HDL). High levels of HDL cholesterol are a protective factor in preventing the process of atherosclerosis. The protective effect of estrogen is thought to be an explanation of a woman's immunity at premenopausal age. In premenopausal women begin to lose little by little the hormone estrogen which has been protecting blood vessels from damage. This process continues where the hormone estrogen changes in quantity according to a woman's natural age, which generally begins to occur in women aged 45-55 years. Women over the age of 50 who have experienced menopause have several physical, hormonal, and mental changes. Accompanied by several complaints such as fatigue, nervousness, headaches, insomnia, depression, irritability, joint and muscle pain, dizziness, and palpitations. Unstable emotions can also cause sleep disorders.

Some things that were encountered during the research that could be used as a cause were psychological problems from respondents who caused stress, such as the presence of one family member who was sick, affected by a disaster, sudden economic needs, problems with work and problems with children. This condition appeared at the last study, causing a rise in blood pressure from several respondents.

Stress increases peripheral vascular resistance, cardiac output and parasympathetic central nervous system activity. Stressors can be a variety of things, busyness, infection, trauma, obesity, old age, psychological disorders, drugs, illness, surgery and medical therapy that can cause stress. Stress occurs through the activity of sympathetic nerves (nerves that work when we move). Increased sympathetic nerve activity results in increased blood pressure intermittently. Affirmed by Muhammadun (2010) stress can stimulate the adrenal glands to release the hormone adrenaline and stimulate the heart to beat faster and stronger so that blood pressure will increase.

This can happen because most of the respondents' work is housewives who do the same routine every day, do the same work, and focus on the family and family problems that exist without any distraction of entertainment with a workload for 24 hours. When family problems come, it will become the focus of thought for respondents. This can be a stressor and cause stress for the respondent which can increase the respondent's blood pressure.

In the booklet filling process the achievement of changes in physical activity most of the respondents can consciously and independently fill in the booklet, but a small proportion of respondents are still less consistent in filling booklets, such as not routinely every day with the excuse of forgetting, waiting for researchers to write, other family members all work so no one wrote it down, and there were also some





respondents who felt burdened in filling out this booklet because respondents still worked every day from morning to evening.

Overall, the booklet filling process, the method of writing physical activity activities such as this diary provides great benefits for people with hypertension. People with hypertension are more responsible for organizing activities that are done daily. This method can be applied by people with hypertension to control their blood pressure. Documentation like this is also useful for health workers to find out what factors affect hypertension sufferers' blood pressure.

## CONCLUSIONS AND RECOMMENDATIONS

### Conclusion

There is an effect of providing health coaching with the health belief model approach to physical activity in the elderly who have hypertension with  $\alpha = 0,000$ .

### Suggestion

People with hypertension are expected to have a blood pressure to control it. The results of this study can be used by nurses to modify nursing interventions by utilizing the diary method to improve the compliance behavior of patients with hypertension. Especially documentation of dietary settings because of the diversity of foods commonly consumed by people with hypertension. Nurses can increase the self efficacy of hypertension sufferers through public health center programs that involve hypertension sufferers such as the elderly public health center. By giving booklets as media promotion can be the one of choices to improve quality of health of hypertension patients. Public health center can be used as a basis for program development by forming a support group to care for hypertension sufferers and involving cadres in it. In further research, health coaching can be done in a more structured, routine, and scheduled manner in hypertensive patients so that results are more optimal.

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