Relationship of Stress Level and Sports Habit with Hypertension Incidence of Menopause in Posbindu Aster Working Area Puskesmas Leuwigajah Cimahi City 2018

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Abstract. **Background :** Hypertension is an increase in persistent pressure on arterial blood vessels, in which systolic blood pressure is equal to or above 140 mmHg and diastolic blood pressure is equal to or above 90 mmHg. Levels of stress and exercise habits one can affect the occurrence of hypertension. The purpose of this study is to determine the relationship between stress levels and exercise habits with the incidence of hypertension in menopause in Posbindu Aster Working area Leuwigajah Puskesmas Cimahi city 2018.
Method : The research design used was case control with 64 samples taken in total sampling. Primary and secondary data collection techniques. Primary data were obtained by interview based on questionnaire and secondary questionnaire obtained from recording and reporting of hypertension in Posbindu Aster. Univariate and bivariate data analysis with chi-square test and relation size (OR). The **Results :** showed there was a relationship between stress level (p value = 0.001) and exercise habits (p value = 0.044) with hypertension occurrence in menopause.
Conclusion: It is advisable to do counseling for menopause about stress control and regular exercise to reduce incidence of hypertension.

Introduction

The Sustainable Development Goals (SDGs) are sustainable development as a new global development agenda for the period 2016 to 2030 continuing the achievement of the Millennium Development Goals (MDGs) which ended in 2015. SDGs have 17 objectives and 169 development targets consisting of various aspects including in the field economics, health, social, education, marine and environment. The third goal of SDSs is to improve good health, with targets to be achieved, namely reducing AKI and AKB, ending infectious disease epidemics, strengthening prevention of narcotics abuse, ensuring access to health services as a whole, achieving universal health coverage, and reducing one third of deaths due non-communicable diseases [1].

Cardiovascular disease is one of the biggest causes of death in the world, which is around 17 million deaths per year. The prevalence of cardiovascular disease which accounts for the highest mortality rate is hypertension. Hypertension is a persistent increase in arterial pressure, where systolic blood pressure is equal to or above 140 mmHg and diastolic blood pressure is equal to or above 90 mmHg. Hypertension contributes to almost 9.4 million deaths from cardiovascular disease every year and at least 45% of complications of cardiovascular disease are caused by hypertension [2]. (According to the American Heart Association (AHA) it is estimated that cases of hypertension in developing countries will increase by 80% from 639 million cases in 2005 to 1.15 billion in 2025.

Prevalence of hypertension in Indonesia is based on the 2013 Riskesdas survey of 25.8% of the adult population and when seen by the highest sex of hypertension women are 55.9% [3]. West Java is one of the provinces with the largest prevalence of hypertension in Indonesia and in 2014 hypertensive patients in West Java reached 2,695,394 cases, or around 8.6% of the population aged over 15 years had hypertension. In the city of Cimahi, it was recorded that in 2016 there were 28,084 cases of hypertension, of which most of them were 70% of patients dominated by women [4].

The cause of hypertension itself can be divided into 2 groups, namely, primary or essential hypertension (unknown cause) and secondary hypertension which is clearly the cause [5].The

trigger factors for hypertension include changeable factors and irreversible factors. Unchangeable factors include heredity, gender and age. While the factors that can be changed are excessive salt consumption, obesity, smoking, consumption of alcoholic beverages, lack of exercise and stress [6].

Stress is one of the factors that can affect the occurrence of hypertension. Where stress is a condition where the body is disturbed because of a psychological pressure [7]. The body's reaction when dealing with stress will increase peripheral vascular resistance and cardiac output so it will stimulate the sympathetic nerve to release epinephrine in the bloodstream which can cause vasoconstriction of blood vessels that cause high blood pressure or hypertension [8] (Anggraini, 2009). Prolonged stress can result in high sedentary blood pressure [8].

Besides stress, exercise habits are also one of the factors that can affect the occurrence of hypertension. Sport is a form of structured, continuous and planned physical activity that will involve repetitive body movements with certain provisions aimed at improving physical fitness. Regular exercise, such as cycling, jogging regularly can reduce the risk of degenerative diseases, strengthen the heart muscle, improve blood lipid profile, improve blood circulation so that it can reduce blood pressure. Sports can also prevent obesity from reducing salt intake in the body, because it will be wasted through sweat [9].

In line with the increase in Life Expectancy (UHH), the number of elderly people will also increase every year. In 2010 the population of women over the age of 50 reached 16.29 million or 12.27% of the total population, while it is estimated that in 2020 the number will continue to increase to 30 million or around 20.25% of the total population. Based on these data the number of menopausal women in Indonesia experienced a significant increase from year to year.

Menopause is the end of a biological process in which a woman experiences decreased ovarian function, so that the estrogen hormone decreases which results in cessation of menstruation. Menopause starts at different ages, generally around the age of 50 years. Menopausal women are more prone to hypertension. This is due to reduced estrogen hormone in menopausal women. When estrogen decreases at menopause the risk of coronary heart disease increases. Because estrogen has the benefit of protecting the cardiovascular system and causing relaxation of smooth muscle in blood vessels [10].

Cimahi City has 13 health centers, one of which is the Leuwigajah Health Center. Leuwigajah Health Center is located on Jalan Kihapit Barat in Leuwigajah Village, has a population of 47,441 people, and has SMEs 30 Posyandu and 20 Posbindu. Leuwigajah Health Center is also one of the Puskesmas in Cimahi City which has the highest rate of primary hypertension after Padasuka Health Center. The incidence of primary hypertension in Leuwigajah Health Center has increased every year. Based on data from primary hypertension from the Cimahi City Health Office in 2016 there were 2345 cases, and in 2017 there were 2548 cases. And in 2017 there were 410 new cases of hypertension in elderly women at Leuwigajah Health Center.

On January 15, 2018 a propulsion study was conducted by conducting a blood pressure check and interview method at Posbindu Aster in the Leuwigajah Health Center Working Area. Of the 8 menopausal at Posbindu Aster, 4 people had hypertension. Of the 8 menopausal 3 people experience stress signs and symptoms such as anxiety, irritability, doubt, insomnia, etc. The stress experienced by menopause is caused by economic factors, family problems, discomfort at menopause, and illnesses suffered. 6 of the 8 menopausal interviewees also claimed to not be accustomed to regular exercise every week, menopause claimed to rarely exercise due to fatigue, lack of free time to exercise, and no friends to exercise. The purpose of this study was to determine the relationship between stress levels and exercise habits with the incidence of hypertension in menopause at Posbindu Aster working area of Leuwigajah Health Center in Cimahi City in 2018.

Methods

This research is analytic survey research with the type of research design used, namely Case Control Study, Sampling in this study is a total sampling of 64 people and uses purposive sampling technique, a sample of 32 people and a control sample of 32 people. Criteria for cases are menopausal who have high blood pressure and exercise as well as routine blood pressure checks at Posbindu. Control criteria are menopause who have normal blood pressure and follow regular exercise activities at Posbindu. And as for the exclusion criteria are people with secondary hypertension.

Data collection techniques in this study by conducting interviews (interview) for variable levels of stress and exercise habits to respondents and see the monthly recording of Posbindu Aster for variable hypertension. The research instrument used in this study is a stationery, questionnaire, computer device. Data from research results are processed using statistical analysis of computer software using the Chi-Square test.

Results and Discussion

Stress level variables Based on the research that has been done, the results of univariate analysis show that based on stress levels in the case group there are (50.0%) respondents who

have mild stress levels and suffer from hypertension, while in the control group there are (18.8%) respondents have mild stress levels and do not suffer from hypertension.

Based on the results of interviews using questionnaire sheets, it was found that most menopause felt impatient, irritable, easily disturbed, and found it difficult to rest after something disturbing, stress experienced by menopause at Posbindu Aster caused by various factors including economic factors, internal problems family, discomfort at menopause, and illness. This research is in line with the results of the research conducted in Mapanget Subdistrict, Manado City, that the majority of elderly hypertensive women as much as 80.0% experienced stressful events [11].

Stress in the elderly can be defined as the pressure caused by changes that require the adjustment of the elderly. The occurrence of stress in the elderly is an effect of physical illness suffered due to changes and decreases in the function of organs, the side effects of drugs that are taken prolonged and psychological reactions to the environment. For sports habits variables Based on the research that has been done, the results of univariate analysis show that based on the respondents' exercise habits in the case group, there are (68.8%) who have irregular exercise habits and suffer from hypertension, while in the control group (40.6%)) have irregular exercise habits and do not suffer from hypertension.

Exercise that is routinely carried out at Posbindu Aster is elderly gymnastics and a relaxing walk followed by a lot of menopause that routinely checks blood pressure at Posbindu. Based on the results of interviews on respondents, most of them claimed to exercise irregularly, because of some conditions that were not possible such as physical conditions that were not strong, and busy in taking care of the household of both children and grandchildren every day, found in the table 1 and table2

Table1. Frequency Distribution Based on Stress Levels with Hypertension at menopause

Levels Stress	Hypertension at menopause				Total	
	Case		Control			
	N	%	N	%	N	%
Weight	1	3,1	-	-	1	1,6
Medium	6	18,8	1	3,1	7	10,9
Light	16	50,0	6	18,8	22	34,4
Normal	9	28,1	25	78,1	34	53,1
Total	32	100	32	100	64	100

Table 2. Frequency distribution of respondents based on sport habits with the incidence of hypertension at menopause

Sport Habits	Hipertension at menopause					
	Case		Control		Total	
	N	%	N	%	N	%
Irreguler	22	68,8	13	40,6	35	54,7
Reguler	10	31,3	19	59,4	29	45,3
Total	32	100	32	100	64	100

The results of bivariate analysis show that stress levels have a relationship to the occurrence of hypertension at menopause, with the results of statistical tests obtained p.value = 0.001. And the results of the analysis using a dummy variable obtained values of OR High-medium stress, 6,058 and 4,487 for light stress.

Higih-medium stress menopause has a risk of 6.0 times hypertension compared with menopause whose stress level is normal and mild stressful menopause has a risk of 4, 4 times with hypertension compared with menopause, the stress level is normal. This study is in line with the researchregarding the relationship of stressful events with hypertension in the elderly in Mapanget Subdistrict. Menopause [11].

The results of the bivariate analysis showed that the results of the statistical test obtained p.value = 0.044 showed that Ho was rejected, meaning there was a relationship between exercise habits and the incidence of hypertension in menopause. The results of the analysis obtained OR 3.251 (95% CI: 1,150 - 8,987) means that menopause with irregular exercise habits has a risk of 3.2 times hypertension compared to menopause who have regular exercise habits.

Based on the results of interviews with respondents in Posbindu Aster, most of them claimed to exercise irregularly, because of some conditions that were not possible such as physical conditions that were not strong, and busy in taking care of the household every day.

The results of the research are in line with Kiki Mellisa's 2012 research on the relationship between exercise behavior, stress and diet with the incidence of hypertension. It was found that there was a significant relationship between exercise behavior and the incidence of hypertension.

Exercise can affect the occurrence of hypertension, people who are irregular or rarely exercise will tend to have a higher heart rate so that the heart muscle must work harder at each contraction. The harder and often the heart muscle pumps, the greater the pressure placed on the arteries that cause hypertension.

Various cardiovascular risk factors can be suppressed by doing physical and sports activities. Mild and appropriate exercise such as cycling, relaxing, exercise can reduce the occurrence of hypertension. That resul table 3 and table 4

Table 3. Relationship between Stress Levels and Hypertension in menopause at Posbindu Aster Working Areas of Leuwigajah Health Center in Cimahi City in 2018.

Stress Level	Hypertension in menopause						OR (95 % CI)	*P Value*
	case		contro		Total			
	N	%	N	%	N	%		
High-medium	7	21,9	1	3,1	8	12,5	6,058	0,001
Light	16	50,0	6	18,8	22	34,4	4,487	
Normal	9	28,1	25	78,1	34	53,1		
Total	32	100	32	100	64	100		

Table 4 Distribution of Sports Habits with Hypertension in Menopause in Posbindu Aster Working Areas of Leuwigajah Health Center in Cimahi City in 2018

Sport habits	Hypertension in menopause						OR (95 % CI)	*P Value*
	case		control		Total			
	N	%	N	%	N	%		
Irreguler	22	68,8	13	40,6	35	54,7	3,251 (95%CI: 1.150 – 8,987)	0,044
Reguler	10	31,3	19	59,4	29	45,3		
Total	32	100	32	100	64	100		

Conclusion

There is a relationship between stress levels and sport habits with the incidence of hypertension in menopause at posbindu aster working area of leuwigajah health center in 2018.

Competing Interest

The authors of this paper have no competing interest to report.

Acknowledgement

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