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Original Research Article Outline:

THE RELATIONSHIP OF DIET AND PHYSICAL ACTIVITIES WITH THE INCIDENCE OF HYPERTENSION AMONG THE ELDERLY IN THE RW 05 AREA OF BABAKAN PARI VILLAGE, EAST BATUJAJAR VILLAGE, 2022

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ABSTRACT

Introduction : Hypertension or high blood pressure is a condition where systolic blood pressure increases to more than or equal to 140 mmHg and diastolic blood pressure to more than or equal to 90 mmHg . Hypertension in the elderly is something that is often found because most middle-aged or elderly people are at risk of developing hypertension. A person is said to be elderly if he is 60 years or older, whether male or female . The 2018 Riskesdas results show that the prevalence of the population with high blood pressure is 34.11% . In 2018, West Java ranked second as the province with the highest cases of hypertension in Indonesia, namely 39.6%. According to data from the West Bandung District Health Service , disease with amount highest that is hypertension . Lack of physical activity increases the risk of suffering from hypertension. Meanwhile, physical activity is the movement carried out by the muscles and their supporting systems. During physical activity, muscles require energy outside metabolism to move. Another factor that causes hypertension in the elderly is poor diet. Diet is the method or behavior adopted by a person in selecting and using food ingredients in daily food consumption which includes the type of food, amount of food and frequency of eating. **Method** : used in this research is correlation research using a *cross sectional approach.* Amount sample in study This as many as 80 elderly people. **Result & Analysis** : Statistical test results with using the *chi-square* test For pattern Eat obtained p value (0.000) < α (0.05) and for activity physique obtained p value (0.040) < α (0.05) then H0 is rejected. **Discussion** : With thereby can concluded that there is connection pattern eating and activities physique with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari area, East Batujajar Village. Therefore, there needs to be efforts from the Community Health Center to maintain the continuity of promotive and preventive efforts which is carried out for a minimum of 3 months, especially those related to diet and how to prevent hypertension.

Keywords : **Hypertension, Elderly, Diet, Physical Activity**

INTRODUCTION

Hypertension is a global public health problem where hypertension contributes to heart disease, *stroke*, kidney failure, premature death and disability (Rihiantoro, 2018). Hypertension is a disease that can attack anyone, both young and elderly. Hypertension is one of the deadliest diseases in the world. Hypertension or high blood pressure is a serious medical condition that significantly increases the risk of heart, brain, kidney and other diseases. An estimated 1.28 billion adults aged 30-79 years worldwide suffer from hypertension, the majority (two thirds) live in low and middle income countries. An estimated 46% of adults with hypertension are unaware that they have the condition. Less than half of adults (42%) with hypertension are diagnosed and treated. About 1 in 5 adults (21%) with hypertension can control it. Hypertension is the main cause of premature death throughout the world. One of the global targets for non-communicable diseases is to reduce the prevalence of hypertension by 33% between 2010 and 2030 (Musa, 2021).

Hypertension is a condition where systolic blood pressure increases to more than or equal to 140 mmHg and diastolic blood pressure to more than or equal to 90 mmHg. Hypertension can be classified into two types, namely primary and secondary hypertension which can be caused by kidney disease, endocrine disease and heart disease. Hypertension often causes no symptoms, while blood pressure that is consistently high over a long period of time can cause complications. Therefore, hypertension needs to be detected early, namely by checking blood pressure regularly (Sitorus, 2017).

The 2018 Riskesdas results show that the prevalence of the population with high blood pressure is 34.11%. The prevalence of high blood pressure in women is 36.85% higher than in men 31.34%. The prevalence in urban areas is slightly higher at 34.43% compared to rural areas at 33.72% (Riskesdas, 2018). The prevalence of hypertension based on measurement results in the population was highest in South Kalimantan (44.1%), while the lowest was in Papua at (22.2%). The estimated number of hypertension cases in Indonesia is 63,309,620 people, while the death rate in Indonesia due to hypertension is 427,218 deaths (Riskesdas, 2018). The prevalence of hypertension in the population in Indonesia aged 18-24 years is (13.22%), aged 25-34 years (20.13%), aged 35-44 years (31.61%), aged 45-54 years (45.32%), aged 55-64 years (55.22%), aged 65-74 years (63.22%) and experienced an increase in those aged >75 years (69.53%) (Bureau, 2019).

In West Java province, based on 2013 Riskesdas data, the prevalence of hypertension obtained through measurements at ages ≥18 years is the 4th province with the most cases of hypertension (29.4%) after Bangka Belitung (30.9%), South Kalimantan (30.8%) and East Kalimantan (29.6%) (Riskesdas, 2013). Meanwhile, in 2018, West Java was in second place as the province with the highest cases of hypertension in Indonesia, namely (39.6%) (Riskesdas, 2018).

According to data from the West Bandung Health Service, it is stated that the disease pattern of the most common outpatients in community health centers is according to the age group 45 - ≥ 75 with the highest number of incidents in the West Bandung Regency area, namely

hypertension. With an incidence of 53,428 people suffering from hypertension (Data Bandung, 2018).

Table 1. Ten Biggest Diseases in Batujajar Health Center in 2018

No	Disease Name	Number of events
1	ISPA	6845
2	**Hypertension**	**4382**
3	Gastroduodentis	2768
4	Myalgia	1734
5	Gastric ulcer	1679
6	Diarrhea	1477
7	Influenza	1410
8	Common cold	1118
9	Pharyngitis	1068
10	Dermatitis	1047

Source: Batujajar Community Health Center Secondary Data, 2018

The World Health Organization (WHO), elderly people are people aged 60 years or more, who are classified into four, namely *middle age* aged 45-59 years, *elderly* aged 60-74 years, *old* aged 70-90 years. Elderly is the process of becoming older with ages reaching 45 years and over. The elderly will experience physical, mental and social decline. One example of physical decline in the elderly is the range of degenerative diseases common among the elderly, one of which is hypertension (Fitriani, 2021).

Hypertension in the elderly is something that is often found because most middle-aged or elderly people are at risk of developing hypertension. Hypertension in the elderly is caused by decreased elasticity of the aortic wall, thickening of the heart valves which makes them stiff, decreased pumping ability of the heart, loss of elasticity of peripheral blood vessels, and increased peripheral vascular resistance (Nurarif, 2016). Another factor that causes hypertension in the elderly is lifestyle, such as consuming *junk food* that is high in calories, high in fat, low in fiber, and high in sodium or salt (Ridwan, 2018). Lack of physical activity increases the risk of suffering from hypertension. People who are inactive tend to have a higher heart rate so that their heart muscle has to work harder with each contraction. The bigger and more often the heart muscle pumps, the greater the pressure placed on the arteries so that blood pressure will increase (Anggara, 2013).

Based on research by Fitriani, Alvin Abdillah (2021), using a correlational analytical research method with a *cross sectional approach* . The total population is 30 respondents, the research sample is 28 respondents. The instruments used were diet and physical activity questionnaires, observation sheets and a *spyghmomanometer* . The results of the analysis of the relationship between diet and hypertension using the *Spearman Rank statistical test* showed that *P value* (0.000) < α (0.05) so that H0 was rejected. H1 was accepted, meaning there is a relationship between diet and the incidence of hypertension in the elderly, while the results of the analysis of the relationship between

activity physical activity and the incidence of hypertension obtained *P-value* (0.000) < α (0.05), meaning there is a relationship between physical activity and the incidence of hypertension in the elderly.

And based on research by Tori Rihiantoro, Muji Widodo (2017) also shows that there is a relationship between diet and physical activity with the incidence of hypertension in Tulang Bawang Regency. Based on the problems above, it can be seen that preventing and managing hypertension requires an adaptive effort or behavior to maintain health. So in this case, Calista Roy's nursing concept and theory model is a model in nursing which describes how individuals are able to improve their health by maintaining adaptive behavior and being able to change maladaptive behavior by adapting to the environment and implementing coping mechanisms. Roy's adaptation theory states that a person must be able to carry out bio-psycho-social interactions well with environmental changes (Hidayat, 2009).

The results of a preliminary study conducted by the author using interviews and questionnaires by asking questions related to eating patterns using the FFQ *(Food Frequency Questionnaire)* and physical activity using the GPAQ (*Global Physical Activity Questionnaire)* to 10 respondents revealed that 4 out of 10 respondents were still elderly who consumed this type of foods that can have a risk of increasing blood pressure and 5 out of 10 respondents found that there are still elderly people whose physical activity falls into the category of light activity which can increase the risk of developing hypertension. Based on the phenomenon in the background above, researchers are interested in conducting research related to several factors related to the incidence of hypertension, namely with the title: "The Relationship between Diet and Physical Activity with the Incident of Hypertension in the Elderly in the Rw 05 Area, Babakan Pari Village, East Batujajar Village.

METHOD AND ANALYSIS

This research uses a correlation research design using a *cross sectional approach* , namely research to study the dynamics or relationship between risk factors and effects, by approaching, observing or collecting data at the same time (*point time approach)*. The aim of this research design is to determine the relationship between physical activity and the incidence of hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village.

Sampling in this research was determined using total sampling. Total sampling is a sample determination technique when all members of the population are used as samples. This is often done when the population is relatively small, less than 100 people or research that wants to make generalizations with very small errors. By referring to Sugiyono's opinion, the researcher intends to make the entire population the research object because the population to be studied is less than 100. The sample in this research is the elderly in RW 05 Babakan Pari Village, East Batujajar Village, Batujajar District, West Bandung Regency, totaling 80 elderly people. The hypertension instrument uses *a sp y gmomanometer* , while the diet instrument uses *the Food Frequency Questionnaire* (FFQ). Dietary pattern measurements are given in the form of a

questionnaire with Likert scale answers consisting of very often, frequently, rarely and never. The questions asked were 15 questions, each question item had a choice of answers with a score of 1 to 4. Score 1 for answers from respondents who chose answers very often, score 2 for answers that chose answers often, score 3 for answers from respondents who chose answers rarely, score 4 for respondents who chose the answer never. The question items consist of the type of food (1,2,3,4,5), the number of portions of food given (6,7,8,9,10) and the number of meal frequencies (11,12,13,14,15). After the questionnaire is answered, the percentage is known, then the dietary pattern categories are interpreted into good and bad categories. FFQ Instrument. The physical activity research instrument uses GPAQ *(Global Physical Activity Questionnaire)* which has 16 questions using open questions. The results of these questions are multiplied according to the GPAQ criteria then the results are divided into 2 categories, namely, Poor: MET <600, Good MET ≥ 600. GPAQ Instruments

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RESULTS

a. An overview of the eating patterns of the elderly in the RW 05 area of Babakan Pari Village, East Batujajar Village

Table 2. Distribution frequency respondents based on pattern Eat

Dietary habit	Frequency	Percent
Bad	41	51.3
Good	39	48.7
Total	**80**	**100.0**

Based on table 2. about distribution frequency respondents about pattern eating in the elderly obtained results that more from half namely 41 people (51.3%) have pattern Eat bad , and lacking from half namely 39 people (48.8%) have pattern Eat Good .

b. Activity overview physical condition of the elderly in the RW 05 area of Babakan Pari Village, East Batujajar Village

Table 3. Distribution frequency respondents based on activity physique

Activity physique	Frequency	Percent
Low	47	58.8
Currently	29	36.2
Tall	4	5.0
Total	**80**	**100.0**

Based on table 3. about distribution frequency respondents about activity physical condition in the elderly obtained results that more from half namely 47 respondents (58.8%) have activity physique low , less from half namely 29 respondents (36.2%) have activity physique moderate , and partial small from respondents namely 4 people (5.0%) have activity physique tall .

c. Description of the incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village

Table 4. Distribution frequency respondents based on incident hypertension

Incident Hypertension	Frequency	Percent
Hypertension	64	80.0
Not hypertensive	16	20.0
Total	**80**	**100.0**

Based on table 4. about distribution frequency respondents

about incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, Batu Jajar Timur Village, was obtained results that more from half of which 64 respondents (80.0%) experienced hypertension , and less from half of them 16 respondents (20.0%) did not experience hypertension

d. Connection pattern Eat with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village

Table 5. Relationship between diet and the incidence of hypertension in the elderly

		Incident hypertension		Total	p
		Hypertension	Not hypertensive		
Activity Physique	Low	42	5	47	0.040
		89.4%	10.6%	100.0%	
	Currently	19	10	29	
		65.5%	34.5%	100.0%	
	Tall	3	1	4	
		75.0%	25.0%	100.0%	
Total		64	16	80	
		80.0%	20.0%	100.0%	

Based on table 5. is obtained results analysis connection pattern Eat with incident hypertension of 80 elderly people , who have pattern Eat bad with incident hypertension namely 41 people (100.0%), where all over respondents own pattern Eat bad and hypertension . Whereas respondents who have pattern Eat Good with incident hypertension were 23 people (59.0%), and respondents who had pattern Eat good and not hypertension were 16 people (41.0%).

From the results analysis using the Chi-square test was obtained p value (0.000) < α (0.05) then H0 is rejected . With thereby can concluded that there is connection between pattern Eat with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village

e. Connection activity physique with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village

Table 6. relationship between physical activity and the incidence of hypertension in the elderly

		Incident Hypertension		Total	p
		Hypertension	Not hypertensive		
Dietary habit	Bad	41	0	41	0,000
		100.0%	0.0%	100.0%	
	Good	23	16	39	
		59.0%	41.0%	100.0%	
Total		64	16	80	
		80.0%	20.0%	100.0%	

Based on table 6. above obtained results analysis connection activity physique with incident hypertension of 80 elderly people , who have activity low with incident hypertension namely 42 people (89.4%), whereas elderly who have activity low and no hypertension namely 5 people (10.6%). Seniors who have activity currently with incident hypertension namely 19 people (65.5%), whereas elderly who have activity medium and not hypertension namely 10 people (34.5%). Seniors who have activity tall with incident hypertension namely 3 people (75.0%), whereas elderly who have activity high or not hypertension namely 1 person (25.0%).

From the results analysis using the Chi-square test was obtained p value (0.040) < α (0.05) then H0 is rejected . With thereby can concluded that there is connection between

activity physique with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village .

DISCUSSION

Research results described in table 6. were obtained results analysis connection activity physique with incident hypertension of 80 elderly people , who have activity low with incident hypertension namely 42 people (89.4%), whereas elderly who have activity low and no hypertension namely 5 people (10.6%). Seniors who have activity currently with incident hypertension namely 19 people (65.5%), whereas elderly who have activity medium and not hypertension namely 10 people (34.5%). Seniors who have activity tall with incident hypertension namely 3 people (75.0%), whereas elderly who have activity high or not hypertension namely 1 person (25.0%).

From the results analysis using the Chi-square test was obtained p value (0.040) < α (0.05) then H0 is rejected . With thereby can concluded that there is connection between activity physique with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village .

Based on results most interesting research that is proportion who experienced it hypertension that is respondents who are active physique in category tall as many as 3 people (75.0%) more big compared with respondents who have activity physique tall in category No hypertension as many as 1 person (25.0%). That matter happen because big population and sample used in study It's relatively small (80 people) aside other factors namely type gender and education .

According to researchers , education is a key factor in a healthy lifestyle. The higher the education, the higher the individual's level of health . The elderly do not do physical activity or exercise, especially this happens to most women, the majority of whom are housewives and tend to have low physical activity, where most of them just stay at home without having time to exercise, which can actually affect their body weight and body strength. In fact, if this is done, it can reduce peripheral resistance which will lower blood pressure and train the heart muscle so that it becomes accustomed to the heart having to do harder work due to certain conditions. So if elderly people do not do enough physical activity, this can lead to the risk of high blood pressure because of the increased risk of gaining weight due to the accumulation of fat in the body.

Regular physical exercise can help improve overall heart efficiency. Those who are physically active usually have lower blood pressure and are less likely to develop high blood pressure. Physically active people tend to have better muscle and joint function because these organs are stronger and more flexible. Activities in the form of gymnastics or aerobics help improve and maintain health, but the elderly in the RW 05 area never take part in the exercises held by cadres.

Physical activity or exercise is one way to keep the body healthy, increase physical activity to avoid risk factors for bone loss, and reduce stress. Research shows that people who exercise have lower risk factors for suffering from heart disease, high blood pressure and high cholesterol. People who have low activity are at 30-50% risk of developing hypertension than those who are active.

The research results prove that the increase in blood pressure in the elderly is caused by a lack of physical

activity or exercise which affects blood pressure. Where through physical activity or exercise carried out by the elderly, they can maintain their immune system and reduce the accumulation of excess fat in the body. So, if elderly people do not do enough physical activity or exercise, their appetite control will be very unstable, resulting in excessive energy consumption which ultimately results in increased body weight and obesity. If body weight increases, blood volume will also increase, so that the load on the heart in pumping blood throughout the body also increases.

As a comparison, in Husnah's research journal entitled " The Relationship Between Diet and Physical Activity with the Incidence of Pre-Elderly and Elderly Hypertension in the Work Area of Puskesmas I Kembaran " it was found that there was a relationship between diet and the incidence of hypertension , p = 0.003, and there was a relationship between activity. physical condition with the incidence of hypertension obtained p = 0.023.

CONCLUSIONS AND SUGGESTIONS

Based on data analysis and discussion results study about connection pattern eating and activities physical condition of the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village can withdrawn conclusion as following :

1. Description pattern eating for the elderly in the area of RW 05 Kampung Babakan Pari, East Batujajar Village , more from half namely 41 people (51.3%) have pattern Eat bad .
2. Activity overview physical condition of the elderly in RW 05 Kampung Babakan Pari, East Batujajar Village , more from half namely 47 respondents (58.8%) have activity physique low .
3. Description of the incident hypertension in the elderly in the area of RW 05 Babakan Pari Village, East Batujajar Village results that more from half namely 64 respondents (80.0%) experienced hypertension .
4. There is connection pattern Eat with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village with p-value (0.000) < α (0.05) .
5. There is connection activity physique with incident hypertension in the elderly in the RW 05 Kampung Babakan Pari, East Batujajar Village with p- value (0.040) < α (0.05)

Research result This expected can become source informative and useful For development knowledge nursing about pattern eating and activities physique with incident hypertension in the elderly

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